

GROWTH DETERMINANTS IN
SMALL TO MEDIUM FIRMS

**A STUDY OF GROWTH FIRMS IN THE:
SCOTTISH PLASTICS SUPPLY INDUSTRY;
ABERDEEN'S OIL AND GAS RELATED INDUSTRY;
AND GLASGOW'S FINANCIAL SERVICES.**

by

**Andrew S. Allan,
BTP Honours Class 1 and University Medal,
(University of New South Wales, Sydney, Australia)**

VOLUME I OF 2 VOLUMES

1002

Thesis submitted
for the degree of
Doctor of Philosophy,
Centre for Planning,
University of Strathclyde,
GLASGOW,
UNITED KINGDOM

June, 1993

COPYRIGHT

The copyright of this thesis belongs to the author under the terms of the United Kingdom Copyright Acts as qualified by University of Strathclyde Regulation 3.49. Due acknowledgement must always be made of the use of any material contained in, or derived from this thesis.

ACKNOWLEDGEMENTS:

This is an acknowledgement of those persons who I feel helped in one way or another to make this thesis possible. First, I would like to thank those persons who supported my application to undertake a PhD degree at Strathclyde under a Commonwealth Award. They include: Professor Hans Westerman (*former head of the School of Town Planning, University of New South Wales, Australia*), Dr. Sophie Watson (*a former Senior Lecturer at the School of Town Planning, University of New South Wales*), Jean Forbes (*senior lecturer at the Centre for Planning, University of Strathclyde*) and Professor Urlan Wannop (*Professor at the Centre for Planning, University of Strathclyde*). Second, I would like to thank my sponsors, the British Council and the Association of Commonwealth Universities, who jointly administered my Award for study at the University of Strathclyde, and who have been very supportive during my stay in the UK.

I would like to thank my thesis supervisor, Dr. Ivan Turok, who provided very useful guidance, advice and support throughout the tenure of my studies. I was venturing into completely unfamiliar territory with this piece of research. Dr. Turok helped me to avoid many pitfalls and establish a coherent focus to this thesis. He took a keen interest in my work and always made time available for me to discuss any aspect of my work. Furthermore, I would also like to thank Professor Wannop for his valuable advice and encouragement. Other members of staff in the Centre for Planning that deserve a mention are: Anthony Coon (*Head of Department*), who provided me with valuable teaching experience; Anne Lockhart (*the secretary for the Centre for Planning*) for her advice and assistance in various administrative matters; and Margaret Dunn for providing useful advice on how to get the best out of the Macintosh computers.

I would like to thank all of the companies that participated in my postal questionnaire surveys, particularly those firms that agreed to participate in the personal interviews.

I would like to remember my fellow researchers that helped to make my tenure with the Centre for Planning a memorable and worthwhile experience. They include: Stuart Black, Ross Brown, Jin Yang, George Georgiou, Jerry Gigya, Ping Lan, Nicky Morrison, Timothy Pianzin, Fahad Shalabi, Henry Kennedy-Skipton, Jieming Zhu and Mustapha Zubairu.

Finally, I would like to thank my parents for their encouragement and support. Their support helped to make my studies at Strathclyde a success.

ABSTRACT:

This thesis shows the small-medium firm as being vital to wealth and employment creation in the UK economy. It examines the mechanisms by which firms can achieve growth and discusses contemporary empirical research into the growth performance of small-medium firms in the UK. Previous conceptualisations of firm growth, drawn mainly from the fields of economics and business studies are critically reviewed. The review concluded that Porter's model of competitive advantage, a holistic conceptualisation, appeared to be the plausible theoretical explanation of sectoral and firm growth.

Porter's model is tested using both quantitative as well as qualitative research methodologies, and applied to three sectors of the Scottish economy that experienced growth during the late 1980s: the plastics supply sector; the oil and gas related sector; and the financial services sector. The quantitative research methodology was conducted at the simplest level of statistics, employing chi-square analysis of cross-tabulations of growth with single variables. The preliminary nature of this statistical analysis did not provide strong support for Porter's model in any of the sectors examined. From the qualitative research material, using case studies of growth firms aspects of Porter's model did appear to explain aspects of sectoral and firm growth in all three sectors. The oil and gas related sector seemed to provide the strongest qualitative support for Porter's model.

In the conclusion, the deficiencies of Porter's model are addressed with an alternative model of firm growth and alternative models of sectoral growth for each of the surveyed sectors, loosely derived from the main elements in Porter's model. Finally, the findings of the survey results are used to produce a number of policy recommendations targeted at each of the surveyed sectors and for small-medium firms in general.

TABLE OF CONTENTS:

SECTION	CONTENT:	PAGE
	CHAPTER ONE: THE SMALL TO MEDIUM FIRM AS THE ENGINE OF ECONOMIC GROWTH	1
1.0	Introduction	1
1.1	Mechanisms of growth in firms	4
1.2	The importance of the small to medium firm sector to economic growth and employment creation	21
1.3	Why growth firms in the small to medium firm sector are important to employment creation	26
1.4	Contemporary research into the growth performance of small-medium firms in the UK	30
1.5	Conclusions	39
	CHAPTER TWO: CONCEPTUALISING FIRM GROWTH	41
2.0	Introduction	41
2.1	Definitions of what is meant by 'theorising', 'modelling' and 'approaches'	41
2.2	Methodology for reviewing theories, models and approaches	42
2.3	An alternative typological framework for reviewing theories/models/approaches on growth in firms	44
2.4	Non-determinant approaches	46
2.5	Internal determinant approaches	50
2.6	External determinant explanations of growth: The social networking perspective	126
2.7	Conclusions	136
	CHAPTER THREE: HOLISTIC CONCEPTUALISATIONS OF FIRM GROWTH	140
3.0	Introduction	140
3.1	Model of competitive manufacturing strategy for firms into the 1990s	140
3.2	Porter's theory of how industries achieve competitive advantage	149
3.3	Conclusion	169
	CHAPTER FOUR: A SURVEY METHODOLOGY FOR RESEARCHING GROWTH PROCESSES INTO SMALL-MEDIUM FIRMS	171
4.0	Introduction	171
4.1	Developing the research questions for understanding and explaining growth in small-medium firms	171
4.2	Research design and methodology	179
4.3	Representativeness of survey results	206
4.4	Analysis of survey results	210
4.5	Conclusion	212

SECTION	CONTENT:	PAGE
	CHAPTER FIVE: FIRM GROWTH IN SCOTLAND'S PLASTICS SUPPLY SECTOR	213
5.0	Introduction	213
5.1	Overview of the Scottish Plastics Industry	214
5.2	The surveyed firms	216
5.3	Growth performance of firms	220
5.4	Explaining growth in the sector	232
5.5	Conclusions	266
	CHAPTER SIX: FIRM GROWTH IN ABERDEEN'S OIL AND GAS RELATED SECTOR	270
6.0	Introduction	270
6.1	Overview of the Oil and Gas Related sector	270
6.2	The surveyed firms	280
6.3	Growth performance of firms	283
6.4	Explaining growth in the sector	292
6.5	Conclusions	328
	CHAPTER SEVEN: FIRM GROWTH IN GLASGOW'S FINANCIAL SERVICES SECTOR	332
7.0	Introduction	332
7.1	Overview of Scottish financial services	332
7.2	The surveyed firms	339
7.3	Growth performance of firms	342
7.4	Explaining growth in the sector	351
7.5	Conclusions	388
	CHAPTER EIGHT: CONCLUSIONS AND POLICY RECOMMENDATIONS FOR FACILITATING GROWTH IN SMALL-MEDIUM FIRMS	393
8.0	Introduction	393
8.1	Answers to the research questions investigated	393
8.2	Alternative models for explaining growth in the surveyed sectors	414
8.3	Public policy towards small-medium firms	431
8.4	Implications of survey research and policy recommendations	437
8.5	Conclusions	449
A2-A7	APPENDICES (<i>Vol. II; See list of appendices for contents</i>)	453
R	REFERENCE LIST (<i>Vol. II</i>)	692

LIST OF TABLES:

TABLE	TITLE:	PAGE
1.1	Possible firm expansion strategies.	6
1.2	Growth in number of firms in the UK economy, 1979-1989.	22
2.1	A typological framework for reviewing theories/models/approaches on growth in firms	45
2.2	Downie's 'Transfer' mechanism	74
4.1	Comparative assessment of theories/models/approaches on growth in firms	177
4.2	Comparison of intensive with extensive research methodology	180
4.3	Change in output of Scotland's sectors, 1987-1990	185
4.4	Change in employment in Scotland's manufacturing industries, 1986-1988	186
4.5	Scottish employment in companies wholly related to the North Sea oil industry, 1980-1990	188
4.6	Review of growth indicators for firms	192
4.7	Comparison of occupation of postal survey respondents in firm by sector	209
4.8	Comparison of type of postal survey respondent with growth by employment during the period 1988-1991 by sector	209
4.9	Nature of respondents: Firm size by sector in 1988 and 1991	210
5.1	Scottish Plastics Industry: 1988	214
5.2	Employment and gross value added in manufacturing industries in Scotland	216
5.3	Participation rates of firms in survey from sample population	218
5.4	Distribution of employment and firms in the Scottish Plastics Supply industry by region in 1988	219
5.5	Growth in employment from 1988 to 1991	221
5.6	Growth in full-time employment by occupation 1988-91	223
5.7	Summary of changes in financial performance indicators of firms during 1988-91 period	225
5.8	Rankings of firms by growth in sales with comparative financial performance indicators for 1988-91 period	226
5.9	Change in market share by location by changes in employment, annual sales and annual profits.	228
5.10	Growth in past 3 years versus growth in next 3 years	231
5.11	Summary of associations with growth with some statistical significance	235
5.12	Growth versus company age	237
5.13	Growth versus educational background of manager	237
5.14	Growth versus employment	237
5.15	Growth versus greater production capacity	237
5.16	Growth versus acquisition of other firms	238
5.17	Growth versus markets in Scotland	238
5.18	Summary of cross-tabulations with growth not statistically significant	240

TABLE	TITLE:	PAGE
5.19	Summary of associations with growth with some statistical significance within context of Porter's model	243
5.20	Summary of associations with growth without statistical significance within context of Porter's model	249
5.21	Characteristics of growth in firm case studies	256
5.22	Growth in selected case study firms within the analytical framework of Porter's model	264
6.1	Total direct and indirect sales by oil related companies located in Scotland	272
6.2	Oil/Gas company operators in the UK sector of the North Sea	275
6.3	Comparison of Scottish with other UK and US oil-related companies operating in the UK sector of the North Sea	279
6.4	What oil and gas related firms in the postal questionnaire survey do	282
6.5	Growth firms by measure of employment: 1988-1991	283
6.6	Growth firms: impact on occupational structure of firms during 1988-1991	284
6.7	Summary of changes in financial performance indicators of firms during 1988-1991 period	285
6.8	Ranking of firms by growth in sales with comparative financial performance indicators for 1988-1991 period	286
6.9	Management's expectation of growth for next 3 years versus management's judgement of growth in past 3 years	291
6.10	Summary of associations with growth with some statistical significance	295
6.11	Growth versus method of growth: employment of more staff	296
6.12	Growth versus importance of good working conditions for employees	296
6.13	Growth versus the importance of high profits	296
6.14	Growth versus usefulness of advice/assistance: accountants	296
6.15	Growth versus management's expectation of growth in sales over the next three years, 1991-1994	297
6.16	Summary of crosstabulations with growth that are not statistically significant	298
6.17	Summary of chi-squared tests with statistical significance within the context of Porter's model	301
6.18	Summary of chi-squared tests without statistical significance within context of Porter's model	304
6.19	Characteristics of growth in firm case studies	311
6.20	Growth in selected case study firms within the analytical framework of Porter's model	321
7.1	Change in employment 1981-1991 in SIC division 8 activities: banking, finance, insurance, business services and leasing	335
7.2	Change in output 1987-1990 in SIC division 8 activities: banking, finance, insurance, business services & leasing	335
7.3	Financial service companies amongst the top 300 companies in 1991	339

TABLE	TITLE:	PAGE
7.4	Service provided by firms in financial services sector	341
7.5	Growth in employment from 1988 to 1991	343
7.6	Growth in full-time employment by occupation 1988-91	344
7.7	Summary of changes in financial performance indicators of firms during 1988-91 period	347
7.8	Rankings of firms by growth in sales with comparative financial performance indicators for 1988-91 period	348
7.9	Growth in past 3 years versus growth next 3 years	351
7.10	Summary of cross-tabulations with growth with some statistical significance	354
7.11	Growth versus usefulness of banks	355
7.12	Growth versus usefulness of SDA/Scottish Enterprise	355
7.13	Growth versus expanded office floor space	355
7.14	Growth versus expansion through employment	355
7.15	Growth versus usefulness of universities & colleges	356
7.16	Growth versus source of development capital: owner's personal finances	356
7.17	Summary of crosstabulations with growth that are not statistically significant	359
7.18	Summary of associations with growth with statistical significance within the context of Porter's model	363
7.19	Summary of chi-squared tests without statistical significance within context of Porter's model	365
7.20	Characteristics of growth in firm case studies	377
7.21	Growth in selected case study firms within the analytical framework of Porter's model	381
8.1	Research questions in literature review (<i>postal survey</i>)	404
8.2	Assessment of Porter's model as an explanatory framework for growth	407
8.3	Comparisons of general policy measures to promote job, wealth and innovation creation in the economy	434
8.4	Support for small-medium firms by type of programme in Britain in 1988/89	437
8.5	Policy recommendations for each sector based on main difficulties experienced by the surveyed firms	439
A4.1	Levels of statistical significance for critical chi-squared scores for one degree of freedom	508
A5.1	Growth versus legal form of company	509
A5.2	Growth versus type of management control	509
A5.3	Growth versus country of ownership	509
A5.4	Growth versus influence of owners in management decisions	510
A5.5	Growth versus age of manager	510
A5.6	Growth versus tenure of manager	510
A5.7	Growth versus importance of high profits	510
A5.8	Growth versus importance of high sales turnover	511
A5.9	Growth versus importance of large firm size in terms of production capacity	511
A5.10	Growth versus importance of creating jobs	511
A5.11	Growth versus importance of maximising productivity	511

TABLE	TITLE:	PAGE
A5.12	Growth versus importance of maximising market share	512
A5.13	Growth versus importance of improving product quality	512
A5.14	Growth versus importance of creating innovative products	512
A5.15	Growth versus importance of good working conditions for employees	512
A5.16	Growth versus importance of a good rapport between management and employees	513
A5.17	Growth versus importance of high job satisfaction for employees	513
A5.18	Growth versus introduction of new production techniques	513
A5.19	Growth versus introduction of new products into existing markets	513
A5.20	Growth versus introduction of new products into new markets	514
A5.21	Growth versus development of new markets with existing products	514
A5.22	Growth versus reorganising the way work is carried out to improve production efficiency	514
A5.23	Growth versus development capital from firm's internal financial resources	514
A5.24	Growth versus development capital from equity	515
A5.25	Growth versus development capital from bank loans	515
A5.26	Growth versus development capital from financial institutions other than banks	515
A5.27	Growth versus development capital from owner's personal financial resources	515
A5.28	Growth versus development capital from grants	516
A5.29	Growth versus development capital from other external financial resources	516
A5.30	Growth versus usefulness of SDA/Scottish Enterprise	516
A5.31	Growth versus usefulness of Scottish Office	516
A5.32	Growth versus usefulness of Enterprise Initiative	517
A5.33	Growth versus usefulness of regional/district council/s	517
A5.34	Growth versus usefulness of banks	517
A5.35	Growth versus usefulness of accountants	517
A5.36	Growth versus competitors in Scotland	518
A5.37	Growth versus competitors in rest of UK	518
A5.38	Growth versus competitors in rest of world	518
A5.39	Growth versus markets in rest of UK	518
A5.40	Growth versus markets in rest of world	519
A5.41	Growth versus labour factor conditions	519
A5.42	Growth versus physical resources factor conditions	520
A5.43	Growth versus educational resources factor conditions	521
A5.44	Growth versus capital resources factor conditions	522
A5.45	Growth versus infrastructure provision factor conditions	523
A5.46	Growth versus demand conditions	524
A5.47	Growth versus management issues	526
A5.48	Growth versus production issues	526
A5.49	Growth versus company financial issues	527
A5.50	Growth versus company labour issues	528

TABLE	TITLE:	PAGE
A5.51	Growth versus company rivalry issues	529
A5.52	Growth versus issues for related and supporting industries	530
A5.53	Growth versus taxation issues	530
A5.54	Growth versus economic climate issues	531
A5.55	Growth versus usefulness of government agencies	531
A5B.1	Occupational structure of employment for 1988 and 1991	534
A5B.2	Functions of firms	536
A6.1	Growth versus age of company	561
A6.2	Growth versus legal form of company	561
A6.3	Growth versus form of management	561
A6.4	Growth versus location of ownership: Scotland	562
A6.5	Growth versus location of ownership: UK	562
A6.6	Growth versus age of manager	562
A6.7	Growth versus education of manager	562
A6.8	Growth versus tenure of manager	563
A6.9	Growth versus importance of high turnover	563
A6.10	Growth versus large firm size by capital assets	563
A6.11	Growth versus large firm size by turnover	563
A6.12	Growth versus large firm size by employment	564
A6.13	Growth versus importance of maximisation of productivity	564
A6.14	Growth versus importance of maximised production efficiency	564
A6.15	Growth versus importance of maximised market share	564
A6.16	Growth versus importance of product quality improvement	565
A6.17	Growth versus importance of having most products innovative	565
A6.18	Growth versus importance of creating jobs	565
A6.19	Growth versus importance of good rapport between staff	565
A6.20	Growth versus importance of job satisfaction for employees	566
A6.21	Growth versus expectation of growth by employment	566
A6.22	Growth versus expectation of growth in production capacity	566
A6.23	Growth versus location of competitors in Grampian	566
A6.24	Growth versus location of competitors in rest of Scotland	567
A6.25	Growth versus location of competitors in rest of UK	567
A6.26	Growth versus location of competitors in rest of world	567
A6.27	Growth versus location of markets in Grampian	567
A6.28	Growth versus location of markets in rest of Scotland	568
A6.29	Growth versus location of markets in rest of UK	568
A6.30	Growth versus location of markets in rest of world	568
A6.31	Growth versus method of growth over the past 3 years	569
A6.32	Growth versus source of development capital	570
A6.33	Growth versus sources of advice/assistance	571
A6.34	Growth versus labour factor conditions	572
A6.35	Growth versus physical resources factor conditions	573
A6.36	Growth versus educational resources factor conditions	574

<u>TABLE</u>	<u>TITLE:</u>	<u>PAGE</u>
A6.37	Growth versus capital resources factor conditions	574
A6.38	Growth versus infrastructure provision factor conditions	575
A6.39	Growth versus demand conditions	577
A6.40	Growth versus management issues	579
A6.41	Growth versus production issues	579
A6.42	Growth versus company financial issues	581
A6.43	Growth versus company labour issues	582
A6.44	Growth versus company rivalry issues	582
A6.45	Growth versus issues for related and supporting industries	583
A6.46	Growth versus taxation issues	584
A6.47	Growth versus economic climate issues	584
A6.48	Growth versus usefulness of advice from government agencies	585
A6B.1	Occupational structure of employment for 1988-1991	588
A6B.2	Functions of firms	590
A6C.1	The principal group companies of John Wood Group Plc	636
A7.1	Growth versus age of company	640
A7.2	Growth versus legal form of company	640
A7.3	Growth versus type of management control	640
A7.4	Growth versus country of ownership	641
A7.5	Growth versus owner's involvement in operational management of firm	641
A7.6	Growth versus owner's involvement in strategic management	641
A7.7	Growth versus age of firm's manager	641
A7.8	Growth versus education of firm's manager	642
A7.9	Growth versus tenure of manager of firm	642
A7.10	Growth versus importance of high profits	642
A7.11	Growth versus importance of high sales turnover	642
A7.12	Growth versus large firm size by capital assets	643
A7.13	Growth versus large firm size by turnover	643
A7.14	Growth versus large firm size by employment	643
A7.15	Growth versus importance of maximised productivity	643
A7.16	Growth versus importance of maximised business efficiency	644
A7.17	Growth versus importance of maximised market share	644
A7.18	Growth versus importance of improving the quality of services provided	644
A7.19	Growth versus importance of creating the most important services for the market segment	644
A7.20	Growth versus the importance of creating jobs	645
A7.21	Growth versus the importance of good working conditions for employees	645
A7.22	Growth versus the importance of a good rapport between management and employees	645
A7.23	Growth versus the importance of high job satisfaction for employees	645
A7.24	Growth versus competitors mainly located in Scotland	646
A7.25	Growth versus competitors mainly located in rest of UK	646

<u>TABLE</u>	<u>TITLE:</u>	<u>PAGE</u>
A7.26	Growth versus competitors mainly located in rest of world	646
A7.27	Growth versus main markets located in Scotland in 1991	646
A7.28	Growth versus main markets located in rest of UK in 1991	647
A7.29	Growth versus main markets located in rest of world in 1991	647
A7.30	Growth versus introducing new services into existing markets	647
A7.31	Growth versus introducing new services into new markets	647
A7.32	Growth versus developing new markets with existing services	648
A7.33	Growth versus reorganising the way work is carried out to improve work efficiency	648
A7.34	Growth versus acquisition of other firm/s	648
A7.35	Growth versus source of development capital: internal financial resources of establishment	648
A7.36	Growth versus source of development capital: equity	649
A7.37	Growth versus source of development capital: banks	649
A7.38	Growth versus source of development capital: financial institutions other than banks	649
A7.39	Growth versus source of development capital: grants	649
A7.40	Growth versus source of development capital: other external financial resources	650
A7.41	Growth versus usefulness of Locate in Scotland	650
A7.42	Growth versus usefulness of Scottish Office	650
A7.43	Growth versus usefulness of Enterprise Initiative	650
A7.44	Growth versus usefulness of regional/district council/s	651
A7.45	Growth versus usefulness of accountants	651
A7.46	Growth versus usefulness of management consultants	651
A7.47	Growth versus labour factor conditions	651
A7.48	Growth versus physical resources factor conditions	652
A7.49	Growth versus educational resources factor conditions	653
A7.50	Growth versus capital resources factor conditions	653
A7.51	Growth versus infrastructure provision factor conditions	654
A7.52	Growth versus demand conditions	656
A7.53	Growth versus management issues	657
A7.54	Growth versus supply issues	657
A7.55	Growth versus company financial issues	659
A7.56	Growth versus company labour issues	660
A7.57	Growth versus company rivalry issues	660
A7.58	Growth versus taxation issues	661
A7.59	Growth versus economic climate issues	662
A7.60	Growth versus utility of government agencies	662
A7B.1	Occupational structure of employment for 1988-1991	665
A7B.2	Functions of firms	667

LIST OF FIGURES:

FIGURE	TITLE:	PAGE
1.1	Comparison of unemployment rates in UK and Scotland and growth in GDP, 1979-1992.	2
1.2	Map showing the location of the surveyed firms.	3
1.3	Flow diagram of research methodology.	5
1.4	Growth through vertical integration for a firm.	19
1.5	Change in share of total businesses in UK economy, 1979-1989, by firm size.	23
1.6	Change in share of private sector by employment in UK economy, 1979-1989, by size of firm.	23
1.7	Change in share of private sector turnover in UK economy, 1979-1989, by size of firm.	25
1.8	International comparison of businesses per 10,000 population.	26
1.9	VAT deregistration rates in the UK economy: years since registration since 1975	27
2.1	Impact of market and management factors on type of firm	67
2.2	Manager's opportunity matrix	67
2.3	Model of criteria for company success	89
2.4	Flamholtz's pyramid of organisational development	104
2.5	Gibb & Davies' model of growth through product/market development in the small business	111
2.6	A framework for measuring a firm's performance	112
2.7	A framework for measuring a firm's potential	113
2.8	A framework for measuring a firm's projects	114
2.9	Network model illustrating how a firm procures its resources from its network	128
2.10	Stanworth & Curran's and Johannisson's conceptualisation of business venture development	130
3.1	Model of key elements and issues in the strategy for manufacturing firms in the 1990s.	142
3.2	Porter's model of competitive advantage	150
3.3	The value chain in firms	153
3.4	Generic strategies	154
3.5	Choosing industries and segments for which the nation is a favourable home base	162
4.1	Survey fieldwork implementation	182
4.2	Measuring growth in the overall schema of the firm	190
4.3	Growth spiral for a firm: relationship between profits, capital employed and turnover	196
5.1	Scottish manufacturing sectors, 1987	215
5.2	Growth performance of plastics supply industry by turnover, profits, assets and capital employed for 1988-91	224
5.3	Management's attitudes to growth	229
5.4	Management's perceptions of growth over the past 3 years in terms of production capacity, employment and sales	230
5.5	Management's expectations of growth for the next 3 years in terms of production capacity, employment and sales	230
5.6	Method of growth for firms over the past 3 years	233

FIGURE	TITLE:	PAGE
6.1	Volume of oil discovered by year in the UK sector of the North Sea, 1969-1992	276
6.2	Growth performance of Aberdeen's oil and gas related sector by turnover and profits over period 1988-1991	287
6.3	Management's perception of growth over the past 3 years in terms of production capacity, employment and sales	289
6.4	Management's expectations of growth for the next 3 years in terms of production capacity, employment and sales	289
6.5	Method of growth for firms over the past three years	291
7.1	Growth performance of Glasgow's financial services by turnover, profits, assets and capital employed for 1988-91	346
7.2	Management's perceptions of growth over the past 3 years in terms of capacity to provide services, employment and sales	350
7.3	Management's expectations of growth for the next 3 years in terms of capacity to provide services, employment and sales	350
7.4	Method of growth for firms over the past 3 years	352
8.1	Model of firm growth adapted from Porter's model	418
8.2	Model of firm sector growth	421
8.3	Model of growth in the Scottish plastics supply sector	423
8.4	Model of growth in Aberdeen's oil and gas related sector	426
8.5	Model of growth in Glasgow's financial services sector	430
A2.1	Changes in market equilibrium for supply-demand curves of an expanding firm	454
A2.2	Short and long run production curves for a firm	457
A2.3	Relationship between short run average cost and supply/demand curves	458
A2.4	Growth potential of a firm utilizing production possibility frontier curves	460
A5B.1	Average importance ratings for business objectives	540
A6B.1	Average importance ratings for business objectives	594
A7B.1	Average importance ratings for business objectives	671

LIST OF APPENDICES:

APPENDIX	CONTENT:	PAGE
	APPENDIX A2:	453
A2A	Supply and demand curves	453
A2B	Short and long-run production curves	455
A2C	Relationship between short-run and demand supply curves	456
A2D	Production possibility frontier	459
A2E	Solow's growth model	461
	APPENDIX A3:	464
A3A	Strategies in PA Consulting Group's Model	464
A3B	Notes on Porter's model: The determinant of factor conditions	466
A3C	Notes on Porter's model: The determinant of demand conditions	466
A3D	Notes on Porter's model: The determinant of related and supporting industries	468
A3E	Growth-pole theory	468
A3F	Implications of Porter's model for company strategy	468
A3G	Implications of Porter's model on government policy	471
	APPENDIX A4:	476
A4A	Postal questionnaire survey for the Scottish Plastics Supply sector	476
A4B	Postal questionnaire survey for Aberdeen's Oil and Gas Related sector	485
A4C	Postal questionnaire survey for Glasgow's financial services sector	493
A4D	Personal interview structure plan for managers' of case study firms	503
A4E	Fieldwork costs	505
A4F	Chi-squared methodology employed in testing associations of factors with growth for statistical significance	507
	APPENDIX A5:	509
A5A	Tests for statistical significance of variables possibly associated with firm growth in the Plastics Supply sector	509
A5B	Characteristics of firms in postal questionnaire survey of plastics supply industry	533
A5B.1	Age of firms	533
A5B.2	Legal form of firms	533
A5B.3	Ownership of firms by country	533
A5B.4	Employment	533
A5B.5	Sales turnover	535
A5B.6	Profitability	535
A5B.7	Functions of firms	535
A5B.8	Location of competitors	536
A5B.9	Location of markets	537
A5B.10	Assessment of agencies providing advice and assistance	537
A5B.11	Sources of development capital	538
A5B.12	Characteristics of management	538

APPENDIX	CONTENT:	PAGE
A5B.13	Objectives of management	539
A5C	Case studies of selected growth firms	541
A5C.1	An example of growth through inward investment by a Japanese company: Tenma (UK)	541
A5C.2	Indigenous firm growth through market leadership, government support and entrepreneurial flair: Polbeth Packaging Ltd	542
A5C.3	Growth as part of a large UK operation with economies of scale: Vitafoam	545
A5C.4	Growth through entry into the Scottish market by an English company through new branch plants: Silleck Mouldings	548
A5C.5	Growth through government grants, dynamic owner-management, innovative product development and good labour relations: Forbes Plastics	551
A5C.6	Growth of an indigenous firm through business commitment and planning and latterly being part of a large business conglomerate: Foam Plus	555
A5D	List of firms that participated in postal questionnaire survey of plastics supply sector	559
	APPENDIX A6:	561
A6A	Tests for statistical significance of variables possibly associated with firm growth in the oil and gas related sector	561
A6B	Characteristics of firms in postal questionnaire survey of oil and gas related industry	587
A6B.1	Age of firms	587
A6B.2	Legal form of firms	587
A6B.3	Ownership of firms by country	587
A6B.4	Employment	587
A6B.5	Sales turnover	589
A6B.6	Profitability	589
A6B.7	Functions of firms	589
A6B.8	Location of competitors	590
A6B.9	Location of markets	591
A6B.10	Assessment of Agencies providing advice and assistance	591
A6B.11	Sources of development capital	592
A6B.12	Characteristics of management	593
A6B.13	Objectives of management	593
A6C	Case studies of selected growth firms	596
A6C.1	An example of indigenous growth initially and latterly, growth as part of a major UK holding company: Neptune Marine (<i>an alias</i>)	596
A6C.2	Growth through inward investment by an English-based company: Furmanite Engineering	601
A6C.3	Growth through organic expansion, acquisition and as part of two major international corporations	608
A6C.4	Growth through foreign inward investment with a long established local presence: ABB Vetco Gray	615

APPENDIX	CONTENT:	PAGE
A6C.5	An example of an indigenous company that has grown through aggressive acquisition and the entrepreneurial drive of its founder: John Wood Group	625
A6D	List of firms that participated in postal questionnaire survey of oil and gas related sector	637
	APPENDIX A7:	640
A7A	Tests for statistical significance of variables possibly associated with firm growth in the financial services sector	640
A7B	Characteristics of firms in postal questionnaire survey of Glasgow's financial services sector	664
A7B.1	Age of firms	664
A7B.2	Legal form of firms	664
A7B.3	Ownership of firms by country	664
A7B.4	Employment	664
A7B.5	Sales turnover	666
A7B.6	Profitability	666
A7B.7	Functions of firms	666
A7B.8	Location of competitors	667
A7B.9	Location of markets	668
A7B.10	Assessment of agencies providing advice and assistance	668
A7B.11	Sources of development capital	668
A7B.12	Characteristics of management	669
A7B.13	Objectives of management	670
A7C	Case studies of selected growth firms	672
A7C.1	Alpha Chartered Accountants (<i>an alias</i>)	672
A7C.2	Beta Investment Services (<i>an alias</i>)	675
A7C.3	Howard & Company Accountancy Practice (<i>an alias</i>)	677
A7C.4	Carlton Scott Chartered Accountants (<i>an alias</i>)	680
A7C.5	Nova Omega Chartered Accountants (<i>an alias</i>)	683
A7C.6	Eternal Life (Insurance and investment) (<i>an alias</i>)	686
A7D	List of firms that participated in postal questionnaire survey of Glasgow's financial services sector	690

ONE

THE SMALL TO MEDIUM FIRM AS THE
ENGINE OF ECONOMIC GROWTH

CHAPTER ONE CONTENTS:

SECTION	CONTENT:	PAGE
1.0	INTRODUCTION	1
1.1	MECHANISMS OF GROWTH IN FIRMS	4
1.1.1	Improvements to an Existing Business	7
1.1.2	Increasing a Firm's Productive Capacity	9
1.1.3	Diversification into New Products and/or Markets	12
1.1.4	Integrating Firms Involved in a Product's Production Process	17
1.1.4.1	Vertical integration	17
1.1.4.2	Horizontal integration	19
1.1.5	Producing Products Under Licence	20
1.1.6	Franchising	21
1.2	THE IMPORTANCE OF THE SMALL-MEDIUM FIRM SECTOR TO ECONOMIC GROWTH AND EMPLOYMENT GENERATION	21
1.3	WHY GROWTH FIRMS IN THE SMALL-MEDIUM FIRM SECTOR ARE IMPORTANT TO EMPLOYMENT CREATION	26
1.4	CONTEMPORARY RESEARCH INTO THE GROWTH PERFORMANCE OF SMALL-MEDIUM FIRMS IN THE UK	30
1.4.1	Cambridge Small Business Research Centre Report: "The State of British Enterprise" (1992)	31
1.4.2	Aston Business School's (1991) Survey on Small Firms	31
1.4.3	Storey, Watson and Wynczyk's (1988) Study of 20 Fast Growth Firms in the North-East of England	32
1.4.4	Turok's (1991) Study of Which Small Firms Grow in West Lothian, Scotland	32
1.4.5	Cousins Stephens Associates' (1991) Survey of Financial Advisers' Views of the Small Firm Sector	32
1.4.6	Hakim's (1989) Survey Identifying Fast Growth Small Firms	33
1.4.7	Emergent Themes on Contemporary UK Research Into Growth Firms	33
1.4.7.1	Founder/entrepreneurial characteristics	34
1.4.7.2	Management Characteristics	35
1.4.7.3	Markets/competition	35
1.4.7.4	Networking/advice seeking behaviour	36
1.4.7.5	Financing	36
1.4.7.6	Labour issues	37
1.4.7.7	Strategy	37
1.4.7.8	Growth constraints/objectives/motivation	38
1.5	CONCLUSIONS	39

<p>CHAPTER ONE: THE SMALL TO MEDIUM FIRM AS THE ENGINE OF ECONOMIC GROWTH</p>

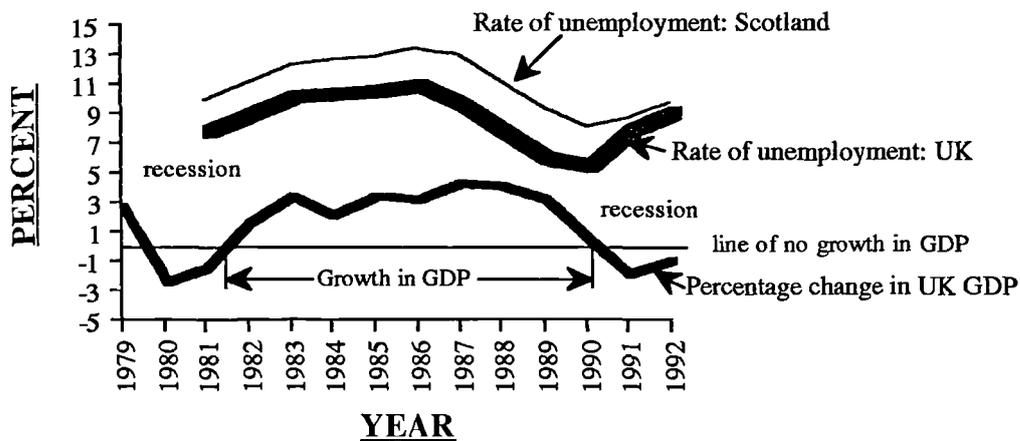
1.0 INTRODUCTION

Crucial concerns of local economic development are job and wealth creation. Since there is a relationship between employment growth and growth in an economy's output (*see figure 1.1*) and because the private sector accounts for the bulk of the UK's GDP (70% in 1988: (*Key Data, 1989/90*)), it would seem logical to target firms in the private sector in any research intended to discover how jobs and wealth can be increased in the economy. This raises the issue of where growth is likely to come from: is it most likely to come from new firm start-ups or the expansion of existing firms? Moreover, what size of firms are most likely to grow? This chapter will attempt to answer these questions.

There are three main objectives to this thesis. The first aims to produce a satisfactory theoretical explanation of the growth process in firms and industry sectors. The second aims to understand and explain the dynamics of sectoral and firm growth in three growth sectors of the Scottish economy. And the third aims to produce policy recommendations that may help to facilitate further growth firms in the economy in the sectors researched and the economy generally.

The search for a satisfactory theoretical explanation of how firms grow involves an extensive review of contemporary UK research into small-medium firms and theories/models/approaches pertaining to this topic, which seemed to point to Porter's model (1990) of competitive advantage as the most plausible model so far published that explains growth in firms and industry sectors. Original research was conducted into three growth sectors of the Scottish economy for the purposes of testing the validity of Porter's model as a conceptual framework of growth. A total of 550 firms were targeted for research utilising a postal questionnaire survey across the three sectors: 92 in the plastics supply sector; 135 in Glasgow's financial services sector; and 323 in Aberdeen's oil and gas related sector. The overall response rate of 30% yielded a total of 166 firms for analysis of which 61 firms (37% of firms) had grown in employment by more than 25% during the period 1988-1991. 17 of these "growth" firms were subjected to in-depth research using personal interviews of managers. The limits of Porter's model as a conceptual framework of growth was

FIGURE 1.1:
COMPARISON OF UNEMPLOYMENT RATES IN UK AND SCOTLAND
AND GROWTH IN GDP, 1979-1992



SOURCE: Economic Trends, 1979-1992

examined, based on the findings of the fieldwork results, and alternative models (*still largely based on Porter's model*) put forward to address its limitations.

Three growth sectors were selected to research into the growth processes of firms because it was considered that a growing sector of the economy would have a higher proportion of growth firms than non-growth sectors. Furthermore, because Porter's model is a sectoral based analytical approach, it was important to select a sector for research whose aggregate experience was growth rather than decline. A simple rationale underlies this approach, which is that the best research material on growth firms is likely to come from examining what makes growth firms function and one is more likely to find growth firms in a growth sector of the economy. The three sectors researched were: the Scottish Plastics Supply sector; Aberdeen's oil and gas related sector; and Glasgow's financial services sector. Figure 1.2 illustrates the general location of the surveyed firms within Scotland.

Success in the plastics supply industry, a relatively low-technology manufacturing sector, is linked with strong growth in the Scottish Electronics Industry. Success in Aberdeen's oil and gas related industries, ranging from moderate to high technology manufacturing/service activities, is linked to the exploitation of substantial oil and gas resources in the UK sector of the North Sea. Success in Glasgow's financial services sector has had much to do with the large increase in demand from small-medium firms for accountancy and other business related services, due to a rapid increase in the number of small-medium firms during the 1980s.

FIGURE 1.2:
MAP SHOWING LOCATION OF THE SURVEYED FIRMS



The policy recommendations were based on relieving constraints to growth identified in the survey results for each sector.

The purpose of this chapter is to discuss the mechanisms by which firms can achieve growth; to explain why growth firms in the small-medium firm sector are important to economic growth and employment creation; and to discuss the research implications of contemporary UK research efforts in this area.

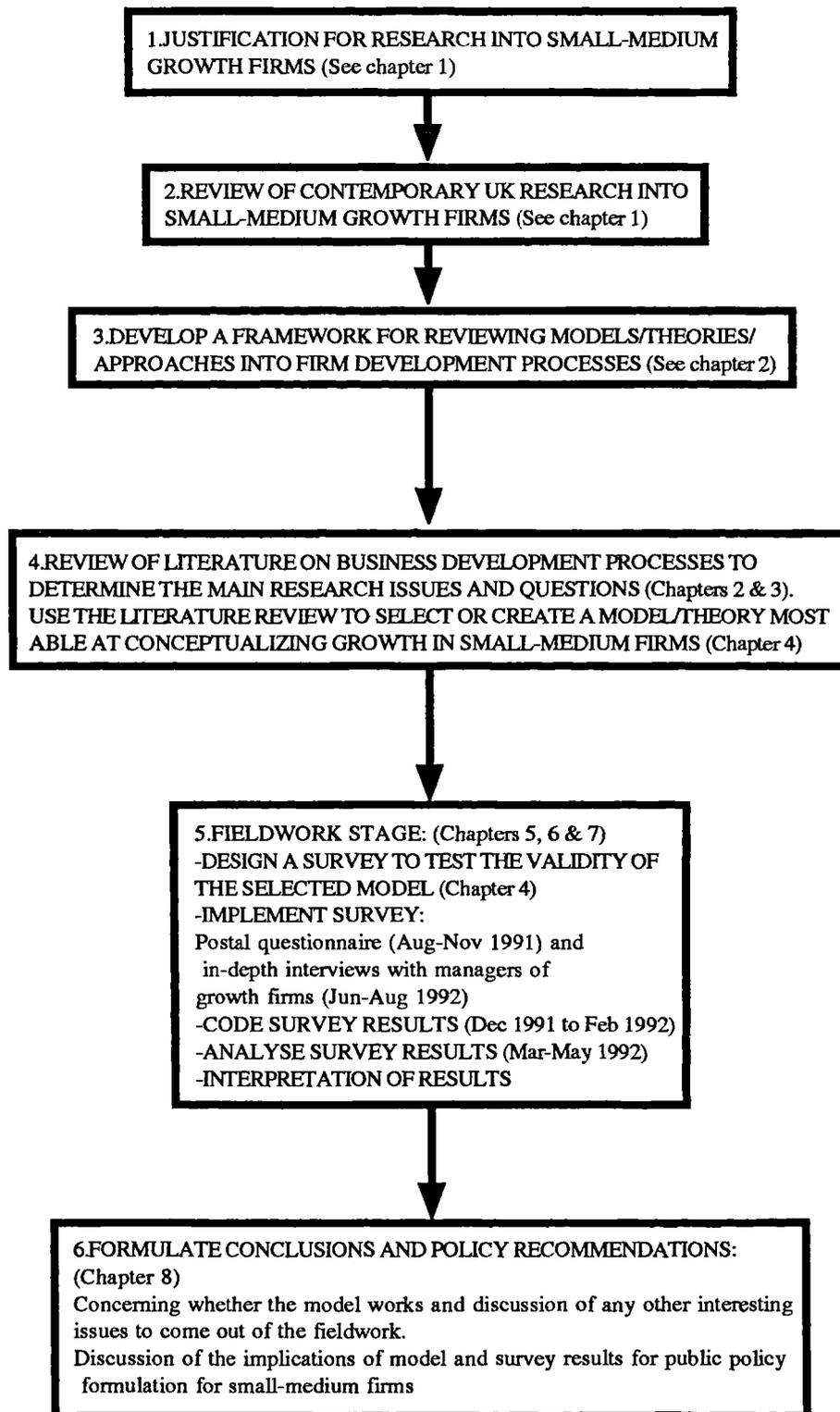
Figure 1.3 is a schematic diagram that illustrates the major steps in the research process of this thesis. Subsequent chapters review theories/models/approaches on growth in firms (*see chapters 2 and 3*); the research methodology adopted for testing Porter's model (*see chapter 4*); the survey results for the plastics supply sector (*see chapter 5*), Aberdeen's oil and gas related sector (*see chapter 6*) and Glasgow's financial services sector (*see chapter 7*); and alternative models of firm and sectoral growth, and policy recommendations (*see chapter 8*).

1.1 MECHANISMS OF GROWTH IN FIRMS

A firm that is intent on pursuing an expansion strategy has several methods of expansion open to it. The growth options are: improvements to an existing business; expansion of production capacity; diversification into new products and/or markets; vertical and/or horizontal integration of associated businesses; producing products under licence; and franchising. The option for growth that a firm decides to select will be dependent on the following factors (Moss and Clarke, 1990): (1) the level of risk that the firm is willing to accept; (2) the speed of growth desired; (3) the development objectives that the firm's management will have for their business; (4) the amount of finance available to invest in the firm's growth; (5) the business concept that will be the vehicle for the firm's growth; (6) the strengths of the firm; (7) the firm's weaknesses; (8) opportunities for the firm to engage in increased trade; and (9) potential threats to the firm.

The amount of finance available to invest in a firm's growth is the pivotal factor in determining whether a firm can embark on a growth strategy (*Resnik, 1988*). If the firm is relying on external sources of finance, then the firm's past financial performance will determine how successful the firm is in procuring finance. Where the firm does not have a proven track record, financiers will focus on the strength of the business concept as a vehicle for a firm's growth through careful scrutiny of the firm's business plan and will also take into consideration market

FIGURE 1.3:
FLOW DIAGRAM OF RESEARCH METHODOLOGY



opportunities the firm plans to exploit and the firm's strengths and weaknesses. However, the role of the firm's management cannot be underestimated as section 2.5 will later demonstrate. Certainly resources are necessary before a growth strategy can even be contemplated, but the initiative and motivation to doggedly pursue a growth strategy must come from the firm's management.

Table 1.1 illustrates the different expansion strategies by which a firm might choose to expand.

**TABLE 1.1:
POSSIBLE FIRM EXPANSION STRATEGIES**

Method of Expansion	Speed	Risk	Growth Potential	Amount of finance required
Existing business	Slow	Low	Strictly limited	Small-large
New markets	Moderate	Low	Limited	Small-large
New products/services	Moderate	Medium	Limited	Large
Diversification	Moderate/fast	High	Large	Large
Overseas	Slow	Medium	Reasonable	Small-moderate
Takeover or merger	Fast	High	Unlimited	Small-large
Licensing in	Moderate	Low	Reasonable-large	Moderate
Licensing out	Moderate/fast	Low	Large	Small
Franchising	Fast	Low	Limited-large	Small-large
Rationalizing	Moderate	Low	Limited	Small

SOURCE: Moss and Clarke, 1990, p36

From table 1.1, it can be seen that the growth strategies that offer the greatest speed are taking over or merging with another business, or franchising out a business concept. Expansion of an existing business is possibly the slowest route to growth, although there is a low risk associated with it. The growth strategies that entail the highest risk are: diversifications and takeovers or mergers. Low risk growth strategies include expansion of an existing business; expanding into new markets; licensing in or out; franchising or rationalization. The growth strategies that offer the most growth potential are diversifications; licensing out; or takeover/merger. Expansion of an existing business has extremely limited growth potential. Other strategies considered to have limited growth potential for a firm included seeking new markets, producing new products/services; and rationalization. Only the growth strategies of licensing out and rationalization require a comparatively small amount of finance compared to the other growth strategies, where qualitative judgements concerning the relative amounts of finance required are difficult to make with any degree of certainty because it is really dependent on how ambitious a firm's growth plans are and how much finance the firm can secure to fund its plans.

1.1.1 Improvements to an Existing Business

There are three mechanisms by which an existing business can be improved for the purposes of facilitating growth. They are: (1) expanding the output of an existing production system; (2) increasing the production efficiency of the existing business; and (3) rationalization of the firm's production processes.

The maximisation of output for an existing production system can be thought of as a short term growth strategy for a firm, because the production system infrastructure remains fixed during the period of expansion. This strategy aims to fully employ a firm's under-utilised production capacity and is based on the assumption that the production system of the firm is not operating at full capacity.

Increasing the production efficiency of a firm simply means that the firm's production system produces a higher ratio of outputs to inputs than would have been the case before the improvements had been initiated. By itself, an increase in a firm's production efficiency does not necessarily imply that a firm has embarked on a growth strategy. However, it is one route that a business can follow that allows output to be increased without incurring a proportionately costly increase in the volume of inputs consumed in the firm's production process. Furthermore, if a business does choose to pursue a long term growth strategy, the maximisation of production efficiency will help to improve the firm's profitability which is a prerequisite for financing the costs of future growth. Another advantage of choosing greater production efficiency as a route to growth is that in the short term, it permits the ultimate capacity of the firm's production system to be considerably increased in spite of the factors of production such as land, capital (*i.e. buildings, factory space, warehousing facilities, office space, etc.*) and the quantity of labour employed, essentially remaining fixed in the short term.

Rationalization of a firm's production processes involves a firm discontinuing production of the less profitable aspects of its business. Once a firm has rationalized its production operations, it can concentrate its energies on those aspects of its business that it does well and which are profitable. Initially, rationalization strategies would seem to imply a contraction in the volume of firm's operations, but in the long term, the extrication of the firm from its less profitable operations, allows the firm to generate greater profits, which would ultimately be needed to fund the implementation of any future growth strategies for the firm.

Whichever of the above three mechanisms is chosen by a business as a growth strategy, each strategy will have to take into account market demand (*Pitts & Snow, 1986*). If marketing studies indicate that in the firm's existing markets there is still considerable unfulfilled consumer demand for the firm's products, an expansion strategy will make sense. However, if competition in the firm's existing markets is very strong making it extremely difficult for the firm to increase its market share, the firm may have to seek new markets, either in new regions or overseas (*Chapman & Walker, 1987*). New markets do not always have to be in different geographical locations. New markets can include different applications of the same products or different types of consumers for the same product applications.

The approach to growth of maximising a firm's utilisation of its production capacity can be undertaken very quickly, depending largely on the state of demand in the marketplace and the amount of excess capacity available in the production system. If consumer demand in the marketplace warrants the firm increasing its output, the firm can adjust rapidly up to the limits of its production system's capacity. The risk to the firm's cash flow is moderate since this approach does not involve any large scale capital investment and finance requirements can be kept to a minimum compared to other methods of firm expansion. However, the potential for growth is strictly limited since the production system's size will ultimately constrain long term expansion.

The increased production efficiency approach to growth (*Fogiel, 1980*) is much less certain because it depends on the state of technology available to improve production efficiency and technological innovative breakthroughs the firm makes towards improving its production technology. It is the random nature of technological breakthroughs in improving production technology that increases the uncertainty of incorporating this approach into a clear long term strategy for a firm's growth. The speed with which this approach to growth can be incorporated into a firm's expansion plans is therefore difficult to predict since it is dependent on the rate of innovation in the economy as a whole (*although only innovation directly applicable to the firm's production system*) and the firm's success with its own research and development programme which is difficult to put a time-scale to. The risk of such an approach can be high if the technology is ill-conceived or unreliable but when measured against the approach of doing nothing at all to improve production efficiency, there is perhaps a greater risk of a firm falling behind its competitors thereby resulting in lost market share and possibly precipitating the subsequent decline of the business. However, the

potential for firm expansion by this method is very large if the productivity efficiency gains are correspondingly large.

The rationalization approach to growth (*Thompson, 1981*) cannot be implemented as quickly as the maximisation of production system capacity and is more of a medium term growth strategy. It is a low risk, simple growth strategy to pursue since it merely requires a firm's unprofitable activities to be either sold off or terminated, thereby allowing it to concentrate on the more profitable products that it produces. Finance requirements for this approach are minimal, largely because the cost of this approach is mainly incurred by the firm's management and the rationalization process may actually raise money for the firm. The potential for long term growth by this approach is minimal unless it is part of a much larger growth strategy by the firm to improve production. However, if the rationalization process is successful, this may greatly enhance a firm's profitability, thereby permitting the firm to embark on more ambitious growth strategies in the future.

1.1.2 Increasing a Firm's Productive Capacity

This approach simply involves expanding the productive capacity of an existing business using a firm's existing product or range of products (*Fogiel, 1980*). It is a long term growth strategy for a firm due to the fact that the firm must make a considerable investment in order to increase the capacity of the firm's production systems and because of the long time-lag between when a firm's management make a certain commitment to expand their firm's capacity and the point in time reached where the firm's expanded production system becomes operational. There are two basic preconditions necessary before a firm can embark on this particular growth strategy. First, the firm has to have demonstrated a proven track record of profitability in the past with its current range of products; and second, contemporary market research should indicate that the firm's market offer potential for further growth to justify the planned expansion of the firm's production system. These preconditions for growth are particularly the case if the firm has to rely on external sources of funding to finance its growth plans, where financiers such as the banks, potential shareholders and venture capitalists must be convinced that the firm's expansion programme is commercially viable in the long run.

The speed of this kind of business expansion is usually slow, especially when it involves a manufacturing business. Providing that there is unfulfilled consumer demand for the firm's products and the firm has a proven track

record of profitability, the risk of this type of growth strategy to the firm should be low. However, a large amount of finance may be required to fund this kind of business expansion, which has the potential to cause future cash flow problems for the firm if a future cyclical downturn in the economy squeezes company profitability. The growth potential of this strategy is strictly limited because it is dependent on the potential for growth in the markets which the particular firm serves. If the firm's traditional markets are already saturated, the firm's expansion strategies may have to rely on seeking new markets, possibly overseas.

An increase in the productive capacity of the firm could result from some or all of the following actions (*Pitt & Snow, 1986; Resnik, 1988; Thompson, 1981*):

1. Increased investment in capital The reference to capital includes mechanical plant equipment; buildings or premises that are necessary to house the activities of production; land that facilitates the production processes; and any other infrastructure that is needed to support the activities of the firm.
2. Increased management staff to cope with the increasing complexity of managing the firm's expanding production activities. Part of the management tasks would be to delegate the production tasks through the division of labour within the firm and in establishing a hierarchy of responsibility.
3. An increased labour force that is involved in directly carrying out the production tasks. However, it should be noted that if growth is primarily due to improved mechanisation in the productive systems of the firm, increased productive capacity may not necessarily be reflected in a commensurate increase in employment levels.
4. An accompanied expansion in the production output of supplier firms to satisfy the input demands for the growth firm in question.
5. An increase in the marketing activities of the firm in order to promote maximum sales penetration in the marketplace. In a market economy, it would be dangerously complacent of a firm to expand production to saturation point in the market without a marketing strategy that aims to maximise consumer knowledge, acceptance, desire and demand for the product/s concerned.
6. An increase in the distribution activities on behalf of the firm attempting to find a market for its expanded production activities. Distribution of the product/s to the market could be controlled from within or subcontracted to an agent outside the firm's organisation.

7. An increase in the research and development activities of the firm. While this is not an essential characteristic of a firm with expanding production capacity, it is certainly desirable if the expanding firm wishes to maintain its rate of growth. Products have a limited life span and if the firm chooses not to be innovative with its products or at the very least, to keep abreast of its competitors products, the firm will follow the route of its product lines, that is decline culminating in demise.

8. An increase in the variable inputs in the production processes of the firm. Variable inputs include raw materials, labour and energy. The volume of outputs in the production processes in a firm will be directly proportional to the value of inputs consumed.

9. The total costs of production are likely to increase with increasing input although unit costs of production may actually fall with increasing output due to increasing economies of scale. A firm that is intent on expansion will need to elevate its production output to the point where increasing economies of scale are maximised within the short run capacity limitations of the firm. In the short run, there are fixed factors of production that limit the ultimate productive capacity of the firm and that can only be changed in the medium to long-run life of the firm.

There are two methods by which the productive capacity of the firm can be increased by the management of the firm concerned (*Penrose, 1959*). First, growth can be initiated through expansion of existing production capacity or by the creation of new production capacity. Second, expansion of the firm can be initiated by acquiring through takeover or merger, the production capacity of competitors' firms. In both cases, the funding for expanding the production capacity of the firm embarking on a programme of growth could be procured from either sources that are external to the firm (*i.e. the issue of shares to the public, loans or government grants*) or from the firm's own resources.

If the expansion of the firm is funded by loans, the lending authority will normally require the firm seeking loan funds to provide security in the form of existing assets and the granting of that loan will be tied to the fiscal performance of the firm (*Moss & Clarke, 1990*). The fiscal performance of the firm will be judged primarily on the amount of profit generated in past years. A profit in turn is dependent on the volume of sales generated, the costs of producing those sales and the proportion of market share. It would be unlikely that a firm's management could make a conscious decision to expand its production capacity, if the firm's past fiscal

performance had been poor or the market lacked the potential for the firm to expand its market share.

A firm that chooses to fund its own expansion in production capacity by resorting to its assets, would be wary of making such a commitment at expansion, unless the firm's past fiscal performance and current market potential justified it.

1.1.3 Diversification into New Products and/or Markets

Expansion by diversification can take three forms (*Thompson, 1981*). First, pure diversification is where a firm creates completely new products for new markets. Second, diversification can also take the form of new product development, whereby new products are developed for existing markets. And thirdly, a firm can diversify through market development, which involves the creation of new markets for existing products.

Moss and Clarke (1990) give the following reasons why firms would choose to diversify:

1. Reduction of risk: If a firm has a restricted product range, the risk to the firm's well-being will be considerable if those products experience market decline. A wide product range it is argued, dissipates the risk of market failure for one of the firm's products completely undermining the financial well-being of the firm. However, it is interesting to note that in a study by McKinsey reported in the Economist (May 25, 1991), of West German manufacturing firms in the machine tool-making industry, the successful firms were those that spurned product diversity in favour of product specialisation. For example, the best performing firms were those that made one product for every DM100m worth of sales compared with four per DM100m in the less successful companies. Furthermore, the best firms' products had up to 50% fewer parts than those made by their less successful rivals, thereby permitting manufacturing that was faster, cheaper and simpler. The lack of diversity in these successful firms allowed production to be carried out with fewer managers and shorter lines of communication. The successful machine tool manufacturing firms concentrated on the calibre of their product design and the quality of materials, whereas the less successful firms with their more diverse product ranges were forced to be preoccupied with quality assurance and service, which in effect meant rectifying problems with their products.

2. Seasonality: If a firm's market happens to be heavily seasonal, diversification can help a firm to avoid those stagnant periods when machinery and staff are not utilised.
3. Market size: If a firm's existing markets are too small to realise any of the firm's growth strategies, diversification into new markets or products may be necessary if the firm is to expand.
4. Business cycle fluctuations: Business cycle fluctuations can affect firms with narrow product ranges badly when the economy is in a downswing. A diversification strategy gives a firm more options with which to survive a recession.
5. An aging product line: Nearly all products have what economists call a product life cycle which culminates in product decline and obsolescence. Product diversification can help a firm from avoiding the same fate as its declining product lines. In practice, most firms would make incremental product improvements to keep abreast of the competition, but there is always a danger that a competitor may come up with a technological product innovation that renders its competitors products obsolete overnight. Diversification can help to minimise the possibly detrimental impact of this type of development by giving a firm other options.
6. Fast expansion strategy: Expansion through a firm's existing business operations can be a slow and tedious process, particularly if the firm's markets are stagnant and competition is fierce. Diversification through company acquisition or merger, offers a chance for a firm to expand rapidly without having to undertake by itself the development of new production technology or product ideas.
7. Maximise use of resources: A company that produces a limited range of products or which has a seasonal aspect to its business, may wish to exploit its spare resources by diversifying or expanding into other areas.
8. Back-up of existing product range: A company may wish to diversify in order to back up and reinforce its existing product range with related products.
9. Strong competition in existing markets: If the competition in a firm's existing markets is too strong to permit significant growth, diversification into new markets and/or products may offer the option for growth.

However, whilst diversification strategies appear to be attractive as a growth strategy, they are not without risks. The general risks associated with diversification strategies are as follows:

1. New markets: Firms sometimes overestimate the potential of a new market for growth and tend to underestimate the problems of promoting and selling a business idea (*Pitt & Snow, 1986*).

2. Developing new products: The development of new products or the acquisition of businesses with new products, requires a considerable amount of learning by the firm before maximum efficiency is achieved. While this process of learning occurs, the firm's better prepared competitors may consolidate their market position (*Fogiel, 1980*).

3. Difficulty in procuring financial backing: With no proven track record in a new product or market area, it may prove difficult for a firm to attract financial backing (*Resnik, 1988*).

4. Lack of commitment from owner-manager: Any diversification strategy requires the whole-hearted commitment of the firm's management if it is to succeed (*Pitt & Snow, 1986*). In a rapidly restructuring firm environment where staff may be unsure of their exact objectives, management has a key role to play in ensuring that staff are kept motivated and given clear directions about where the firm is heading. If this commitment to diversification is not forthcoming from management, staff are unlikely to have it, and the diversification strategy will be doomed to failure as a vehicle for rapid growth.

5. Difficulties of integrating a new firm into the existing business (*Thompson, 1981*): The three main problems that arise are: first that the costs of diversification both in terms of financial resources and staff time, are underestimated. Second, the newly acquired business may be so far removed from the firm's original business that the firm's management will get into great difficulties grappling with the intricacies of the production processes and the procurement of suitable suppliers. And third, there is a risk that the existing business is neglected thereby alienating staff from the existing business and overlooking potential production system problems that may develop in the parent firm.

Diversification through new product development for existing markets can be achieved through the improvement of an existing range of products; by replacing existing products with new ones; by adding new complementary products to an existing product range; or by creating a completely new range of products (*Thompson, 1981*). The advantages of targeting the same market are: that the firm can exploit its existing customer base and that financing is likely to be easier to obtain, because the firm will have had a proven track record in that area.

If diversification occurs as a result of takeover or merger, this form of growth can be amongst the most rapid routes to growth that a firm can take (*Moss & Clarke, 1990*). Finance requirements for this route to growth are usually substantial,

particularly if the firm is acquiring other businesses that are profitable operations. Also, the development of completely new products is an expensive undertaking requiring large amounts of finance, especially with regard to manufacturing firms. Either of these two methods of diversification offer considerable potential for growth. However, the risks associated with a diversification growth strategy are commensurate with the high potential for growth.

Diversification as a growth strategy is usually favoured by medium to large firms (*Flamholtz, 1990*). If a firm is an oligopolistic or monopolistic producer, diversification may be the only opportunity for expansion, since the potential for further market penetration for the products that the firm currently produces may have been exhausted. With an oligopolistic market, sales growth for an oligopolistic firm may be an impossible ambition to realise, particularly if oligopolistic competitors have equal or stronger sales strength in the marketplace and their products are superior (*Downie, 1958*). The risk of expanding in these circumstances is to spread the resources of the firm too thinly, so that product development, innovation and quality suffer, a situation that if left unchecked, can lead to a loss of market share, or worse, large scale collapse in sales volume. With a monopolistic market, the monopoly firm may find that further sales growth is impossible to achieve because the market as a whole is saturated (*Fogiel, 1980*). The maximisation of satisfaction amongst consumers in the monopoly market concerned, may already have been fulfilled. This implies that if the firm pursues further sales in the market, consumers' utility for the firm's products may decline together with an attendant decline in sales.

Successful medium to large firms usually choose the diversification route to growth (*Flamholtz, 1990*) because they have the capital, research and development facilities/skills, marketing and distribution networks, to initiate rapid entry into new markets with new products. Large corporations such as car manufacturing firms, in particular General Motors of the United States and Daimler Benz of Germany, have found it difficult to significantly expand car production further within their respective market spheres and so have used their vast capital resources to diversify into other areas of high technology manufacturing, such as aeronautical engineering, electronics and financial services, to further their expansionist aims. In an oligopolistic market structure (*particularly in the case of the car industry*), it is extremely difficult in the short term for a commercially successful firm to expand when its competitor happens to be an equally powerful commercial adversary in the marketplace (*Thompson, 1980*). Two possible exceptions to this are where the rival

happens to be a public firm or where the firm wishing to expand has the resources to acquire control of its competitor (*through purchasing a controlling interest in the issue of that firm's share stocks*).

In small firms, this type of firm expansion would be a viable option, only when the product diversification is into an area where the firm's existing capital resources, technical skills and knowledge are sufficient to master the new production processes associated with producing new goods or services (*Resnik, 1988*). For example, it is technically possible for an electronics manufacturer to diversify its product range from computers into electronic cash registers, because both product types are in similar manufacturing fields. However, it would be difficult for that same electronics manufacturer to diversify into textile or food manufacturing, because these are diverse fields that involve different production skills, knowledge, resources and techniques. Some firms though, may be mighty enough in their capital resources to literally 'buy' the technical skills, expertise, knowledge and production systems that are necessary to enter into a new manufacturing field. However, this must be viewed as a business acquisition and not true product diversification in which the expanding firm develops a new product from inception to completion, utilising the firm's own unique resources.

Diversification is also possible through joint ventures or collaboration agreements between different firms, involved in different production processes (*Thompson, 1980*). The joint venture agreement does not necessarily involve a transfer of ownership, rather it suggests a sharing of resources, skills and knowledge for the mutual benefit of the firms involved in the venture. This approach to diversification is best conducted where the firms have the resources, skills and knowledge that are complementary to the productive processes necessary for diversification into a new product area. The cooperation mechanism of a joint venture allows a useful form of diversification for firms that possess some but not all of the resources, skills and knowledge that are considered necessary to diversify into a new product area. It enables an efficient and effective product outcome in product areas with numerous complex production processes, which is achieved through a division and distribution of production processes according to the natural areas of specialisation for each of the respective firms participating in the joint venture. Other reasons why a joint venture approach appears to be attractive, are because it spreads the commercial risk, reduces the costs of new product development and takes advantage of a business opportunity that may otherwise fall to a larger firm.

However, the joint venture approach often ends in failure in about 50% of all cases (Moss & Clarke, 1990). The reasons for failure are:

1. Firms experience difficulties because they have only partial knowledge and experience in the area concerned and the management are unclear about their objectives.
2. The different management structures involved may not be compatible with each other, thereby undermining each others' effectiveness.
3. The problems in establishing a joint venture are akin to those involved in setting up a new firm.
4. Joint ventures are corporate structures involving complicated legal arrangements which can be costly to establish.

1.1.4 Integrating Firms Involved in a Product's Production Process

Another option for a firm to expand, is for a firm to integrate other firms that are related to the ultimate end product that it is involved in producing (*Thompson, 1981*). The objective here is to bring under the control of the expanding firm the complete succession of production steps from product conception to product completion.

There are two concepts related to the integration approach to firm expansion strategies. Vertical integration refers to a firm acquiring firms or merging with firms directly involved in contributing to the manufacture of an end-product which the expanding firm is principally concerned with. Horizontal integration refers to a situation where a firm acquires or merges with firms which are involved in the production of new or related products, but which are not directly part of the expanding firm's vertical production system. Horizontal integration can also refer to a firm entering into new markets or creating new products.

1.1.4.1 Vertical integration

In many production processes, a series of distinct steps are required in the manufacture of particular products (*Thompson, 1981*). Often, especially in the case of complex manufactured products such as consumer electronic goods and motor vehicles, the steps involved in the production process are carried out by a number of firms, with each of these firms dealing in a particular specialised aspect of the

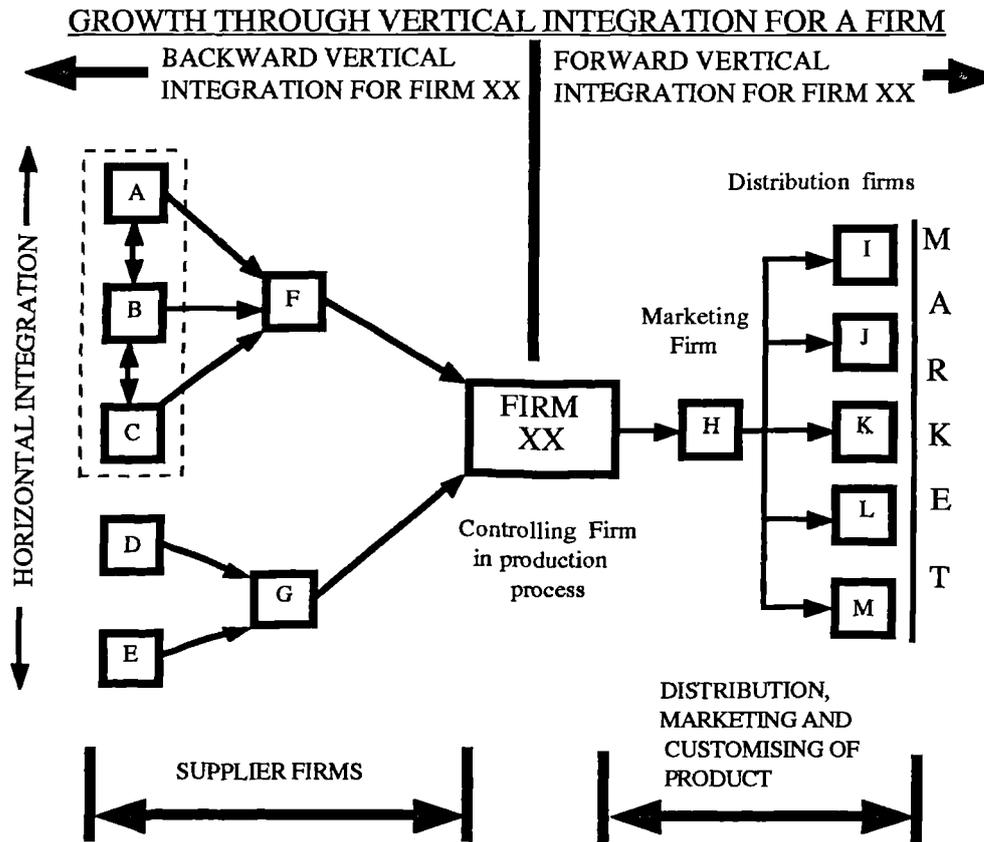
production process. This succession of steps in the production process is thus divided amongst a number of firms according to their area of specialisation, their skills, knowledge, resources, ability to deliver on schedule and cost. In the interests of producing the best quality product, with the greatest efficiency and economy, it is necessary for there to be a smooth and uninterrupted flow down through the succession of steps that constitute the production process. However, if the product involves the sub-production of various componentry created by as many firms, each of which is legally and functionally independent of each other, it may be difficult for the firm responsible for the ultimate finished product to exercise the desired level of control over the entire production process. A firm in this situation, that is intent on expansion and has the capabilities to implement such ambitions, may choose to incorporate all the firms involved in the production tree for its particular product or product range, into a single entity or firm. This concept is known as 'vertical integration'.

Depending on the position of the firm pursuing vertical integration in the production tree, it can involve either backward or forward vertical integration (*Thompson, 1981*). Backward vertical integration involves the acquisition of the firm's suppliers (*i.e. firms that are involved in parts of the production process behind it*), so that the succession of steps in the production process are contained within the firm affecting the integration.

Forward vertical integration, on the other hand, involves the acquisition of firms involved in the finishing stages of the product or perhaps even in the marketing and distribution of the product. In other words, firms in the production process ahead of the firm implementing forward integration are incorporated into the firm implementing the integration. Figure 1.4 illustrates diagrammatically how a firm (*indicated as firm XX*), could implement vertical integration either forwards or backwards. Before vertical integration, firm XX has a pivotal role in the production process of the product concerned because it is the controlling or organising firm in the production system. But although firm XX would appear to be the controlling influence on the various factors of production in this hypothetical production system, firm XX does not have control over the costs or availability of the supplies required. Through vertical integration, firm XX, through the powers of ownership, can contain the costs in the production process, ensure the availability of supplies, and integrate suppliers much more easily into its production regime than would otherwise have been the case before vertical integration. Also, management after vertical integration has

been implemented, would have much greater control over every aspect of the production process because a management structure can be tailored to suit the production tree of the newly integrated firm or corporation. Each of the firms that have been integrated into firm XX's production sphere of operations now become divisions or branches within firm XX, with a hierarchy of management that has its focus in firm XX's upper echelons of management.

FIGURE 1.4:



It has been assumed for the sake of simplicity in this discussion that the controlling firm in the production process would be the catalyst for a vertical integration to be initiated in the production process. However, any firm at any point in the production process could feasibly vertically integrate the whole production process around itself, if it had sufficient financial clout and provided that the owners' of other firms (*or their shareholders*) in the production process, were prepared to relinquish control to the firm intent on achieving vertical integration, by selling out to it.

1.1.4.2 Horizontal integration

Horizontal integration is a concept adopted from industrial geography literature (*Chapman & Walker, 1987*). According to Thompson (1981), firm

expansion through horizontal integration is usually affected through upgrading the production system of a firm to create new products; or by finding new markets for a firm's existing range of products. Upgrading of the production system of a firm to create new products can be initiated either through the acquisition of other firms or by new investment in a firm's production system. The objectives of acquiring other firms in horizontal integration include capitalizing upon the acquired firms' technology; increased capacity and flexibility of the production system; obtaining without the usual time-lag associated with indigenous development, another firm's image and customer goodwill established in other product lines; increasing the market opportunities for related products; and gaining 'extra space' in a firm's sales force capability. New investment in the production system refers to streamlining of the production process; an improved management structure; investment in improved capital equipment; improving the flexibility in the production process; increasing the capabilities of the labour force; employing new labour skills; and increasing the size of the labour force. Figure 1.4 illustrates horizontal integration being achieved through firm acquisition.

1.1.5 Producing Products Under Licence

One option for small to medium firms to expand is to produce another firm's product or service or use their technology (*Moss & Clarke, 1990*). A firm as licensee pays royalties to the firm licensing the product, service or technology being employed. If the product knowledge being 'borrowed' has a proven track record and that marketing research indicates current market demand is strong, then the risk will be low. However, a considerable capital investment may be required, particularly in the case of manufacturing firms where costly production equipment may have to be developed from scratch. The potential for firm expansion by this route is usually reasonable and sometimes large, but is very much dependent on how much capital the licensee firm has to invest in licensing the product technology of another firm.

For a firm that adopts this option for growth, the firm that issues the product license expects the licensee to produce and market its products in markets that they are not serving to any great extent.

If a firm has a patented product, service or technology, a quick route to growth is to licence out the firm's specialised product knowledge to other firms willing to pay royalties for its use (*Moss & Clarke, 1990*). Although in the long term, this will not generate as large a firm as would have been the case if the firm had simply developed its own production system to exploit its product knowledge, in the short

term, it will help generate large profits with very little capital investment whilst allowing other firms to take the risk of developing and marketing the firm's licensed product knowledge. The growth potential by this method can be large for the firm licensing out its specialised product knowledge, since it generates vital cash flow and relatively quick profits that can be used to invest further in the firm's research and production system development.

1.1.6 Franchising

Businesses can also choose the franchise route to expansion (*Pass et al, 1988*). Small businesses that wish to expand but that are without a business idea, may choose to purchase business franchises as a pathway to growth. More importantly though, if a small business has a proven workable business idea, a firm can achieve rapid expansion and entry into new geographic markets by franchising out its business concept to franchisees in return for an initial sum of payment and royalties on any sales made. The concept of franchising is very similar to licensing except the whole business system is covered by a licence rather than just a particular product or production technology (*Moss & Clarke, 1990*). For franchising to be workable as a method of expansion, it has to be a self-contained operation that can be rapidly established within a certain geographical market. Examples of very successful franchise operations are McDonalds, an American based fast food restaurant which has franchisees all over the world; the Body Shop, a British success story with the idea of a retail outlet that sells natural cosmetics and skin care products; and Tie Rack, a British retail outlet concept selling ties.

1.2 THE IMPORTANCE OF THE SMALL TO MEDIUM FIRM SECTOR TO ECONOMIC GROWTH AND EMPLOYMENT GENERATION

The Birch (1979) report, was the first major piece of statistical research into the importance of small firms in job creation. It claimed to show that two thirds of the increase in employment in the United States between 1969 and 1976 was in firms employing less than 20 workers. A later study by Birch et al (1983) found that 70% of the increase in employment in the US during the period 1978-1980 had been in firms with less than 100 employees. The main inference of Birch's work is that the small firm sector is a major creator of new jobs.

More recent and relevant evidence to the UK economy, is a study in the Employment Gazette (*Daly, M. & McCann, A., 1992*), which provides compelling

evidence of the importance of the small-medium firm sector (*i.e. firms with less than 500 employees*) to economic and employment growth. During the period 1979 to 1989, the UK economy experienced a sustained period of economic growth, during which the stock of businesses increased by 66.8% from 1.8 million firms to 3.0 million firms. The bulk of this increase (*refer to table 1.2 below*) seemed to occur in self-employed or partnership businesses with 1-2 employees (*increasing by 84.3% from 1.099 million firms to 2.025 million firms*) and very small businesses with 3-10 employees (*increasing by 56.0% from 498,000 firms to 777,000 firms*). Small businesses with 11-49 employees declined in absolute terms from 155,000 firms down to 149,000 firms (*a 3.9% decrease*), as did medium firms with 50-499 employees, declining from 36,000 firms down to 33,000 firms (*a 8.3% decrease*). The most significant decline, however, was amongst large firms with 500 or more employees, which decreased by 25% from around 4,000 firms down to 3,000 firms. Figure 1.5 illustrates graphically how firms with 1-2 employees have increased their share of the total UK firm population at the expense of larger size categories of firms. The upshot of this, is that small firms with 10 or less employees were wholly responsible for the increase of firms in the UK economy between 1979 and 1989 (*inclusive*).

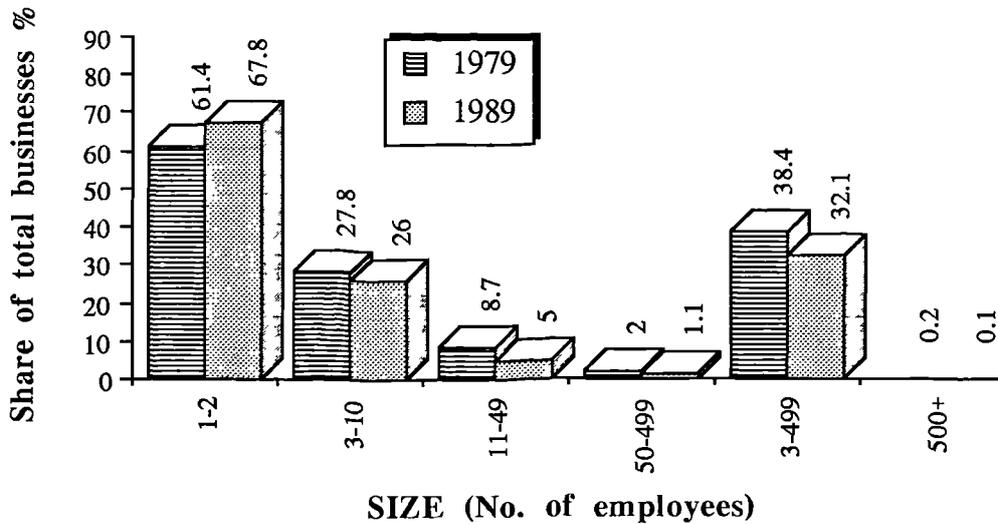
TABLE 1.2:
GROWTH IN NUMBER OF FIRMS IN THE UK ECONOMY, 1979-1989

FIRM SIZE	No. of businesses 1979	No. of businesses 1989	Absolute Change 1979-1989	% Change in number of firms 1979-1989
Self-employed/ partnership 1-2 employees	1,099,000	2,025,000	+926,000	+84.3
Very small 3-10 employees	498,000	777,000	+279,000	+56.0
Small 11-49 employees	155,000	149,000	-6,000	-3.9
Medium 50-499 employees	36,000	33,000	-3,000	-8.3
Small + Medium 3-499 employees	689,000	959,000	+270,000	+39.2
Large +500 employees	4,000	3,000	-1,000	-25.0
TOTAL	1,791,000	2,988,000	+1,197,000	+66.8

SOURCE: DALY & McCANN, How many small firms in EMPLOYMENT GAZETTE, February 1992

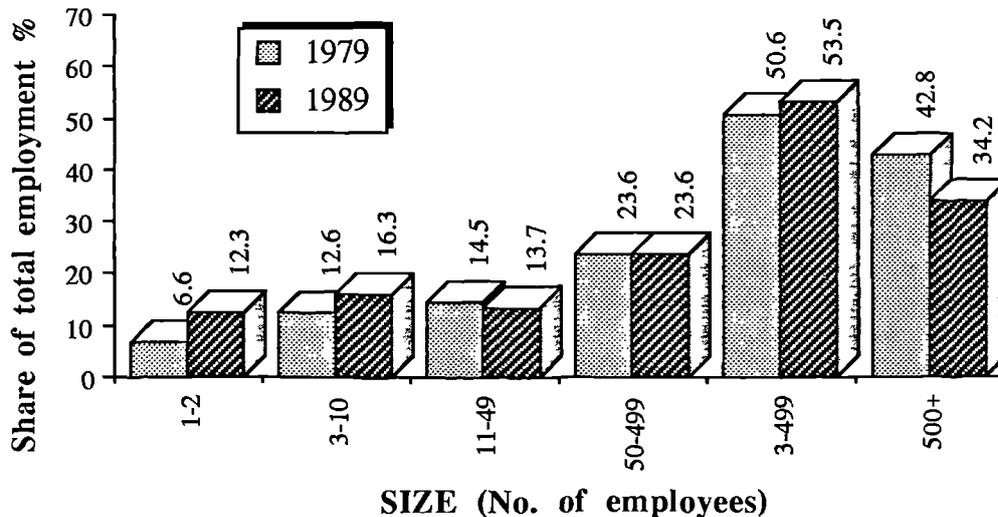
In employment terms, the increasing importance of the small to medium firms to the UK economy during the period 1979 to 1989, is clearly apparent from figure 1.6. Firms with less than 500 employees, increased their share of total UK private sector employment in firms from 57.2% to 65.8%, while firms with 500 or more employees decreased their share from 42.8% to 34.2%. Firms in the self-employed/partnership category were largely responsible for the bulk of the change

FIGURE 1.5:
CHANGE IN SHARE OF TOTAL BUSINESSES IN UK ECONOMY, 1979-1989, BY SIZE OF FIRM



SOURCE: Adapted from data in DALY & McCANN, in EMPLOYMENT GAZETTE, February 1992

FIGURE 1.6:
CHANGE IN SHARE OF PRIVATE SECTOR EMPLOYMENT IN UK ECONOMY, 1979-1989, BY SIZE OF FIRM



SOURCE: Adapted from data in DALY & McCANN, in EMPLOYMENT GAZETTE, February 1992

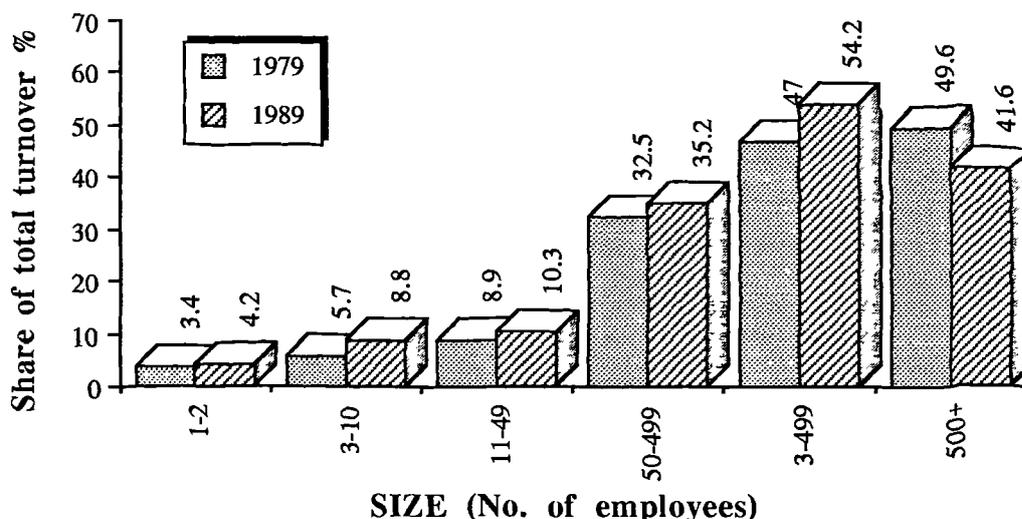
amongst small to medium firms, increasing their share in total private sector UK employment from 6.6% to 12.3%, followed by very small firms (*with 3 to 10 employees*) increasing from 12.6% to 16.3% of total private sector UK employment. Small firms with 11-49 employees marginally lost their share of total private sector UK employment, declining from 14.5% to 13.7%, but medium firms with 50-499

employees maintained their share of UK private sector employment at 23.6%. Unfortunately, statistics are not available that provide a dichotomy of the breakdown in jobs between the private and public sectors, so it is difficult to know whether the absolute numbers of people employed by firms have actually remained stable or increased. The Conservative government of Thatcher during this period, gave the impression of working hard to reduce public spending, the implications of which would have been reduced share of jobs in the economy held by the public sector (*particularly with regard to the various privatisations carried out of public utilities such as British Telecom, British Airways and British Gas*). However, from the available statistics, it is not certain whether this political objective actually translated into not only the private sector's share of total jobs in the UK economy increasing, but whether in absolute terms, the private sector increased in employment over the period 1979-1989. It is known that during the period 1979 to 1989, the UK workforce declined by 2.1% (504,000 persons) (*Employment Gazette, February 1992*), which means that unless there was a drastic shift in jobs from the public to private sector, neither the public sector or private sector are likely to have increased their absolute employment significantly. This would imply that the loss of employment share in private sector employment for large firms was in all probability, also a substantial loss in absolute employment for large firms (*which the decline in the number of large firms would seem to support*).

In terms of growth in economic output, figure 1.7 clearly demonstrates the increasing importance of the small to medium firm sector to the UK economy. Firms in the self-employed/partnership category increased their share of UK turnover from the private sector from 3.4% to 4.2%; for firms in the very small firm category (3-10 employees), the increase was from 5.7% to 8.8%; for firms in the small category (11-49 employees), the increase was from 8.9% to 10.3%; and for firms in the medium category (50-499 employees), the increase was from 32.5% to 35.2%. By comparison, large firms (500 or more employees), registered a rather dramatic decline in their share of private sector UK turnover, decreasing from 49.6% to 41.6%.

An interesting aspect of this data, is that despite the fact that firms with 10 or less employees registered the largest increase in the share of total businesses and employment, the increase in output was not relatively commensurate with it. This suggests that businesses with 10 or less employees during the period 1979-1989 have declined in productivity per employee, despite their enormous growth in numbers, whereas larger firms with more than 10 employees have improved their productivity.

FIGURE 1.7:
CHANGE IN SHARE OF PRIVATE SECTOR TURNOVER
IN UK ECONOMY, 1979-1989, BY SIZE OF FIRM

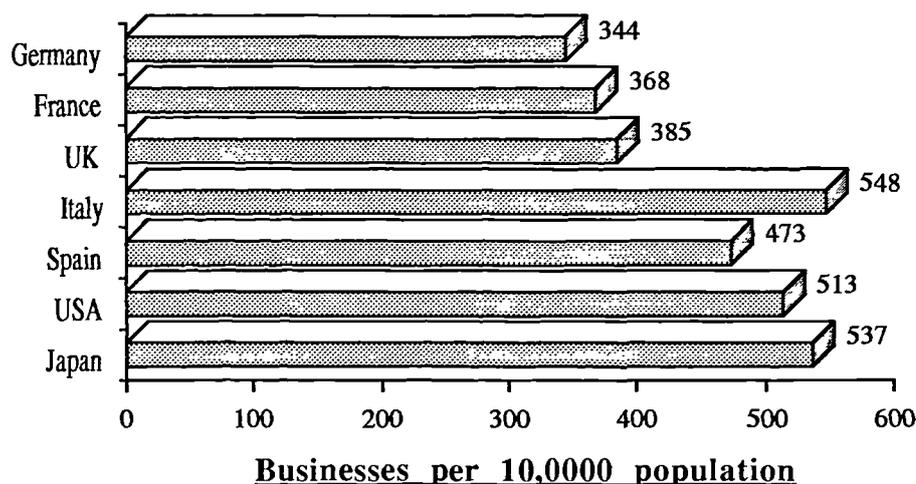


SOURCE: Adapted from data in DALY & McCANN, in EMPLOYMENT GAZETTE, February 1992

For example, the 84.3% increase in the volume of firms for self-employed/partnership businesses, resulting in an increase in the share of total private sector employment by 5.7 percentage points, was accompanied by an increase in the share of private sector turnover of only 0.8 percentage points. And the 56.0% increase in the volume of firms in the very small category (*i.e.* 3-10 employees), which resulted in an increase in the share of private sector employment of 3.7 percentage points, was accompanied by an increase in the share of private sector turnover of only 3.1 percentage points. By comparison, larger firms (*i.e.* those with more than 10 employees), seemed to improve their productivity (*i.e.* value of turnover per employee). For example, although small firms' share of total private sector employment decreased by 0.8 percentage points, their share of total private turnover increased by 1.4 percentage points. With medium firms (*i.e.* 50-499 employees), there was an increase in the share of total private sector turnover of 2.7 percentage points, despite there being no change in the share of total private sector employment. Even large firms (500 or more employees) decline in their share of total private sector turnover (a drop of 8.0 percentage points), was not as large as the drop in their share of total private sector employment. It would therefore seem from this analysis that the size category of firms most likely to generate economic growth would be small to medium firms (*i.e.* 11-499 employees), while firms with less than 11 employees would be most likely to generate jobs in the economy.

If comparison with other developed economies is anything to go by, the UK economy would still seem to have considerable potential for further growth in the small-medium firm sector, as figure 1.8 demonstrates. The UK economy in 1991 had around 385 firms per 10,000 population compared to 537 for Japan, 513 for the United States and 548 for Italy, which are economies that have performed better than the UK's economy during the past decade (*The World in 1992*).

FIGURE 1.8:
INTERNATIONAL COMPARISON OF BUSINESSES PER 10,000 POPULATION



SOURCE: Labour Market Quarterly Report, May 1992

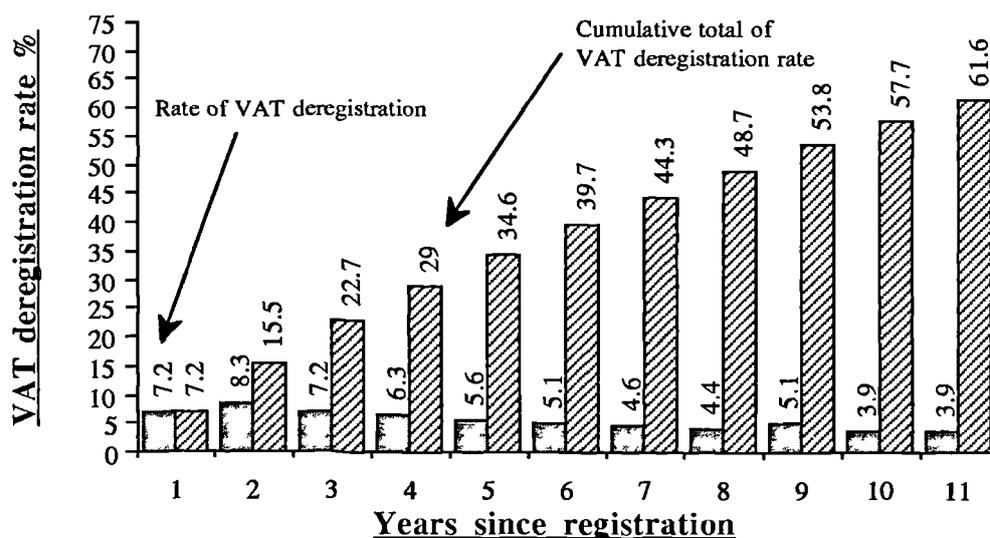
1.3 WHY GROWTH FIRMS IN THE SMALL-MEDIUM FIRM SECTOR ARE IMPORTANT TO EMPLOYMENT CREATION

Employment growth in the private sector can come from two different sources: from new business start-ups exceeding firm deaths; and from existing businesses expanding. Between 1979 and 1990 in the UK economy, VAT registered small firms (*i.e. those with less than 100 employees*), increased by 420,000, which was the difference between 2.15million new registrations and 1.73million deregistrations. In the Scottish economy during the period from 1983-1990, 104,900 new VAT registrations (*all firms sizes*) and 86,900 VAT deregistrations resulted in a net increase of 17,900 firms, increasing the stock of VAT registered firms in the Scottish economy from 97,600 firms to 115,200 firms (*Regional Trends 27, 1992*).

The longevity of firms is also important to employment issues, even if such firms do not contribute to net employment growth in the economy, since they

promote stability in the labour market, by providing employees with the potential for long-term job security. There is not much merit in creating a large amount of employment through business start-ups, if such businesses have a life-span of less than 2 years. Figure 1.9 illustrates the annual deregistration rate for the stock of small firms in the UK economy of 1976. From figure 1.9, it appears that the first two years are the most dangerous for business failures, with almost 16% of small firms failing. After 5 years, about 35% of firms have failed, increasing to 58% at the 10 year mark. After 11 years, only 38% of the original stock of firms remain in business. These statistics demonstrate how volatile the small firm sector is. Clearly it would seem that employment growth could be improved if the rate of business failures was reduced. In order to achieve that aim, it would seem necessary to understand why some firms are sufficiently successful to remain in business and why other firms manage to achieve growth.

FIGURE 1.9:
VAT DEREGISTRATION RATES IN THE UK ECONOMY:
YEARS SINCE REGISTRATION SINCE 1975



SOURCE: British Business, 3 April, 1987

What is unclear about the available UK statistics on employment growth by firm size sector for the period 1979-1989, is whether it is business start-ups or growth firms that are responsible for the bulk of employment growth. In the self-employed/partnership category, employment growth has obviously been due to business start-ups, since the increase in businesses closely mirrors the increase in jobs. In the very small firm category (3-10 employees), employment growth seems to

be due to an increase in the number of firms rather than growth firms, because the increase in employment due to these firms at 29% is much less than the increase in firms at 56.0%. However, it should be noted that some of the increase in this category could be due to growth firms from the self-employment/partnership size band moving into the very small size band, although there are no statistics available to indicate whether this is the case. In the small firm category (*11-49 employees*), firms may have actually decreased in size on average, since the decrease in employment at 5.5% was greater than the decrease in the number of firms at 3.9%. In the medium firm category (*50-499 employees*), the evidence suggests that firms became larger, because although there was an 8.3% decrease in the numbers of firms, there was still the same proportion of total private sector employment in this firm size category. The same argument seems to apply to large firms (*500 or more employees*), whereby a 25% decrease in the number of firms was accompanied by only a 20% drop in aggregate employment for this firm size sector, inferring that the firms that survived the period 1979-1989 must have grown in employment terms.

Most big businesses started out as small businesses (*Scottish Office, 1992*). Despite the declining fortunes of large businesses in 1989, representing only 0.1% of the firm population, they still account for 34.2% of UK employment and 41.6% of turnover in the private sector. However, large firms are usually mature organisations whose potential for further growth may be limited. They are usually more stable than very small businesses (*providing they are well-managed*) because of their substantial assets and ability to procure resources, allowing them to weather economic difficulties somewhat better. Small to medium firms (*i.e. with less than 500 employees*), theoretically offer the most potential for growth in output and employment, particularly if the firm's market has many competitors, none of which are particularly dominant.

Therefore, it is important to have a healthy small-medium firm sector with as many growing businesses that can potentially develop into larger businesses. Storey and Johnson (1987a) have the view, backed up by considerable evidence, that it is not small firms per se in the economy that are going to lead to further employment, but small firms that are growing. The recent statistics from the Employment Gazette (*February 1992*) appears to refute the view that the growth in the number of small businesses has not led to further employment growth, but from the point of view of economic growth, there is some truth to this viewpoint. Storey and Johnson (1987a) are sceptical that the growth in small enterprises in the UK economy, particularly with

regard to the manufacturing sector, has been because of the attractions that people may associate with small firms (*such as greater independence and a more relaxed informal working environment*), but rather put it down to the large decrease in firms with 500 or more employees. Storey and Johnson (1987a) point out that between 25% and 50% of new firm starts are by workers who are unemployed or likely to be unemployed immediately prior to starting their business, referring to evidence in Storey (1982), Mason (1986), and Binks & Jennings (1986). To provide support for their assertion that 'push' factors such as unemployment or the threat of redundancy forces people into starting up small businesses, Storey & Johnson (1987a) provide evidence from the major industrial economies, that job quality (*in terms of insurance, pensions, workplace facilities, working conditions and job security*) and wages are much poorer in small firms than in large firms. Storey & Johnson (1987a, p19) basing their views on UK and international statistics up to 1985, concluded:

"that there is no clear evidence to support the view that economies with more small firms 'perform' better in terms of job creation than those dominated by large firms. These results offer no justification for regarding an increase in the absolute or relative importance of small firms as desirable in and of itself as a way of improving the overall performance of the national economy."

According to Storey & Johnson (1987a), the performance of small firms is extremely diverse, pointing out that significant job creation takes place in very few small firms, but that these few firms are responsible for a substantial proportion of job creation in the small firm sector. Storey & Johnson (1987b) found in a longitudinal study of 1,991 wholly new manufacturing firms established in the Northern region between 1965 and 1981, that out of every 100 manufacturing businesses which started, 30 ceased to trade within 2-3 years and another 30 ceased to trade over the next 7-8 years, leaving 40 businesses surviving at the end of a decade. Of the 40 surviving businesses, 4 provided half the jobs. A study by Gallagher and Doyle (1986) also carried out a longitudinal study on small firms in the manufacturing and services sector of the UK economy over the period 1982-1984. Their findings of 560,250 firms in 1982 with less than 200 employees were that only 120 firms grew in employment to having more than 500 employees. These 120 firms, representing only 0.02% of the surveyed firms, were responsible for creating 45% of new jobs to come out of the firms surveyed. It seems therefore that if growth in sustainable employment is to come out of the small-medium firms sector (*firms with less than 500 employees*), it would be most appropriate for government policy to focus on understanding why

some small-medium firms grow and others do not, so that small-medium firm policy can be better tailored to facilitate more successful small-medium growth firms.

The case for focusing research on small-medium growth firms is that large increases in the number of very small firms may not be enough in itself to boost employment and economic growth to the level necessary to eliminate unemployment in the economy. What is needed is for the quality rather than the quantity of small firms to be improved, a theme backed up by O'Farrell and Hitchens (1988a) research into the difficulty that small firms have in producing products of the right quality and type demanded in the market.

If growth is to be studied in small-medium firms (*i.e. with less than 500 employees*), logic would suggest that the main requirements for research into this area are: (1) that firms have a long enough history to demonstrate competitiveness and good growth performance (*i.e. a minimum of 2 years, although the longer the better*); and that firms have already achieved a reasonable size (*ideally more than 20 employees*). The latter point is important, because with very small firms that are owner-managed, it is difficult to know whether business VAT deregistrations are due to personal reasons of the owner-manager (*such as personal boredom with the business, alternative job offers, retirement, moving location, etc*) unrelated to how well the business may have been performing, or whether a hostile economic environment or poor business performance have been the main factors behind a business closure. With a larger firm, the management activities of the firm tend to be less intertwined with the owner-manager's lifestyle, which means that success or failure can be more easily ascribed to the business performance, behaviour and characteristics of the firm.

1.4 CONTEMPORARY RESEARCH INTO THE GROWTH PERFORMANCE OF SMALL-MEDIUM FIRMS IN THE UK

Apart from the work of Daly and McCann (*Employment Gazette, 1992*) discussed earlier in this chapter, the main pieces of work on small growth firm performance have been the Small Business Research Centre (*University of Cambridge*) report of over 2,000 enterprises, "*The State of British Enterprise*" (1992); Aston Business School's survey of nearly 1,100 firms (1991); Storey, Watson and Wynarczyk's (1988) comparison study of 20 growth firms against 20 control firms in the northeast of England; Turok's (1991) study of 200 firms in West Lothian; Hakim's

(1989) study of 750,000 firms using the Business Line Survey of June 1988; and Cousins Stephens Associates (1991) report of the views of 36 financial institutions and other professional advisers of their 27,000 small business clients' constraints to growth.

**1.4.1 Cambridge Small Business Research Centre Report:
"The State of British Enterprise" (1992)**

This report is the most comprehensive and most up to date nationwide profile on the state of small to medium British firms, since the Bolton inquiry of 1971. The report is a detailed national stocktake of more than 2,000 enterprises drawn equally from key professional, technical and business service sectors conducted in mid-1991 in England, Scotland and Wales. Although this report examines the state of the small-medium firm sector in the midst of a recession, it also examines the performance of these firms over the period 1987-1990. The report's definition of a small firm is the range of 1-99 employees while a medium firm is in the range of 100-500 employees.

The survey found that around 31.4% of firms were stable or declining (523 firms), 43.7% of firms were medium growers (729 firms), and 24.9% of firms were fast growers (415 firms). Growth was measured in employment terms. The fast growers were defined as firms that had increased in employment by 75% or more over the period 1987-1990; medium growth firms were those that had increased in employment by more 0% but less than 75%; stable/declining firms were those that had remained the same in employment or lost employment.

1.4.2 Aston Business School's (1991) Survey on Small Firms

This survey of 1,095 small firms (*i.e. those with no more than 50 employees*) was carried out in 1989/1990. The survey found that 609 firms (55.6%) were 'future growth oriented' firms; 171 firms (15.6%) were 'recent growth oriented' firms (*i.e. those which have carried out a major innovation or investment in the last three years but had no plans to grow in the next three years*); and the remaining 315 firms (28.8%) were 'non-growth oriented' firms. The sample was drawn from firms throughout England, Scotland and Wales and from a wide range of manufacturing and service sectors.

1.4.3 Storey, Watson and Wyncarczyk's (1988) Study of 20 Fast Growth Firms in the North-East of England

This study compares 20 fast growth companies against 20 matched non-growth companies. This part of the research utilised financial information lodged at Companies House by limited companies for the survey sample, and used face to face interviews to procure the necessary information. The selection criterion employed by the authors to select growth firms was based on the largest accumulated profit amassed over the period 1980 through to 1985.

1.4.4 Turok's (1991) Study of Which Small Firms Grow in West Lothian, Scotland

Turok's (1991) study is an empirically based approach. The study was of 200 firms, the majority of which had less than 25 employees, in the West Lothian region, an area of high unemployment with a historic dependence on extractive industries that have since declined. Public policy during the 1980s by local authorities and the Scottish Development Agency focused on ways of encouraging indigenous growth, mainly in the form of business advice, counselling, managed workshops, provision of industrial premises, local financial aid schemes and national financial aid schemes (*the Enterprise Allowance Scheme and revised Regional Development Grant*) before it was incorporated into Scottish Enterprise. The survey conducted in 1989 examined firms that were set up between 1983 and 1987. At the time of the survey, only 83% of the firms were still trading, and 11% of those surveyed were growth firms. The growth firms had an average size of 18 employees. Growth firms were defined as having either increased employment by four or more during the last 12 months or employing more than ten people altogether and having shown noticeable growth since they were formed.

1.4.5 Cousins Stephens Associates' (1991) Survey of Financial Advisers' Views of the Small Firm Sector

This research project was the result of a survey of financial and professional services firms' views of the small firm sector. The survey was carried out in 1990 and was designed to identify and research constraints which limit the growth of independent small firms (*i.e. those with less than 50 employees*) in England, Scotland and Wales from a funding point of view. Of the 36 financial and professional services firms that participated in the survey, 21 were able to provide detailed comment on their client information which covered some 27,000 small firms.

Many of the small firms in this study were growth-oriented businesses, with 22% of firms seeking fast growth and a further 57% slow but steady growth.

1.4.6 Hakim's (1989) Survey Identifying Fast Growth Small Firms

Hakim set out to prove that the notion put forward by Storey that government policy needs to target assistance at firms likely to succeed at growth (*i.e.* "winners"), is a misguided approach. Hakim does this by examining aspirations for growth amongst small firms, the characteristics of growth firms and the behaviour of growth firms. The data base employed was the Business Line Survey of June 1988, which had data on 750,000 small firms throughout Britain (*those with fewer than 50 employees*). Growth was defined simply by small firms' subjective aspirations for growth and did not use any quantitative measures based on past performance, which makes it difficult to compare with other studies and its reliability somewhat suspect. For example, only 59% of those firms that considered themselves to be fast growth firms had actually increased staff in the previous year, compared with 39% for slow growth firms and 11% of no-growth firms.

1.4.7 Emergent Themes on Contemporary UK Research Into Growth Firms

Without doubt, the report on the "State of British Enterprise" is the most comprehensive and thorough piece of contemporary empirical research into small-medium British growth firms. However, it is somewhat limited by the fact that it does not have a breakdown of growth by sector, although this is perhaps understandable given that the study's main objective was to paint a broad-brush canvas of the state of small to medium enterprises in Britain. Turok's (1991) work is also useful but is somewhat hampered by the small ratio of growth firms to non-growth firms (*22 firms to 144 firms respectively*) when it comes to testing for statistical significance using the chi-squared method. The work of Storey et al. (1988) is limited by the small number of firms in its survey (*20 growth firms compared to 20 non-growth firms*). Hakim's study, despite using a vast database, is not particularly sophisticated covering only the most basic of issues which offers only minimal insight into small growth firms such as the growth motivations of small firms and their advice seeking behaviour. There is also question-mark over how objective Hakim's work is, as it seems biased towards supporting current government policy on small firm assistance which is of a blanket nature, since Hakim published this paper as an employee of the Department of Employment. The same can be said for the work of the

Aston Business School and that of Cousins Stephens Associates, which were published and commissioned by the Department of Trade and Industry, the Welsh Office and the Scottish Office. Although the authors claim their work to be an objective assessment of constraints on the growth of small firms, their conclusions come across as a ringing endorsement of current government policy towards small firms, particularly with regard to funding issues.

The main themes to emerge out of this review are under the following headings:

1. the characteristics of the founder/entrepreneur;
2. management characteristics;
3. markets and competition;
4. networking and advice-seeking behaviour;
5. financing issues;
6. labour issues;
7. strategy; and
8. growth constraints/objectives/motivation.

1.4.7.1 Founder/entrepreneurial characteristics

The research examined here, with the exception of Turok (1991), seems to stress the importance of the founder/entrepreneur's characteristics as being a contributory factor to growth. The main points are:

1. Business heads are more likely to be founders (*SBRC, Cambridge 1992*).
2. Founders more likely to be motivated into establishing a business by 'pull' than 'push' factors (*Storey et al 1988*). This strong motivation to go into business by founders is supported by Cousins et al (1991) who comment that commitment, energy, drive and determination to succeed are the personal qualities that characterise managers of growth firms.
3. Storey et al (1988) found that the background characteristics of growth firm founders gave them the edge over founders of non-growth firms. However, Turok's (1991) findings found that the background characteristics of founders had no statistically significant association with growth firms.

1.4.7.2 Management Characteristics

The research findings here all point to effective, well directed and efficient management with a strong growth imperative being of paramount importance to a firm's growth prospects. The main points are:

1. Growth firms seemed to be more likely to have management with professional qualifications and young chief executives with half the tenure of those in non-growth firms (*SBRC, Cambridge 1992*).
2. Storey et al (1988) and Cousins et al (1991) are both in agreement that managers of growth firms have usually had considerable management experience with a background typically in sales and marketing with a team still youthful enough to inject vigour and enthusiasm into the business. Also, they usually have a management team with several persons that have complementary management skills.
3. Cousins et al (1991) comments on the 3-5 years after start-up as being a critical phase in the development of a small firm, because if they fail to make the transition then to a professionally managed firm with a 'corporate' style of management, then they are unlikely to thereafter while the founder remains in control.

1.4.7.3 Markets/competition

Growth firms seem to look further afield than their locality for markets and their locality did not offer much in the way of competition. The other main findings were:

1. Growth firms were no more likely to be exporting than non-growth firms (*SBRC, Cambridge 1992*). However, Turok (1991) found that growth firms appeared to be slightly less dependent on local markets than stable firms and were more inclined to serve wider markets.
2. Firms in the growth phase demonstrated rapid increases in the demand for subcontractors but still ended up with no higher proportion of subcontractors than non-growth firms (*SBRC, Cambridge 1992*).
3. Storey et al (1988) found that fast growth firms were much more likely to be competing with overseas firms whereas non-growth firms were more likely to be competing with small local firms, which Turok's (1991) work seems to agree with.
4. Fast growth firms see their relative competitive strengths as being in the area of quality innovation, whereas non-growth firms placed greater emphasis on costs (*Storey et al, 1988*)

5. Storey et al (1988) found that fast growth firms were better informed about their markets and their competitors.

1.4.7.4 Networking/advice seeking behaviour

Networking in the form of seeking professional advice and seeking collaboration agreements with other firms is prevalent amongst growth firms but it is difficult to know how significant it is in helping small firms to grow. The main points are:

1. Fast growth firms were more likely to belong to a Professional Association and more likely to enter into collaborative partnerships (*SBRC, Cambridge 1992*).
2. Growth firms were more likely to use external business advice for taxation, financial management, marketing, business strategy, personnel recruitment and public relations than non-growth firms. They were also more likely to make use of Enterprise Agencies and the Enterprise Initiative (*SBRC, Cambridge 1992*). Storey et al (1988) and Hakim's work (1989) also found that growth firms were more likely to seek advice than non-growth firms. However, Cousins et al (1991) found that small firms were generally failing to make full use of professional external advisers and Turok (1991) found there to be no statistical relationship between founders' ability to develop networks and growth.

1.4.7.5 Financing

Financing issues are usually the overriding concern with small firms and the most important constraint to growth. Most small firms have to resort to external borrowing to finance growth. The important findings are:

1. Growth firms are more likely to have funded growth through external financing in the previous three years. For both growth and non-growth firms, sources of financing were similar (*SBRC, Cambridge 1992*). Storey et al (1988) found that high profit firms (*treated as being synonymous with growth*), did not expand their external borrowings, relying instead on equity sources. Cousins et al (1991) found that long term borrowing was the main source of development funding for small businesses and that venture capitalists were rarely used by small firms and that small firms were rarely approached by them. A large proportion of funding applications (60%) was for expansion projects, indicating that financing of growth accounts for the major portion of financing for small firms.

2. According to the Aston Business School (1991), small firms currently face few difficulties in raising finance for their innovation and investment proposals in the private sector. Most refusals for external finance are because they lack commercial viability, a view supported by the findings in Cousins et al (1991). Cousins et al (1991), however, pointed out that failure to secure external borrowing for innovation projects is usually because of 'inadequate security', being 'at the limit of borrowing' or with a weak asset base. In conclusion, the Aston Business School (1991) was of the viewpoint that the current institutional framework for investment finance for small firms is broadly adequate. This contrasts with both the findings in the "*State of British Enterprise*" report (SBRC, Cambridge 1992) and Turok's work (1991), that finance emerged as the most important constraint to growth for both growth and non-growth firms.

1.4.7.6 Labour issues

Securing an adequate supply of labour (*both unskilled and skilled, and key management skills*) is cited as an important constraint to growth in almost every piece of research on growth firms. The important findings are:

1. In non-growth firms, the loss of employment in a firm's hierarchy of occupational skills is more severe, and there seems to be less skill involved in each particular job category. For growth firms, the converse is true. However, the managerial category, when compared with other occupational categories is relatively inelastic to change (SBRC, Cambridge 1992).
2. Growth firms were more likely to provide formal training than non-growth firms (SBRC, Cambridge 1992 and Storey et al 1988).
3. The recruitment of skilled labour was the main problem for firms considering growth (Aston Business School 1991).
4. Growth firms were more likely to have employees who belong to trade unions (Storey et al 1988).

1.4.7.7 Strategy

The research discussed here provides evidence that if firms are to grow, they need a strategy and take active steps to fulfil that strategy. The main points are:

1. Growth firms were more likely to have acquired firms than non-growth firms and were also more likely to have been the target of acquisition bids (*SBRC, Cambridge 1992*).
2. Growth firms were more likely to have in the last five years introduced major innovations in products or services; in work practices or workforce organisation; and in office and administration systems (*SBRC, Cambridge 1992*). Turok (1991) also found evidence to support this, in that growth firms seemed to be more active in taking steps to improve their performance in the preceding six months. And Storey et al (1988) found that fast growth firms were more likely to have introduced new products in the preceding two years and were more likely to be introducing new products in the next two years. Aston Business School (1991) found that new products were the most significant projects of growth firms.
3. Growth firms were more likely to value in-house technological expertise and were more likely to have conducted systematic research and development into new processes.

1.4.7.8 Growth constraints/objectives/motivation

Growth companies perceive noticeably different constraints to growth (*i.e. more concerned with the difficulty of managing growth and marketing*) from non-growth firms (*more concerned with a lack of demand and stiff competition*). Moreover, growth firms have objectives that clearly orientate them to growth and seem strongly motivated towards achieving those objectives. The main findings in this regard are:

1. The most important constraints to growth for growth firms in descending order of importance concentrated on finance, marketing and management skills, whereas for non-growth firms, in descending order of importance, the emphasis was on market demand, finance and increasing competition (*SBRC, Cambridge 1992*).
2. Growth firms were more ambitious to pursue growth than non-growth firms (*SBRC, Cambridge 1992*). Turok's work (1991) also found that founders of growth firms considered themselves to be successful and were more ambitious than those of stable firms. Furthermore, growth firms seemed to have a greater commitment towards creating a large business and employing more people than did stable firms. Cousins (1991) commented that commitment, energy, drive and determination to succeed are the personal qualities that seem common with the managers of growth firms. However, a commitment to growth does not necessarily translate into strong growth performance although growth without a management strongly motivated and

committed to growth is probably unlikely. Nevertheless, Hakim (1989) contends that aspirations for growth amongst small firms closely paralleled actual growth.

3. Storey et al. (1988) found that growth firms regarded their criteria of success as being more related to 'hard' performance factors such as profitability, marketshare or sales, whereas non-growth firms emphasized job satisfaction and lifestyle as being more important.

1.5 CONCLUSIONS

Research that aims to understand how macro-economic growth can be facilitated, has to focus on the economic units that make up the private sector of the economy, that is industries or firms.

Section 1.1 described the mechanisms by which firms can achieve growth. For a small-medium business, takeover and merger seem to offer the fastest means of expansion, although the risk can be high. Expansion of an existing business or moving overseas seemed to be the slowest means of growth with low to medium risks and offering reasonable growth potential for the latter method. Research appears to be lacking in discussing and analysing the relative merits of the various growth mechanisms that are available to firms. It would be useful to research which expansion mechanisms are usually employed by growth firms.

Section 1.2 of this chapter provided conclusive evidence that the small-medium firm sector (*i.e. firms with less than 500 employees*) had performed much better in the UK economy than large firms (*i.e. with 500 or more employees*), in terms of employment and output growth during the period 1979-1989. It therefore seems reasonable to assume that further employment and economic growth is likely to come out of the small-medium firm sector in future, particularly since compared to other industrialised economies, there still appears to be some scope for expansion in the UK economy. In section 1.3, previous research indicated that since small-medium growth firms are likely to generate the greatest economic and employment growth in the economy, it would suggest that future research should concentrate on understanding what distinguishes small-medium growth firms from those that are stable or declining.

Much of the contemporary British research into growth in small to medium enterprises focuses on the importance of the founder and management style, financial issues, advice-seeking behaviour and motivation to grow. Where this body of research is lacking is that it does not shed much light on the process of growth

within firms, and rather prefers to concentrate on those factors that seem critical to growth. In the case of Hakim, the Aston Business School and Cousins Stephens Associates, the research is more from a policy assessment point of view to determine whether public policy towards small firms is in agreement with the Central Government's Conservative political philosophy of promoting private enterprise with minimal government intervention.

It would appear from the empirical research findings discussed in this chapter, that there are no simple attributes a firm must have, or factors that it must be predisposed to, or specific process that it must implement in order to successfully make the transition to a larger firm. For a better understanding and explanation of growth in firms, it would seem necessary to look beyond the empirical results just discussed here to the many varied theories, models and explanatory approaches that have been developed in this field of research. The next chapter will tackle the task of reviewing the broad array of literature pertaining to growth processes in firms.

TWO

CONCEPTUALISING FIRM GROWTH

CHAPTER TWO CONTENTS:

<u>SECTION</u>	<u>CONTENT:</u>	<u>PAGE</u>
2.0	INTRODUCTION	41
2.1	DEFINITIONS OF WHAT IS MEANT BY 'THEORISING', 'MODELLING' AND 'APPROACHES'	41
2.2	METHODOLOGY FOR REVIEWING THEORIES, MODELS AND APPROACHES	42
2.3	A TYPOLOGICAL FRAMEWORK FOR REVIEWING THEORIES/MODELS/APPROACHES ON GROWTH IN FIRMS	44
2.4	NON-DETERMINANT APPROACHES	46
2.4.1	The Stochastic Approach to Firm Growth	46
2.4.2	The Financial Performance Approach	48
2.5	INTERNAL DETERMINANT EXPLANATIONS	50
2.5.1	The Classical Economics Approach	53
2.5.2	Neoclassical Economics Approach	57
2.5.3	The Entrepreneurial Approach	64
2.5.4	Organisational Development Approaches to Growth	71
2.5.4.1	Downie's 'Transfer' Mechanism	72
2.5.4.2	Marris' Economic Theory of Managerial Capitalism	77
2.5.4.3	Penrose's 'Managerial Potential' Approach	84
2.5.4.4	The "Value-Driven" Corporate Culture Model	88
2.5.4.5	Effective and Efficient Small Business Management	95
2.5.5	Stage Model Approaches to Growth	101
2.5.6	Product/Market Development Model	109
2.5.7	Production-Oriented Approach to Growth	119
2.6	EXTERNAL DETERMINANT EXPLANATIONS OF GROWTH: THE SOCIAL NETWORKING PERSPECTIVE	126
2.7	CONCLUSIONS	136

CHAPTER TWO: CONCEPTUALISING FIRM GROWTH

2.0 INTRODUCTION

This chapter critically reviews the most important conceptualisations of growth processes in firms to have been developed to date. Some of these conceptualisations are theories, some are models and others are approaches or explanatory frameworks. The review is conducted within a typological framework that differentiates between conceptualisations which focus on the internal dynamics of the firm and those that focus on the firm's external environment as being the dominant determinants of growth in firms.

The main objective of this chapter is to determine which of the conceptualisations or particular aspects of the conceptualisations reviewed can go towards developing a suitable theoretical construct for explaining growth processes in small-medium firms. Secondary objectives include resolving any areas of controversy that this body of conceptualisations alludes to; and to generate any important research questions pertinent to growth firms out of any apparent gaps or failings in the literature reviewed.

There are six main sections in this chapter. The first three sections develop a methodology for reviewing the various conceptualisations of growth. Section 2.4 reviews non-determinant approaches to studying growth in firms. Section 2.5 reviews conceptualisations of growth that believe a firm's growth potential to be determined by its internal dynamics. And section 2.6 reviews conceptualisations of growth that believe that growth will be determined by external factors such as how well the firm's management and owners are able to network in the community and business world.

2.1 DEFINITIONS OF WHAT IS MEANT BY 'THEORISING', 'MODELLING' AND 'APPROACHES'

Before proceeding further, it is worthwhile defining what is meant by 'theories', 'models' and 'approaches' in the context of the discussion that is to follow.

A 'theory' can be comprised of one hypothesis or more typically a set of related hypotheses. Hypotheses are simple suppositions put forward as explanations for the occurrence of particular phenomena. Most theories have logical

arguments that are generalised and possibly abstract rational explanations for what appears to be related phenomena occurring in the real world. The argument can utilise various ideas, statements of fact, inductive and deductive reasoning of observed real world phenomena, assembled together in a unified coherent manner to support one hypothesis or a set of associated hypothesis in the theories concerned. A theory can be formulated without concrete evidence from the real world to support it, although it is preferable that they have empirical support because it helps to validate them.

A 'model', however, is a construct that usually incorporates two or more variables. A model: (1) describes the relationship/s that exists between the variables; (2) depicts the outcome/s of the relationship/s between the variables; and (3) can predict the effect of changes in the variables on the outcome/s. The objective of the model is to imitate what may appear to the casual observer to be complex and irrational phenomena, in a simplified, rational and sometimes reductionist form, the behaviour of the phenomenon concerned. Models differ from theories in that they tend to be based on and backed up by empirical observations and they are designed to describe and usually predict the behaviour of phenomenon being studied.

An 'approach' by contrast, is a generalised, loose but coherent rational argument that has a distinct theme running through it. However, it differs from theorising or modelling in that it tends not to have its ruthless reductionism, simplification or dogmatic character. Nevertheless, 'approaches' are similar to theorising in the way that ideas are conceptualised from an intuitive assessment of a phenomenon, but 'approaches' tend to be speculative and not as conceptually rigorous.

2.2 METHODOLOGY FOR REVIEWING THEORIES, MODELS AND APPROACHES

There is a wide range of approaches amongst theories that examine the growth processes within firms. The views of each individual theorist could be reviewed as separate pieces of work, apparently independent of all other theoretical contributions to this field of study, but this would not be as useful as categorising the theories into a typology. Although existing theories on growth processes are extremely varied, many have some features in common with each other. That area of common ground between theories could be similar assumptions, parameters, arguments or agreement on what constitutes the principal determinants of the growth processes in firms.

The important benefits to be gained from categorising theories into a typological framework are fourfold. Firstly, a typological framework creates a simplified broad overview of the state of knowledge in the field in a convenient, compressed format. Secondly, it greatly simplifies comparative analysis of theories according to the various categories outlined in the typological framework, by allowing the relative merits and criticisms of theory types to be discussed as opposed on a theory by theory basis. Thirdly, a typological framework provides both the researcher greater ease of access in locating theories for the practical purposes of understanding which types of theories are best suited to explaining particular phenomena from related empirical work. Fourthly, applying the typological approach helps the researcher to focus more clearly on what are the fundamental characteristics, assumptions and arguments in each theory group. Another important advantage of the typological approach is that it helps to bring to the fore the significant discrepancies that may exist between theory types, thereby indicating important areas of controversy requiring resolution. From a research point of view, the investigation of a lack of congruity between theory types has great value in suggesting where future empirical research ought to be directed in the interests of resolving the discord. Ideally, the typology selected should shed some light on the principal variables in the growth processes in firms.

The disadvantages of the typological approach are that where theories have little in common, the categorisation that is assigned to them may be a misrepresentation of the extent to which they can be attributed with having general characteristics that are deemed to belong to the categorisation concerned. The categorisation selected for a theory should reflect the most important features and argument of that theory. Furthermore, the typological approach runs the danger of ignoring the subtleties of some theories because the overriding objective may be to highlight only the general aspects that are common to that particular domain of theories, especially when the typology is compressed into as few categories as possible. Another danger of using typologies to analyse theories is that an inappropriate selection of categories or a questionable selection criteria for inclusion of a theory in to a category, has the potential to distort the arguments being presented in that theory. Any categorisation chosen must be as faithful a representation of the characteristics and arguments of each of the categorised theories whilst endeavouring to develop as generalised typology as possible; it must pick out the essential features

and main focus of each theory; and it should be presented in the minimum number of categories that are required to accurately represent the essence of each theory.

2.3 A TYPOLOGICAL FRAMEWORK FOR REVIEWING THEORIES/MODELS/APPROACHES ON GROWTH IN FIRMS

A useful typological framework would be one that differentiates between theories/models/approaches which focus on the internal dynamics of the firm from those that view the firm's external environment as being the primary influence on the firm's behaviour, and hence, its propensity to grow.

To achieve this end, the following typological framework is proposed to review the large body of literature on growth in firms, which contains four basic categorisations (*see table 2.1*):

First, there are the non-determinant explanations of growth in firms. Comparatively little formal literature exists in this categorisation, but some of its concepts are important. Its basic thesis is that growth in individual firms can best be explained as a random or stochastic process that is not clearly attributable to either any actions that the firm specifically carries out or any factors in its economic, social, political or physical environment.

Second, there are the internal determinant explanations of growth in firms, which view growth as being wholly dependent on the actions taken by the employees and employers of the firm. The majority of the literature focuses on these types of explanations and has developed within the context of neoclassical economics and a business studies perspective. Its scope includes the classical economics view; the neoclassical approach; entrepreneurial and owner-manager approaches; organisational development approaches; the stage models of growth; a product/market development approach; and a production oriented theory of firm growth.

Third, there are the external determinant explanations of growth in firms which view growth as being dependent on how well the firm (*particularly its owner-manager or management*) creates and makes use of social and business networks in the community. With this approach, the success of the firm is mainly dependent on the resources in the community that can be exploited through the

**TABLE 2.1:
A TYPOLOGICAL FRAMEWORK FOR REVIEWING
THEORIES/MODELS/APPROACHES ON GROWTH IN FIRMS**

	1.NON-DETERMINANT EXPLANATIONS (See section 2.4)	2.EXPLANATIONS THAT FOCUS ON DETERMINANTS INTERNAL TO THE FIRM (See section 2.5)	3.EXPLANATIONS THAT FOCUS ON DETERMINANTS EXTERNAL TO THE FIRM (See section 2.6)	4.HOLISTIC EXPLANATIONS OF GROWTH IN FIRMS (See chapter 3)
SUB-CATEGORIES OF EACH APPROACH	1A.Stochastic Models 1B.Financial performance approach	2A.Classical economics 2B.Neoclassical economics 2C.Entrepreneurial owner-manager approaches 2D.Organisational approaches 2E.Stage models 2F.Product/market development 2G.Production oriented theory	3.Social/networking theory approaches	4A. PA Consulting Group Model 4B.Porter's factor "diamond" of competitive advantage
BASIC THESIS	Growth in individual firms is viewed as a stochastic or random process and therefore cannot be attributed to determinants operating or having operated either within or outside the firm	The actions and behaviour of the employees and employers of the firm are the main determinants of growth	The growth performance of a firm, particularly small firms, will be dependent on how well the firm's participants can build and exploit social, business and political networks to their firm's advantage.	Growth is viewed as the result of a complex interaction of determinants originating both from within the firm and from the firm's social, economic, political and physical environment.

networking skills of the firm's management. Literature in this area is somewhat limited but significant enough to merit a categorisation in its own right.

Fourth, there are the holistic explanations of growth in firms which view growth as being the result of a complex interaction of determinants originating from within the firm and from the firm's operational social, economic, political and physical environment. It combines many of the strengths of the two abovementioned categories with few of their drawbacks. This approach is difficult and costly to support with effective empirical research, so there is little variety of literature in this area. However, the work of Porter (1990), which is the main work pertaining to this categorisation, is such an impressive research undertaking and a distinct theoretical departure from most business studies related literature with its emphasis on the internal functionings of the firm, that it needs to be treated as a separate categorisation. This type of categorisation is much more powerful in explaining the whys and hows of

growth than the other categorisations that tend to operate within a very narrow remit. A separate chapter is devoted to this categorisation of firm growth (*see chapter 3*).

Within each categorisation of the typological framework set out in table 2.1 above, the merits of each model/theory/approach will be judged according to the determining criteria set out below:

1. It should be based on assumptions that are reflections of reality;
2. It should have some capability: to predict which firms in what circumstances have the greatest likelihood of growth; to explain and conceptualise the growth processes within firms; and determine the potential for growth within individual firms.
3. It should be able to identify the enabling and constraining influences on growth.
4. It should be capable of identifying what distinguishes growth firms from those that are static or declining.
5. It should be testifiable or verifiable. Ideally, it would be desirable if it was supported by empirical research.
6. It should take into account the diversity of firms and various forms or strategies of growth.

2.4 NON-DETERMINANT APPROACHES

This section examines non-determinant approaches towards understanding and analysing growth of firms. Two approaches are examined and reviewed here: the stochastic model approach and the financial performance approach. There are very few approaches that adopt the non-deterministic framework, and it could be argued that their primary purpose is not to understand growth firms but in the case of the stochastic approach, to predict the probability of growth in the economy for a particular firm based on the aggregate behaviour of the industry sector that the firm in question belongs to; and with the financial performance approach, to analyse the past performance of a firm with a view to predicting future growth performance through simple extrapolation techniques.

2.4.1 The Stochastic Approach to Firm Growth

Stochastic models of firm growth do not attempt to explain how growth actually occurs within a firm. Rather, the stochastic models of firm growth examine the distribution of growth firms in a population of firms for a particular economy or market. Hence, stochastic models cannot be used to predict the probability of growth

for a particular firm nor indeed what factors may actually precipitate growth within particular firms.

The term 'stochastic' refers to a pattern of cumulative random 'shocks' that interrupt the normal progression of the business cycle and operation of the markets over time. These 'shocks' impact on the size of individual firms causing some to contract and others to expand, whilst others may remain unaffected (*Kumar, 1984*). Stochastic models are not deterministic of what actually results in growth within particular firms, since they accept it as a random process.

Gibrat (1931) first conceived of a lognormal distribution to describe the effect of random growth on individual firms in an economy, otherwise known as the 'law of proportionate effect'. It was observed that the size distribution of firms in an economy or industry is usually skewed, taking the form of a Pareto or lognormal distribution.

The growth of the firm was seen to be made up of three effects. Firstly, there is the growth of the market which has an equal effect on all firms. Secondly, the growth of a firm tends to be related to a firm's initial size. And thirdly, there is a random growth element which is described mathematically by a lognormal distribution function. Gibrat's model indicates that large firms will grow faster than small ones, although some of the simpler stochastic models assume that size has no effect on a firm's propensity for growth (*Kumar 1984*).

The assumptions behind stochastic models of firm growth are that the individual factors of growth are small, independent of each other and do not act in unison in a systematic manner. Actual growth rates of individual firms will vary over time depending on how fortunate each firm happens to be. The upshot of these assumptions, is that growth within individual firms is treated as a random or stochastic process.

The analytic capabilities of Gibrat's 'law of proportionate effect' has moderate powers of prediction for studying aggregate growth behaviour of firms in a market economy, but offers no useful explanatory framework of growth processes at either the macro level of the market or at the micro level of within the firm.

Further criticisms of Gibrat's model are that it is unable to identify the enabling and constraining determinants of growth, nor can it identify the factors that distinguish growth firms from those that are static or declining and that it fails to take into account the diversity of firms and various strategies of growth that individual firms pursue.

Attempts have been made by Gudgin (1978), O'Farrell and Crouchley (1985) and Mansfield (1962) to test the validity of Gibrat's law of proportionate effect. The empirical evidence from these studies has, however produced conflicting results. Gibrat's model suggests that large firms grow faster than small ones whereas the empirical evidence from Gudgin (1978) and O'Farrell and Crouchley (1985) indicated the opposite.

Despite the fact that stochastic models are not deterministic theories of growth, they should not be rejected altogether, since they are effective in describing the distribution of firm sizes in an economy and in predicting from a purely statistical point of view, the probability that a firm will grow. Kumar (1984) suggests that there are stochastic influences that can be reinforced by systematic influences, which generates scope for a theory that is able to integrate stochastic processes into more deterministic/causal growth theories.

2.4.2 The Financial Performance Approach

The financial performance approach focuses on how well a firm performs financially. It has developed out of the neoclassical economics school of thought with its focus on the importance on the profit motive in motivating the firm to grow. There are not any particular authors of this approach for studying firm growth, but in spite of being discredited as a fallacy by Drucker as far back as 1954 in his book '*The Practice of Management*', it is still an approach widely subscribed to by economists, bankers, financiers and accountants (*Gibb and Davies, 1989*). The past financial performance of the firm in terms of various financial ratios is used to predict the future capability of the firm. Strong financial control in a firm is viewed by lenders as a vital corequisite of growth.

The financial performance approach (*Gibb and Davies, 1989*) is based on the following assumptions:

1. That favourable financial ratios for a firm's past financial performance are sufficient by themselves to indicate future growth potential.
2. That the entrepreneur/manager is a rational decision maker who seeks to maximise or satisfice profits.
3. Good management and careful financial control are co-requisites of growth.
4. Management strives to maximise production efficiency. The maximum achievable size of the firm will coincide with the minima in its long-run average cost curve.
5. That the financial ratios are an accurate appraisal of a firm's past financial history.
6. A firm's growth potential is limitless, provided that the firm's supply of finance and management resources are limitless.

Ostensibly, the analytical capabilities of this approach seem to be very powerful. However, closer inspection reveals an analytical approach that for the most part, tends to be wholly descriptive. At the aggregate level of the firm that these methods are normally employed, this approach is very weak in explaining the how and why of growth processes within firms. Notwithstanding this criticism, if cash flows are broken down in detail for the firm, both according to the firm's organisational structure and according to the different products and services produced by the firm, this approach has the potential to be a very useful diagnostic tool both in indicating areas of a firm's activities that are cost-efficient and contributing to the firm's continuing success and useful in pin-pointing areas that need management's attention.

Because the financial performance approach is principally concerned with outputs, it is not particularly useful when it comes to determining a firm's potential for growth. It works on simple extrapolations of past financial performance and if the supply of finance is limitless and management happens to be sufficiently capable, then the firm's ultimate size will be as large as the firm's owners/managers want it to be.

The enabling and constraining determinants of growth are as follows:

1. The maximisation of profits is an essential enabling determinant for firms to grow.
2. Achieving growth in sales whilst maintaining profit margins are crucial enabling determinants.
3. The importance of adequate funding, particularly when a firm is in its infancy and in a rapid expansion phase. Lack of funding can be a severe constraining determinant of growth whilst sufficient funding will be a significant enabling determinant of growth.

A Scottish company, '*Unicorn Fluid Injectors*', achieved world-wide potential in only 2 years from its inception, but found its growth curtailed by underfunding (*'The Business Game: Drumond Park Ltd 1992*).

4. Maintaining adequate cash-flow to cover all incoming expenses and other business costs, is another very important enabling determinant of growth.

5. Good financial management with clear control over finances.

When it comes to the issue of identifying growth firms as opposed to those that may be static or declining, the financial performance approach has little difficulty. Any one of a number of ratios pertaining to growth in assets, sales turnover and employment can be used to give an indication of whether or not a firm is growing, based on previous financial performance. However, some caution is required in interpreting profitability figures since these do not reflect growth unless they are retained and reinvested in the firm for the coming financial year.

The financial performance approach has never been written up as a theory or model of firm growth. Hence, its basic tenets, while extremely simplistic (*i.e. that a growth firm is one that has achieved success with high sales turnover together with maximised profits*), has never really been directly verified in studies. It would be, however, relatively easy to test, although clear hypotheses associated with this approach would have to be formulated. These hypothesis might be along the lines of seeing whether historic growth in firms generally results in growth continuing; and whether each of the main growth indicators are consistent and in agreement with each other in measuring growth.

The financial performance approach is applicable to all types of firms, since the basic criterion of all firms is to remain in business (*assuming that they are all behaving rationally*). In order to remain in business, satisfactory performance, particularly with respect to profits and sales is required. The financial performance approach is not concerned with strategies for growth, but it is nevertheless useful in the way that it can be used to assess the aggregate financial impact on the firm as a result of pursuing various growth strategies, such as integration, intensification, diversification and mergers.

2.5 INTERNAL DETERMINANT EXPLANATIONS

This section focuses on the theories, models and approaches that have the viewpoint that growth processes originate from within the firm. Central to this

perspective is that the firm is master of its own destiny and that its external economic, social, political and physical environment has a comparatively limited if any role in determining growth. The purpose of this section is to discuss and assess the relative merits of the theories/models/approaches that view the firm as being responsible for its growth.

The subcategories examined in this category of growth theories/models/approaches are:

1. the classical economics approach;
2. the neoclassical economics approach;
3. the entrepreneurial approach;
4. the organisational development approaches;
5. the stage models;
6. product and market development approach; and
7. the production oriented approach.

Generally, the abovementioned subcategories all have a similar theme, which is that the actions and behaviour of the firm's owners, employers and employees are the overriding determinants of growth. Moreover, all these subcategories have been conceptualised within a business studies and managerial framework. The subcategories are necessary, however, to avoid underplaying the significant differences that exist between these subcategories. Each sub-category contributes an important and useful facet towards understanding the growth process in firms.

The first two sections, 2.5.1 and 2.5.2, deal with the classical economics and neoclassical economics approaches respectively. In classical economic growth theory, which was in vogue from the 18th to the 19th centuries, the focus was on the economy as a whole and the interplay of separate decisions by workers and capitalists in the market system to generate economic wealth. The key driving force in the market system was seen as the desire for individuals to maximise their self-interest which in the context of firm-owners means maximised profits. Success for a firm primarily depended on how efficiently the production process was organised through the division of labour and demand for its products. Neoclassical economic theory also stresses the profit maximisation function of firms, but introduced various 'marginalist' concepts and supply-demand equilibrium analysis which allowed a mathematical

treatment of a firm's production functions. In neoclassical economics, the prime objective of the firm was to maximise production efficiency (*through minimising marginal production costs*), which did not always coincide with the maximum possible size for a firm.

The entrepreneurial approach has many proponents that recognise the entrepreneur to be the driving force of growth in a firm's early stages. This branch of the literature tends to concentrate on the characteristics and behaviour of successful entrepreneurs and owner-managers.

The organisational development approaches are the most dominant area of the literature on growth processes in firms. This branch of the literature contains elements of traditional neoclassical economics, organisation theory, behavioural theory and management theory. The principal theme of these approaches is that firms strive towards greater production efficiency, maximised profitability through better management techniques, clear goal formulation, and effective and efficient organisation of the firm's activities.

The stage models of growth present the firm as growing increasingly larger as it passes through a life cycle of successive stages, each of which has distinct approaches to leadership, company culture, management systems, operational systems, acquisition of resources, development of products/services and marketing. Transition between stages is often marked by the need for the firm to resolve a crisis. Many theorists have tackled this approach to explaining growth in firms, but most are variations on the basic theme of the firm's development being a metaphor for its product life-cycle.

The product-market development model of Gibb and Davies (1989) is a multi-disciplinary approach which although lacking in a theoretical basis, does use a wide variety of management parameters, economics, sociology and organisation development theory. Its main focus is on the internal dynamics of the firm but it also stresses the need for the firm to consider and utilise to its advantage key external influences (*mainly with regard to market demand*) that have an impact on the firm. The production-oriented approach of O'Farrell & Hitchens (1988a and 1988b) is the final sub-category explored in this section. It considers growth to be dependent on management resolving production related difficulties.

2.5.1 The Classical Economics Approach

Adam Smith, the greatest proponent of classical economics, maintained that people are motivated by self-interest, especially with regard to people that enter into business. For individuals that enter into business for themselves, the manifestation of self-interest is to maximise their profit. By and large, profit maximisation was by the yardstick of classical economics, the *raison de etre* for most firms' existence (Putterman, 1986).

In classical economic theory (Fogiel, 1980), capital accumulation is the motivating force behind economic growth. The amount of capital accumulation is determined by savings. Early classical economists theorised that the interest rate determined the amount saved. The higher the interest rate, the greater the numbers of people that would be willing to save. However, since interest rates are determined by the returns to capital and because of diminishing marginal productivity (*since there are limits to the productivity gains in production technology no matter how much capital is invested*), the returns to capital would be greatest when the amount of capital is low and lowest when the amount of capital is greatest. Thus, when the firm is in its infancy, the potential for growth would be greatest, while conversely, when the firm has reached economic and technological maturity in its production processes, the potential for growth would be smallest. Eventually, wealthy firms would reach a stage where they have no growth at all, because the returns to additional amounts of capital invested will be negligible, with the result that the firm stagnates. It should be stressed though, that whilst Adam Smith did study the mechanics of the firm in detail, particularly with regard to mass production techniques and the division of labour, the emphasis of his work tended to be on the operation of the economy as a whole rather than of the economics within the firm.

Classical economics did emphasize that efficient production practices are a necessary prerequisite for growth in any business. Adam Smith (Canaan, 1937) developed the concept of the division of labour being a necessary ingredient of efficient production practices. This concept involved the plan of production for the production process taking advantage of the specialization of labour by breaking the production process down into a series of simpler tasks, each of which involved a specific skill or operation and which were subsequently carried out by an individual worker or group of workers specialized in the implementation of that task.

Smith (*Canaan, 1937*) believed that the division of labour was limited by the size of prospective markets. It was recognised that economies of scale were necessary to take advantage of the benefits due to the division of labour. There would be little point in a capitalist utilizing capital, technology and the division of labour for the purposes of mass-producing 1,000,000 pins a day, if for example, the market potential for pins was only 10,000 pins per day.

The main determinants of firm growth in classical economics were the motivation of the business owner to maximize profit, the size of the market and the efficiency of the production process, which in turn was dependent on capital, technology and the division of labour (*Putterman, 1986*). Theorising concentrated on the aggregate operations of the marketplace and tended to overlook the micro-economics of individual firms. Part of this was due to the historical context of the time that Adam Smith wrote his book '*The Wealth of Nations*' (*Canaan, 1937*), in which some of the conditions of perfect competition were in evidence since there were few enterprises with more than 300 employees and many producers. Smith was of the opinion that self-interest was the greatest motivator in business and individuals starting a business would do so to seize an opportunity to exploit apparently unfulfilled consumer demand. Always Smith reasoned (*Canaan, 1937*), production in the market system would be directed by what consumers wanted. The major problem that arises in attempting to evaluate the strengths and weaknesses of the classical approach to understanding growth processes in the firm, is that the classical economists never really specifically targeted growth processes within the firm for serious detailed study. The classical economists (*Fogiel, 1980*), were more concerned with the issues of the production and distribution of economic wealth created between landowners, labour and capitalists, and the classical economists were keen to demonstrate that the interplay of separate decision-makers such as labour and capitalists could be harmonized through the market system to generate economic wealth (*Pass et al, 1988*). References to growth in the economy at both the micro and macro level are couched in very broad generalist terms.

Classical economic perspectives on growth were generally based on realistic assumptions since the theories associated with this school of thought developed in response to what was happening in the contemporary world at that time. The economic world of the classical economist was dynamic one in which the economy would constantly be seeking a price equilibrium reflecting the interplay between the quantity of goods/services produced and the quantity of goods/services

demanded by consumers. If the criteria for a free market were in evidence, economic development or growth would surely occur since personal self-interest would spur producers to maximise profits and spur consumers on to maximize their satisfaction with the consumption of a product.

The assumptions of the classical economists in explaining growth, may have been realistic in the 19th century, but cannot said to be entirely suited to the circumstances of firms and economies in the late 20th century. The following examples will demonstrate why the classical economics approach to understanding growth cannot withstand close scrutiny when applied to economic systems in the late 20th century.

Self-interest on the part of consumers and producers may not necessarily translate into greater economic well-being for the economy as a whole since some producers at the end of their product cycles may continue for far too long in producing an obsolescent product line while consumers on the other hand, may accept inferior products out of sheer indifference.

Atomistic/perfect competition is extremely difficult to find in the real world because of imperfect knowledge about the market by buyers and sellers; the existence of monopolies; products are rarely homogeneous; and because free market entry/exit is a rare occurrence.

Economies do not normally revert back to a state of equilibrium with full employment, minimal inflation, adequate investment and a balance between the supply and demand of goods and services in the economy as the experience of the Great Depression in the 1930s' clearly demonstrates.

Strong consumer demand can be fickle to ensure, with people tending to hoard wealth when economists predict that they should be spending their wealth.

The requirement in the classical models that there should be no government intervention at all in the operations of the marketplace, has in practice been shown not to be particularly prudent, due to the unstable nature of the marketplace.

The classical economic approach can also be criticised for its imputed assumption that the transactions and activities in the economy, for all intents and

purposes, occur on the head of a pin, in spatial terms. Distance has a major influence on the operations within an economy. The absence of acknowledgement in classical economics for the role that the spatial factor plays in preventing the ideal situation of a free market and perfect competition from occurring is a major shortcoming.

The analytic capabilities of the classical economics approach to economic growth within firms and the economy as a whole, in terms of predictive powers, degree of explanation of the growth processes within firms and indicating the potential for growth within firms, are in general, extremely loose in a quantitative sense. There is very little reliance on mathematics to analyse firms in detail. Classical economic theory seems to be peppered with vast general statements that fail to take in the vast range of economic realities that exist in today's modern world. It would seem then that the overall analytical capabilities of classical economic theory were intended to be more qualitative and explanatory in character.

Classical economic theory is quite successful at identifying many of the enabling and constraining factors of growth in firms. The enabling factors are simply a free-market environment in which the conditions permit perfect competition to flourish. The players in this free-market environment, buyers and sellers, must be driven by genuine self-interest for there to be economic growth. For producers, that implies maximising profits and reinvesting those profits into the productive capacity of the business. The producers profit when they fully inform themselves of what buyers in the marketplace are demanding and structure their output accordingly. The producer that can interpret the signals in the marketplace correctly, will profit the most.

Adam Smith (*Canaan, 1937*) referred to the 'invisible hand' as the coordinating mechanism in the marketplace between buyers' wants and the sellers' produce, which indicated that there was a large element of luck in determining whether a producer's products would succeed or fail in the marketplace. The problem with the classical economists' concept of self-interest is that it failed to take into account the idea that self-interest could also include non-material rewards such as, for example, in the case of employees, superior working conditions.

The classical economists (*Fogiel, 1980*) recognised the importance of achieving efficient production practices through the adoption of mass-production techniques and the division of labour. Furthermore, it was appreciated that profits were a primary determinant of growth in businesses, because it permitted further

investment in the productive capacity of firms, which is one of the major manifestations of growth.

The constraining factors of growth from the classical economic viewpoint are simply those factors that contribute to an absence of a free-market environment with perfect competition, such as barriers of entry/exit to the marketplace; ill-informed buyers and sellers; differentiated products, none of which are directly comparable; and many buyers and sellers.

A model or theory of growth should be testifiable or verifiable. While the classical economic approach to understanding growth does not perhaps have the legitimacy of being called a theory or model specifically related to explaining growth processes in firms, the concept that capital accumulation is a necessary precondition for growth processes in a firm to be initiated can be tested. Within the classical economic theoretical framework, there has not been any empirical research specifically directed towards supporting the concept that capital accumulation within a firm leads to reinvestment in production and subsequent growth of the business concerned.

A major failing of the classical economic approach to understanding growth processes within the firm is that the diversity of firms and the various forms or strategies of growth within firms are not really examined. This is understandable because of the milieu that the classical economic school of thought developed when the western world was just embarking on the industrial revolution and the amazing diversity of economic activity that characterizes today's economic world simply did not exist. However, the basic ideas of classical economics that growth in a business was dependent on production efficiency through mass production techniques (*although in some sectors of the economy, technology has permitted flexible specialisation techniques to flourish*) and acceptance of a businesses' products in the marketplace by consumers, are still valid concepts in the contemporary economic world.

2.5.2 Neoclassical Economics Approach

The neoclassical approach in economics came into vogue from the 1870s onwards with the writings of economist Alfred Marshall (1842-1924) (*Pass et al, 1988*). This approach was sometimes referred to the "marginalist revolution", because it concentrated on marginalist concepts such as the cost of a product, determinants of product value and consumer utility. The neoclassical economics approach was also concerned with optimum plant size, economies of scale and the

temporal dimension of production runs (*i.e. production runs in the short versus long term*).

Marginal analysis can be simply described as the effects of adding one extra unit to, or taking away one unit from, some economic variable. This approach to analysis is most frequently employed in the examination of a firm's production costs. Marginal cost is simply the extra cost in addition to total cost that is incurred in the short run by increasing output by one unit.

Neoclassical economic theory like classical economic theory stresses the profit maximisation function of firms. The firm is treated as a simple theoretical construct in which inputs are transformed into outputs. Crew (1975) suggests that the firm is under the control of an entrepreneur who within the constraints of his production system and after combining inputs to produce outputs, seeks to maximise the excess of revenue over cost. A related objective of the firm is maximise output from given quantities of inputs. If the input prices are known, then these can be used along with the production function to arrive at the optimal input combination for a given output.

Neoclassical economics also introduced important concepts such as supply-demand curve equilibrium analysis and a mathematical treatment of the price mechanism (*Pass et al, 1988*). The main difference between classical and neoclassical economics was that the former emphasized issues of the source of wealth and the division of wealth resources between labour, landowners and capitalists whereas the latter focused on the issue of optimising the allocation of scarce resources to suit consumer demand.

Perhaps the most significant example of a growth model developed within the framework of neoclassical economics theory, is that of Solow's work in 1971 (*Crew 1975*). Solow's model of growth in a firm is what Crew (1975) calls the "steady state variety", in which the firm selects a constant rate of growth at which it grows, and remains at that growth rate forever. This simplifying assumption enables growth to be studied with the familiar maximising discipline of calculus.

Solow developed a production function in which output is a function of capital and labour. This model permits capital to be substituted for labour and displays diminishing returns. Therefore, if capital is increased relative to labour, the resulting

increases in labour become progressively smaller. If the assumption of a variable capital-output ratio is adopted as a firm's capital stock increases, diminishing returns set in and produce progressively smaller increments in output. Sustained economic growth for a firm requires both capital widening and capital deepening investment. Capital widening refers to an increase in the capital input in a firm at the same rate as the increase in the labour input so that the proportion in which capital and labour are combined to produce a firm's output remains unchanged. Capital deepening refers to an increase in the capital input in a firm at a faster rate than the increase in the labour input so that proportionately more capital to labour is used to produce the firm's output. Technological progressiveness in terms of new production techniques, processes and methods and new products, offsets the diminishing returns to capital as the capital stock increases (*Pass et al 1988*).

The reader is referred to appendix A2 for details of the concepts in neoclassical economics most relevant to understanding growth processes in firms, which are: supply and demand curves; short and long-run production curves; and Solow's model.

There are several assumptions that neoclassical theory is based on. These assumptions are intended to simplify the explanation of how firms and consumers behave in the market place. They are:

1. that firms seek to maximise their profits;
2. that the marginal utility that consumers have for products places limits on ultimate market demand for those products;
3. that production cost curves are U-shaped, which suggests that production technology limitations restrict firms to a limited range of production outputs. Firms strive to minimise their unit production costs and thereby achieve economies of scale (*the lowest part of the U-shaped production cost curve*);
4. that the price mechanism, based on the concept of supply and demand curves, determines the market equilibrium price a product sells for and the quantity of product sold in the market. The technique of superimposing supply and demand curves for a particular product in a particular market clearly demonstrates that growth is limited by the marginal utility that consumers have for that product and by the size of the market;
5. that the resources of the firm not used for immediate production will lead to investment that will increase the firm's future production capacity;

6. that the firm is implicitly suggested to be an analogy for the industrial manufacturing concern with its rigid mechanical production system;
7. that for the purposes of simplifying analysis, the firm is treated as a single product production system;
8. that management and/or owners will always act in the best interests of the firm, that is to achieve profit maximisation and maximise economies of scale (*i.e. minimise production costs for the particular size of the plant in the short run and for the market in the long run*); and
9. it is assumed that all economic interactions effectively occur on the head of a pin. In other words, the impact on a firm's competitiveness and access to markets due to various spatial factors tends to be ignored.

Where the neoclassical approach is perhaps strongest is in its analytical capabilities, particularly in terms of examining the theoretical potential for growth within a firm and in making simple short term predictions of a firm's growth. The use of such analytical tools as the price mechanism utilising supply and demand curves, short run and long run average cost production curves and Solow's growth model are very useful techniques for broadly estimating a firm's potential for growth. However, there are problems with these tools. Whilst these analytical tools appear to be elegant and clever theoretical constructs, in practice, they can be difficult to apply to actual firms in the market place.

For example, the development of supply and demand curves that suitably predict the full range of a product's behaviour in the market is difficult to determine unless there has been a past history of consumer behaviour and supply for that particular product, which is available to the analyst for study. Hence, the estimation of supply and demand curves can involve considerable guesswork (*especially with regard to estimating consumers' marginal utility for the product concerned*), which may not be borne out in practice.

The use of short run and long run average cost production curves presents problems when it comes to analysing the potential for growth in small manufacturing firms, because innovations in production technology have permitted much greater flexibility, specialisation and economy in manufacturing processes to be achieved. Large production runs for the purposes of achieving economies of scale are no longer a prerequisite for many products to be manufactured profitably, with the exception of items such as motor vehicles and consumer electronic goods. Indeed, for

many small firms their prime commercial advantage over the large manufacturing concerns is their ability to produce goods for market niches that are considered too small for large firms to exploit (*Penrose, 1959*). For firms engaged in flexible specialisation of manufacturing goods, average cost curves are difficult to apply, since some product runs may be one-off batches for a particular customer, unlikely to be repeated. Another problem one encounters with the use of average cost production curves, is that they ignore multi-product firms.

Solow's growth model is a useful analytical tool for testing the impact of changes in parameters such as taxes, the cost of capital, depreciation rates of capital equipment, the growth rate of the economy, selling costs and the discount rate on a firm's operations. However, the weaknesses with Solow's model is that while it takes account of all the mechanical economic processes, both within and outside the firm that have a bearing on the firm's financial management capabilities, it fails to develop an understanding of why growth occurs, nor does it take into consideration the role of the firm's management in promoting and facilitating growth. As with most of the growth firm theories cast in the neoclassical mould, the importance of innovation to firm growth receives scant attention. The lack of reference in neoclassical growth firm theories regarding the importance of innovation in production technology and products, can perhaps be put down to the difficulty of quantifying this type of factor into any theory of firm growth processes.

In terms of explanatory capability of growth processes in firms, the neoclassical approach is not particularly useful, due to its rather simplistic notion of the firm, its assumption that all firms are profit maximisers, its difficulty in explaining the role of product innovation and its neglect of the role of management. The use of production possibility frontier curves does, however, assist in explaining in a basic conceptual manner, the trade-off the firm must make between investment in long term growth (*i.e. expanded production capacity*), and short term maximisation of production output. Notwithstanding these criticisms, neoclassical economic growth theory is still applicable to many firms, particularly large industrial firms. Many large firms are profit maximisers aiming to minimise unit production costs through the achievement of economies of scale in their short run and long run average cost production curves. In the neoclassical economic framework, the firm will be motivated to continue its expansion of output up to the point where total profit from its production run is maximised. This is the difference between total production costs and total sales revenue. The concept of marginal consumer utility is useful in explaining

why the maximisation of marginal profit does not necessarily coincide with maximised total profit, since increased output in the market tends to result in a lower unit sales price. Neoclassical economics is considerably handicapped, however, when it comes to explaining the behaviour of firms that are satisficers, in other words, firms whose primary motivation is not to maximise profit, but may include such objectives as increasing market share, or an owner-manager who wants to maintain personal control of the business.

Neoclassical economic theory is able to deal quite well in indicating the potential that a firm has for growth in terms of underutilised plant capacity or unmet consumer demand. The analytical tools employed in this regard are average cost production curves and supply/demand curves. The main weakness in using average cost production curves is that by concentrating on the physical capacity of the firm to expand, they ignore the wide range of other factors that come into play in determining firm growth prospects such as market demand and various macro-economic forces. And as was mentioned previously, the exact geometry of supply and demand curves is difficult to estimate.

The enabling and constraining determinants of growth in neoclassical economic theory for firms, are simplistic and of an easily quantifiable nature. On the supply side of the market, the main determinants are: there being vigorous competition amongst many producers in the market; firms having perfect knowledge about the market; the motivation of a firm to maximise profit; there being minimal barriers to producers to enter or leave the market; a firm's ability to optimise its production capabilities and a firm's ability to produce products of the right type, innovation, quality, price and quantity demanded in the marketplace. The optimisation of the firm's production capabilities is achieved in terms of maximised production efficiency (*i.e. the minimisation of total production costs*) and ideally, an ability to cater to unlimited market demand for the product/s the firm produces. On the demand side of the market, the determinants are: the marginal utility amongst consumers for the product/s produced by the firm; the desire that consumers have for the products produced by a firm; the ability of consumers to pay for the products on offer; and the existence of many buyers who have perfect knowledge about the market.

The ability to distinguish growth firms from those that are static or declining in neoclassical economic theory, focuses almost exclusively on profitability. Although this is a simplistic measure and sometimes ambiguous in practice due to

differences in firms' accounting practices (*sometimes for the purposes of minimising tax liability*), it is very easily applied. A prerequisite for firm expansion is sustained profitability, so using profitability as a distinguishing indicator of growth firms from those that are static or declining would seem to be commonsense approach.

The ideas and concepts developed within the neoclassical framework of economics have to a large extent been formulated in response to the behaviour of firms and consumers in the marketplace. Conceptually, they do allow analysis of the way that firms behave and yield a basic understanding of the motivation behind most firms. However, empirical evidence supporting the concepts discussed in this section is considerably lacking in the literature. This may be because many of the concepts developed in neoclassical economics are analytical tools designed to 'dissect' or analyse changes in the economic activities occurring within firms, rather than being developed as theories designed to theorise about the wider nature and causes of growth in firms. Generally though, concepts such as supply/demand curves, short and long run production cost curves, production frontier curves, the marginal utility of consumers are in practice verifiable phenomena amongst the majority of firms. The difficulty, however, tends to be in attempting to accurately quantify data for the purposes of applying these concepts/analytical tools to firms in practice. The frustration that traditional neoclassical economic theory has caused economists seeking to satisfactorily explain and understand growth processes in firms, helps to partly explain the significant proliferation of other theoretical approaches concentrating on growth processes in firms, such as the work by Marris (1966), Penrose (1959), Downie (1958) and Andrews (1949).

When Marshall (*Pass et al, 1988*) first helped to create the body of knowledge that was to be known as neoclassical economic theory nearly a century ago, the firms that were the target of interest were traditional profit maximising industrial firms. In today's modern developed capitalist economies, there is a wide range of different types of firms and with varied strategies for growth. The differences in firms, include the legal form of the firm, the economic form of the firm (*i.e. whether it is a single product or multi-product firm or a conglomerate producing various unrelated products*), the technology employed, the types of products produced, the markets being targeted, the nature of the production process, the type of employment, firm size, ownership structures, funding arrangements and management objectives. Pure neoclassical economic theory considers the firm simply as a transformation unit in the macro-economy concerned with converting various factor

inputs into higher-valued intermediate and final products. Furthermore, pure neoclassical economic theory is not concerned with examining the details of various strategies for growth, but is principally concerned with the firm achieving its optimal size necessary to maximise profits. Indeed, Kumar (1984) considers growth to be an incidental factor in the neoclassical economic analytical approach compared to that of analysing the optimal production system for a firm.

While the neoclassical economic approach provides some of the fundamental theoretical building blocks necessary to describe and understand how and why firms behave the way they do in the market, there is still the aura of the 'black box' syndrome permeating much of the conceptual aspects of this approach. Important details and aspects (*particularly management*), are brushed aside in favour of simple elegant abstractions that have lent themselves well to mathematical analytical techniques and bestowed an air of scientific respectability on economics as a discipline, but at the danger of trivializing or ignoring difficult to quantify issues of firm growth.

2.5.3 The Entrepreneurial Approach

A simple definition of an entrepreneur (*Pass et al, 1988*) is a person who assembles (*either by hiring or buying*) and organizes the factors of production, natural resources, labour and capital to undertake a venture for the objective of making a profit. Before the advent of the joint-stock company, the entrepreneur supplied all these factors of production, but especially managerial expertise. However, now the entrepreneur is viewed as anyone who performs the organising and risk-bearing functions of a business being established.

With the entrepreneurial approach to explaining growth processes in firms, entrepreneurs are regarded by many theorists to hold the key to successful firm growth. Sexton and Bowman-Upton (1991) make a strong distinction between small business owner-managers or corporate managers and entrepreneurs in two important respects. Firstly, entrepreneurs are more likely to recognise opportunities for growth and have the motivation to exploit those opportunities coupled with the ability to manage growth and change. And secondly, entrepreneurs are more likely to engage in strategic planning whereas non-entrepreneurial manager types (*e.g. many small owner-manager firms*) tend to rely on existing information when making decisions.

Past research into entrepreneurship has often concentrated on defining the characteristics and/or demographics of a selected group, rather than determining what entrepreneurs do or why they do what they do. The kinds of distinguishing characteristics or values typically attributed to entrepreneurs in some academic research are listed as follows:

1. When entrepreneurial types start a business, they have a clear growth orientation; a strong propensity for fostering growth within the firm; and a tendency to initiate strategic plans designed specifically to promote growth in the firm (*Sexton and Bowman-Upton, 1991*).
2. Entrepreneurs have a high need for achievement (*McClelland 1961*).
3. An internal locus of control (*Rotter J. & Malry, R., 1965*).
4. Risk takers (*Palmer, 1971*).
5. Creativity, innovation, self-confidence, needs for independence or autonomy, a strong commitment and a high personal energy level (*Sexton and Bowman-Upton, 1991*).
6. Searches out, recognizes and exploits opportunities (*Schumpeter, 1934*).
7. An approach to general management of business that begins with opportunity recognition and culminates with the exploitation of that opportunity (*Sexton and Bowman-Upton, 1991*).

Entrepreneurial behaviour is different from administrative behaviour in business management. Stevenson and Sahlman (1986) identified six factors that distinguish the entrepreneurial approach from the administrative approach. They are strategic orientation; commitment to identifying business opportunities; the resource commitment process; control over resources; management; and compensation policy. Administrative behaviour was considered by Stevenson (1986) to be a manager that fosters the efficient utilisation of existing resources, whereas entrepreneurial behaviour is characterised by a "promoter" style of management in which the manager is sufficiently confident to seize and exploit business opportunities, regardless of the resources owned by the firm. The entrepreneurial manager adopts a strong strategic orientation to the management of a business; has a strong commitment to identifying business opportunities; prefers to commit the firm's resources for investment purposes in stages or leases assets so that the firm's exposure is minimised; operates within a horizontal management structure with informal networks; and a value based compensation policy. The administrative manager, by contrast, has a weak strategic orientation, being more concerned with the efficient utilization of the firm's existing

resources; only seizes business opportunities if the firm's existing management and resources can cope with it; prefers that the firm owns all of the resources that it uses and relies on the firm's resources for further investment; values a formalised hierarchical approach for management; and practices resource-based compensation policies.

Sexton and Bowman-Upton (1991) believe that growth is a factor that can be controlled by the owner-manager of a firm. There are three reasons why firms may not grow: market factors, management constraints, or a vocational decision on the part of the firm's management and/or owners not to grow. Market constraints to growth include limitations of the market segment the firm is located in; lack of opportunities and/or competitive advantages to exploit; and the positions of a firm's product/s on the product life-cycle curve. Management constraints may occur because an owner-manager does not have or is not willing to delegate to existing staff or to hire people who can manage growth. With firms that make a vocational choice not to grow, it is implied that they already possess a number of positive market factors combined with the capabilities to manage growth, but for certain reasons, (*what many writers in the field refer to as lifestyle choices*), the owner/s and or managers make a conscious decision not to embark on a growth strategy. Stevenson and Sahlman (1986) have developed two matrices that compares the role of the entrepreneur with other managerial types in firms and examines how these managerial types respond to in the first matrix (*figure 2.1*), the relationship between market factors and management factors and in the second matrix (*figure 2.2*), the relationship between the propensity for growth and the manager's confidence in having the power to achieve those goals.

Other research into entrepreneurs concentrates on the psychological traits that lead to the entrepreneur's propensity to pursue a growth strategy. These psychological traits include: that they tend to be highly energetic and dynamic individuals; they engage in risk taking; they are socially adroit; they are highly autonomous individuals; they like change and enjoy situations with uncertain outcomes; they are persuasive about their ideas/objectives; they desire new and different experiences with limited restraints; they are independent in thought and action; and they have limited need for support from others. However, Sandberg and Hofer (1982) believe that this research is of limited value in understanding how entrepreneurs cause a firm to grow because research into the personality and

FIGURE 2.1:
IMPACT OF MARKET AND MANAGEMENT FACTORS ON TYPE OF FIRM

Market Factors	High	Lifestyle small firms	High growth or entrepreneurial firms
	Low	Marginal small firms	Successful small firms
		Low	High

**Management Factors
(propensity for, and ability to manage growth)**

SOURCE: STEVENSON & SAHLMAN, 1986

FIGURE 2.2:
MANAGER'S OPPORTUNITY MATRIX

Self-perceived power to achieve goals	Yes	Entrepreneur	Satisfied manager
	No	Frustrated potential entrepreneur	Bureaucratic functionary
		Yes	No

Desired future state involves growth and change

SOURCE: STEVENSON & SAHLMAN, 1986

psychology of the entrepreneur focuses on what leads a person into entrepreneurship, rather than how they cause a firm to grow.

Other academics have concentrated on why entrepreneurs strive to be successful and have examined the influence of prior job dissatisfaction, the need for personal achievement and the greater capabilities of the entrepreneur compared to the conventional administrative manager. In a study by Brockhaus (1980), successful entrepreneurs were found to have experienced job dissatisfaction prior to starting their business to significantly greater extent than did unsuccessful entrepreneurs. The need

for greater personal achievement amongst entrepreneurs was examined in Hornaday and Aboud's (1971) work, where it was found that when entrepreneurs were compared against the general population, they appeared to have a greater propensity to want independence, to be successful and to be an effective leader. The thesis that entrepreneurial types display greater capabilities than the general population which results in them achieving greater business growth, was examined according to training, education, knowledge bases relevant to business management, and competencies in various areas. In a study by Davidson and Brynell (1988), well educated managers in small high technology firms were found to more growth oriented in their management approach than were managers in small low technology firms. Important entrepreneurial competencies for ensuring business growth and success, are firstly, to be able to identify opportunities and secondly, to be able to learn and adapt through past failures (*Smed 1989, MacMillan 1987*).

The main assumption that theorists, academics and researchers adopt as the basis of the entrepreneurial approach is that the entrepreneur is a distinct type of individual possessing values or characteristics that sets them apart from ordinary managers and which imbues the entrepreneurial type with the drive and motivation to maximise his/her personal achievements. These values or characteristics of entrepreneurs have the implicit assumption that entrepreneurial managers are more inclined to actively pursue a growth strategy and seek out business opportunities than are conventional administrative/bureaucratic or owner-managers.

When it comes to analytical capabilities, the entrepreneurial approaches to understanding growth processes generally tend to be weak. The lack of theoretical clarity (*Kets de Vries, 1977*) has certainly hindered the development of the entrepreneurial approach as a powerful analytical tool. Chell (1985) remarks that all of the analysis so far carried out on entrepreneurial traits have failed to produce reliable evidence of a single trait that can be used to distinguish successful entrepreneurs from unsuccessful ones, although the research carried out to date has been able to distinguish entrepreneurs as being distinct from the characteristics of the general population. Empirical evidence has not been able to establish a link between the personality characteristics of entrepreneurs and successful company performance (*Kets de Vries, 1977*).

Much of the focus of the entrepreneurial approach has centred on using personality traits, managerial values and competencies to predict successful

entrepreneurial types in their role as risk taking innovator and critical decision maker (*Gibb and Davies, 1989*). Other academic work has focused on typologies as a means of predicting entrepreneurial behaviour. Frohlic and Pichler (*in Gibb and Davies, 1989*) have developed a hypothesis of there being four types of entrepreneurs: the versatile, responsive all-rounder entrepreneur; the pioneering, innovative and dynamically creative entrepreneur of Schumpeter, Miles and Snow; the analytical and planning entrepreneur otherwise known as the organiser; and the routiner who tends to be a classical and non-spectacular risk bearer. Unfortunately, these typologies fail to offer any predictive capabilities regarding whether a firm's growth will take-off as a result of a particular type of entrepreneurial manager being in charge of the firm and what the firm's potential for growth will be. However, they are useful for indicating the type of managerial techniques that the entrepreneurial manager might choose to facilitate growth.

The greatest analytical capability of the entrepreneurial approach concerns its explanatory powers. Despite the fact that a large proportion of the research has concentrated on describing the personality traits of managers that become entrepreneurs, there is a significant body of literature in this area that clearly endeavours to develop an understanding of the role that entrepreneurs play in growth. For example Richard Cantillon, an eighteenth century businessman and financier, was first to stress the risk bearing function of entrepreneurship in which the entrepreneur had the willingness and the foresight to assume risk and take the action required to make a profit (*Glaister, 1989*). Schumpeter (1934) saw the key to economic growth as being within the innovative entrepreneur who takes risks and introduces new technologies to stimulate economic activity and replace obsolete technology, a process referred to as 'creative destruction'. To Schumpeter (1934), the entrepreneur was the person who creates new combinations in the production and distribution of goods and services. Sexton et al (1991) and Stevenson (1986) stress the importance of the entrepreneur type manager being crucial to the growth of small firms, explaining that the desire to seek out and exploit business opportunities, the special personality traits and management skills of the entrepreneur are the main enablers of growth.

In terms of identifying the constraining and enabling determinants of growth, the entrepreneurial approach adopts a very narrow focus. Management, in the form of the dynamic, innovative and opportunistic entrepreneur is seen as the key enabling determinant of growth, particularly in the small firm, where the entrepreneur has the chance to make the biggest impact on deciding a firm's direction. Conversely,

the constraining determinant of growth is seen to be management that adopts the administrative or bureaucratic approach and is content to manage the activities of a firm within the context of its existing resources. The entrepreneurial approach does not seriously attempt to go beyond the narrow circle of management determinants to a firm's propensity to grow.

Literature from the entrepreneurial approach does not go into great detail concerning the distinguishing characteristics of growth firms from those that are static or declining, preferring instead to concentrate on the role of the entrepreneurial personality in a growth firm. Generally, there seems to be an implicit assumption that entrepreneurs are only associated with growing successful firms, whilst declining or static firms are associated with administrative managers lacking the entrepreneurial personality traits that would provide a catalyst to growth. But O'Farrell et al (1988b) makes the point that there are many entrepreneurs that make an attempt and fail to succeed who are associated with declining or static firms. Although Sexton et al (1991) stresses that entrepreneurship is probably the single most important factor responsible for firms growing (*in terms of their propensity for growth and the ability to manage growth*), they also draw attention to the need to consider market factors (*market niche and competitive advantage*). This would suggest that the entrepreneurial approach provides some useful insights into what distinguishes static or declining firms from growth firms from a management perspective, but can be severely criticised for overlooking many of the other factors that help to make the distinction between successful and unsuccessful growth firms.

The entrepreneurial approach is criticised for not being easily testifiable or verifiable. The objective of empirical research in this area is to link entrepreneurial characteristics to the propensity of firms' to grow, but so far it has yielded conflicting results. England (1975), Bamberger (1983) and Brockhaus (1982) have been unable to prove definitively that such a linkage exists. The McBer Report (1987) came to the conclusion that 'personality variables are not useful predictors of business performance because the personality oriented competency measures....do not relate consistently to...business performance'. For the entrepreneurial approach to be taken more seriously from an academic viewpoint, more empirical evidence is necessary.

The entrepreneurial approach does not take into account the diversity of firms, nor the various forms or strategies of growth. Usually, writers' in this field concentrate on small growth firms, since these are the types of firms where the

entrepreneur is likely to exert the most dramatic impact. Generally, the entrepreneurial approach would seem to imply that it can be applied to any firm in any sector of the economy. Few of the writers in this field consider the various forms or strategies of growth that entrepreneurs prefer, except to say that entrepreneurial managers are more likely to embark on growth strategies than administrative managerial types.

2.5.4 Organisational Development Approaches to Growth

This section examines the main pieces of work that can be categorised as belonging to the 'Organisational Development' approaches. Five important pieces of work are examined here: the work of Downie (1958); Marris (1966); Penrose (1959); Peters and Waterman Jnr (1982); and Resnik (1988). While the underlying theme of these theorists is that the pathway to growth for a firm is through effective and efficient management, each item of work has been reviewed and assessed separately here since they all have different focuses.

The work of Downie (1958) is interesting in the way it describes how growth firms through greater profitability (*as a result of better production efficiency compared to its competitors*) in an industry sector come to dominate that sector and herald the demise of less efficient firms. Downie also explains how new entrants to an industry can challenge the status quo of competitors in that industry and also become growth firms.

Marris' (1966) theory of 'managerial capitalism' is examined here because it underlines the difference between growth in entrepreneurially managed firms and growth in joint-stock companies. This piece of work attempts to bridge the gap between the managerial behaviourists and neoclassical economic theory. Furthermore, it explains how growth is pursued in a joint stock company and develops a policy model designed to predict a company's maximum growth rate, subject to the input of various policy variables.

Penrose's theory on the growth of a firm examines growth in the context of the availability of managerial services for strategic and operational planning. According to Penrose (1958), a firm's potential for growth is determined by the quality and quantity of managerial services possessed by the firm.

Peters and Waterman Jnr's (1982) research examines the attributes that seem to characterise America's most successful large companies. Although the case

studies focus on how large companies maintained a position of market dominance over a 20 year span, they are instructive in small-medium firm research because nearly all of the companies studied started off as small entrepreneurial concerns and many of the business practices that currently make them successful have been part of the culture of these companies since their founders established them.

Finally, this section concludes with a review of Resnik's (1988) work. Resnik's discussion of small firm growth is a reflection of his experience as a small firm businessman and small business adviser in the United States. Despite the fact that much of Resnik's empirical evidence is anecdotal and somewhat didactic, it explains clearly and concisely the pitfalls of growth for small firms and what sort of management strategy needs to be adopted if a small firm is to grow successfully.

2.5.4.1 Downie's 'Transfer' Mechanism

Downie's (1958) theory of firm growth processes focuses on the concept that competition between firms to maintain or expand their market share is driven by the profit maximisation motive. The mechanism firms employ to attain greater levels of competitiveness is to maximise their production efficiency in the interests of maximising profit. Production efficiency is taken by Downie to mean that its costs per unit of output are lower. The fuel of growth is seen as profitability, since profits can be reinvested in the firm to expand the firm's productive capacity. Like the neoclassical economics approach, Downie's theory appreciates maximisation of profitability to be a firm's primary *raison d'etre*, but conceptualises it in a dynamic way as the driving force of growth. Downie accepts that profitability by itself is not enough to ensure the continual growth of a firm, even if its production efficiency by the standards of its contemporaries is the highest. Other firms in the industry can challenge the industry leader and become rapid growth firms through what is termed the "innovation mechanism". The concept of the innovation mechanism is where some firms make a technological breakthrough with products and/or production processes.

This work also concentrates on how the unchecked expansion of a few growth firms in an industry, eventually leads to industry concentration and the creation of an oligopoly. Downie comments that oligopolistic firms protect their position within their industry through collaborative agreements with its oligopolistic rivals to restrict new entrants into the industry or discourage the remaining small firms from embarking on aggressive expansion strategies. An interesting assumption is implied that all firms (*even oligopolistic firms*), pursue a growth strategy by virtue of their

desire to maximise their profitability. Oligopolistic firms are suggested by Downie to assume imperialistic ambitions when prospects for further growth in their own sector have been exhausted, by diversifying their profits into creating subsidiaries in other industries that are within its technological horizons and management capabilities.

The model developed by Downie is called a "transfer mechanism" because it results in the productive capacity of an industry being transferred away from firms that have poor production efficiency to those firms that have high production efficiency. This results in firms with poor production efficiency declining or dying while firms with high production efficiency can expand to the point where the industry becomes oligopolistic, from which point on, they diversify into other industries. The means to growth for a firm are seen as being simply dependent on increased customers and increased capacity. Explanation for different rates of firm growth in an economy must lie in differences that firms command over the means of growth.

Table 2.2 illustrates in practical terms how Downie's model operates. From table 2.2, it is easy to observe how market power is being 'transferred' to firm B from firm A because of firm B's greater productivity efficiency which has endowed it with the profitability required to finance its expansionist aims. In effect, the market is being concentrated in firm B, although in this hypothetical example only two firms have been examined.

From Downie's original "transfer mechanism" concept of firm growth, it would appear that once a firm or group of firms in an industry attains maximum production efficiency, their growth will continue unchecked until the industry becomes oligopolistic, thereby exhausting all prospects of further growth for that particular industry. However, before that stage is reached, Downie suggests that an "innovation mechanism" may be at work which to all intents and purposes, behaves in a random manner amongst the population of firms in an industry. What Downie means by an innovation mechanism, is where a firm is able to gain new competitive advantage through the introduction of either innovative new production techniques for the existing products that it produces or new products to supersede existing products. Breakthroughs in production efficiency or new products can come from any firm in the industry and the point is stressed that the lead in innovations can be seized by any firm. Unless the current industry leader can maintain its lead in innovations, its position at the top of its industry in the long term is by no means assured. However, there tends to be a strong probability that the large growth firms will usually be the

TABLE 2.2:
DOWNIE'S 'TRANSFER' MECHANISM

	REVENUE (£)	OUTPUT (UNITS)	PROFIT (£)	MARKET SHARE %	INVESTMENT (£)	GROWTH (OUTPUT)
YEAR 1						
FIRM A	2000	100	1000	50	1000	0
FIRM B	2000	100	1500	50	1500	0
MARKET	4000	200	2500	100.0	2500	0
YEAR 2						
FIRM A	2200	110	1100	48.9	1100	10
FIRM B	2300	115	1725	51.1	1725	15
MARKET	4500	225	2825	100.0	2825	25
YEAR 3						
FIRM A	2420	121	1210	47.8	1210	11
FIRM B	2640	132	1980	52.2	1980	17
MARKET	5060	253	3190	100.0	3190	28
YEAR 4						
FIRM A	2660	133	1330	46.7	1330	12
FIRM B	3040	152	2280	53.3	2280	20
MARKET	5700	258	3610	100.0	3610	32
YEAR 5						
FIRM A	2920	146	1460	45.5	1460	13
FIRM B	3500	175	2625	54.5	2625	23
MARKET	6420	321	4085	100.0	4085	36
YEAR 6						
FIRM A	3200	160	1600	44.3	1600	14
FIRM B	4020	201	3015	55.7	3015	26
MARKET	7220	361	4615	100.0	4615	40
YEAR 7						
FIRM A	3520	176	1760	43.2	1760	16
FIRM B	4620	231	3465	56.8	3465	30
MARKET	8140	407	5225	100.0	5225	46
YEAR 8						
FIRM A	3880	194	1940	42.2	1940	18
FIRM B	5320	266	3990	57.8	3990	35
MARKET	9200	460	5930	100.0	5930	53
YEAR 9						
FIRM A	4260	213	2130	41.2	2130	19
FIRM B	6080	304	4560	58.8	4560	40
MARKET	10340	517	6690	100.0	6690	59
YEAR 10						
FIRM A	4680	234	2340	40.0	2340	21
FIRM B	7000	350	5250	60.0	5250	46
MARKET	11680	584	7590	100.0	7590	66

NOTES:

**Unit cost for firm A is £10/unit and for firm B is £5/unit*

**Market price for product is £20/unit*

**Profit from previous year invested in increasing firm output at a cost of £100/unit*

**Market demand assumed to always be in equilibrium*

SOURCE: ADAPTED FROM DOWNIE, 1958

leaders in innovation in the industry and their expansion will be at the expense of the "industry's tail", in other words, the small struggling firms in the industry. In spite of this, competition will impel the less efficient firms to critically re-examine their

approach, experiment more and introduce new methods (*Downie, 1958, p91*), with the objective of becoming the new industry leaders. Downie considers the innovation mechanism to be the primary force counterbalancing the transfer mechanism, thereby preventing excessive concentration of an industry in the form of an oligopoly.

Downie starts out with a very simple model based on the following basic assumptions:

1. All firms in an industry have an equal desire to grow without limit.
2. Growth requires more customers and more capital.
3. There are two firms of the same size in the industry at the start.
4. Both firms produce the same single product and sell at the same price.
5. All profit is reinvested in the productive capacity of the firm.
6. No capital is received from outside the industry.
7. The industry is initially in equilibrium (*i.e.capacity=demand*) and that equilibrium is continuously maintained. As reinvested profits expand the productive capacity of the industry, market demand expands to meet the increased supply created by the two firms.
8. One firm has lower unit costs than the other.

The assumptions encompassed in Downie's basic model can perhaps be criticised for being very basic and in practice, unlikely to be applicable to the real world, but they do help to greatly simplify the explanation of how the transfer mechanism contributes to the process of growth in successful firms.

The model developed by Downie has deceptively simple predictive and explanatory powers. It is also able to crudely indicate the ultimate theoretical potential for a firm's growth in an industry. Providing one accepts the limitations imposed by Downie's model's assumptions, it will determine in the short term which firms will be the fastest growth firms on the simple criteria of production efficiency and innovation in either production techniques and/or products. In the long term, it is impossible to predict which firms will be the fast growers since Downie's model considers the innovation mechanism to be a random unpredictable event that can unseat current growth firms very quickly. Downie's model has useful explanatory powers in explaining the dynamics of a growth firm in an industry in terms of how it expands its market share through profitability but has little to say about the internal dynamics of

growth firms, except to say that those firms that have the greatest productivity efficiency will grow the fastest.

Determining the potential for growth of a firm, theoretically depends on knowing the output and profitability of each firm, the growth in consumer demand and the extent of investment by each firm in new production capacity. In practice, however, the model can be difficult to apply if the firms under consideration are anything more than basic one product firms with clearly defined product costs, plant investments and consistent growth oriented management strategies.

Downie's model simply identifies the enabling and constraining determinants of growth in terms of firm characteristics. The key enabling determinants of growth are firstly for the firm to have developed innovative production technique/s and/or product/s which endows the firm with competitive advantage in its industry; secondly, that the firm be an industry leader in terms of its production efficiency; thirdly, that it is profitable and the profits are reinvested in expanding the firm's capacity; and fourthly, that consumer demand expands sufficiently to soak up the firm's increased output. The constraining determinants of firm growth are seen to be negative reflections of the enabling determinants just mentioned, together with an oligopolistic market structure and industry agreements in which firms collude to stifle new firm entrants to an industry and innovation amongst existing firms in the industry.

Downie's model very simply identifies growth firms from those that are static or declining on the basis of growth in production capacity. Growth firms can also be identified according to whether they are or close to the industry leaders in terms of production efficiency and profitability and growth in industry market share.

Downie considers his work to be a crude model of growth and competition amongst firms in an industry, with some very general assumptions. To his credit, empirical investigation has been implemented to test out some of the research propositions developed in his theory of growth and competition, which seems to support his work.

When it comes to considering the diversity of firms, Downie's model is somewhat limiting for the following reasons: it considers only single product firms; the model is specifically targeted at industrial firms; and it does not differentiate

between firms with differing management structures (*e.g. the small owner-manager firm, the entrepreneurial firm or the professionally managed firm*).

Unfortunately, Downie's model is perhaps critically flawed in its assumption that all firms have an equal desire for growth. Notwithstanding this criticism, most of the main strategies of growth (*apart from growth by acquisition*) have been considered in Downie's model and are detailed below:

1. growth through improved efficiency;
2. growth through improved products;
3. growth through attracting customers away from competing firms;
4. undercutting the selling price of competitors to force them out of the industry;
5. industry agreements to restrict new entrants to the industry and impede innovation by the industry's smaller firms; and
6. diversification (*mainly a last resort strategy by oligopolistic firms*).

The apparent oversight of Downie not to include firm acquisition as an expansion strategy is surprising, since this is one of the most common and quickest routes to growth for firms, as the "The State of British Enterprise" report (1992) discovered (*see section 1.4.7*).

To conclude, the most useful aspects of Downie's model and theory is the explanation it gives for the dynamic shift of market share from the less efficient to the more efficient firms in an industry; the relationship between growth and profitability; and its explanation of how oligopolies develop and behave.

2.5.4.2 Marris' Economic Theory of Managerial Capitalism

Marris (1966) maintains that management behaviour and choice of policies are crucial to the successful expansion of a firm. In fact, the facilitation and promotion of company growth would seem to be the main *raison d'être* for managers of public joint-stock limited liability companies. Marris' work is heavily influenced by the work of Penrose (1955) which links growth in the firm to the calibre of its management; the work of Downie (1958) which relates growth to managerial efficiency; and the work of the organisational behaviourists such as Baumol and Harvey Leibenstein, which helps to develop and understanding of managerial and organisational behaviour.

The behaviourist component of Marris' theory is a basic managerial utility function which explains the motivation behind why managers pursue a growth strategy rather than the profit maximisation approach as traditional neoclassical theory suggests they might. The basic managerial utility function incorporates psychological, sociological and economic variates, such as dynamic aspiration, self-identification, class-orientation, and desire for power, status, wealth and personal security. Marris stresses that growth and security motives amongst senior management dominate. The psychological motivation behind senior management refers to the inner wants and drives of the individual. Personal ambition drives the executive on to achieve growth for the firm, particularly when further progression is only possible through expansion of the firm itself. The chief executive is likely to identify his own ego closely with the performance of his firm and hence, the success and prosperity of his firm becomes a proxy for his own wants. Marris draws on evidence from Henry and Katona to support this hypothesis. The sociological motivation behind senior management is basically a modification of psychological drive with respect to the individual's circumstances. The personal ability of a manager becomes judged by the growth of his firm. The encouragement of growth becomes a motive for not only collective but also individual advancement. If personal promotion were in fact determined by shareholders' committees, ability might be judged by profits. However, more often than not, the individual manager's rate of advance is determined exclusively by peers and superiors and they tend to be governed by criteria which generally tends to favour expansion.

The neoclassical component of Marris' model focuses on a public joint-stock company using the stock-market to promote its growth by issuing more stock. The stock market is seen as enforcing good managerial behaviour, not only through the need to satisfy existing holders of stock but also those buying and selling stock. The discipline of the stock-market ensures that financial policies pursued by management that are adverse to facilitating growth of a firm, do not have survival value. It is in the interests of management to maintain the value of stock to prevent the market value of stock falling below the value of the company's assets, since this makes the company attractive to a takeover raid through the raider acquiring a majority of voting rights because it holds the largest share of stock. A firm's management will avoid this scenario at all costs, due to the risk that the raider dismisses the firm's management. The valuation ratio of a public joint-stock company is described by the following relationship:

$$v=[p'(1-r)]/y$$

where v =valuation ratio

(the ratio of a firm's market value to the book value of its assets);

y =dividend yield by current market price;

r =retention ratio;

p' =net rate of return

Efficiency of a firm's management is according to Marris, the key to a faster growth rate that is safe from the threat of takeover. Marris makes a generalisation that alludes to Downie's (1958) '*Transfer Mechanism*' in which the relatively efficient firms will grow slowly and the very inefficient will stagnate or decline.

Continuous diversification is propounded by Marris as the only way in which a company can sustain its rate of growth over the long term. Growth based on minor product improvements, is ultimately restrained by the fact that once all the product rivals have been eliminated, the particular firm's growth potential is exhausted. A criticism that can be directed at this approach is that genuine diversification may be difficult to differentiate from minor product improvements. It is interesting that diversification as a growth strategy, has been cast into disrepute of late with the collapse of the Maxwell corporation at the end of 1991 and recently proposed mergers between Volvo (*motor vehicle manufacture*) and Procordia (*food processing*) and between Hachette (*publishing*) and Matra (*missile manufacturing*). In the Maxwell saga, diversification was used as a cover to prop up ailing firms within the numerous companies that made up Robert Maxwell's Corporation, while in the latter examples, troubled Volvo and Matra are using their substantial capital assets to acquire well performing companies (*Procordia and Hachette*) for much needed cash injections into their core businesses. The Economist magazine (*Leader in Feb 1-7, 1992 edition*), views this type of diversification being more of a case of a successful firm being acquired to prop up a stumbling one and allows the core business to procrastinate further about much needed industrial restructuring. The conventional wisdom expressed in the media these days seems to be that massive conglomerates are out of fashion and that sustainable commercial success comes from sticking to the product field that a company has performed best at in the past. This is the view of Peters and Waterman Jnr. in their widely respected book "*In Search of Excellence*" (1982), which examined what makes America's best-run companies successful.

The following assumptions are incorporated into Marris' model and theorising:

1. The firm is an industrial, public joint-stock company.
2. Management does not have the equity in the company it manages.
3. The firm is in one of the developed industrial economies.
4. For growth to occur, demand must become increasingly more sophisticated and the economy must be advancing technologically.
5. Expansion of management capability and efficiency is the key to growth.
6. Once demand is saturated for a company's products, diversification is seen as the primary means of growth for large firms.
7. Shareholders have voting rights over management appointments.
8. The managerial class favour expansion for their respective firms over profit maximisation because this is more in keeping with their psychological, sociological and personal economic motivations. The assumption is generally that managers will aim to maximise their self-interest, but it is acknowledged that managers may exhibit satisficing behaviour that may fall considerably short of maximising behaviour.
9. Managerial growth ambitions are tempered by the threat of takeover and the threat of dismissal from shareholders, lest they allow the firm's valuation ratio drop too low or they retain all profits to finance expansionist schemes.
10. Growth must be balanced in the long-run with growth rates of demand and capacity being equal. All measures of firm size such as aggregate profits and aggregate turnover expand in unison.

The above assumptions give the impression of a complex model that is difficult to apply to the real world. This complexity is probably necessary to explain a phenomenon that is itself a complex amalgam of social behaviour and economics and therefore difficult to reduce down to a series of simple equations capable of accurately describing and predicting company growth performance. Much of Marris' theory hinges on the managerial class behaving in a rational predictable manner, in which they seek to maximise their utility (*what Marris calls a managerial utility function*) in almost stereotyped fashion. However, human behaviour can never be 100% predictable and since managers are human, they represent a potentially weak link in Marris' theorising. The fact that public joint-stock companies do fail is evidence that management does not always act in their own self-interest.

Not much is open to controversy as far as Marris' theory on what motivates management to pursue a growth strategy, since this work has already been pioneered by the organisational behaviourists and is largely based on common-sense interpretation of observed management behavioural patterns in large companies. Notwithstanding this comment, Marris' work is a very useful explanatory framework in the way that it helps to develop an understanding of why management behaves as it does in pursuing a growth strategy. The impact of management and finance on a firm's propensity to grow are seen by Marris to be independent factors with clearly differing impacts. Lack of management resources acts as a constraint to the absolute size that a firm can achieve, whereas finance is seen to limit a firm's rate of growth, not the absolute size that it can achieve.

The work of Marris is an attempt in part to address the shortcomings of traditional neoclassical economics in explaining and understanding the dynamics of growth in public joint-stock firms by blending organisational theory together with neoclassical economics. The component of Marris' work directly attributable to neoclassical economic theory adopts a strongly quantitative approach, in which a system of equations comprises Marris' model. In practice, it would be extremely difficult to apply Marris' model, unless one was privy to all of a firm's financial details, which even in a public company, may not be fully divulged or at least, not made obvious to the public.

The main enabling and constraining determinants of growth in public joint-stock companies identified in Marris' model are as follows:

1. Salaried management is an enabling determinant of growth, since they seek to maximise growth for the purposes of increasing their personal power, prestige and remuneration.
2. The need for salaried management to maintain a minimum share-value so as to avoid a company takeover bid, constrains the maximum growth rate achievable.
3. The need to distribute some of the profits amongst shareholders constrains the growth rate since not all of the profits can be reinvested to finance further growth.
4. Recruiting new managers enhances the managerial resources of the company, thereby giving the firm the capability to expand. If the firm is unable to procure the management resources it needs to grow, then lack of management can be seen as a constraining determinant of growth.

5. Financing is a crucial enabling determinant of a firm's rate of growth. This may come from issuing new stock on the stockmarket or by borrowing.
6. Demand for the firm's products needs to be increasing, otherwise the firm will have difficulty in expanding. In the long term, growth will be dependent on consumers becoming increasingly sophisticated in their demands, improvements in technology that allows better products to be engineered to meet those demands, and real economic growth in the economy that gives consumers the power to satisfy their demands.
7. Diversification is treated by Marris as a powerful enabling determinant of growth and the most likely option for future growth with a large corporation that has already reached product saturation in the marketplace. Marris considers this to be the principle route to growth for large corporations.
8. The stockmarket can be either an enabling or constraining determinant of firm growth depending on how it views the overall performance of the company and the actions of management. The confidence that the stockmarket has in the firm determines the firm's value. A history of good sustainable growth performance will enhance the firm's value, but the stockmarket will accord a poor value to the firm if it views management's current growth strategies as foolhardy or unsustainable, particularly if distribution to shareholders are allowed to drop too much.

There is little ambiguity in Marris' theory concerning what distinguishes growth firms from those that are static or declining. This is because Marris relies on growth in capital assets as the yardstick of growth and not growth in sales or profitability.

The potentially most problematical glitch in Marris' theory is its incorporation of a diversification rate in the firm's growth rate of demand function. As has been discussed earlier in this review, diversification is not always a symptom of growth in firms and corporations, but may instead be an attempt to salvage a struggling but asset rich firm through acquisition of healthy, small profitable businesses that have good, reliable and steady cash flows.

The models and theoretical discussion of 'managerial' capitalism produced by Marris, are not supported directly with empirical evidence specifically carried out for the purposes of testing or verifying Marris' work. Rather, existing statistical evidence is used to justify and provide evidence of the validity of his models. Marris uses two American econometric studies to test his work. They are the study of Meyer and Kuh, published in 1956 of 70 firms in 14 industries over a five year period

and the study of Myron Gordon published in 1962, based on 48 firms in two industries over a five year period. While Marris admits that these studies were originally intended to test different hypotheses to those used in developing his models, Marris nevertheless contends that they are useful in testing and validating many aspects of his work.

In a practical sense, it is difficult to verify the validity of Marris' model and theory of managerial capitalism because it requires so much sensitive commercial information that firms may not be willing to divulge. However, in-depth interviewing of salaried managers would possibly confirm Marris' theory on the motivating force that drives the employed managerial class.

As a generalised theory of growth, Marris' work is considerably restricted in its capacity to take account of growth amongst the complete diversity of firm types, nor does it satisfactorily examine the various forms or strategies of growth.

The limitation of Marris' theory is that it has a narrow focus directed towards public joint-stock companies in which there is a clear dichotomy between employed managers on the one hand and equity in the firm by shareholders on the other hand. This ignores entrepreneurial firms completely and other types of firms where the distinction between ownership and management is not quite so clear-cut. Moreover, it concentrates almost exclusively on industrial type firms, which by inference, seems to suggest that Marris' theory is not applicable to any of the other very significant sectors of the economy, such as service sectors.

With regard to strategies for growth, Marris' theory is not particularly enlightening. It assumes that growth will follow naturally if management resources are in abundance and efficient, but has little to say about how that will happen and in what circumstances it occurs. One strategy that is discussed is for new management staff to be hired in the hope that the new recruits will inject new found enthusiasm and ideas into the organisation. However, there is little detailed discussion on the mechanics of management strategy to facilitate growth, other than in terms of raising finance to fund diversification (*into new products and markets*) and arranging mergers. Diversification and mergers are presented as the typical routes towards firm expansion (*with emphasis placed on the former*), since it is assumed that firms cannot expand significantly within their current product market due to product saturation. For the

small to medium sized firm, Marris' theory seems to have limited application concerning successful strategies of growth.

2.5.4.3 Penrose's 'Managerial Potential' Approach

Penrose (1959) pioneered the concept of firm growth being dependent on the availability of managerial services for strategic and operational planning. This concept became known as the 'Penrose effect'. Hence, the enabling and constraining determinants of growth were seen by Penrose to be closely bound up with the quality and quantity of managerial services at the disposal of a firm. An integral part of this concept was that only the growth rate of a firm was constrained and not its ultimate size, which implied that long-run unit costs of a firm do not rise as a firm grows large.

According to Slater (*in Penrose, 1959*), Penrose's contribution to economic theory is twofold. First, it presents a broad schema for explaining the growth process in firms; and second, it provides a detailed treatment of the various aspects of the growth process. Penrose thought of the rules that govern the growth of firms as having three components: (1) constant returns to scale in the long run; (2) the possibility of diversification; and (3) increasing costs of growth. This theory is a departure from the previously static models of the firm and attempts as Slater (*in Penrose, 1959*) puts it, to provide "*an elegant and serviceable framework for dynamic analysis of a firm which can grow continuously at a finite rate*".

In traditional economic theory, a firm's long run average cost curve is U-shaped. Penrose contended that there was much evidence to suggest that technology greatly minimised the possibility of diseconomies of scale at plant level because of the possibility of growth through multi-plant expansion. However, Penrose emphasized that managerial diseconomies of scale would be largely responsible for the long run average cost curve being U-shaped. A further argument to support Penrose's assertion of constant returns to scale in the long run, was that the firm could overcome the constraints of its size and the limits of its existing market by diversifying into other products. The implication of Penrose's theory that a firm experiences constant returns to scale in the long run, is that there is no single optimum size that the firm will tend to, because there is no difference in profitability between the different firm sizes.

Hence, diversification was seen by Penrose, when allied with effective management, to be a major pathway to expansion for a firm. However, Penrose

appreciated that there were increasing costs of growth which could constrain the rate of growth, but not necessarily the ultimate size that a firm could potentially reach. Constant returns to scale are possible in the long run, but only when perfect adaptation of all inputs to a particular scale have been made. Usually, this is difficult for a firm to achieve in the short term because there can be high costs associated with the increased management burdens of increased growth and diversification into new markets to facilitate further growth (*either through finding new markets for existing products of the firm or by creating new products for existing markets*). Penrose emphasized strongly that management, depending on its effectiveness, would be the major constraint or opportunity for growth in a firm and would outweigh most other considerations.

Unlike traditional economic approaches, Penrose abandons the concept of the firm having an optimum size in the long run. Rather, the emphasis is on the optimum plant size and an optimal rate of growth. The basic concept of growth in the firm that one is left with then, is that the firm may potentially be of any size in the long run; that it is capable of continuous growth; and that the rate of growth will be dependent on the successes of diversification and management practices.

The principal advantage of Penrose's theory over steady state economic growth models, is that it explicitly recognises the existence and importance of managerial inputs into the production process, whereas steady state economic growth models ignore this factor completely.

Penrose considered opportunities for growth in a growing economy result from niches or interstices left by existing large firms which do not exploit these opportunities for growth. The reasons why large firms sometimes fail to exploit these opportunities for growth could be because of the inertia of their production systems, greater opportunities elsewhere or lack of knowledge about the opportunities that exist. These opportunities for growth may be exploited by either the management of existing small firms or by new firms in new or existing industries. The capabilities of management are always stressed as being the key to successful exploitation of growth opportunities in the economy.

Penrose's theory is largely descriptive and explanatory of growth processes in firms. It is not of the nature of a methodological framework into which various indicators of a firm's activities can be entered to produce an output that

suggests the future status of a firm. Instead, it can be thought of as an explanatory framework for understanding the growth processes occurring within a firm. Much of Penrose's work appears to be supported by anecdotal references to various firm histories rather than any detailed systematic research. Hence, Penrose's work is not particularly strong in terms of being able to predict which firms will grow and which firms will remain stagnant or decline.

Because Penrose's theory does provide one with a good explanatory framework for understanding the mechanisms of growth in firms, it does have a useful application in qualitative research. Unfortunately, Penrose's theory fails to indicate how growth can be quantified, nor how it can be measured. The real strength of Penrose's theory is that it indicates what factors are important in facilitating growth. Therefore, Penrose's theory indicates to the analyst that management practices and the effectiveness of those practices is the main context of how the firm should be analysed. A secondary emphasis in any analytical work undertaken in Penrose's perspective of the firm is to examine the products that the firm produces and the acceptance of those products in the marketplace. The analysis in this case, would be to determine whether the firm has exhausted all marketing opportunities for its products or whether the firm is capable of diversifying into new products to enter new markets that were previously unavailable to it.

A good theory of the growth processes in firms should be capable of describing clearly what processes are underlying the growth of a firm. Penrose's theory is enlightening in this regard. It is a sweepingly broad and comprehensive work but supported by highly detailed observations and insights into the growth processes of firms. However, the style of the published presentation of this work is exclusively prose. An understanding of many of the economic concepts discussed by Penrose would have been greatly enhanced by the inclusion of simple diagrams and charts to explain the text more fully and graphically. The disadvantage of Penrose's work, is that it requires at the very least, a good working knowledge of economics and therefore can make difficult reading for the layman. It is interesting that Penrose's theory is able to get across its basic ideas without resorting to any mathematics or complicated econometric models. Penrose seems to have gone halfway in aiming to make this theory as simple as possible, while at the same time couching it in terminology that renders it acceptable to the neoclassical economist, although the lack of mathematical/econometric modelling of any kind may be an anathema to some purists. It is possible to speculate that Penrose's avoidance of quantifying this theory

may have developed out of a realisation that firms in the real world are so diversified in their forms and operations that it is extremely difficult and impractical to produce a mathematically oriented model that describes the growth of each and every firm in every set of circumstances. In this respect, Penrose's theory is almost a sociological approach to the task of describing growth in the firm, because it stresses the qualitative nature of the actors involved in the process and the operation of the markets. However, whilst Penrose's theory is powerful in its descriptive powers and stands up as a useful body of theory in which to understand the growth of the firm, it should be noted that it never really attempted to produce a model, perhaps because this would have required simplification at the expense of the level of detail discussed in her work. Indeed, the level of detail in Penrose's work is such that there are sufficient ideas developed within it to satisfactorily describe the process of growth of most types and sizes of firms in almost any economic situation.

Penrose's work appears to be supported by qualitative empirical research and is an adaptation of traditional economic theory to include the input of management in the activities of firms. Much of the evidence that Penrose cites appears to be either anecdotal or draws on the work of other economists in this field. The fact that some of Penrose's work would seem to be anecdotal, is not necessarily a criticism. Adam Smith employed this technique often to great effect in his seminal work on economics, *"The Wealth of Nations"* (Canaan, 1937). Independent research has verified some of Penrose's work such as that by Richardson (1964) and Shen (1970). Richardson surveyed managers and found that the availability of suitable management was the major check on expansion while Shen, in an econometric study found that the constraint that eventually limited the expansion of fast growth firms was lack of suitable management.

Generally, Penrose attempted to craft a theory that would explain growth for firms of all types and sizes, but restricted to the industrial sector. Penrose noted that growth rates for firms varied with the size of the firm and did not explain why it is that a medium-large firm will grow faster than a small firm. Although the focus of Penrose's work was directed towards firms in the industrial sector of the economy, the core of Penrose's theory could probably be easily adapted to firms in sectors of the economy other than the industrial sector.

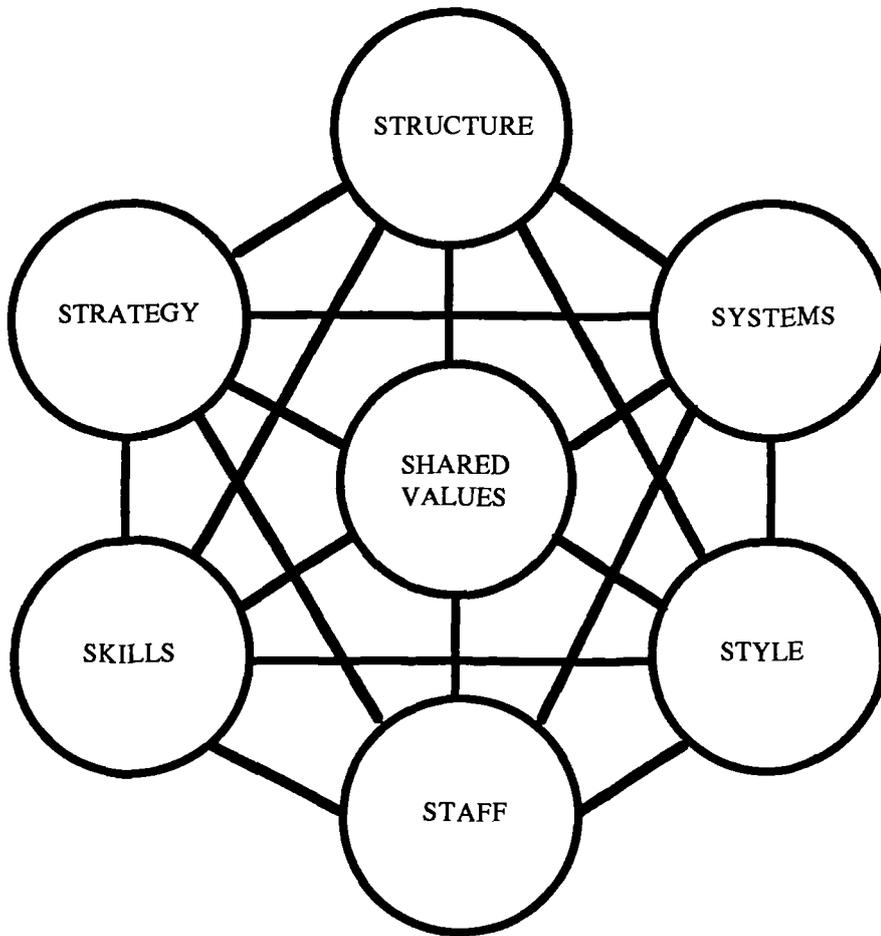
2.5.4.4 The "Value-Driven" Corporate Culture Model

The "value-driven" Corporate Culture model was developed by Peters and Waterman Jnr. (1982) to explain the secrets behind America's most successful large companies.

The findings of Peters' and Waterman Jnr.'s research produced eight attributes that seem to characterise excellent, innovative companies. These are:

1. A bias for action. These companies are analytical in their approach. They are willing to experiment until an effective solution is found.
2. They are close to their customers. Innovative companies get many of their best product ideas from the customer. They provide unparalleled service, quality and reliability. Three principal themes emerge in an effective service orientation: (1) intensive, active involvement on the part of senior management; (2) a remarkable people orientation; and (3) a high intensity of measurement and feedback. Service objectives are meaningful to all employees throughout the company hierarchy. Profit objectives, by comparison, although considered very important, are usually internally focused and are not used to inspire employees low down in the company hierarchy.
3. Autonomy and entrepreneurship. Innovative companies foster many leaders and many innovators throughout the organisation. While Peters and Waterman Jnr. are not exactly sure how the innovative process works, they consider intense communication between employees (*i.e. social networking*) to be an essential ingredient. Another very important feature of these companies is that they tolerate the failure associated with granting autonomy and entrepreneurship to the "ideas" people in their organisation.
4. Productivity through people. Excellent companies treat all their employees as the root source of quality and productivity gain. In a company like IBM, respect for the individual is the most valued tenet in its philosophy.
5. Hands-on, value driven. Figure 2.3 illustrates schematically the pivotal role that the company's values (*at centre of diagram*) play in the activities of the firm. The organisational structure of the firm, its management systems, style of leadership, management of staff, development of skills and strategy are all carried out with reference to the shared values of the firm.

FIGURE 2.3:
MODEL OF CRITERIA FOR COMPANY SUCCESS



SOURCE: PETERS & WATERMAN, (p10)

Peters and Waterman Jr. contend that the basic philosophy, spirit and drive of an organisation have far more to do with its relative achievements than do technological or economic resources, organisational structure, innovation and timing. The successful firms all seemed to have a set of beliefs determined by an outstanding and unique individual, their founder.

It also seems that a common feature of the successful firms was a dynamic founding leader. An effective leader is one that is able to master ideas at the highest level of abstraction and actions at the most mundane level of detail.

6. Stick to the knitting. These companies stick to their base and avoid becoming conglomerates in unrelated businesses. Diversification is not seen as the answer for a firm that wants to be successful.

7. Simple form, lean staff, characterised by a flat organisation structure. None of these firms were run with a matrix organisation structure. Underlying structure forms and systems in the excellent companies are elegantly simple and top level staffs are kept lean. For example, most of the successful companies studied had no more than 100 corporate staff, even though they may have been in charge of 50,000 employees.

8. Simultaneous loose-tight properties. These companies are both centralized and decentralized. For example the product development team and shop floor will typically have autonomy, but are highly centralist when it comes to the firm's core values.

The assumptions that Peters and Waterman Jnr. base their model on are:

1. The most important key to an organisation's success is its culture. This essentially revolves around company values and treating their employees as their most important asset. The dominant beliefs of the excellent companies tend to be narrow in scope, typically based on the following values:

- being the "best".
- the importance of the details of execution (*i.e. in doing a job well*).
- the importance of people as individuals.
- superior quality and service.
- that most members of the organisation should be innovators, and its corollary, the willingness to support failure.
- the importance of informality to enhance communication.
- explicit recognition of the importance of economic growth and profits.

2. A strong rejection of the industrial economics view that diversification is essential to a firm's continued growth.

3. That successful firms have a horizontal management structure, in which the role of middle management is marginalised if not eliminated altogether.

4. That a product-based divisional structure allied to a strong corporate value set is essential to achieve success.

5. That if autonomy is given to the "ideas" people of the organisation, while maintaining rigid centralist control over the core values of the firm, innovatory

products have a greater probability of being developed, which are crucial to the success of the firm.

6. That being in touch with customer needs is crucial to the firm.

This work is useful in the way that it seeks to explain and understand why some companies are successful by studying large corporations which by virtue of the fact that almost all of those in the study started from humble beginnings and have grown to market dominating positions, should be able to shed light on growth processes in firms.

The organisational model and theorising of Peters and Waterman Jnr. does not have any predictive powers in the sense that it can be used to predict by how much a firm will grow by if it adopts the suggested company structure and management practices that it propounds. However, it would appear to imply that all firms can succeed if they can adopt the key attributes that characterise successful corporations and adopt the authors' organisational model. Perhaps it is to be expected that this model does not have any predictive capabilities, because its findings are all of a qualitative nature and highly dependent on the behaviour of people.

The overriding impression of this study is that it is more about describing how unique large corporations maintain their success in the marketplace, rather than telling firms in general of all types what the secrets to business success are. This impression is reinforced to the reader because it seems that only the contemporary management dynamics of the case study firms are discussed. Very little is said of how these very successful firms came to be successful from their moment of inception. There is a hint that of the "great leader" theory may be responsible, but then this is played down by the authors who say that it is more to do with the founders being very familiar with the products they produce and always being visible amongst their staff. The most important criticism that can be directed at this study is that it does not really have any conceptualising of the growth processes at work in the case study companies, that eventually helped to make the into the vast corporations they are today.

This study does not concentrate much on exploring a company's potential for growth. It concentrates on explaining why various American corporations are currently successful, but that success is presented in terms of the company maintaining its position of market dominance. The study explicitly suggests

that once a company has exploited all of the market potential out of its product line, then it will begin its downward spiral unless it can revitalise its product line-up with new innovative products developed within the context of its core disciplines.

This approach places considerable emphasis on the determinants that enable and constrain growth. The constraining determinants of growth are:

1. The traditional view of neoclassical economics that firms should aim to achieve economies of scale through long production runs and large plant size results in inefficiencies from employees becoming unmotivated.
2. Designing products down to a cost is seen as detrimental to a firm's growth prospects.
3. Too many middle managers result in a bureaucracy that stifles creativity and creates unnecessary work that adds very little to the end-products of the firm except cost.
4. Monetary incentives are ineffective in motivating staff to perform at their best.
5. Excessive management control over such issues as planning, product development, marketing and analysis places the creative people of the firm in a straight-jacket. An exclusively analytical approach leads a company into an abstract, philosophy that fails to inspire employees.
6. An emphasis on cost minimisation by management results in a reluctance to experiment. Anti-experimentation inevitably leads a company to over-complexity and inflexibility as it tries to develop a super-product designed to appeal to every market segment.
7. Diversification into unrelated businesses.

The enabling determinants of growth are:

1. A bias for action where staff demonstrate a willingness to try things out combined with a perseverance to continue experimenting until they come up with a solution.
2. A company that is sufficiently in touch with the customer to know what the customer's needs are.
3. An ability to nurture innovators and leaders throughout the organisation.
4. Valuing employees as adults and treating them with dignity and respect. The "ideas" people in the firm are likely to be much more creative if they are given autonomy to experiment and a certain amount of failure is tolerated.
5. Developing strong company cultural values that are held to regardless of flexibility and tolerance permitted with the other activities of the firm.

6. Basing all the firm's activities on its core skills and technologies.
7. Keeping management to a bare minimum and adopting flat management structures. Where divisions are necessary, it is recommended that these are product based and that no division or group in the organisation have in excess of 500 employees.

The themes about what enabling determinants are most likely to ensure a company remains successful that stand out most strongly in this study in order of importance, seem to be: the need for a strong "value driven" company culture; the idea of productivity through people; and a bias for action.

It is interesting to note what has happened to some of the companies that this study so highly admired when it was published in 1982. For example, Delta Airlines recently sustained heavy losses (*although losses in 1993 are an industry-wide phenomenon*); Boeing is losing its overwhelming dominance in civil aviation products to Airbus Industries (*typified by their failure in June 1992 to secure a major contract with United Airlines, the largest American Airline*); Texas Instruments made a disastrous foray into home computers in the early 1980s that threatened to drag the company down; General Motors is badly losing money and market share to Japanese car firms such as Nissan, Honda, Toyota and Mazda now manufacturing in the US; Eastman Kodak lost a copyright suit to Polaroid for allegedly infringing on Polaroid's instant photography technology; Wang Labs has faced difficulties in the marketplace and is now technically bankrupt because it became increasingly out of touch with what the market is demanding; International Business Machines has seen its market share for personal computers eroded away by so-called "clone" machines, offering all the features of IBM products but at much reduced prices.

It would be too glib to dismiss this study out of hand because some of its case studies are no longer "successful" companies. Many of the problems these companies have faced are the result of a combination of factors making it difficult to single out the dominant cause of their relative decline. There are however two themes common in many of these cases which are simply a failure to keep costs and selling prices low enough and a failure to produce the product innovation and variety demanded in the marketplace.

A major weakness in Peters' and Waterman Jnr.'s work is the way in which they underrate the importance of keeping costs in control while implying that customers are prepared to pay a premium for an innovative product produced by a

company with integrity. Customers may be prepared to pay high costs at the upper end of the market, but this is not necessarily so in the remainder of the market. Apple is a classic case of a company that has misjudged the importance of keeping down costs. When it produced its Macintosh computer in the early 1980's, it reasoned that it could charge a high premium for their computers because they saw it as a unique luxury product for business people who would be prepared to pay for it. However, even though Apple is now very successful, it has in the past alienated many potential consumers by this policy, with the result that many people turned to IBM's PC computer and then to much cheaper IBM PC clones when these became available.

The criteria employed in this study for selecting growth firms was highly demanding, designed to pick out the largest and most successful firms in a national economy. However, the quantitative criteria are such that they can be applied to firms of all sizes. The relatively long timeframe (*from 1961 to 1980*) over which this study was conducted means that there can be no doubt about firms that satisfy this fairly rigid criteria, as having been growth firms. The qualitative criteria may be difficult to apply to small to medium successful firms, particularly if there are many in the field, because none may be sufficiently dominant to stand out as exemplars of their industry and their rate of innovation may not necessarily exceed its competitors.

One of the particular strengths of Peters and Waterman Jnr.'s work is that its findings have been empirically derived. It was based on a sample of 62 successful American companies across a fairly broad spectrum of industry categories. Where this study seems to be somewhat lacking, is that it does not present any comparative data on the relative performance of these firms. The study therefore just details the report's main findings. Notwithstanding this criticism, it has to be said that most of the points raised in the study are convincingly argued and supported with relevant information from the case studies.

It is implied that innovation conducted in an entrepreneurial climate is the key to growth within the context of a strong corporate culture based on appropriate values and practices. Diversification as a growth strategy is seen as highly suspect and more likely to hasten a firm's demise. The reason given for this viewpoint is that firms that embark on diversification strategies are usually stagnating or declining. Often the businesses bought into are at or past their peak and in a different field altogether. What sows the seeds of disaster, however, is that the effort and attention needed in the management of the new acquisitions drain the vitality of the already

shaky core business. New products for the core business are not given the attention they demand, resulting in the whole firm being drawn in on a downward spiral to its ultimate demise.

In terms of taking into account the diversity of firms with regard to size and firms in financial services, this study is somewhat limited. However with the exception of not investigating firms in financial services, this is not necessarily a weakness in the study because its remit was to focus on large firms. Regarding taking into account growth strategies, this study is not particularly useful in detailing specific concrete actions that firms can take to grow. The prescriptions offered are vague and extremely difficult to engineer or quantify. There is very little comment about how these firms became great except to say that they seem to have been started by a great leader (*or two*) who instilled in the firm a special set of values and practices at an early stage of its development, around which a corporate culture was subsequently moulded. The study's discussion of key attributes of successful firms should however, give smaller firms a good idea of the key ingredients of success and what company attributes are required for a climate that will facilitate growth.

2.5.4.5 Effective and Efficient Small Business Management

The work of Resnik (1988) is in the genre of the prescriptive business training texts for achieving success in business. This American work is sceptical of growth for its own sake amongst small owner-managed firms, preferring instead to stress the importance of careful management and the management's complete mastery of its current production activities before embarking on a growth strategy. The empirical validity is drawn from various anecdotal examples. A strong distinction is stressed between the needs of small business and that of large business. The small business definition that Resnik uses is a functional one rather than an arbitrary definition based on a firm's size. A small business then, is one which the "*owner-manager can personally control the entire concern and sheer size has not yet dictated a substantially decentralized management structure*" (p138, Resnik 1988). Growth with this approach is restricted to the context of the small business, although Resnik does not set any limits on the size that a firm can expand to in the long run. It is however, implied that Resnik's "make-or-break" factors for business survival and growth are only applicable to owner-manager firms (*which are usually small*) and that a different approach is required for understanding growth processes in large firms.

Three types of small business managers are identified: entrepreneurs, administrators and managers. The entrepreneur has useful skills for launching and inspiring the firm with a blinding and daunting optimism, together with a propensity to exploit opportunities whenever they arise. However, it is noted that the entrepreneurial personality also potentially contains the seeds of a small firm's own destruction because this type of owner-manager ignores risks and is easily bored by the routine management of an established business. Administrators attend to custodial duties and the day-to-day running of the firm. They tend to be concerned with the firm's efficiency, stability and survival. Managers concentrate on the effectiveness of the business and strive towards development and improvement of the business. Although it is not stated explicitly by Resnik, the implicit suggestion is that the good owner-manager will require the positive aspects of all three of these managerial behavioural traits to be applied at some stage in the firm's development either separately or simultaneously.

Central to Resnik's prescriptive management approach, is that management has a plan for growth with critical, challenging, but achievable goals which can be converted into productive activities. Resnik produces a business plan format that highlights those elements that he considers to be important to the success of a small business. They are that the firm have a clear mission statement; that it identifies the critical factors of its success; that it has a market plan with analysis, assumptions and needs regarding customers, products and services, assessment of the competition, prices and promotion and selling; that it reviews its production and delivery operations; that it determines its staff requirements; that it determine its financial status with regard to its cash situation and needs, costs and expenses and working assets; that it consider its administration approach with regard to general management, the adequacy of its accountancy system and its internal controls; that it consider the business environment from the point of view of the economy, demographic changes and trends, and government regulations and taxes; and that it examine the contributions of the owner-manager. The business plan should also list the firm's priority needs, problems and opportunities; prioritise its objectives; produce some realisable action plans; and develop budget projections.

The main assumptions that Resnik's model is based on are: that the firm is small and in complete functional control of the owner-manager; that growth is only explained in the context of the small firm; that small firms have extremely limited resources in terms of manpower and finances; that profitability is needed prior to

growth; that successful growth is not ad hoc, but a carefully staged and managed process; that successful firms are market driven, not product driven ventures; that successful growth firms have absolute mastery of their existing production and management systems; that successful firms have clear business strategies; that adequate cash flow is vital to a firm's survival and growth; and that successful firms have effective accounting and financial controls. There seems to be an implicit assumption that all owner-managers are of equal capability and that if they only follow Resnik's recipe for growth, they too will succeed. The notion that business failure may occur because of an incompetent owner-manager is not seriously countenanced in this approach. The large number of assumptions encompassed in Resnik's model is due to the prescriptive nature of this work. While the comprehensiveness of this model's assumptions and theses sacrifice some simplicity, this has helped to make the model more pragmatic and applicable to actual firms. In order to maintain this model's generality, it seems that few assumptions have been made concerning the environment that the firm operates within. This would seem to suggest that the firm's management has little chance of manipulating the environment within which it finds itself and so must adapt itself to the changed circumstances.

The analytic capabilities of Resnik's approach are weak in terms of predictive capabilities and determining the potential for growth within firms and relatively strong with regard to explaining the growth process.

The predictive aspect of Resnik's approach is along the lines of suggesting qualitative guidelines as to which firms will grow and which will not. It has nothing to say about the timescale of growth for a firm or by how much a firm will grow or the firm's rate of growth or which firms will grow in what way or the methods by which some firms will grow.

The explanatory aspect of Resnik's approach is too prescriptive generally. It tends to be presented as a check-list of items that facilitate growth. However its strengths are in explaining simply and clearly the pitfalls of rapid and uncontrolled growth brought on by the costs of financing growth for the purposes of new investment, increased staffing levels, increased inventory, and increased material inputs. Furthermore, it explains well how the behaviour of the owner-manager of a small firm can sometimes constrain growth or undermine profitability. In the final analysis, it is stressed that the small firm's fortunes reside completely in the hands of the owner-manager, regardless of the state of the business environment. A descriptive

style is used to explain growth processes in small firms that grow unsuccessfully and those that grow successfully, supported by various anecdotal examples. Unfortunately, Resnik dwells at length on small business failure through unsuccessful growth strategies at the expense of discussing small businesses' that grow successfully. It seems that since a high proportion of small business failures are induced by overly optimistic expansion strategies, the validity of the growth imperative is called into question by Resnik. Far too much emphasis is directed towards the firm as the instigator of growth with little being said about how the firm's environment constrains growth or presents opportunities for growth (*although it does suggest that the owner-manager business plan should take into account the firm's business environment*). Very little is said about what motivates the owner-manager to initiate growth. Rather, it is implied that growth is due to an increase in market demand which the firm may or may not have induced.

Generally, Resnik's approach concentrates on the mechanical aspects of facilitating and managing the firm's growth, such as locating a market niche, good management practice (*particularly with regard to the firm's finances*) and refining the product to meet the demands of the market niche that the firm is serving. This approach is weak in explaining (*because of its intended application to all small firms, regardless of sector*), which firms succeed from a sectoral point of view.

This approach does not attempt to determine the potential for growth within firms, except to say that it will be dependent on market demand and competition from other firms.

Resnik deals at length with the enabling and constraining determinants of growth within small firms. The enabling determinants of growth are as follows:

1. The owner-manager understands the core business thoroughly and the firm has mastered every aspect of its business in terms of production processes, marketing, satisfying the demands of the market and establishing effective management of staff, production processes and the firm's finances.
2. Profitability is a vital prerequisite for a growth strategy to succeed.
3. Adequate financial liquidity.
4. Excellent and distinctive products that meet the wants and needs of distinct market niches.
5. Adequate capitalisation.

6. An owner-manager that can delegate tasks effectively.
7. A firm that has a clear strategy using a business plan for initiating, controlling, directing and realizing growth.
8. Growth in market demand.
9. Active marketing of a firm's products based on careful market research.
10. An objective owner-manager capable of acknowledging the firm's strengths and weaknesses and who subsequently attempts to compensate or nullify those weaknesses.
11. The business objectives of the firm are kept simple and focused. The owner-manager has developed priorities and has concentrated on those items which are most important to the success of the firm.

The elements that constrain growth in Resnik's model are:

1. Anticipated sales growth by management fails to materialise, which is especially dangerous when a firm has already committed itself through investment to a growth strategy, resulting in the firm's financial resources being over-extended.
2. Squandering of the firm's competitive strengths by failing to concentrate on just a few concrete, realizable business objectives and mastering them.
3. Product driven ventures with little reference to the demands of the market.
4. Failure or inability to delegate effectively when the firm's size exceeds the capability of the owner-manager to control everything.
5. Poor accounting records and financial controls.
6. Ignoring the firm's working capital. Sometimes small firms make the erroneous assumption that accounting profits immediately translate into cash when in fact profits may not materialise as cash for several months after a sale or may end up being reinvested in the business or redirected to the firm's equity holders.
7. Excessive concentration on sales growth at the expense of the firm's product profit margin.
8. An owner-manager who fails to carry out careful analysis or search for new informations, problems or opportunities.
9. A lack of business strategy or failure to set realizable goals.

Resnik's model suggests that growth firms have certain qualitative characteristics that distinguish them from firms that are static or declining, but it tends to be weak in making this distinction. The basic attributes of the successful growing firm are that it is well managed, profitable and with adequate cash flow. However, in

the short term, Resnik states that even badly managed firms can experience rapid growth because of clever marketing, a good product idea and strong market demand. Therefore, according to the criterion of "good" management, it can be difficult to differentiate conclusively between growth firms and those that are static or declining. In the long term, Resnik's thesis is that poorly controlled firms with chaotic growth will inevitably decline and fail as costs run out of control.

As has been mentioned previously, the empirical evidence that Resnik uses to support his propositions are supported with anecdotal case studies and the author's experience as an entrepreneur and consultant to small businesses. It appears to lack carefully researched empirical evidence. Generalised secondary statistics are used to back up the author's main theses in addition to the anecdotal case studies. For example, it is noted with reference to Dun & Bradstreet database on small business statistics (p2, Resnik 1988) that some 80% of new business ventures in the USA fail within their first five years and of these, over 90% of business failures can be put down to bad management (*either incompetence or inadequate prior experience*). The wisdom of pursuing rapid growth at all costs is questioned with reference to America's Inc magazine's "Top 100 Companies" annual feature in the may 1986 issue, of the fastest growing US firms (*with growth in annual sales from \$50,000 to between \$10 million and \$50 million in less than five years*). Some 30% of these firms demonstrated losses despite their exploding rate of sales. Resnik concludes that "*dazzling growth was not only often profitless but in the aggregate did not result in substantial or even comparative appreciation in market value (only 11% for the period 1985-86 compared to 31% for the Dow Jones Industrials)*" (p168, Resnik 1988).

Resnik's model only considers growth amongst small firms and ignores the subtleties of industry sector differences on the types of firms. However, from the anecdotal cases that are cited, it is apparent that all of the examples are drawn from the service sector, so it is not clear whether in practice Resnik's model has universal applicability to small firms. Different forms or strategies of growth are not really explored in detail with this model. Any strategy for growth outside the firm's main stream of product expertise is considered to be dangerous, unless the firm's core business is very successful and has been completely mastered by the firm's management. The main form or strategy of growth in this model seems to be concentration and specialisation in those areas and products that a firm does well. This model would then appear to be weak in explaining the detailed mechanics of how successful growth firms expand.

To conclude, Resnik's model stresses good management to be the key to the survival and successful growth of small firms. Its factoral approach to discussing the elements that facilitate and/or constrain growth highlights most of the important elements that impinge on a small firm's ability to succeed. However, its most glaring weakness would appear to be its neglect of the environment in which the firm operates within and the naive idea that with the appropriate application of management skills, all the firm's problems can be overcome. Furthermore, Resnik's thesis that product-driven business ventures are likely to fail is lacking in empirical evidence and would seem questionable in the manufacturing sector, where product innovation can often come before any distinct and definite market demand for the product. The reliance on case studies drawn from the service sector would seem to be the reason why Resnik's model stresses the market-driven business venture as the route to successful business growth for small firms.

2.5.5 Stage Model Approaches to Growth

There are several stage models of growth that have been developed over the past two decades. According to O'Farrell and Hitchens (1988b), the main theorists in this respect are Steinmitz (1969), Greiner (1972), James (1973), Deeks (1976), Velu (1980), Churchill and Lewis (1983), and Gill (1985). The section will, however concentrate on the most recent contribution to the stage model approach which is the work of Flamholtz (1990), which seems to be the most useful, well argued and contemporary of these models.

Flamholtz's work use the stage model approach to explain how the small entrepreneurial firm makes the transition to a professionally managed firm. The emphasis throughout Flamholtz's work is on the managerial component of the firm. Effective, efficient and professional management is seen as the key to growth firms maintaining their success. The entrepreneur's approach to running a business is seen as being fundamentally different from that of the professional manager. The term 'entrepreneur' is used to convey the idea of an informal management style that typically characterises many small business start-ups and businesses in their infancy, which tend to be lacking in management, systems or procedures. Flamholtz sees the successful growing professionally managed firm as having the strength of the entrepreneurial approach in terms of identifying a market and product, and enthusiasm to come up with new ideas and try them out; and being well managed without becoming choked on its own systems and procedures.

The transition from an entrepreneurship to a professionally managed firm often involves the following actions:

1. Organisational roles and responsibilities and the linkages between the roles need defining;
2. Becoming profit oriented rather than strictly sales oriented;
3. Helping employees plan and budget their time;
4. Developing a business plan and a system for monitoring it;
5. Increasing the number of qualified present and potential managers;
6. Identifying the direction the company should take in the future;
7. Reducing employee and departmental feelings that they always 'need to do it themselves' if a job is to get done;
8. Re-establishing the importance of meetings and making them more efficient.
9. The owner-entrepreneur needs to develop new skills and behaviour patterns suited to a professional style of management or failing that, resigns and lets others bring in a professional manager to run the organisation.

Flamholtz identifies seven stages of growth in a company's life cycle, which are:

- I. New venture
- II. Expansion
- III. Professionalization
- IV. Consolidation
- V. Diversification
- VI. Integration
- VII. Decline and revitalization

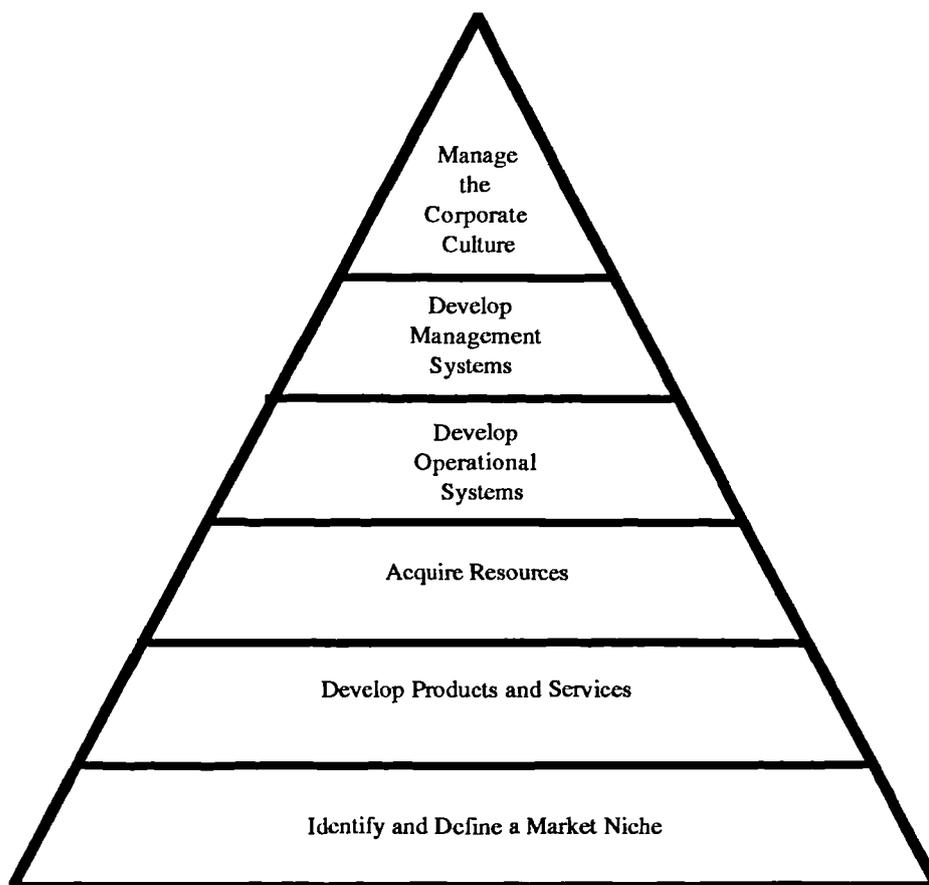
The first four stages represent the period from a company's inception of a new venture to the attainment of organisational maturity. The latter stages deal with the period of a company's life cycle after it has attained organisational maturity. A firm will pass sequentially through each of the first six stages but can pass to stage seven at any time during the firm's development. Firms in the first stage of organisational growth (*new venture*) focus on the critical development areas of markets and products, and their approximate size in annual sales is less than \$US1million. Firms in the second stage (*expansion phase*) concentrate on developing their resources and operational systems, and their approximate size in annual sales ranges between

\$US1million and \$US10million. In the third stage (*professionalisation*), firms focus on the critical development area of management systems (*i.e. planning, organisation, management development and control*), and their approximate size in annual sales is between \$US10million and \$US100million. The fourth stage (*consolidation*) focuses on the critical development area of corporate culture (*i.e. company values, beliefs and norms*), and their approximate size in annual sales ranges between \$US100million and \$US500million. Stages five through to seven are the advanced stages of growth in which a company makes the transition to a corporation. The fifth stage (*diversification*) focuses on the introduction of new products which is essentially a replication of the stage I-IV cycle, and the approximate size of firms in annual sales ranges between \$US500million and \$US1billion. The sixth stage (*integration*) concentrates on the integration of different business units, and the approximate size of firms in annual sales is in excess of \$US1billion. The final stage (*decline and revitalisation*) involves revitalisation of the organisation at all levels of Flamholtz's "pyramid of organisational development" (*see figure 2.4*), but the organisational size varies.

The range of sizes for firms at each stage refer to manufacturing companies and Flamholtz suggests that for service companies sales should be reduced by a factor of 3.0, while for hybrid manufacturing-service organisations (*e.g. distribution companies*) sales should be reduced by a factor of 1.5.

It is important to understand why firms with entrepreneurial managements often fail to grow successfully. Flamholtz does this by comparing the differences in management style between professional management and entrepreneurial management in nine key result areas. In the area of profitability, a professional management treats profit as an explicit goal whereas an entrepreneurial management tends to see it as a by-product. In the area of planning, a professional management would have formal systematic planning (*i.e. strategic, operational and contingency*) whereas an entrepreneurial management would have informal, ad hoc planning. Organisation with a professional management is seen as being formal, with explicit role descriptions whereas an entrepreneurial management would have an informal structure with overlapping and undefined responsibilities. Control is seen by a professional management to be formal with a planned system of organisational control with explicit objectives, targets, measures, evaluations, and rewards, whereas with an entrepreneurial management, control is partial and ad hoc, rarely involving formal measurement. Management development is seen by a professional management to

FIGURE 2.4:
FLAMHOLTZ'S PYRAMID OF ORGANISATIONAL DEVELOPMENT



SOURCE: FLAMHOLTZ 1990 (p19)

involve identifying management development requirements and the design of programmes, whereas with entrepreneurial management, management development is ad hoc, relying on "hands-on" job training. Budgeting with a professional management is managed by standards and variances, whereas with an entrepreneurial management, budgeting is not made explicit and there is no follow-up on variances. Innovation with a professional management adopts an incremental approach and takes calculated risks, whereas with an entrepreneurial management, there is an orientation towards major innovations and a willingness to take major risks. Leadership with a professional management has consultative or participative styles, whereas with an entrepreneurial management, styles may vary from directive to laissez-faire. Culture with a professional management is well defined, whereas with an entrepreneurial management it tends to be loosely defined and "family" oriented.

Two independent dimensions are involved in each stage of organisational growth which are size and the extent to which the firm has developed systems in the six critical development areas in the pyramid of organisational development (*see figure 2.4*). Problems occur for a firm when revenue growth far outstrips the organisational development of the firm.

Flamholtz's model is based on the following assumptions:

1. That firms pass through a sequence of growth stages in which each phase is characterised by an increasingly sophisticated level of organisational development, with greater professionalisation of management. Many of the stage models seem to adopt a "growth" or "fail" hypothesis and appear to omit the fact that many small firms reach a certain size at which their development plateaus.
2. The key to sustaining growth lies in professional management and organisational development.
3. It is assumed that every firm starts off as a small owner-entrepreneur concern and grows from that point on. Some firms are established on a professionally managed basis to begin with (*such as COMPAQ Computers*), in which the systems of organisation that Flamholtz describes as developing in a sequence of stages, have actually been set up from the moment of the firm's conception and which develop simultaneously as the firm expands.
4. There seems to be an implied assumption that all firms want to grow. With Flamholtz's model, it seems that every firm would grow but for the inability of many firms to have their systems of organisation keep pace with the pressures for growth. Flamholtz does not explicitly take into account the fact that many small firms fail to progress into what he calls the "expansion" stage because owner-entrepreneurs are reluctant to lose or dilute control of their business.
5. It seems to be assumed that the firm's external environment (*economic, social, political and spatial*) has little bearing on the firm's capacity to grow. Growth is treated as coming entirely from within the firm. In Flamholtz's model, if the firm has a marketable product, has identified a sustainable market niche and can organize its production activities efficiently and effectively, then growth will be a natural consequence.
6. There seems to be a strong implicit assumption that stages I and IV in Flamholtz's model describing the corporate life cycle, are synonymous with the product life cycle. In practice, a firm's product life cycle may turn out to be fairly short-lived, and therefore insufficient to sustain the firm through the first four stages of growth.

Although, Flamholtz suggests that a firm can leap-frog to stage VII (*Decline and revitalisation*) at any point in the corporate life cycle, either to fail or commence the process again (*revitalisation through stages I to IV*), it is inconsistent and unconvincing. A market dominating corporation is an entirely different organisation from a small firm just starting up that makes the transition from an owner-entrepreneur managed firm to a professionally-run organisation. A major corporation presumably already has a professional management structure in place. Flamholtz tries to get around this point by saying that professional managers have to become "intrapreneurs" and that conceptually, the process of revitalisation is the same as the growth process for a new firm, however, this still seems unconvincing.

The stage models of firm growth set out to describe the corporate life cycle. They do not make any claims to be able to predict by how much a firm will grow, even if they follow the prescriptions to growth advocated. In Flamholtz's model, the suggestion is that the firm that can master stages I through to IV, will simply keep on growing until the market becomes saturated with the firm's product/s. The difficulty of Flamholtz's model is that it does not say at what point a firm will experience market saturation with its product/s. For example, is it when it reaches the level of sales of its major competitors, or is it when it acquires all of its competitors, so that it comes to monopolise the market? Taking into account all of Flamholtz's model (*stages I through to VII*), the implicit suggestion is that through diversification strategies there is almost no limit to a firm's growth, and theoretically, it could come to dominate a national or even the global economy.

The stage model approach can only predict a firm's likelihood of progressing to the next stage of organisational development (*assuming that the firm continues to experience strong market demand for its product/s*). If the firm's organisational systems are able to cope with its growth in sales, then progression to the next stage of organisational development will be a natural outcome.

As a model for explaining how a small new business venture might progress to a market dominating corporation, Flamholtz model is useful in showing the professional management systems a firm must adopt in order to make the various transitions involved and the pitfalls that must be negotiated along the way. Its greatest strength lies in the fact that it is conceptually easy to understand and explain because of its simplicity.

However, where Flamholtz's model is particularly deficient as an explanatory framework of firm growth is in explaining the role of the firm's environment; explaining why owner-entrepreneurs decide to pursue a growth strategy; and in explaining the impact of the market. Furthermore, little is said of the timescale involved. For example, if a new business venture does not rapidly enter into the expansion phase early on in the firm's product life cycle, the chances of such a firm developing into a major company would seem to be slight.

All of the stage models appear too imply that a firm can grow as large as the market is providing that it has the organisational capability to cope with growth and that it can meet whatever the market demands of it. Theoretically, the potential for growth is limited only by the size of the economy. When the firm experiences market saturation with its product/s, it can maintain its growth by diversifying into new products.

A useful feature of Flamholtz's model is that particular enabling determinants are emphasized at various stages in a firm's development. These include the following capabilities:

1. In stage I (*New venture*), seeing a market need for a particular product/service; creating an organisation capable of providing the required product/services; the willingness of the entrepreneur to take a risk; and having a brilliant product/service idea.
2. In stage II (*the expansion phase*), acquiring the necessary resources and developing complex operational systems.
3. In stage III (*the professionalisation phase*), developing a strategy (*i.e. a business plan*); developing an appropriate organisational structure and controls; and providing management development.
4. In stage IV (*Consolidation*), developing a formal programme of auditing the corporate culture and transmitting it to peer groups of employees.
5. In stage V (*Diversification*), successfully diversifying into new products which essentially involves a repetition of the progress through stages I to IV.
6. In stage VI (*Integration*), integrating the diverse product divisions of the firm into a single corporate entity.
7. In stage VII (*Decline and revitalisation*), overcoming the pressures to decline which can be caused by market saturation, an erosion of management's entrepreneurial skills, an inability to develop an organisational infrastructure to support the growth realised from previous stages; or simple complacency throughout the organisation.

The main qualitative indicator of growth used in Flamholtz's model is growth in annual sales. Growth is also classified in qualitative terms with regard to the stage of organisational development the firm has reached. A firm will progress sequentially through the first six stages, with its growth being characterised by its management systems becoming increasingly sophisticated and complex, and with a different emphasis at each stage (*e.g. markets and products in stage I; resources and operational systems in stage II; management systems in stage III; corporate culture in stage IV; product diversification in stage V; integration of diverse business units in stage VI; and decline and revitalisation in stage VII*).

The symptoms of sales growth without commensurate growth in organisational development is described in terms of problems associated with demand outstripping the firm's organisational infrastructure to cope with satisfying demand. This usually occurs at the transition points between stages in the organisational development of the firm. These problems can indicate short-term growth but if the firm does not learn to adapt its organisation to cope with the increased sales growth, the firm will not be able to translate this into long-term growth.

O'Farrell and Hitchens (1988b) criticise the stage models as being little more than heuristic classification systems. This indicates that extensive and intensive research must have been carried out in order to create these classification schemes. In the case of Flamholtz's model, verification is provided by case studies of well-known American firms such as IBM, Humana, Maxicare, Wang Labs, Commodore, Osborne Computers, Compaq, Apple Computers, Metro Realty, Tempo Products Unlimited, Knapp Communications, Superior Alarm Systems, Domino Pizza, People Express, Federal Express and Ashton Tate. Flamholtz also draws on considerable personal experience in his capacity as a business consultant for many entrepreneurships and large institutional organisations.

Flamholtz's model should in theory be testifiable since it has developed out of a heuristic classification scheme. But it is perhaps limited in its application only to growth firms that have commenced life as an entrepreneurial concern and then subsequently made the transition to a professionally managed firm.

Verification of this model requires an intensive approach to research in which the company's history since inception is carefully studied (*particularly in terms*

of transitions from one form of organisational development to another, the nature of leadership, strategic planning, management development and corporate culture) and in which owner/management/employee attitudes are examined to determine whether or not a firm has outgrown its organisational infrastructure.

Flamholtz's model has the very real limitation that it is restricted to businesses that start up as entrepreneurial concerns. It therefore excludes a whole range of business start-ups such as craftspeople, the self-employed, professionals who band together to form a business partnership or professional practice and other firms that may be set up as professionally managed corporations right from inception. The weakness in Flamholtz's model is that it assumes a small business requires an entrepreneur to be in charge of it, if it is to progress from infancy towards a professionally managed firm. However, the useful aspect of Flamholtz's model is that it is applicable to firms in manufacturing, service and distribution industries. And it can be used to study growth dynamics in firms ranging in size from the lone entrepreneur up to and including market dominating corporations.

Flamholtz's model is also limiting in considering the various forms or strategies of growth that a firm can pursue. This may be because Flamholtz acknowledges that every firm will probably pursue a different strategy, so instead Flamholtz concentrates on the broad principles that firms should adopt in order to sustain growth which are: that firms engage in strategic planning; that firms have an effective and efficient organisation and management structures; that firms have effective leadership; and that firms manage their corporate culture. Strategies such as vertical or horizontal integration of businesses through business acquisitions, merging with other firms, expansion into new markets, creating new products and expanding existing markets are not examined in this model. Diversification is seen as a growth strategy, but surprisingly, only in companies that are mature corporations with sales exceeding \$US500million for a manufacturing company (*or \$US170million for a service company*). As a tool for considering growth strategies, Flamholtz's model is of limited use, but it has value in the diversity of firm sizes and sectors that it can be applied to.

2.5.6 Product/Market Development Model

The model of Gibb and Scott (*in Gibb & Davies, 1989*) was primarily developed for the practical analysis of small businesses and in the training of counsellors and advisers at Durham University Business School. This model (*see*

figure 2.5), when used as an analytic tool, divides the analysis of the firm into three stages:

1. The review of the base performance indicators in the business (*i.e. marketing, production, finances*) using trends (*see figure 2.6*).
2. Examination of the base potential of the business in five key areas: the existing resource base; the experience base; the control base; the leadership base; and the ideas base (*see figure 2.7*).
3. Analysis of the firm's strategy for growth (*through analysis of specific projects*) in conventional business plan format (*e.g. the objectives; the market; the resource; the ability and commitment; and the financial projection in figure 2.8*).

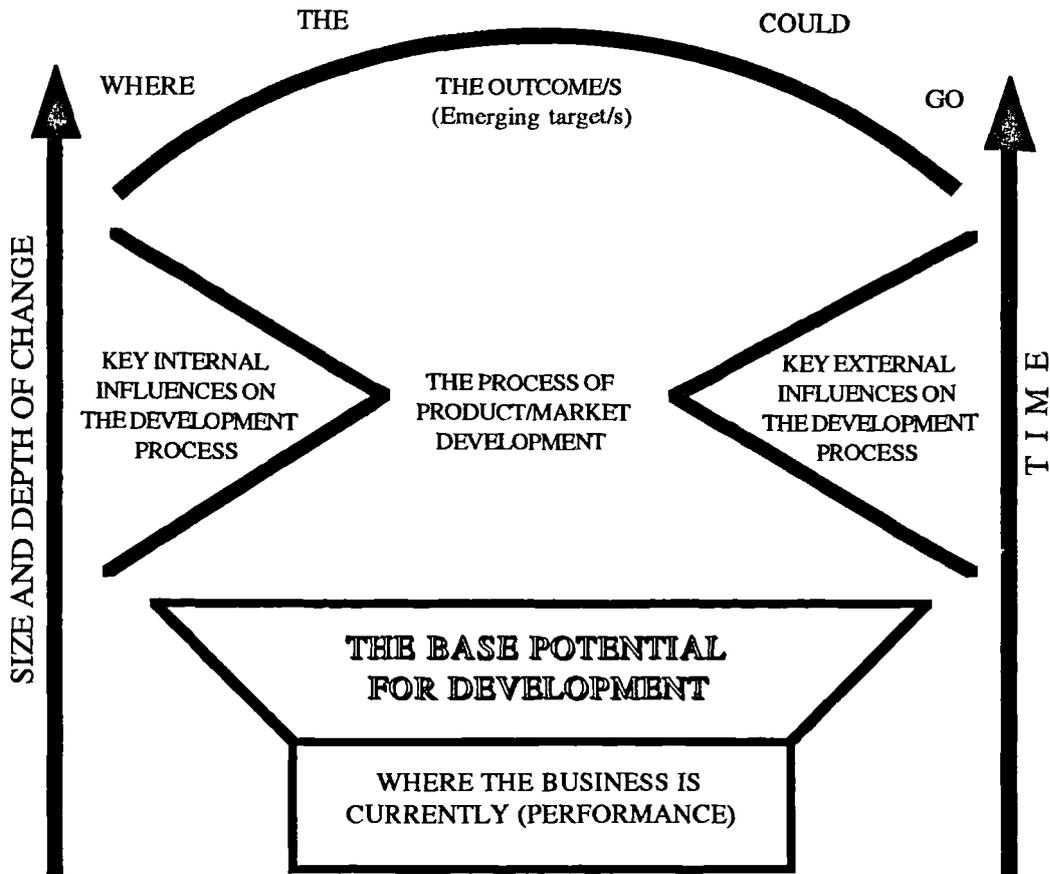
Gibb and Davies (1989) state that a number of contingency factors are fed into the model relating to the market and the broader environment in which the firm operates, but it is not made clear how these factors come into the analysis. The factors alluded to are: personality, organisation, development, business management, and sectoral market approaches.

The model is dominated by business paradigms. Examples of the so-called business paradigms employed are: the strategic/marketing product model; the ideas base of the business; and the financial aspects of firm performance. The financial aspects of the firm's performance base are measured by examining: the control of production; in overall management terms (*via financial resource capability and projections developed in the business plan*); the degree of managerial slack; the firm's relations with its environment; and the firm's strategic awareness and orientation.

The model does not give undue emphasis to the role of the entrepreneur as a risk taker, bearer of uncertainty or innovator. This may be because the model's primary application is as a tool to assist counsellors and business advisers, and it would therefore be inappropriate to advise start-up businesses that ideally they should conform to the stereotype of the entrepreneur if they want their business to succeed.

The types of measures that the model attempts of the owner-manager include the personal characteristics, managerial style (*although not done with a view to predicting successful types*), the role of the entrepreneur, the total view of the manager's competency, and the owner-manager's training and background.

FIGURE 2.5:
GIBB & SCOTT'S MODEL OF GROWTH THROUGH PRODUCT/MARKET
DEVELOPMENT IN THE SMALL BUSINESS



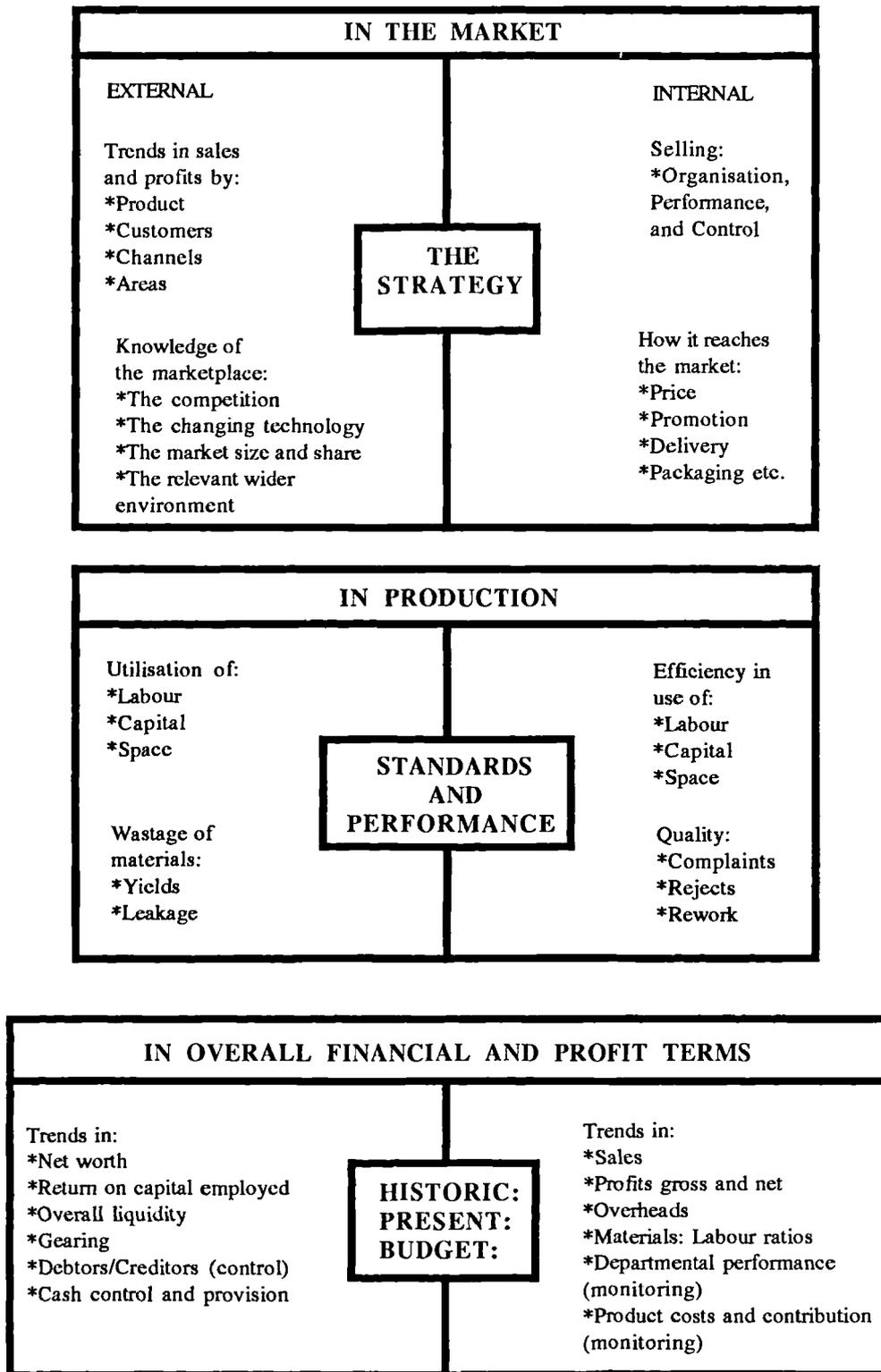
SOURCE: Gibb & Scott, (in Gibb and Davies, 1989)

It would seem that Gibb and Davies do not try to categorise according to the stage model of growth. Although no weighting has been given to any of the parameters of the model, the role of strategy/planning is not particularly emphasized.

Market related factors are clearly considered in the model. The model does take some account of how knowledge in the environment is used in business planning. Little is said about the technology employed in the firm, although the model does say something about the basic industrial structure of the firm.

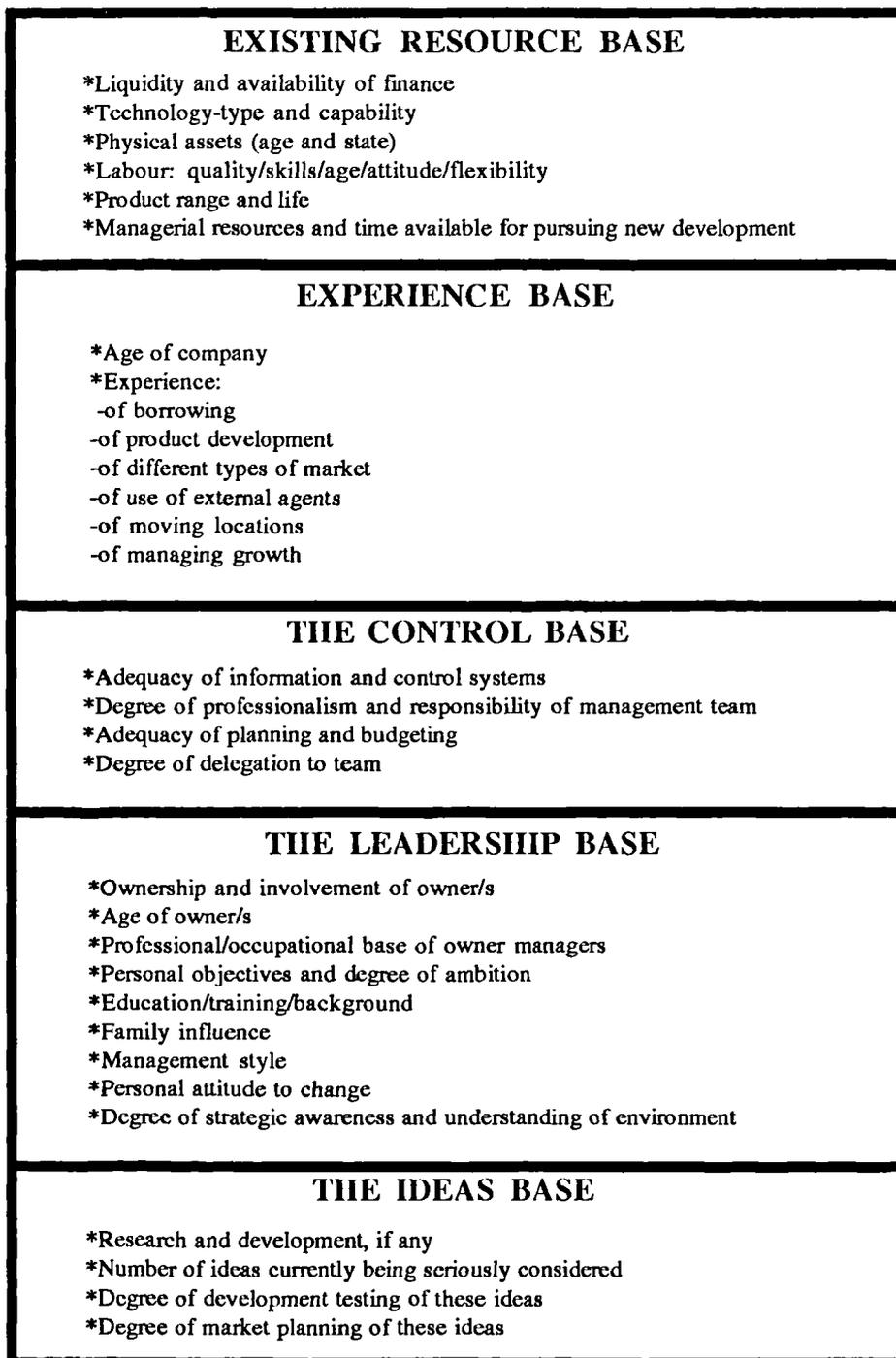
Factors in the growth process are not weighted in the model, nor is there any theory of how these factors interact with each other as the business develops over time. Moreover, the model fails to indicate what contingencies the various factors depend on. Neither is it clear how these factors might be influenced either with public

FIGURE 2.6:
A FRAMEWORK FOR MEASURING A FIRM'S PERFORMANCE



SOURCE: Gibb & Scott, (in Gibb and Davies, 1989)

**FIGURE 2.7:
A FRAMEWORK FOR MEASURING A FIRM'S POTENTIAL**

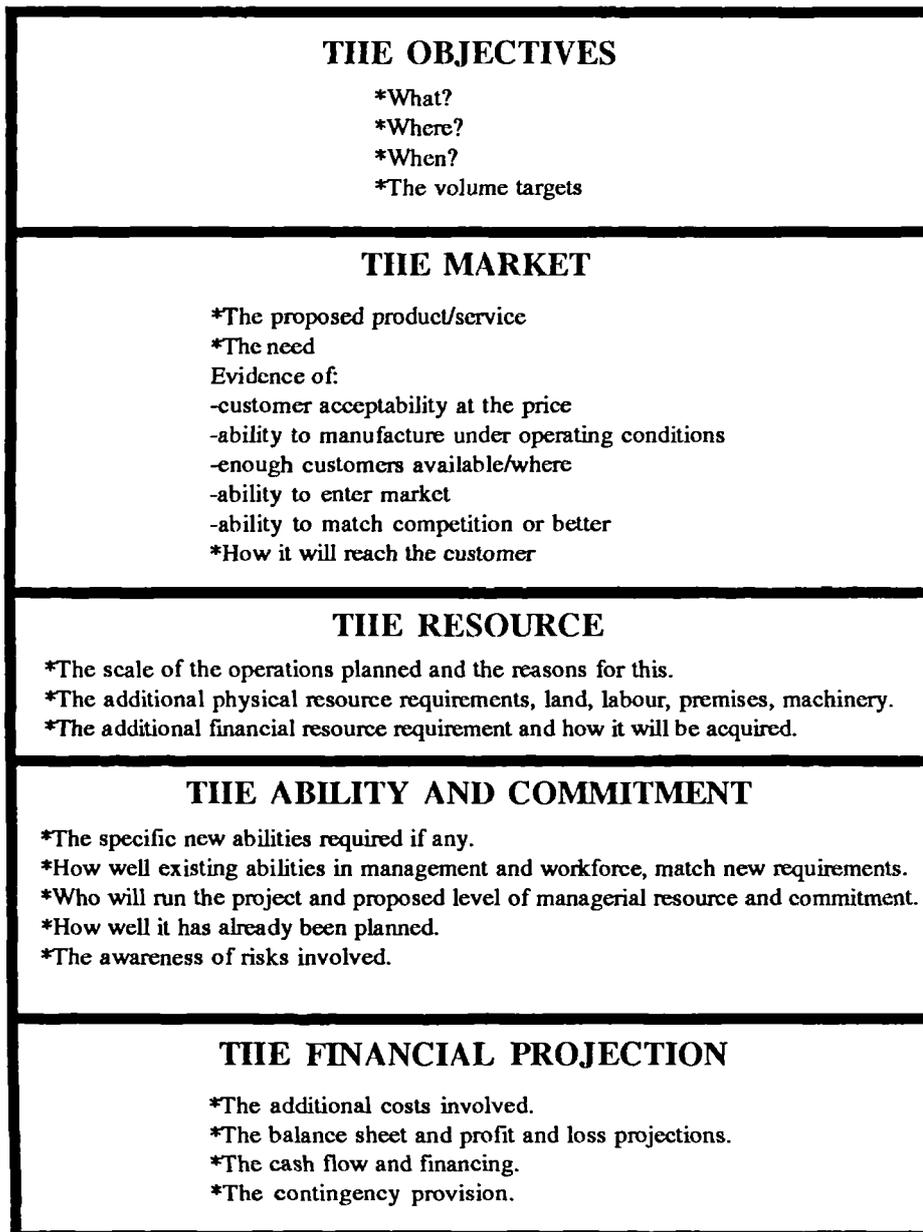


SOURCE: Gibb & Scott, (in Gibb and Davies, 1989)

policy or organisations involved in assisting firms to grow.

The model indicates that it is a framework of parameters/factors for measuring the performance potential of a firm and evaluation of the key areas of a firm's projects. However, measurements are only of value unless they can be compared against standards that set the optimal behaviour desired.

FIGURE 2.8:
A FRAMEWORK FOR EVALUATING A FIRM'S PROJECTS



SOURCE: Gibb & Scott, (in Gibb and Davies, 1989)

It is not made clear whether the three main components of the model, measuring the performance, measuring the potential and evaluating the project, have to be considered sequentially or whether the order of analysing the elements is not important.

The implicit hypothesis in the model is that firms that are "well-managed" in the base and base potential performance will do better than those that are not.

Gibb and Davies concede that this approach lacks a broad theory. But they claim that the model is a multi-disciplinary approach using a wide variety of management parameters, economics, sociology and organisation development theory. They maintain that the model is reductionalist but it is not clear what is reductionalist about the model, nor how it might work in practice.

The main assumptions of Gibb and Scott's model are:

1. That a well-managed firm in terms of marketing, production and financing capability is most likely to succeed.
2. A firm that is currently performing well in the market, in production terms, and in overall financial and profit terms should grow.
3. The process of growth in a small to medium business is very informal. Growth is more a process of problem solving and opportunity grasping than anything else, and the firms that are the most capable in this regard are the most likely to grow.
4. That being in tune with customer needs is an essential feature of growth firms.
5. The growth potential of a firm depends on five key areas of: resource capability; control (*management*) capability; ideas development potential (*e.g. research and development, market analysis*); company experience; and leadership (*of the manager or owner-manager*).
6. Growth is associated with a business that plans its growth in the context of specific projects in the key areas of: objectives, marketing, resources, ability and commitment, and finances.

Perhaps more than any other theories/models/approaches, Gibb and Scott attempt to create a framework for predicting growth in small companies. However, while it is very comprehensive in its approach in examining all the issues concerned with a firm's internal dynamics, it does not set any measurable criteria that

might help to differentiate growth firms from those that are stable or declining. Neither does it indicate whether a firm that performs well in terms of its various projects, base potential (*related to its resources, experience, control/management, leadership, and ideas base*), and current performance (*in markets, production and finances*), is likely to grow and by how much. The model seems to imply that it will be self-evident to the practitioner studying a particular firm, whether it is indeed well-managed, performing well, capable of grasping opportunities and problem solving, apparently meeting customer needs with viable projects. However, it is not self-evident, and the model would benefit greatly if it had some clear yardsticks to go by. Many small firms do a lot of things well enough to stay in business, and yet fail to grow. The model does not seem to highlight what might be the crucial underpinnings of business growth for small to medium firms.

Gibb and Scott's model appears to have the potential to be a predictive tool, but as it currently stands, it is still too underdeveloped to have any reliable predictive value. Even as a practical analytical tool, its utility appears to be limited, if given the large research input required to work through the framework for assisting firms (*see figure 2.6*), it is still not able to come up with any definitive conclusions about whether a firm is doing all the right things to facilitate or maintain growth.

Gibb and Scott appear to set out in their model the majority of the relevant issues/factors that impinge on a firm's growth potential, however, its explanatory powers are weak. This may be because the authors are more concerned with creating a diagnostic tool to help small firms experiencing problems, rather than producing a model that clearly explains and conceptualises how small-medium firms grow. It is not clear how the parameters interact, nor how the contingency factors relate to the market and broader environment within which a firm operates. Overall, the model does cover most of the parameters identified as relevant in previous studies of growth (*such as the importance of the entrepreneur, organisation development theory, business management, and sectoral market approaches*). Notwithstanding this point, there appear to be two important areas that the model fails to take into account: the role of the entrepreneur as risk taker and/or innovator; and its failure to categorise the stages of business development.

This model does not attempt to predict a firm's potential for growth in either quantitative or qualitative terms. However, it does tentatively address five key areas which are seen to critically hinge on a company's growth potential, which are:

the firm's existing resources; the firm's experience; the firm's control base (*administration systems*); leadership; and ideas. Resources include the firm's liquidity and availability of finance; technology type and capability; the age and state of physical assets; the quality, skills, age, attitude and flexibility of labour; product range and life; and managerial resources and time available for pursuing new development. The experience of a firm includes such issues as the age of the company; borrowing; product development; different types of markets; the use of external agents; of moving locations; and of managing growth. The firm's control base refers to: the adequacy of information and control systems; degree of professionalisation and responsibility in the management team; the adequacy of planning and budgeting; and the degree of delegation to the team. Leadership includes: the ownership and involvement of the owner/s; the age of the owner/s; the professional/occupational base of owner-managers; personal objectives and degree of ambition; education/training/background; family influence; management style; personal attitude to change; and degree of strategic awareness and understanding of the environment. Ideas refers to: research and development; the number of ideas currently being seriously considered; the degree of development testing of these ideas; and the degree of market planning of these ideas.

In Gibb and Scott's model, growth is seen as a process of product and market development influenced by various key external influences (*see figure 2.5*), and a number of key factors of which strategic orientation is the most important. The model is not presented in terms of enabling and constraining determinants, but rather as factors or influences which are challenges or opportunities for the firm.

Factors inside the firm that are enabling or constraining determinants of growth are:

1. The strategic orientation of the firm.
2. The product/service.
3. The selling approach: with regard to organisation, performance and control.
4. Marketing and distribution of the product/service, particularly with respect to price, promotion, delivery and packaging.
5. Availability of physical resources such as land, labour, premises and machinery.
6. Availability of financial resources.
7. The capabilities of management and labour.
8. The level of managerial resource and commitment.
9. The extent of strategic planning.

10. The efficiency and effectiveness in the use of labour, capital and space.

Factors outside the firm that are seen as enabling or constraining determinants of growth are:

1. Trends in sales and profits by product, customers, sales channels and areas.
2. The nature of the competition.
3. Changing technology.
4. The market size and share.
5. Barriers to market entry.
6. The relevant wider environment.

A weakness in Gibb & Scott's model, is the lack of attention given to what the key external influences are. Despite Gibb & Davies' (1989) claim that firms learn about their own strengths and weaknesses as they grow in response to the environmental circumstances that they encounter, the exact nature of "environmental circumstances" is never explained. Neither is it made clear how external influences shape a firm's strategy for growth.

Gibb and Scott's framework for advisers assisting growth companies (*see figure 2.6*), has a component that measures a firm's performance in terms of its strategy; its standards and performance; and its overall financial and profit situation historically, currently and for budgeting purposes. Unfortunately, Gibb and Scott do not set any performance standards that might differentiate firms with static performance from those that are actually growing. It simply indicates the areas that would typically be looked into when studying the growth performance of firms.

Gibb and Davies believe that their model has been 'validated' in use. It was developed out of a research project conducted in 1983 (*Gibb, Scott and Webb*), which studied the growth of small businesses in-depth in a developing area. Since then, the model has been refined and tested in practice and has formed the basis for a now-established UK business development training programme, the 'Growth Programme', conducted by Durham University Business School. Moreover, Gibb and Davies claim that it has been endorsed by over 300 entrepreneurs from 1984 through to 1989 in planning the growth of their business. The model's greatest strength seems to be as an analytical tool for small business counsellors and advisers.

The model is applicable to small and medium sized businesses with up to 500 employees. It is also supposedly applicable to firms in all sectors of the economy, although the manufacturing sector is the favoured topic of discussion.

The model does not view successful firms as engaging in specific strategies for growth. Rather, it concentrates on the issue of firms solving specific problems as they arise, and exploiting product or market development opportunities. If the model does advocate strategy, it is of a very simple three-pronged approach in which the firm knows its markets and responds to the challenges that it presents; getting the product right for the customer's needs; and good management practice which involves ensuring good cash-flow, profitability and an adequate stock of resources.

2.5.7 Production-Oriented Approach to Growth

The work of O'Farrell and Hitchens (*1988a and 1988b*) has not been developed into a model or theory and is therefore categorised as an approach. Their basic hypothesis is that production-related issues lie at the core of the competitiveness problem for small manufacturing companies. O'Farrell and Hitchens (1987) stress that successful growth firms will be those that can identify and act on the key criteria in which to compete in segments such as design, price, quality, after-sales service, flexibility, etc. and can then build a competitive advantage based upon those criteria. The need to get the design and price/quality relationship correct for specific market segments is a necessary condition of growth for all firms. It is not enough for a small firm to have access to venture capital, sufficient skills, good cash flow and up-to date machinery, as these are secondary concerns. Seven major topics related to growth are seen as having an influence on a firm's growth potential: (1) the characteristics of the firm; (2) the markets served; (3) the competitive environment; (4) production detail; (5) the age and type of machinery used; (6) the skills of the workforce; and (7) performance data including measures of growth, and selected characteristics of price and non-price competition of the main products manufactured.

O'Farrell & Hitchens' (1988a and 1988b) conceptualisation is based on the following assumptions:

1. That the firm is in the manufacturing sector.
2. That the firm has no more than 200 employees.

3. That the firm produces products that are tradeable or potentially tradeable between regions.
4. That production related issues such as design, quality control, the correct use of machinery, etc., are the key to growth in small firms.
5. That small firms need a marketing strategy.
6. That a high level of skills and good training are essential prerequisites to growth in small firms.
7. That successful small firms have a well developed organisational hierarchy, in which there is a significant intermediate level of management or supervision of the production process.
8. An implied assumption seems to be that all firm owners' desire growth, but often fail to achieve it because of production related difficulties.
9. That a firm's immediate environment is an important determinant of its growth prospects. A firm in a core economic region (*such as the 'M4 corridor' between Bristol and London*), is more likely to succeed in terms of growth than a firm located in a peripheral region of the UK economy (*such as Scotland or Northern Ireland*).
10. That most small firms in peripheral regions have owner-managers who are themselves part of the low-skill syndrome, and they therefore fail to recognise the low-skill problem as being the critical constraint to their firms' growth potential.
11. That firms in peripheral regions do badly because they do not specialise enough. There tends to be too much vertical integration of company functions in small companies, instead of subcontracting out those functions that are of secondary concern to what the firm does.

O'Farrell & Hitchens' conceptualisation does not make any attempt to predict the rate of growth nor by how much a firm will grow, or over what timescale it will happen. Their approach simply states that if a firm can meet the production related criteria of design, after-sales service, price, quality, delivery, reliability, etc., for the particular market segment that it is targeting, then the firm should be well placed to grow. Similarly, their approach cannot predict a small firm's potential for growth, other than in terms of differentiating the firms that are likely to grow from those that will not. O'Farrell & Hitchens' work implies that firms that are likely to succeed can be identified. It nominates the types of firms that should be targeted for government assistance (*those that can clearly demonstrate or already have export potential*) and the type of government policy approach that might achieve this (*i.e. grants for enhancing working capital, advisory agencies and training schemes*).

O'Farrell & Hitchens' (1988a) approach is quite useful in explaining that many small firms do not grow because they fail to produce products of the correct cost/quality compromise for the appropriate market segment. However, it is not sufficiently well developed to the extent that it can be categorised as either a model or theory. O'Farrell & Hitchens (1988b) discard many models, theories and approaches which are quite powerful in conceptualizing growth processes and the factors involved. This undermines the credibility of O'Farrell & Hitchens' work, particularly with regard with their rejection of industrial economics theory, stage models of growth, the management/organisational development approaches and entrepreneurial theories. The problem of insufficient skills and the reasons for it being poor training in the UK context, is convincingly argued. However, it does seem inappropriate of O'Farrell & Hitchens (1988a) to advocate an intermediate supervisory level in a small firm's organisational hierarchy because it happens to be underdeveloped in most small firms, resulting in senior management becoming bogged down in production quality/logistic details. Most small firms (*particularly those with less than 25 employees*), simply do not have the human or financial resources for a multi-tiered organisational hierarchy.

O'Farrell & Hitchens' (1988b) view that previous theories and models have implicitly assumed that the production process is largely a "black-box" is somewhat disingenuous. O'Farrell & Hitchens (1988a and 1988b) themselves fail to explain what the mechanics of the production process are. It is simply not possible to reduce the basic elements of the production process into a simple, generalised model, since it will vary for each industry and sector, size of firm, and type of product.

There is nothing particularly new about what O'Farrell & Hitchens (1988a and 1988b) outline in their approach: minimising cost and maximising production efficiency are important tenets in neoclassical economics; getting the appropriate design and quality right for specific segments of the the market is straight out of business marketing literature; and the idea of an organisational hierarchy in the firm for compartmentalising production tasks can be traced back to Adam Smith's (*Cannan, 1937*) writings. What is new about O'Farrell & Hitchens' work (*and it may just be relevant to the UK context*), is that poor skills and lack of training are the underpinning factors in many small firms' lack of competitiveness in the UK.

Small firms are viewed as being highly dependent on their external environment when compared to large companies.

The principal constraint on growth is the relative inability of small firms to meet the key criteria required by the market, in terms of producing products of the right cost/quality combination for the needs of particular market niches. Other secondary constraint are:

1. A lack of skills.
2. A lack of training at managerial, supervisory and shopfloor levels.
3. A lack of after-sales service, poor selling techniques and a shortage of working capital, are also seen as contributing constraints to small-firm growth.

The local milieu may be an important influence upon the prospects for small-firm growth and expansion, but these kinds of impediments to growth are likely to vary in nature and scale between regions. The lower quality and quantity of public and private services in peripheral regions is seen as a significant constraint to small-firm growth. Labour supply in peripheral regions is seen as being inferior compared to core regions. Small firms are also at a disadvantage in peripheral regions, since they are less competitive in terms of design, quality and price, in part because they face less competition in their regional markets either from local producers or from those in core regions.

The process of the division of labour in peripheral regions is constrained by a restricted supply of managerial and organisational skills, resulting in firms being more vertically integrated than those in the core regions and that this lack of specialisation reduces their competitiveness and growth potential.

Access to a suitable market is a significant constraint to growth, particularly in the case of Scotland. Geographic isolation results in three types of constraints: (1) the spatial structure of the market in which there is a lack of competition and poor local demand (*local/regional/exports*); (2) the cost of transporting goods from the region in question; (3) comparative customer liaison, marketing, machinery servicing, and other logistic difficulties arising from location.

Labour is seen as an important enabling/constraining determinant of growth in the following respects:

1. Cost;

2. The quality of skill at all levels in the company: managerial; supervisory/ intermediate managerial; skilled; and semi-skilled. Skill quality is determined by training, attention to detail, supervision and quality control procedures.
3. The lower labour turnover is, the better.
4. Recruiting suitably qualified people can be a problem because often small firms offer low wages in a high pressured work environment, and the work tends to be of a boring and repetitive nature.
5. Major shortages of skilled craftsmen.
6. The qualitative characteristics of many potential employees who have worked in large companies are often not attuned to the demands of the small-firm sector which requires a wide range of expertise, flexibility, and the ability to work under pressure.

The thrust of O'Farrell & Hitchens (1988a) research suggests that the main enabling determinant of growth in small manufacturing firms are strong production skills at a high level in order to enhance product quality and productivity. O'Farrell & Hitchens consider there to be four main enabling strategic issues:

1. The need for advice concerning efficiency, with an emphasis upon the appropriate mix of machinery, skill, plant layout, production scheduling, inventory management, etc.
2. Agencies need to give more advice on the development of quality control systems with a particular emphasis upon the cost of building in quality and avoiding rejects.
3. Firms need to research the markets, identify the target groups of customers. An advisory agency would be useful to help develop the strategic marketing capability of small firms.
4. A regional incentive scheme that is discretionary in nature, flexible, with aid targeted only towards firms that are producing tradeable goods with potential for interregional and export sales. Financial assistance needs to assist firms with regard to raising more working capital, rather than just concentrating on grants for capital costs of fixed assets as is currently the case. Training grants are an important feature to continue.

Other enabling determinants of growth are:

1. High quality at a reasonable price is more likely to facilitate growth than a product of poor or indifferent quality, even if it is at a very cheap price.

2. Firms that are more product design conscious in terms of designing a product to suit particular market niches are more likely to succeed than those that are not so concerned about design.
3. The quality of premises can affect the competitiveness of a firm in terms of cost, quality, room for expansion, maintenance and the suitability of the building layout for the firm's needs.
4. Being undercapitalised with machinery and production equipment can be a constraint to firm growth. Sophisticated state-of-the-art production equipment can help a small firm produce the best quality products possible, but only O'Farrell & Hitchens (1988a) hasten to add, if there is adequate shopfloor supervision and enforcement of product quality standards.

The ability to distinguish growth firms from that are stable or declining, relies on examining employment growth and growth in nominal sales. In addition, performance indicators of sales per person, net output per person and net profit on turnover are also utilised. In the context of O'Farrell & Hitchens' (1988a) empirical evidence, these growth and performance indicators are used only in a comparative sense and not to differentiate firms that are growing from those that are not. Nevertheless, the growth indicator of employment does clearly indicate growth in real terms quite effectively in its own right, while the growth indicator of sales is similarly useful, providing that it refers to change in sales in real terms.

Perhaps the most impressive aspect of O'Farrell & Hitchens' (1988a) work, is the solid empirical evidence that has been gathered in support of their thesis. Their empirical evidence has moulded a convincing case around their hypothesis that production related issues are central to the competitiveness problems of small firms, and that a lack of skills due to poor training is the root cause of these problems.

The performance of matched pairs of small manufacturing firms was compared between Scotland and southern England. The objective of the comparison was to compare the performance of firms in the assisted regions with those in non-assisted regions. In the comparison study of 46 Scottish firms with 44 firms from the south of England, firms were selected from industries ranging from simple clothes sewing operations up to the most modern computer controlled equipment. The English firms were used as the control area against which assisted firms from Glasgow and Edinburgh were compared.

In each matched pair of firms, Scottish products were judged to be of unacceptable quality by the matched English company. It seems that English firms in core economic regional economies are well able to match the prices achieved by Scottish firms in peripheral regional economies despite higher overheads, and still produce products of a much higher quality. English firms displayed a higher level of skill, had greater evidence of properly developed organisational hierarchies (*with regard to the intermediate level of management and supervisors*) and were more aware of the need to train. The fact that the quality of industrial premises, capital investment, the age of the company, and transport costs were not the cause of small Scottish firms being relatively uncompetitive compared to their English counterparts, provides strong support for O'Farrell & Hitchens' (1988a and 1988b) hypothesis regarding production related issues being the key problem in small firm competitiveness.

It must be cautioned that O'Farrell & Hitchens (1988a) samples are relatively small, and drawn from quite a wide range of manufacturing sectors (10), with as few as one pair of firms in the comparison and no more than 11 pairs of firms in any one sector. What is uncertain about O'Farrell & Hitchens empirical results is how representative they are of firms in peripheral and core regional economies, especially since the firms selected are a small proportion of the total firm populations in the respective sectors. Moreover, the findings of O'Farrell & Hitchens are not statistically significant, although the case-study approach that they adopted does go some way to overcoming this deficiency. Another important criticism is the difficulty in getting a reasonable match of firms for the purposes of comparison, thereby raising the question of how valid the comparisons are. One aspect of O'Farrell & Hitchens' which is somewhat suspect, is asking one firm in the matched pair to assess the quality and price of the other firm's product in the matched pair. It is debatable whether a company being asked to assess a rival's product, would give a honest appraisal.

O'Farrell & Hitchens' (1988a) work focuses only on growth in small manufacturing firms (*with 200 or less employees*). They have, however, within the manufacturing arena, attempted to apply their conceptualisation to firms over a wide range of manufacturing sectors (10) employing various manufacturing techniques and levels of production sophistication.

Processes of growth and strategies of growth in small manufacturing firms are not investigated in O'Farrell & Hitchens (1987) conceptualisation. O'Farrell & Hitchens' (1987) thesis views growth as a process that is easily facilitated, provided

that firms that can produce products of the right quality/price combination for the appropriate market niche concerned. In understanding how small firms make the transition to large firms, and the factors underlying that transition, and the strategies that the firm might employ to facilitate growth, O'Farrell & Hitchens' (1988a and 1988b) conceptualisation is of limited utility.

2.6 EXTERNAL DETERMINANT EXPLANATIONS OF GROWTH: THE SOCIAL NETWORKING PERSPECTIVE

This body of thought tends to be lacking in solid empirical evidence and although it seems obvious that social networking must have some bearing on the behaviour of small-firm owner-managers, empirical evidence remains inconclusive in supporting this hypothesis.

The role of social networking on small-firm growth processes is not a particularly new concept and has yet to be fully developed into a robust, usable model or theory. The main proponents of this approach are Stanworth & Curran (1973; 1976), Johannisson (1987); Docter, van der Horst & Stokman (1989); and Carsrud & Johnson (1989). Overall, this area of literature appears to be a combination of approaches, with a somewhat nebulous theme of the importance of social networking to emerging infant businesses.

There are two types of networks that the firm's owner-manager operates within: an internal one within the organisation of the firm which refers to the firm's employees and business partners; and an external network which can be further broken down into the owner-manager's external social relations (*family, friends and colleagues*) and external business contacts (*such as suppliers, customers, advisers, venture capitalists, bankers and distributors*).

These networks provide information and resources to the owner-manager/entrepreneur who is at the focus of these networks. Two aspects govern the operation of social networks, which are that: (1) people who interact with the entrepreneur will want to maximise their profits from their interactions, otherwise they will leave the relationship; and (2) the exchange of goods and/or services (*or "rewards"*) must be equitable between the entrepreneur and the other party. In social situations, these resources are the various persons in the community who have skills, information, or control over materials or capital funds that are necessary for the success of the business.

Social contacts by the entrepreneur provide access to product-service ideas, access to new technology, transfer of technology, capital funds, current market data, and appraisal of relevant competition. Entrepreneurial networks help firms to grow because the entrepreneur uses them to cut corners, gain community acceptance, enhance image and build credibility. Networks also provide information and support, help avoid errors, help locate resources, avoid the need for time-consuming research, and counteract rivals.

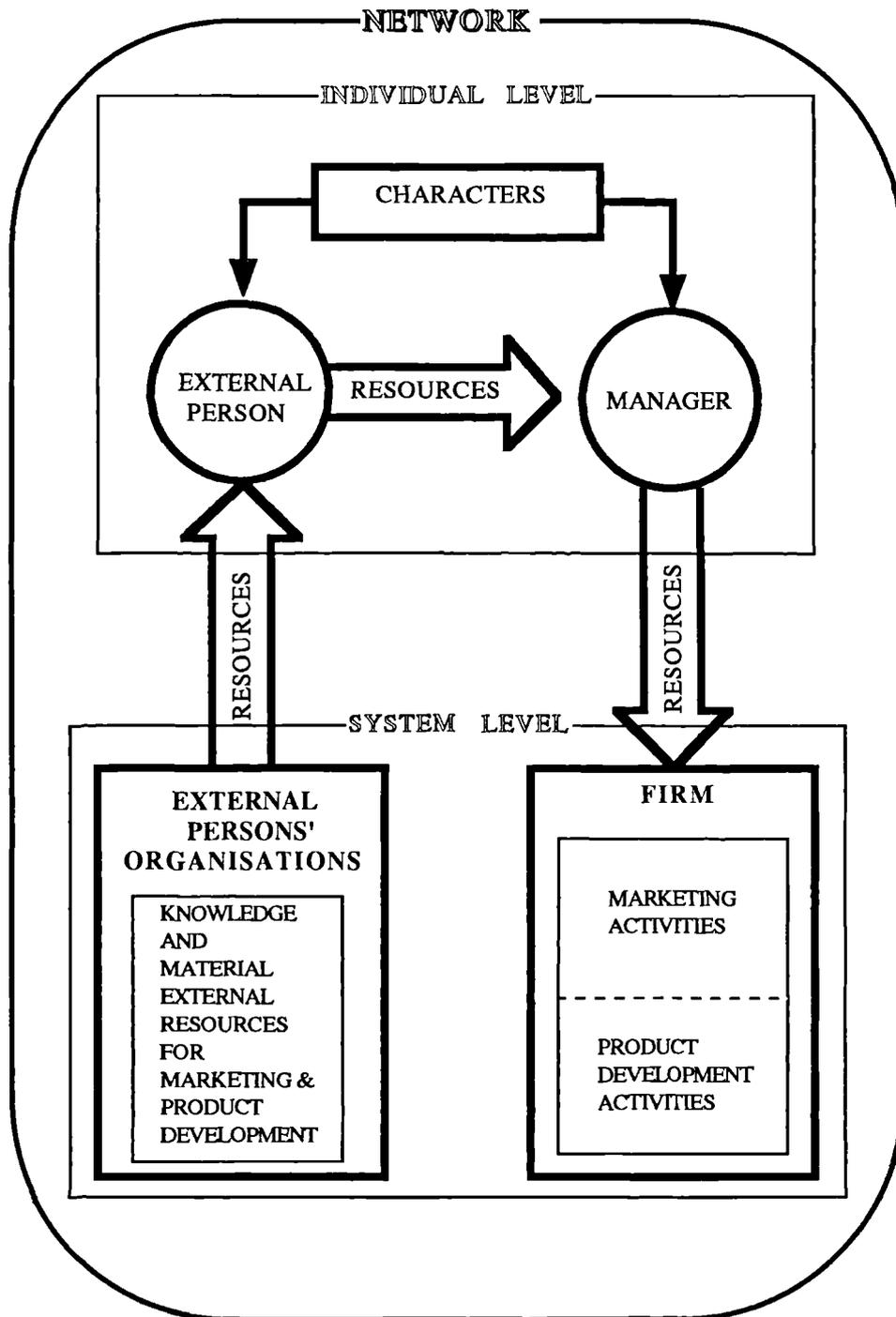
Social networks, both business and personal, help to define, influence and evaluate entrepreneurial behaviours, by providing or withholding emotional support and/or material goods that can assist the entrepreneur's capacity to carry out tasks within the context of the business. Figure 2.9 illustrates a model demonstrating how external persons in the firm's social/business network interact with the firm through its owner-manager to channel product development and marketing resources in to the firm.

Stanworth & Curran (1976) view the key to growth as being in the actions and meanings that the firm's participants attach to their role in the firm. These actions and meanings of the firm's participants are determined by their wider social environment, but little is said by Stanworth & Curran (1976) about the orientations and actions of key outsiders that have a crucial bearing on the firm's propensity to grow.

Carsrud & Johnson (1989) consider it vital for the entrepreneur to gain the acceptance and recognition of others, since this may help in the attainment of resources that facilitate expansion of the entrepreneur's business. The degree to which the entrepreneur conforms to society's expectations will ultimately determine the success of a business venture.

The entrepreneur will not respond in a uniform manner to social networks. Stanworth & Curran (1973) categorise three social identities for small-firm entrepreneurs: the artisan, the classic entrepreneur and the manager identity. The artisan is a craft-based worker whose primary concern is in producing a product, while social networking, although important, is of secondary concern. The classical entrepreneur is a channeller of resources and tireless promoter of the firm's ideas, and therefore makes extensive use of formal and informal (*friends and colleagues*) social

FIGURE 2.9:
NETWORKING MODEL ILLUSTRATING HOW A FIRM
PROCURES ITS RESOURCES FROM ITS NETWORK



SOURCE: Adapted from Falemo (1989)

networking to open up markets for the firm's products and seek out new product/process/financing ideas. The manager works within the context of a professionally organised social network of the firm, in which the roles of the firm's participants are clearly defined, and contacts with external social networks are of a formalised business genre.

Each of these entrepreneurial types responds differently to growth. Artisans want to remain close to their craft and are reluctant to allow the firm to grow to a size that distances them from direct contact with their craft. Classical entrepreneurs actively seek out growth because of the stimulation, sense of achievement, personal dominance, social respect, and novelty that it yields, but become bored by the need for organisation and the routine nature of tasks when the firm becomes large and resents a loss of personal control over the business. The managers of professionally managed firms view growth as being necessary to satisfy owners and as a means to enhancing their prestige amongst their peers as managers of large firms.

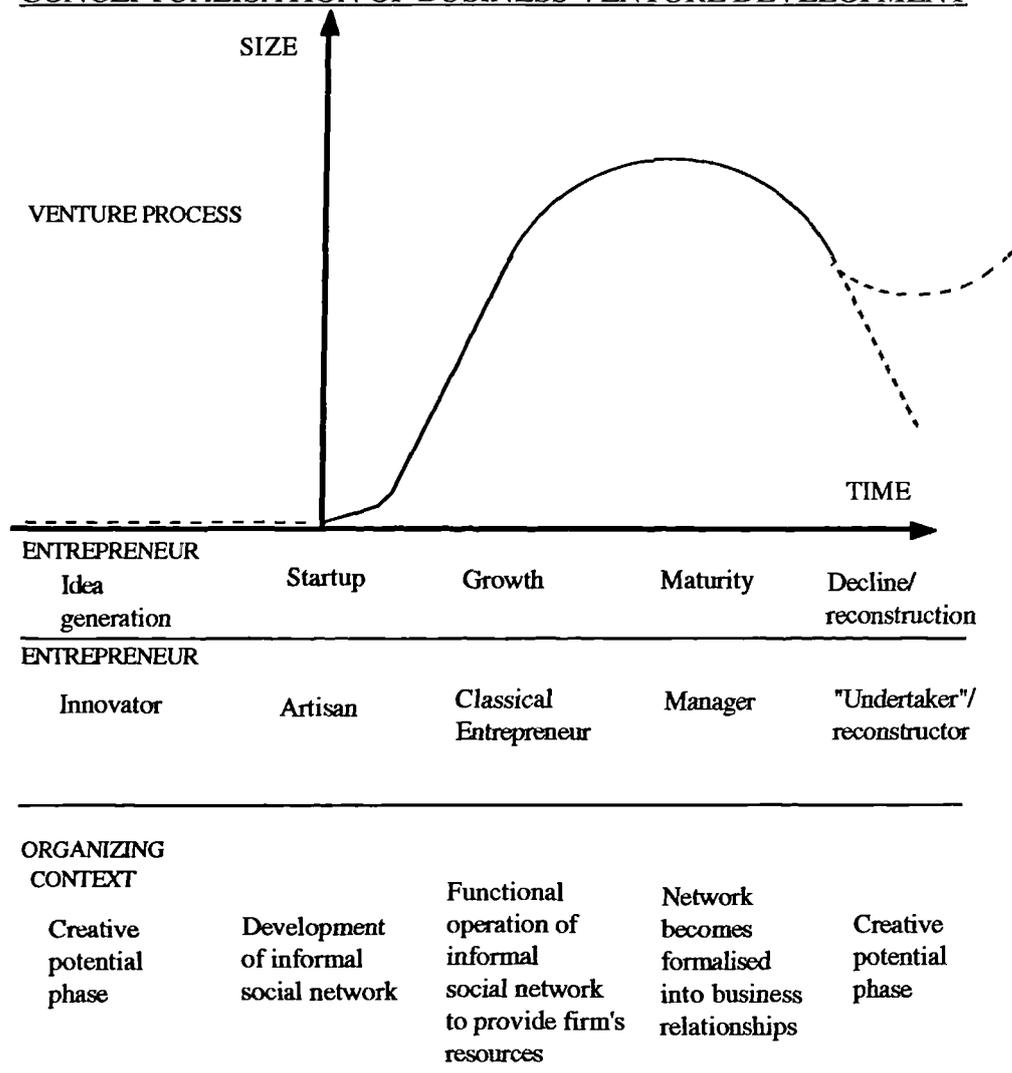
As the business grows, the entrepreneur has to adjust from an entrepreneurial role to a managerial role. This can result in a conflict of roles, particularly with respect to the delegation of authority, which if not resolved can contribute to the decline of the business. Figure 2.10 combines the models of Stanworth & Curran (1973) and Johannisson (1989) to illustrate how the small entrepreneurial-based business evolves.

The ultimate success of the business venture within the context of social networking, is thus determined by viewing the effects of personality and motivational variables as they are affected by various organisational and situational factors.

The social networking approach is based on the following assumptions:

1. Entrepreneurial behaviours are most prevalent in unstable, socio-economic environments. These behaviours are characterised by the pursuit of opportunities in resource-poor situations where the creation of wealth is the goal. Entrepreneurial behaviours are elicited most frequently when the environment is most congenial.

**FIGURE 2.10:
STANWORTH & CURRAN'S AND JOHANNISSON'S
CONCEPTUALISATION OF BUSINESS VENTURE DEVELOPMENT**



SOURCE: Adapted from Johannisson & Nilsson (1989)

Furthermore, entrepreneurial behaviours are highly determined by social situations rather than by macro-level variables such as economic conditions or political climate.

2. The entrepreneur is the focal person in the networks (*both internal and external to the firm*) and has autocratic control over how it interacts with his/her business.
3. Advice and knowledge are the main items that the entrepreneur draws from the external network.
4. Psychological support and autocratic control are the main primary features that the entrepreneur exerts over the network of social relations within the firm.
5. Extensive networks, rich in knowledge resources are synonymous with fast-growing entrepreneurial firms but it is acknowledged that the social characteristics of

the entrepreneur actually inhibit further growth of the firm once it reaches the point where it requires a professional management.

6. Stanworth & Curran (1976) imply that the artisan and classical entrepreneurial types are unlikely to change their ways to suit the needs of their firm as it reaches the size where a professional style of management is warranted.

7. The firm is always started in a small way by an entrepreneurial type of personality. It is assumed that the firm cannot begin life as a professionally managed business or that it can grow quickly in its early phases without an autocratic entrepreneur at the helm of the business.

The social networking perspective has very limited capability in predicting growth and what capability it does have, is in very loose and qualitative terms. The main implication of this approach is that large, effective and well functioning business and social networks, both within and outside the firm are indirect indicators of considerable growth potential. The entrepreneur facilitates and promotes the growth of his/her firm by making use of social networking to derive the necessary knowledge and material resources for the firm's activities.

Stanworth & Curran's (1973) typological classification is useful in the sense that it identifies the type of entrepreneur (*i.e. the managerial type*) that can help the firm reach its maximum size. Furthermore, it indicates that the artisan type of entrepreneur is unlikely to ever expand beyond a handful of employees because the artisan needs to remain close to his/her craft. As a general rule of thumb, the classical entrepreneur can expand a firm to that of a medium sized establishment (*up to 500 employees*) (Flamholtz, 1988), but then entrepreneurs' preference for informal social networks hinders further expansion of the firm, and particularly within the firm, the entrepreneur has to adopt a professional managerial role, operating within a highly formalised social network in which each employee's role is clearly defined. However, Stanworth & Curran's (1973 and 1976) approach can only be used to predict growth on the basis that the type of entrepreneur does not change to suit the firm's growth requirements. What particularly limits the social networking perspective's predicting powers of growth, is its inability to predict which entrepreneurs will change their role from artisan to classical entrepreneur to manager, in order to facilitate growth-or recognise their shortcomings and relinquish control of the firm to a professional management team that can better provide for the long term growth interests of the firm.

A serious deficiency with the social networking approach is that it only attempts to seriously deal with growth in the entrepreneurial phase of growth (*which does not apply to all new firms*). Moreover, it is unable to predict a firm's potential for growth once it enters the professional phase of its organisational development.

Useful aspects of the social networking perspective are in explaining:

1. How the behaviour of the entrepreneur, while facilitating growth during the firm's early phase of its organisational development, actually hinders further growth, because the entrepreneur is reluctant to hand over the reins of control to a professional management team. Stanworth & Curran's (1973) typology of entrepreneurial types is particularly useful in explaining why so many small firms fail to grow, but it is perhaps not realistic in assuming that the artisan and classical entrepreneur are too set in their ways to change their behaviour to suit their firm's growth imperative.
2. Why informal social networks, both within and outside the firm are critical to the entrepreneur's success. The entrepreneur uses social networking to develop competencies and procure knowledge and physical resources.
3. How it is crucial for the entrepreneur to gain acceptance and recognition of people in the social networks that the firm is placed in, since they help in the attainment of resources that may facilitate growth in the firm. The more the entrepreneur fulfils role expectations within his/her social network, the more likely the entrepreneur is to succeed in their venture.
4. The importance of the local milieu in providing a business, social and political environment that is conducive for the entrepreneur doing business.

There are three principal enabling/constraining determinants of growth within the social perspective. They are:

1. The entrepreneur. In the early stages of the business (*the entrepreneurial phase*), growth is dependent on how well the entrepreneur can develop social networks outside the firm and assemble together a social grouping (*i.e. the employees and partners in the firm*), that conforms effectively to the entrepreneur's ideals and aspirations.
2. External social networks. These provide the entrepreneur with the knowledge and material resources needed for expansion through external persons. These external persons provide access to product/service ideas, access to new technology, capital funds, current market data, and appraisal of relevant market competition. If the community is without persons with the required expertise, competencies and resources

that the firm needs, then the potential growth and development of the firm is likely to be constrained, no matter how capable the entrepreneur may be in creating social networks.

3. The internal social network of the firm. When an entrepreneur establishes a firm, he/she has to create what Stanworth & Curran (1976) call a "social grouping" comprising of employees and partner/s who are willing participants in the venture. If the entrepreneur is to make the venture succeed, then each participant must accept the role assigned to them by the entrepreneur, meet the entrepreneur's expectations, provide support to the entrepreneur's ideas, and accept and recognise the entrepreneur's expertise, direction and dominant role as leader. If the social network of the firm is unable to perform the role tasks assigned to its participants by the entrepreneur, then this will act as a constraint to growth.

The social network perspective does not have a particular methodology that can clearly distinguish growth firms from those that are stable or declining.

Stanworth & Curran's (1973) typography of entrepreneurial types can indicate what stage of growth a firm has reached, but it relies on a highly qualitative and possibly subjective assessment of the entrepreneur's character to determine whether they fit into the stereotype of the artisan, classical entrepreneur, or manager. However, this method of examining growth can only measure very coarse changes in the company's development and has little value in detecting a more gradual process of growth.

The social network perspective does imply that rapid growth in the extent of the firm's external social/business networks, should be indicative of the firm's rapid growth. Falemo (1989) has done some research to determine whether the extent of networking with persons external to the firm, may have facilitated growth, but the results proved inconclusive.

The social perspective is difficult to verify in quantitative terms, although a number of academics have tried to do so. Research by Falemo (1989) in Sweden has highlighted the difficulty in equating extensive social networking with a successful growing business. Carsrud & Johnson (1989) have pointed out the difficulty in procuring honest, self-effacing appraisals by entrepreneurs of the significance of social networking to the entrepreneur's success. They point out, referring to Peterson & Ronstadt (1987) (*referring to their research in Canada*), the

entrepreneur's reluctance to stress the significance of social networks because societal norms and expectations for the entrepreneur tend to be biased against networking, so the entrepreneur rather than admitting to getting help from others, chooses instead to present the image of the competent business person, emphasizing skills and knowledge utilised in becoming successful.

Mazzonis (1989) in examining co-operation amongst small manufacturing firms in Italy, found that strong business and social networks help to diffuse innovation throughout the woollen districts of Prato and Biella; the clothing district of Carpi; and the silk district of Como. The flexibility of these networks helped these small firms to change production runs very rapidly. Moreover, small firm networks helped stimulate firms to think of new technologies as a resource to be adapted, modified, and adopted to help enhance their existing production techniques and products. New technology and machinery introduced to manufacture old products stimulate the design of new products; the launch of new goods spurs the search for new ways of organizing production within the small firm network. Mazzonis contends that the networks of small Italian firms are so effective because they operate in a social context of socially integrated local communities. This social structure provides a very important backing of cooperative attitudes, solidarity and intense flows of information, that greatly encourages small firm owner-managers to engage in risk-taking and innovation.

Docter et al (1989) research into the role of networks in innovation processes in small to medium manufacturing firms in 350 firms in the Netherlands produced the following findings in support of the networking theme:

1. That innovation is often an unstructured process motivated by signals from the market. Innovation in small to medium firms rarely occurs as a result of a firm's research and development.
2. Throughout the innovation stages in a firm, the firm's internal competencies (*usually as a result of social networking within the firm*) are an essential element.
3. External sources of information are intensively used, depending on the stage of the innovation process. The main external sources are, in the case of product innovation, the buyers, while with process innovation, it's the suppliers of the production equipment. Product innovators were also found to derive much information from the suppliers of raw materials for the purposes of forming ideas and technical elaboration.

Professional literature and trade fairs (*for contacts with suppliers*) are much in demand among process innovators at the orientation stage.

4. Business contacts are most intensively used. Research institutes and consultants are enlisted mainly in the development of new products.

5. Government and semi-public bodies were generally not consulted in the innovation process.

Falemo (1989), in a study of 31 small and medium manufacturing firms in the north of Sweden, made the following important empirical findings in support of social network theory:

1. Managers derived resources from social networks for the purposes of the firm's marketing and product development.

2. External network actors were highly competent in their field and were very co-operative.

3. Most external network actors belonged to commercial organisations.

4. The majority of external network actors were located in the same region as the firm at the focus of the network, but the most important external network actors often came from outside the region.

5. The predominant form of resource being channelled from external persons in the social/business network of the firm into the firm, was competence.

6. The most important channelling of resources through the social/business network were purchased through an external person.

7. Managers of growing firms used social/business networks to improve product development to a significant extent.

In conclusion then, there appears to be sufficient empirical evidence to support the concept that social networking has an influence on firms during the early entrepreneurial phase of their development. However, the social perspective still remains in practical terms very difficult to verify, principally because of the difficulty in eliciting honest responses from entrepreneurs, and weighting the relative importance of the various network actors. There is often an ambiguity that the existing empirical evidence reviewed here has failed to resolve about what exactly is the driving force of growth in the entrepreneurial phase of a business venture, concerning whether it is the dynamism and motivation of the entrepreneur's personality that forges a resource-rich network or the nature of the community which already happens to have extensive

social networks in place, which the entrepreneur simply taps into to meet the needs of his/her business venture.

In terms of taking into account the diversity of firms, the social networking perspective is extremely narrow in its focus. It is applicable in practice to small, owner-managed enterprises in the entrepreneurial phase of growth. Therefore, it does not apply to the professionally managed firm and because of its focus on an entrepreneurial style of leadership, it tends to be restricted in its application to small firms. Docter et al (1989), however, did find in their research that social networking was still applicable in medium-sized firms, although their definition for the upper employee size limit of a firm is no more than 100 employees. They found that manufacturing firms below 100 employees very rarely have their own research and development facilities, and so made extensive use of social/business networking to generate ideas and procure knowledge.

When it comes to taking into account various forms or strategies for growth, the social networking perspective is severely restrictive. Strategies for growth are not examined, except in the context of the entrepreneur deriving resources from his/her social/business network to develop the business.

2.7 CONCLUSIONS

Each of the 10 groupings of theories/models/approaches discussed in this chapter offer some worthwhile insight into the growth processes in firms. However, none provide a completely satisfactory explanatory framework of growth processes within firms and in terms of how the firm interacts with its environment.

The non-deterministic approaches to growth have almost no explanatory value at all. The stochastic approach suggests that growth is a random process which makes the 'picking of winners' in a given population of firms very uncertain. The main value of the financial performance approach was as a descriptive tool of a firm's past performance which with simple extrapolation can be used to predict the probable future growth rate for a firm.

The theories/models/approaches that stress the firm's internal dynamics to be responsible for growth, tend to oversimplify the process by which a firm grows, because they concentrate on only a few factors for their simplifying models and theories, while excluding numerous other factors that may have an influence on the

growth process. The classical economics approach was conceived in a much less complex age and focused too much on the aggregate behaviour of firms in the economy rather than individual firms. The neoclassical economic viewpoint is constrained by its obsession with maximised production efficiency through minimum marginal costs and its rigid mathematical modelling to the detriment of other important determinants of growth. The entrepreneurial approach is useful in explaining growth at the owner-manager phase of a firm's development, but it tends to be a single issue theory which cannot explain growth beyond the entrepreneurially managed concern. The viewpoints covered in the organisation development approach, all make useful contributions to the study of various aspects of growth in firms, but tend to concentrate on particular issues and therefore fail to impart an overall theory of growth which can apply to any firm, in any sector, at any stage of its development. Downie's work is useful for studying the dynamics of growth in an industry sector context. Marris (1966) attempts to fuse an awkward synergy between neoclassical modelling and managerial behaviourist theory. Penrose (1959) emphasizes the need for an abundance of quality management skills to plan and manage growth. Peters and Waterman Jnr. (1982) stress the need for a strong 'value-driven' corporate culture with a bias for action, responsiveness to its customers, a lean horizontal management, and a secure base of products/services. Resnik's prescriptive business training text leans towards a marketing approach and considers good management (*particularly with regard to cash flow*) and mastery of the production process to be crucial. Flamholtz's (1990) stage model approach is potentially very powerful in the way that it tackles growth for a firm in terms of a corporate life cycle explaining a firm's development from its inception as an owner-managed concern culminating in an oligopolistic firm, but it fails to pin-point why so few firms actually complete the corporate life-cycle. Gibb & Scott's (1986) product/market development model seems to lack coherence and direction in that it attempts to be as comprehensive as possible, but it fails to isolate which factors are crucially important or how these factors impinge on the firm's activities to either facilitate or constrain growth. O'Farrell & Hitchens (1988a and 1988b) production oriented theory seems to reveal in descriptive fashion, why so many small firms remain small firms, however, it underrates the role of the owner-manager and its narrow focus on how small firms remain competitive (*while not necessarily becoming large*), may be overlooking growth determinants that are common to all successful firms, whatever their size may be.

The social networking perspective, a body of theory and models that believes a firm's growth to be due to how effectively the firm makes use of external

networks, helps to explain and conceptualise growth in a firm's early phases in circumstances, where the firm is owner-managed. Social and business networks are seen to be crucial to the owner-managers/entrepreneurs in providing the information and resources to effectively manage and succeed in their businesses. This approach, with its typology of entrepreneurial types (*i.e. the artisan, classical entrepreneur and manager*), is useful in explaining why some owner-managed firms never expand. However, there are significant limitations to the social networking perspective in explaining growth processes in firms, which are: that it is restricted to small owner-managed firms; it has little to say about strategies of growth; too many assumptions about the nature of entrepreneurial behaviours are made without any apparent basis in fact; and the existing empirical evidence appears to be inconclusive.

Although it must be concluded that the theories/models/approaches discussed in this chapter are lacking in one respect or other, some interesting propositions for further research do come out of this review, which are:

- the importance of profit maximisation to a firm's management;
- the importance of maximised production efficiency;
- the motivations of the owner-manager/entrepreneur and management;
- the importance of competition from new entrants and other rivals;
- whether the form of ownership makes any difference to the objectives of management;
- the importance of good management;
- the importance of a strong 'value-driven' company culture;
- the significance of the problem for small owner-managed or entrepreneurially-run firms in making the transition to a professionally managed firm;
- the importance of management's problem solving capability; and
- whether production related issues really do dominate small firms' concerns in trying to remain competitive.

The inconclusiveness of the empirical data to support the social networking perspective does raise some important issues for further research, which are:

1. what elements in an entrepreneur's social and business networks are most important to a firm's growth prospects;
2. how to equate a social network with a successful, growing business;

3. whether the characteristics of the owner-manager/entrepreneur have a bearing on the extent to which social and business networks are used; and
4. the importance of social/business networking to firms with a growth strategy that are professionally managed and/or in the medium size category.

Chapter three will discuss and assess two models that have the potential to overcome the limitations of the theories/models/approaches reviewed in this chapter. These two models treat growth in firms as being a holistic process, the result of a combination of interacting factors originating from the firm's environment and the firm's actors.

THIRTE

HOLISTIC CONCEPTUALISATIONS
OF FIRM GROWTH

CHAPTER THREE CONTENTS:

<u>SECTION</u>	<u>CONTENT:</u>	<u>PAGE</u>
3.0	INTRODUCTION	140
3.1	MODEL OF COMPETITIVE MANUFACTURING STRATEGY FOR FIRMS INTO THE 1990s	140
3.2	PORTER'S THEORY OF HOW INDUSTRIES ACHIEVE COMPETITIVE ADVANTAGE	149
3.3	CONCLUSION	169

CHAPTER THREE: HOLISTIC CONCEPTUALISATIONS OF FIRM GROWTH
--

3.0 INTRODUCTION

This chapter discusses and assesses two models that can be termed holistic determinant explanations of growth in firms. Section 3.1 examines a model developed by the PA Consulting Group (1990) for the Department of Trade and Industry's Enterprise Initiative Programme, while section 3.2 examines Porter's (1990) model of competitive advantage. Both of these models differ from the theorising and modelling of firm growth processes so far discussed, in that they view the firm as being in a symbiotic relationship with its environment in the sense that the actions of the firm's participants are closely associated with the resources, opportunities and constraints presented by the firm's environment. Moreover, the actions taken by the firm can in time contribute to changing the firm's environment.

The first model (*Department of Trade and Industry, 1990*) examined, is more of a prescriptive than a theoretical model, based on drawing out factors it views as being crucial to growth as a result of a contemporary assessment of the world economic scene as it relates to the British economy, from which it then tries to prescribe a course of action that British manufacturing firms must take to remain competitive in the coming decade. The second model (*Porter, 1990*) examined, is a theoretical approach based on a simple geometric model which explains industry and firm growth in terms of a potentially complex symbiosis of factor conditions, demand conditions, industry clustering and the actions of companies. Both these models appear to be powerful explanatory frameworks, particularly Porter's which can explain a firm's attainment of competitive advantage in a wide range of cultural, spatial and temporal contexts. These models are also useful because they add to existing theory on growth processes in firms without necessarily rejecting neoclassical economic and management theory.

3.1 MODEL OF COMPETITIVE MANUFACTURING STRATEGY FOR FIRMS INTO THE 1990s

This model (*Department of Trade and Industry, 1990*) indicates how a manufacturing firm might achieve competitiveness. It sets out the key issues that it considers British manufacturing firms are likely to be subjected to in the 1990s, describing them as "drivers" and then suggests how such firms would best respond to

the challenges presented by the "drivers" in terms of its strategies and approach to production. Figure 3.1 is a schematic representation of this model.

There are seven main "drivers" in the model: economic factors; demography and lifestyles; the environment; market factors; technology; competitors; and suppliers. The first five drivers mentioned are then presented in the context of being either external threats or opportunities to a manufacturing firm's quest to achieve competitive advantage. A firm shapes its competitive strategy in response to these threats and opportunities and according to the challenge presented by competitors and the need to have suppliers best serve their needs.

The main threats that firms will face due to the 'economic factors' driver will be a growth slow-down, the US deficit effect and financial volatility. Opportunities will be the dynamic Pacific rim and the importance of post-1992 Europe.

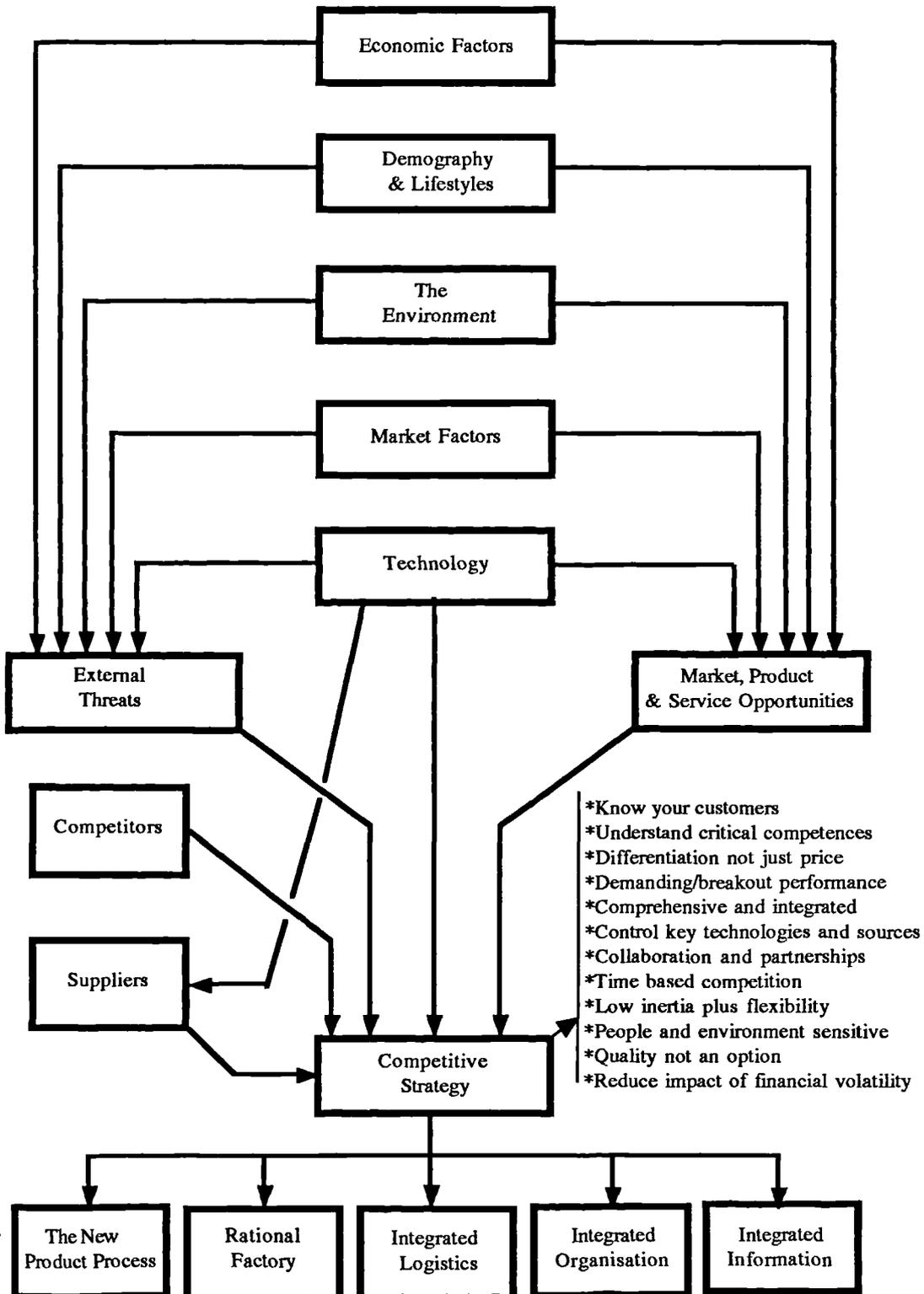
The main threats that firms will face due to the driver of 'demography and lifestyles' will be a shortage of school leavers and graduates and more demanding supply side work patterns. Opportunities will be presented by a burgeoning affluent population and an ageing population, together with increased demand for 'quality of life' products and services.

The main threats that firms will face due to the 'environment' driver will be public and government pressure to become more sensitive to the needs of the environment; the depletion of resources; and product and process pollution. Opportunities for firms due to the 'environment' driver will be market preferences for safe and friendly products.

The driver of 'market factors' will present UK manufacturing firms with threats of more competition and tighter, deregulated public procurement, whilst presenting opportunities of more open, multi-niche markets; high value products and services growth; product choice and customisation; and shorter life cycles.

The driver of 'technology' will present firms with threats of loss of access to new technologies and the possibility of more effective, cheaper substitutes being found by rival companies for their products. Opportunities will take the form of multi-technology products and intensification of the technology employed.

**FIGURE 3.1:
MODEL OF KEY ELEMENTS AND ISSUES IN THE STRATEGY FOR
MANUFACTURING FIRMS IN THE 1990s**



SOURCE: ADAPTED FROM PA CONSULTING GROUP, 1990, p60

The impact of the driver of 'competitors' on firms will be that competition is of a global nature; competition will be very strong; and competitors will increasingly resort to speed (in terms of product introduction, distribution and service) for competitive advantage.

The main implications of the driver 'suppliers' firms will be proximity to supply sources and competition with other firms to secure the exclusive custom of suppliers.

The implications of the threats and opportunities posed for the 1990s are simplified into four basic themes. The first theme is for a firm to have a global outlook towards its operations, in the sense that the firm's competitors, suppliers and markets may be of a global nature. Second, firms should expect their business to become more complex, as multiple technologies are employed in the product and manufacturing process, product ranges become wider, there is more product customisation, more component variety, more customers and market niches, and more lines of supply. Third, firms should expect more uncertainty in their business resulting from a wide range of customers, shorter product life cycles, greater product choice and customisation, short delivery lead times, more competition. This uncertainty will manifest itself as uncertain demand characteristics, greater uncertainty about the life of products and the investment decisions associated with them; more uncertainty about what a firm needs to do in order to remain competitive, greater financial uncertainty with volatile exchange rates and interest rates. The fourth theme is excellence in the sense that standards of customer satisfaction and competition will be at the highest level. A firm's internal performance will have to achieve exacting standards of quality, delivery and cost in circumstances where there may be a potential shortage of people and skills, higher people costs and more environmental constraints.

In prescriptive fashion, the model identifies five components to a company's competitive strategy, which are: the new product process; the rational factory; integrated logistics; integrated organisation; and integrated information. Details of these strategies are located in appendix A3A.

The assumptions that the model is based on are discussed as follows.

It is assumed that all firms are engaged in predominantly manufacturing activity and that these firms are subject to the same external forces, regardless of their

individual circumstances or the nature of their operations. The model calls these forces drivers because they put pressure on firms to respond in some way, in order to meet the challenge of remaining competitive. For example, some of the issues raised in the model, such as the US deficit effect and the dynamic Pacific rim dominated by Japan, would not have the same impact on a small manufacturing firm with purely local markets as they might with a large firm with substantial export markets. Moreover, the role of technology may be somewhat overstated to a firm's success where the product being manufactured is fairly simple and the process technology involved is of an uncomplicated nature.

All manufacturing firms are assumed to have essentially the same functions. The framework established to put the manufacturing business in context assumes that every firm has clearly defined functions of competitive strategy, leadership, operations, technology, integrated logistics, marketing and selling, new product process/rational factory and logistics systems procurement, with the factors of quality, integrated organisation, integrated information and control spanning every aspect of the business. In some cases, firms may subcontract certain functions out, or if the firm is very small, it may have an intermingling of functions controlled by only a few or even one person. To a certain extent, this kind of generalisation is needed to simplify discussion, but it can be misleading if it fails to take account of the diversification of firms within manufacturing.

The model accepts that different businesses will have different strategies and breaks them down according to four main types of manufacturing businesses: capital equipment; consumer durables; commodities and volume products; and fashion products/jobbing work. A firm involved in the manufacture of capital equipment is assumed to adopt a competitive stance in which product performance is the most important objective, followed by delivery/availability and then by price. For fashion products and jobbing work, the most important objective is delivery/availability, followed by product performance and then by price. For consumer durables, the most important objective is price, followed by product performance and then delivery/availability. For commodities and volume products, the major emphasis is on price followed by delivery/availability and then product performance. It is assumed that in the area of primary manufacturing competences, capital equipment manufacturers need competence concentrated in sophisticated design and development; consumer durables manufacturers need competences concentrated in facilitating wide product choice from minimum component variety; fashion and

jobbing work manufacturers need competences concentrated in manufacturing that is reactive with short lead time response; and commodities and volume products manufacturers need competences concentrated in manufacturing as a lowest cost producer. It is assumed that in the area of manufacturing response, capital equipment manufacturers respond with an engineering database, versatile production and central control. Consumer durables manufacturers respond with modular design, flexible manufacturing and just-in-time inventory techniques. Fashion products and jobbing work manufacturers respond with rapid design, flexible automation and reactive scheduling. Commodities and volume products manufacturers respond with capacity planning, continuous production and delivery logistics.

The very title of the report discussing this model "*Manufacturing into the Late 1990s*" would seem to suggest that it has powerful predictive capabilities, indicating that it has the answers manufacturing firms need to be successful in the 1990s. The model sets out the external pressures that firms will be subjected to over the coming decade and how they should best respond to those pressures. It implies that there is a strong possibility that firms will succeed in the marketplace if they adopt the strategies outlined in the model designed to help a firm achieve competitive advantage. However, the model does not set any standards or targets by which a firm might be able to say whether or not they had done all that was necessary to succeed in the marketplace. Indeed, the report states that a firm cannot wait to see what products its competitors turn out in order to see what standard it has to meet, because by then it will be too late. Instead, the model suggests that a business should be aiming at producing a product that is differentiated from other products in the marketplace. This seems tantamount to suggesting that commercial success is largely a hit and miss affair, particularly if consumers' fashion taste comes into the equation. In short then, the model has weak predictive powers of which firms will grow.

A useful aspect of this model is its attempt at conceptualizing how the firm's external environment impacts on the competitive strategy that a firm adopts. What is less clear, however, is how the 'drivers' in a firm's environment relate to the strategy that the model implores firms to adopt. Part A of the report does attempt to explain the implications of each 'driver' for UK manufacturing in general, but the derivation of strategy from these implications seems unrelated. This might be because Part B of the report which details the manufacturing response to the 'drivers' of the 1990s, is highly mechanistic and prescriptive in its approach. Check-lists and case studies are liberally sprinkled throughout the report's discussion on firm strategy, with

the check-lists drawing attention to the critical issues a firm should examine if it wants to succeed, while the case studies are helpful in explaining why paying attention to those particular issues has paid off for some firms. However, the difficulty with this model as an explanatory framework is that does not seem to indicate what are the key ingredients to success in a firm's strategy. The model has 13 factors that it considers important in a firm's strategy if it is to succeed, but these are so far-ranging in their remit that they give the impression that firms have to excel in just about every aspect of their activities to achieve competitiveness. The model would be more helpful if it attempted to prioritise in some way its factors of success. As an explanatory framework, this model is useful, particularly in the way that it recognises the need for firms to respond to the challenge of the environment in which it finds itself. In explaining why firms need to adopt certain strategies in order to succeed, it is less lucid, which can perhaps be put down to its prescriptive, didactic style.

The potential for growth within firms is not addressed in this model. The model concentrates on how firms might respond to the threats and opportunities that its environment might present, but not on what will happen to the firm if it adopts those strategies, in terms of how much the firm will grow by or the mechanics of the growth process for particular firms.

One of the strengths of this model is the way in which it sets out the enabling and constraining determinants of growth in manufacturing firms. It does this in the context of the 'drivers' (*factors that are outside the control of the firm*) acting on the firm and strategies that the firm itself can carry out to help facilitate growth. By themselves, the drivers will not cause or prevent growth in a firm. What is crucial to the growth process in a firm is the strategy that a firm adopts in response to what the model calls 'threats' and 'opportunities' created by the 'drivers'. Even then, it is not certain that a firm that adopts the strategy advocated by this model will be guaranteed success.

The model views the main external threats or constraints to growth as being: growth slow-down in the economy, the US deficit effect and financial volatility from the 'economic factors' driver; a shortage of school leavers and graduates and more demanding supply-side work patterns from the demography and lifestyles driver; public and government pressure, resources depletion and product and process pollution from the 'environment' driver; more competition and tighter, deregulated

public procurement from the 'market factors' driver; and loss of access and substitution from the 'technology' driver.

The main opportunities to growth according to this model are: the dynamic Pacific rim and the importance of post-1992 Europe from the 'economic factors' driver; affluent population bulges and ageing population, associated 'quality of life' products and services from the driver of 'demography and lifestyles'; preferences for safe/friendly products from the 'environment' driver; more open, multi-niche markets; high value products and services growth, choice and customisation , and shorter product life cycles from the driver of 'market factors'; multi-technology products and intensification of technological skills from the 'technology' driver.

This model does not directly state what distinguishes a growth firm from those that happen to be static or declining. However, implicitly, it suggests that firms that do not respond to the strategy that it advocates in response to the likely 'drivers' of the 1990s are unlikely to survive or expand. In other words, firms that do not demonstrate the following characteristics, are unlikely to be growth firms. These are firms that do not think in global terms with regard to competitors, suppliers and markets; or do not expect greater complexity in production, R & D and marketing; or that do not expect more uncertainty with regard to demand characteristics; or that do not strive for excellence; or that are not close to the customers; or that do not focus on the critical competences; or that do not have flexibility and low inertia in the production process; or that do not operate as fast as possible; or that are poorly integrated; or that are lacking in employees able to focus on critical competences, flexibility, low inertia, speed and integration.

Much of the empirical data used to support this model is drawn from secondary sources, such as published statistics from the Department of Employment, World Bank: World Development Report and United Nations Statistical Yearbooks. However, considerable reference is made to 'Profile 21', a major research study commissioned by the American Society of Manufacturing Engineers to explore the future role of the manufacturing engineer. The section on how manufacturers should respond to the challenge of the 1990s is well supported by short case histories to reinforce particular points. Although the content of the report is not based on specific survey research to verify the model, its reference to case studies lends some support to the legitimacy of the model. Although the authors do not claim to have created a model that guarantees to lead a firm on the pathway to growth, it does state that the strategy it

propounds as necessary to achieve success does contain ingredients that in the past have been associated with well performing firms.

The model appears verifiable and would seem amenable to survey research work that might provide evidence of its usefulness in explaining firm growth. It would probably prove difficult to verify statistically because of the predominantly 'soft' nature of the factors described in the model, but qualitative research may lend support to this model. The two problems that arise in verifying this model are firstly, the difficulty in quantifying the more obscure drivers on the firm and assessing them in terms of threats or opportunities (*such as demography and lifestyles; economic factors and the environment*); and secondly, the large number of strategies suggested in this model would make it difficult to single out the crucial determinants of growth.

The model is intended to be applicable to all manufacturing firms. It is of a sufficiently generalised nature to take into account most types of manufacturing firms and most sizes of firms.

Strategies of growth are investigated in this model in the sense of how the firm must deal with its production activities, information management, logistics, organisation of management and general marketing in order to maximise its operational efficiency and effectiveness in order to maximise its chances of success. The model does not investigate growth strategies in terms of a company contemplating a decision about whether to expand production capacity, or acquire new firms, or diversify into new products, or expand into new markets.

The audience that the PA Consulting Group model has been created for explains the approach taken in this report. There is a strong emphasis on guiding the reader through the issues that the manufacturing firm will face during the 1990s, followed by concentrated discussion on the type of strategy best pursued to achieve competitive advantage. In fact, the second half of the report is written more like a manual with diagnostic exercises for company chief executive officers to help determine whether their management and strategic practice is appropriate to the new priorities of the 1990s. The only practical issue that seems to have been overlooked in the model is that of after-sales service, which is surprising given that some of the discussion in the report touched on it. In summary, the model is presented more as a pragmatic approach to helping manufacturing firms solve their competitive problems rather than as a theoretical piece designed to give some fundamental insight into the

critical factors responsible for growth in successful firms. For example, issues such as management approach are not discussed at all, nor the importance of factor conditions, nor location determinants to name but a few. Where this model is particularly lacking is in the empirical evidence it uses to support its thesis. Although it does use a number of short case histories to lend it support, much of its evidence is of a secondary nature, which makes the theorising in this model to be of a somewhat speculative nature. To conclude, this model is a useful in the way that it gives an understanding of the type of strategy that a firm needs to adopt to succeed, but less useful in developing an understanding of why some firms succeed and others do not.

The next section discusses Porter's (1990) model of competitive advantage, a model with stronger conceptual framework and broader application than the model just reviewed.

3.2 PORTER'S THEORY OF HOW INDUSTRIES ACHIEVE COMPETITIVE ADVANTAGE

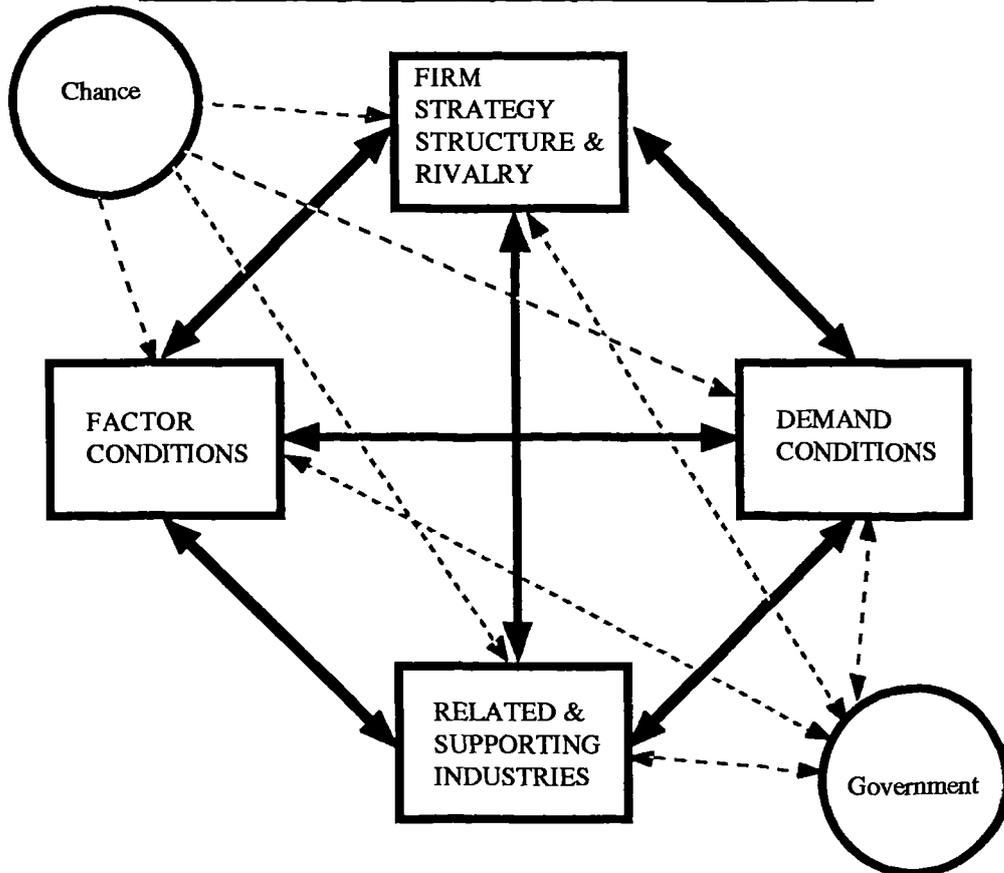
When Porter's (1990) theory of competitive advantage of nations was first published, it was hailed as an important new contribution towards explaining what make's a nation's firms and industries competitive in global markets, thereby propelling a whole nation's economy to advance. The essential objective of Porter's (1990, pp29-30) work is to explore the way in which a firm's proximate "environment" shapes its competitive success over time and in an even broader sense, why some organisations succeed and others fail.

From the title, it would seem that Porter's work is about a new theory of comparative advantage for explaining why and how some nations' firms and industries are better at international trade than others. Indeed, Porter stresses in his introductory chapter that he has developed what may become a new paradigm that redresses the shortcomings of classical theories of national advantage in understanding the dynamics of international trade (*Adam Smith's idea of absolute advantage and Ricardo's theory of competitive advantage*). Porter's work has not been considered here in the context of which nations are more competitive in particular industries, but rather to develop an understanding of why some firms grow (*or in Porter's words, "achieve competitive advantage"*) and others fail.

Porter's theory revolves around an elegant and deceptively simple model construct which Porter terms the "diamond of competitive advantage", that

combines factor endowments; conditions in related and supporting industries; demand conditions; and firm strategy, structure and rivalry. Central to this model is Porter's basic belief in the importance of competition, where companies benefit from having strong domestic rivals, aggressive home-based suppliers and demanding local customers. Each of the major determinants in the model can be influenced and influence the conditions of chance events and government policy. Figure 3.2 illustrates the complete system that constitutes Porter's model in schematic form.

FIGURE 3.2:
PORTER'S MODEL OF COMPETITIVE ADVANTAGE



SOURCE: PORTER, 1990, p127

The determinant of factor conditions (*see appendix A3B for a more detailed definition*) refers to human resources, physical resources, knowledge resources, capital resources and infrastructure that an industry draws upon to do its business. An interesting thesis that Porter explores is that competitive advantage in an industry can actually grow out of disadvantage in some factors. The abundance or low cost of a factor often leads to its inefficient deployment, whereas disadvantages in

basic factors, such as labour shortages, lack of domestic raw material, or a harsh climate, can encourage innovation to compensate for these disadvantages. A theme stressed throughout Porter's work is that what underpins a true competitive advantage for a nation's industry is brought about by pressure to innovate to solve selective weaknesses rather than innovation to exploit existing strengths or factor abundance. This is consistent with his view of competition as a wholly positive force. However, factor disadvantage must be selective and it must "send the proper signals" of the circumstances that will confront firms elsewhere, otherwise adversity will simply stymie an industry's growth potential, particularly if there is too much of it.

Porter devotes considerable attention to the determinant of demand conditions (*see appendix A3C for a more detailed definition*) in his model. Demand is broken down according to three categories of importance: home demand composition; demand size and pattern of growth; and the internationalization of domestic demand. A major problem with Porter's model or at least with the way that he discusses demand conditions, is the stress on a company/industry having strong local demand for their product/service as being pre-emptive of any transition into international markets. If a firm develops a product of a revolutionary nature, then it may have world-wide potential even if it happens to be a commercial failure within its local market. This occurred in Australia when Ralph Sarich of the Orbital Engine Company attempted to sell the technology his firm developed for a new two stroke engine for small cars to major Australian industrial concerns without any success. In the end, Sarich was forced to go to the United States to secure a market for his product, where General Motors in 1991 bought a licence to use this technology and are currently building an engine foundry plant to produce these engines. Other major car manufacturers have also paid for licences to use this technology. Clearly, from this example, growth in a firm is not necessarily dependent on firstly achieving success in the local market before export potential can be realised.

The presence of related and supporting industries that are internationally competitive is the third determinant in Porter's diamond of competitive advantage (*see appendix A3D for a more detailed definition*).

The presence in a nation of competitive industries that are related often leads to new competitive industries. Competitive related industries provide opportunities for information flow and technical interchange due to proximity and cultural similarity. Allied to the significance of this determinant is the idea of clusters

of related and supporting industries around an industry with a clear clustering of firms. This alludes to the concept of growth pole theory in many respects, which was developed by Perroux, Boudeville, Hansen, Hermansen, Hirschman and Myrdal and inductively derived from observations of the process of economic development. The concepts of leading industries, polarisation and spread effects, seem to reiterate Porter's concept of the importance of industry clustering, although Porter has not made references to the literature in this area (*see appendix A3E for a definition of what is meant by growth pole theory*).

The final determinant of competitive advantage in Porter's diamond covers the strategy of firms, the structure of the industry and the nature of domestic rivalry. Porter (1990) draws considerably on his previous work in this area ("*Competitive Strategy*" (1980) and "*Competitive Advantage*" (1985)) to support his argument for the importance of this determinant.

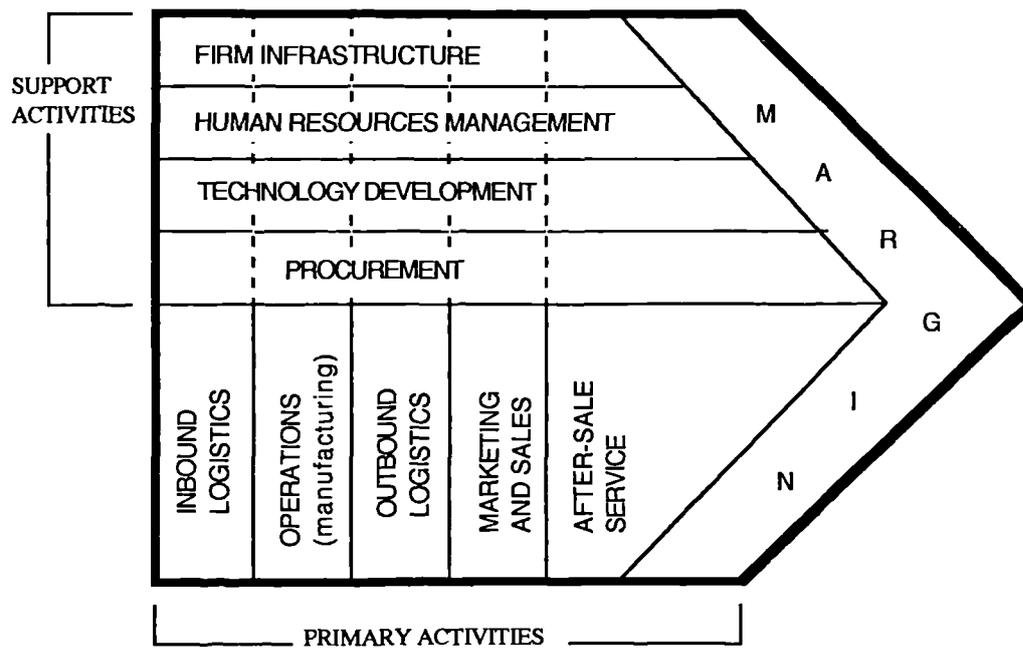
Porter believes that competitive advantage grows out of the way that firms organize and perform the operations of the firm. A firm adds value to the products/services it produces through performing these operations. A firm gains competitive advantage in one of two ways: it provides comparable buyer value but performs its operations at a lower cost; or it performs its operations in a unique way that creates buyer value and commands a premium price. Porter develops a model which he calls the value chain in which all these operations or activities are grouped into the categories as shown below in figure 3.3.

A firm's strategy determines the way a firm performs individual activities and organizes its value chain. Its competitive advantage comes from conceiving new ways of conducting activities, employing new procedures, introducing new technologies or different inputs. However, Porter contends that a firm's value chain is more than just a summation of its activities since it is an interdependent system connected by linkages. These linkages occur when the way in which one activity is performed affects the cost effectiveness of other activities, resulting in trade-offs that management have to optimise and coordinate. Porter maintains that competitive advantage is increasingly a function of how well a company can manage this entire system.

Another area of firm strategy that Porter considers to be vitally important to competitive advantage is that of product positioning strategies in the

marketplace. Porter identifies four generic product positioning strategies of: cost leadership, cost focus, differentiation, and focused differentiation (*see figure 3.4*). There is no one type of strategy that is appropriate for every firm. A firm must, however, have a clear idea of which strategy that it plans to pursue. The worst strategic error that a firm can make is to pursue all the strategies or be stuck between strategies because that approach is impossible to succeed at with its inherent contradictions.

FIGURE 3.3:
THE VALUE CHAIN IN FIRMS



SOURCE: PORTER 1990, P41

Porter does not see any particular managerial system as being appropriate. What Porter sees as more important is the orientation that management has towards competing globally and the intensity of local rivalry.

Company goals are an important aspect of company strategy in Porter's theory. They are most strongly determined by ownership structure, capital market conditions and the nature of corporate governance.

Porter devotes considerable attention to examining the goals of individuals in terms of its importance in influencing firm strategy, structure and

rivalry. The aspects considered to have an impact on a firm's competitive advantage are: motivations of individuals who manage and work in firms; the reward system for employees; the cultural attitude to private wealth creation; the relationship between employees and the manager and owners; employees' attitudes towards skill development and towards company activities which stem from professional training and technical pride; the attitude of management towards risk taking; and national immigration policy, since an unusually high proportion of immigrants start-up new businesses.

FIGURE 3.4:
GENERIC STRATEGIES
COMPETITIVE ADVANTAGE

		Product	
		Lower cost	Differentiation
COMPETITIVE SCOPE	Broad Target	Cost Leadership	Differentiation
	Narrow Target	Cost Focus	Focused Differentiation

SOURCE: PORTER 1990, p39

Whatever the goals of the firm, its owners, managers and employees, Porter strongly emphasizes the importance of a sustained commitment by everyone involved in the firm to its continued success. *Commitment does not necessarily result in success for a firm, but a lack of it makes success highly unlikely.*

Porter believes that the goals of companies and individuals can be given added impetus and substantially contribute to a nation's competitive advantage in an industry when an occupation or industry have national prestige or assume national priority, because it attracts the best in human and capital resources.

The most important aspect of the determinant of firm strategy, structure and rivalry is vigorous domestic rivalry which can lead to the creation and persistence of competitive advantage in an industry. Domestic rivalry creates pressure on firms to

improve and innovate forcing them to lower their costs, improve quality and service and create new products and processes. Porter maintains that fierce local rivalry, particularly when it is concentrated geographically in a region or city (*what Porter calls clustering of firms*) encourages firms to find proprietary technologies, reap economies of scale and create their own marketing networks, since all of their local rivals have the same basic factor advantages as them. Furthermore, Porter suggests that domestic rivalry becomes superior to rivalry with foreign competitors when improvement and innovation, rather than static efficiency are the driving forces in the industry.

Intense domestic rivalry depends on new business formation to create new competitors. Porter considers it vital to upgrading competitive advantage since it feeds the process of innovation.

Some firms are successful partly due to chance events that have little to do with the circumstances in a nation and are largely outside the power of firms or government to influence. Porter considers chance events to be important because they disrupt the market by nullifying the advantages of previously established competitors and creating the potential for new competitors to achieve competitive advantage better suited to the new conditions in the market. However, Porter maintains that only nations/regions with the most favourable "diamond" will be in a position to best exploit the opportunities presented by chance events and convert them to their own competitive advantage.

Chance events cover acts of pure invention, major technological breakthroughs, discontinuities in input costs (*e.g. oil shocks*), significant shifts in world financial markets or exchange rates, surges of world or regional demand, political decisions by foreign governments or wars.

The importance of invention and entrepreneurship are stressed by Porter to be at the "heart of national advantage", but for something acknowledged to be so vitally important to an industry's potential to grow, Porter is very weak in explaining how and where the role of entrepreneurship fits into his model of competitive advantage.

Porter categorises the role of government to be an influencing variable operating on the other four determinants, acting more as a catalyst and not as a determinant of competitive advantage in itself. Government is acknowledged by

Porter to have an important though partial influence on national competitive advantage, because government policy will fail if it remains the only source of national competitive advantage. The reason for not making the role of government a determinant of national competitive advantage appears weak since Porter's other determinants are not necessarily powerful enough when taken independently of each other, to confer on a nation's/region's particular industry, competitive advantage. However, Porter (1990, p128) goes on to say that:

"successful policies work in those industries where underlying determinants of national advantage are present and where government reinforces them. Government...can hasten or raise the odds of gaining competitive advantage (and vice versa) but lacks the power to create advantage itself."

The way in which government influences the other determinants of competitive advantage is detailed as follows. Government can influence factor conditions through subsidies, policies towards capital markets and education, etc.. Demand conditions are influenced through the establishment of local product standards or regulations that control buyer needs. Moreover, government is itself a major purchaser of products. Related and supporting industries can be influenced through government policies that control advertising media or simply regulate. Finally, firm strategy, structure and rivalry is influenced by government policy through, for example, capital market regulations, tax policy and anti-trust laws.

Porter (1990, p681) views the role of government as a pusher and challenger and believes that too much government assistance undermines the government's role as a pusher and a challenger:

"There is a vital role for pressure and even adversity in the process of creating national competitive advantage. ... Government's role should be to transmit and amplify the forces of the "diamond" as well as help upgrade the determinants themselves. Sound government policy seeks to provide the tools (for firms) necessary to compete, through active efforts to bolster factor creation, while ensuring a certain discomfort and strong competitive pressure. Government's proper role is to encourage or even push firms to raise their aspirations and move to a higher level of competitive prowess".

Another essential role of government is signaling. It can influence how firms compete by identifying and highlighting the important priorities and challenges they face.

The most powerful levers available to government for influencing national competitive advantage are slow-acting ones such as creating advanced factors, encouraging domestic rivalry, shaping national priorities, and influencing demand sophistication.

Over the short-term, Porter's view of government policy as an influencing variable may be valid but when viewed in the context of the history of development of today's modern industrial economies, a very strong case can be made for saying that government should be treated as a determinant of competitive advantage. The opening up of the western half of the United States for example, owes enormous credit to the US government because it picked up the bill for developing the necessary infrastructure to facilitate growth of the west coast's economy. Government in Japan in the late 19th century was responsible for transforming Japan from being a medieval feudal society into the modern industrial state that it is today. The treatment of the role of government in Porter's model does not satisfactorily explain why the socialist command economy of the ex-Soviet Union in which every facet of the economy was rigorously controlled by the government, was able to produce military aviation products and other military hardware comparable to that produced in the advanced capitalist economies. Indeed, if one were to exclude the role of government as a determinant of competitive advantage from the defence and aviation industries of the European Community and the United States, it is debatable that these industries would exist. Airbus Industries, a European consortium to manufacture aviation products, has achieved considerable success over the past 20 years of its existence, to the point that it is now challenging America's Boeing in its dominance of the civilian passenger jet market and that success has been almost exclusively underwritten by government financial support. The exclusion of government as a determinant of competitive advantage is probably due to Porter's strong ideological leanings towards non-intervention in the market, but a cynical observer might surmise that it is because a fifth determinant would disrupt the geometric simplicity and schematic elegance of Porter's "diamond". Notwithstanding this point, in the case studies presented by Porter, he presents convincing arguments why the role of government should be relegated to being that of an influencing condition on the other four determinants of his model.

Porter's model has been labelled by Brittan (*Conditions of Progress* by Samuel Brittan in *FT* on 28/06/90) to be banal. It contains what appear to be only four key components and two secondary components. This is deceptive because the linkages or interactions between these components substantially complicate the model. For example, between the four main components of this model, there are twelve possible linkages or interactions. If one includes the secondary components of the model, 'chance' and 'government', the number of possible linkages in the model escalates to 24. Hence these individual determinants combine together into a dynamic system. The operation and interplay of these determinants allows exploration of how competitive industries and industry clusters are born and evolve and later die in a process in which the role of individual determinants shifts and changes.

There are few explicit assumptions in Porter's model. This may be because despite its stress on determinants of industrial success giving the impression that it is a deterministic theory, it is probably best thought of as being a broad explanatory framework that is as complex as one's deductive powers allow and as complicated as the circumstances and history of the industry being studied happen to be. Hence, Porter's model is sufficiently broad in its scope not to be constrained by its analytical capability.

The discussion will now examine the main assumptions implied in Porter's model. Ten assumptions are identified and each is discussed in turn.

Porter's model assumes that a comprehensive historical background is available not only of the industry but also of the cultural, economic and political experience surrounding the industry.

It is assumed that the unit of analysis is of an industry sector, while stressing that firms have to be analysed on a case-by-case basis as far as international competitiveness is concerned.

It is assumed that an industry's spatial context is of crucial importance. All of the firms being studied in an industry must have a common cultural, historical, political, social and economic frame of reference for Porter's model to work. Typically this means examining the industry within a national context, but it can also mean examining it within the context of a region or locality. Even with the

globalisation of industries and internationalisation of many companies, Porter insists that the correct context to view successful firms and their respective industries in, remains the nation or region. Porter (1990, pp19-30) states that:

"competitive advantage is created and sustained through a highly localized process. Differences in national economic structures, values, cultures, institutions, and histories contribute profoundly to competitive success.While globalisation of competition might appear to make the nation less important, instead it seems to make it more so. With fewer impediments to trade to shelter uncompetitive domestic firms and industries, the home nation takes on growing significance because it is the source of skills and technology that underpin competitive advantage....A firm's proximate environment shapes its competitive success over time (in terms of) geographic location (history, costs and demand); source of employment training and nature of the firm's earliest and most important customers".

Porter's model assumes that successful companies have expanded into international markets although the home base is the nation in which the essential competitive advantages of an enterprise are created and sustained . The home base is where a firm's strategy is set and the core product and process technology are created and maintained. The home base will be the location of many of the most productive jobs, the core technologies and the most advanced skills.

It is assumed that improvement and innovation in methods and technology is a central element to a firm achieving competitive advantage. Technological change in the broad sense of the term is the lynchpin of economic growth. The national environment plays an important part in the innovation process because of the sustained investment in research, physical, capital and human resources required.

It is assumed that firms play a central role in the process of creating competitive advantage. Hence the behaviour of firms is integral to any theory of national advantage.

Agglomeration economies or "clustering" as its referred to in Porter's parlance, is a crucial underpinning assumption. The implied assumption here is that individual firms are unlikely to succeed purely on their own merits. Success for a firm

then is highly dependent on strong domestic rivalry and similarly successful local related and supporting industries.

Porter's model assumes that the best measure of a firm's growth is the extent to which it succeeds in export markets. This is because a firm that does not succeed in its home market is unlikely to make the transition into export markets. Allied to this viewpoint is the assumption that all successful firms are export driven, which does place limitations on Porter's theory because it seems to be saying that a firm is not and cannot be successful if it does not export. In vast domestic markets such as the United States and any of the main industrialised economies of Western Europe, this is simply not true. There are numerous companies that can and do perform well in their home markets without necessarily becoming export driven. For example, the US car industry never really seriously exported its passenger vehicles around the world in the way that Japan and Europe have done and yet have performed well into the mid 1980s. Of course, US car corporations such as General Motors and Ford are global concerns, but they have allowed their subsidiaries in various nations to develop indigenous products, largely independent of what they produced in their home base. General Motors and Ford, for example, manufacture completely different model line-ups that are not interchangeable amongst its North American, South American, European and Australian subsidiaries.

It is assumed that all successful firms are profit maximisers that will expand continuously until they have fulfilled their global market. Many firms and corporations are satisficers. Australia is a good example of this. Its isolation and government's desire for manufacturing self-sufficiency has resulted in an economy that produces a diverse range of products without deepening of any particular industry to have attained global competitive advantage in any of its manufacturing sectors. According to Porter's model, Australia should not have any well performing firms because the majority are not globally orientated. However, the Australian domestic market, while small by world standards (population of 17 million), is sufficiently large to allow firms to be successful just within the context of the Australian market. In other words, many firms within Australia are only profit maximisers up to the potential of the Australian market, beyond which they might be thought of as satisficers (*Reference: Survey of Australia in The Economist, April 4-10, 1992*).

Finally, it is assumed that all firms can only achieve international competitiveness if they have the best efficiency in their respective industries. Brittan

(28/06/92 in the *Financial Times*) makes the point that a country can trade advantageously even if it is less efficient than its competitors in every product. For example, Germany has a reputation for building motor vehicles considered amongst the best in the world by consumers the world over and yet motor vehicles are still imported into Germany, even those of humble East European backgrounds. Fickle consumer tastes can upset even the most carefully rationalized theories of what demand behaviour should be, particularly when style is introduced into the equation.

Although much of Porter's work is devoted towards explaining and developing an understanding of why some nations have in the past succeeded in attaining competitive advantage in particular industries, Porter also maintains that his industry has powerful analytical capabilities in terms of predicting the likelihood of industry success, providing that the analyst focuses on the nature of evolving competition. In utilising Porter's "diamond" of competitive advantage as a predictive tool, the analyst needs to be able to firstly predict the behaviour of foreign rivals and secondly, choose industries and segments for which the nation being examined, is a favourable home base. Porter believes that national characteristics provides important clues as to probable foreign competitor behaviour, but he does not explain well in practical terms how a firm would realistically research foreign competitor behaviour.

By comparison, choosing a favourable home base is more easily examined and analysed by a firm. Porter's "diamond" is useful for indicating which industries provide an unusually fertile environment for competitive advantage. Figure 3.5 indicates the types of questions the analyst should be asking in trying to predict the industries in which a prospective firm would have the greatest likelihood of succeeding. In practical terms, however, this once again comes up against the problem of determining the yardsticks by which a nation's performance is judged.

According to Brittan (*FT on 28/06/92*), Porter's (1990) viewpoint is similar to an economic version of Arnold Toynbee's doctrine of challenge and response and that it is more of an explanatory framework than a deterministic theory. The explanatory framework of Porter's theory is indeed its most powerful feature. The enormous depth of content put into each case study and the large number of case studies presented underlines Porter's theory to be a powerful explanatory tool as to how and why some industries have attained competitive advantage. Each of the case studies Porter presents, such as the German printing industry, the Swiss pharmaceutical industry or the Italian ceramics industry, is carefully and convincingly

FIGURE 3.5:
CHOOSING INDUSTRIES AND SEGMENTS FOR WHICH THE
NATION IS A FAVOURABLE HOME BASE

**FIRM STRATEGY, STRUCTURE
AND RIVALRY**

- Does the style of management and prevailing types of organizational structures in the nation match industry needs?
- What types of strategies exploit national norms of organization?
- Does the industry attract outstanding talent in the nation?
- Do investor goals fit the competitive needs of the industry?
- Are there capable domestic rivals?

FACTOR CONDITIONS

- Does the nation have particularly advanced or appropriate factors of production? In what segments? For what strategies?
- Does the nation have superior factor creation mechanisms in the industry (for example, specialized university research programmes, outstanding educational institutions)?
- Are selective factor disadvantages in the nation leading indicators of foreign circumstances?

DEMAND CONDITIONS

- Are the nation's buyers for the industry's products the most sophisticated or demanding? In what segments?
- Does the nation have unusual needs in the industry that are significant but will be ignored elsewhere?
- Do buyer needs in the nation anticipate those of other nations?
- Are the distribution channels in the nation sophisticated, and do they foreshadow international trends?

**RELATED AND SUPPORTING
INDUSTRIES**

- Does the nation have world-class supplier industries? For what segments?
- Are there strong positions in important related industries?

SOURCE: PORTER 1990, p603

argued within the explanatory framework of Porter's "diamond" of competitive advantage. However, as Porter himself acknowledges, the study is a mammoth piece of work, being the product of 15 organisations in 10 countries, scores of researchers and included the advice of literally hundreds of business executives, labour leaders, academics, consultants, industry experts, bankers and policy makers, so it is not surprising that a broad array of evidence was able to be gathered to support Porter's model. It is clear that considerable research effort has to be expended to understand and explain the dynamics of why some firms grow and others do not. The need to tackle a nation's or region's industry or industry segment as the unit of analysis combined with the need to take into account national characteristics, makes it a difficult

model to apply to the study of single firms. The comprehensive nature of the approach demands not only a substantial extensive and intensive examination of a nation's industry or industry segment, but where the industry in question is attempting to penetrate export markets, examination is also required of competing industries/industry segments that it faces from other nations. Porter's model is a useful analytical tool for understanding growth in firms, but it has to be noted that it requires a major research input to get the best out of it. It should not be mistaken for a quick diagnostic tool that managers of small or medium firms can apply to assess their circumstances, in spite of the apparent simplicity of Porter's "diamond".

Although Porter suggests that his model does have predictive capabilities, it is only in the broadest sense. Porter indicates that if a nation's industry/industry segment has a favourable "diamond" of competitive advantage, then the chances of a firm succeeding in that industry/industry segment will be similarly favourable. Porter's model will not however indicate a firm or a nation's industry/industry segment potential to grow in the marketplace. That will depend on many variables which are too uncertain to predict. For example, it is impossible to predict with any certainty how new innovations will be received in the marketplace or how differential growth rates in national economies will affect individual firm outcomes. Despite the apparent inference of Porter's model that the attainment of national competitive advantage in particular industries is a zero-sum game in which firms gain at other firms' expense, Porter insists that this is not so because global markets are expanding continuously for both existing products and new products. However, it should be noted that the focus of Porter's model is not to try and predict growth on the basis of individual firms, but rather to set out an explanatory framework, in the case of predicting growth in firms or industries, of the preconditions necessary for growth to occur.

A particular strength of Porter's theory lies in it being able to identify the enabling and constraining determinants of growth. These revolve around factor endowment; demand conditions; firm strategy, structure and rivalry; related and supporting industries; the influence of chance events; and the influence of government policy. What is not clear about Porter's model, is the relative weighting given to each determinant nor the sequence in which they occur. Porter's schematic representation of his model seems to suggest a dynamic situation in which the four determinants are constantly interacting with each other and in turn being influenced continually by government and intermittent chance events. It is clear that certain factor conditions

must be in place before any development of an industry can occur, but the circumstances surrounding the formation of "clustering" or agglomeration economies and the development of suitable demand conditions seems to be a more nebulous affair. Perhaps the three determinants of competitive advantage are best viewed as influencing an industry's development in tandem, whilst chance events introduce abrupt discontinuities to the process either of a catastrophic or opportunistic nature and government acts as a regulatory mechanism that can either constrain or enable the process and its rate of implementation.

Much of Porter's discussion is initially targeted at the level of the industry, but he does examine in detail the implications of his research and the model itself, for the strategy of the firm and for government policy. Despite the globalisation of markets, the national environment plays a vital enabling or constraining role in determining a firm's growth in international markets.

The main indicator of growth employed by Porter to study individual firms is that of growth in sales turnover. However, Porter also relies substantially on the indicators of growth in the value of exports and growth in the share of world exports in the context of a national industry's performance in his conceptualization of national competitive advantage. For a firm to demonstrate strong growth in exports and its share of world exports, it would have to be performing well in its domestic markets. Even if its domestic market is highly competitive which has restricted expansion of sales turnover in that market or its domestic market has become saturated, necessitating expansion into world markets, it is likely that its domestic competition, if similarly competitive, will have pursued the same strategy into overseas markets. Therefore a firm that performs strongly in export markets, would be synonymous with a firm that is growing quickly.

Porter's approach when studying a firm or an industry, is to examine its performance from the time of its inception. When applying a growth indicator to a firm over this timescale, clear identification of growth firms is possible using Porter's approach. However, Porter's approach does require the historical data for a firm's financial performance to be procured over a long period, although in most instances, Porter restricts his analysis to figures pertaining to the past 20 years. Over the short-term, Porter's reliance on sales turnover as a growth indicator may not be reliable, but over the long timescales involved in Porter's case studies, this drawback is largely eliminated. Porter's approach to differentiating growth firms concentrates on firms'

export performance in terms of the value of sales turnover over a long timescale. It is an intensive, and exhaustive research approach, which although able to clearly identify growth firms, it can be demanding on research resources.

Porter's work is difficult to fault on the thoroughness with which he has endeavoured to verify his theory of "the competitive advantage of nations". Details of competition in many industries in 10 nations of widely differing characteristics and institutions were carefully and extensively researched. The approach taken by Porter is firstly to explain the histories of four representative industries and that of the service sector; and secondly, to apply the theory to nations in terms of the internationally successful industries in those economies and the success and failures in the evolution of those economies during the postwar period. Porter claims that the collective experience of those nations permits an extension of his theory to explain how entire national economies grow.

The empirical component of Porter's work focuses on relatively sophisticated industries and industry segments that are export oriented, since Porter maintains that these hold the key to high and rising productivity in a nation and established theory is least able to understand. The objective behind studying nations with widely differing circumstances, was to isolate the fundamental forces underlying competitive advantage from those that are idiosyncratic. Over 30 researchers based in the nations they were studying, employed a common methodology to map the successful industries in the various national economies. A basic unit of analysis was the narrowly defined industry or distinct segment within an industry that happened to be the least aggregated according to the data available. The measures of international competitive advantage chosen by Porter were based on either the presence of substantial and sustained exports to a wide array of nations and/or significant outbound foreign investment based on skills and assets created in the home country. A profile was created of all the industries in which each nation was internationally successful at three points in time: 1971, 1978 and 1985. A history of competition in particular industries was then examined to understand the dynamic process by which competitive advantage was created. For each nation, the sample of industries was chosen to be representative of the most important groups of competitive industries in the economy. The aim was to represent the entire economy with industries in which the nation had a significant competitive advantage in 1985. A laudable aspect of Porter's research in this regard, is that by using 1985 as a bench-mark position for studying these industries, the survey was able to examine industries that by 1990 had

declined as well as those industries whose success continued to thrive. This broad cross-section of both successful and unsuccessful industries in each nation's economy, resulted in a comprehensive sample which could not be criticised of being biased. The histories of industries are not particularly thorough or in much depth, but sufficient to give a broad synopsis of the dynamics within each industry and provide support for Porter's arguments.

Porter's empirical approach is multi-disciplinary in the sense that it draws on and spans several fields such as technological innovation, industrial economics, economic development, economic geography, international trade, political science, and industrial sociology. It cuts across disciplines and examines more variables in order to understand how complex and evolving economies work. Porter has chosen a qualitative approach in his empirical analysis because he maintains that the quantitative approach which tends to rely on mathematical models limited to a few variables and statistical tests, is often constrained by the available data. Most of Porter's empirical work consists of 100 historical case studies, that are messy to categorise into a typological framework and not amenable to statistical analysis. However, Porter's choice of not subjecting his research to any form of statistical analysis does put a question-mark over its validity. The case studies are convincingly argued with a depth of detail and thoroughness which is impressive, but it tends to be more of a loose explanatory framework than a deterministic model as Porter's national diamond of competitive advantage seems to have been portrayed.

Initial inspection of Porter's model suggests a theory in which the basic fundamental determinants of a national industry's competitive advantage have been distilled. But this is somewhat misleading because closer inspection of each of these determinants reveals them to be multi-factorial, since each determinant actually covers a wide array of issues and disciplines that may impact on a company's or an industry's success. For example, with the determinant of firm strategy, structure and rivalry, there is a wealth of business studies literature in this area that focuses on for instance, the motivation of managers, the importance of entrepreneurship, the organizational approach, the stage model approach and production-oriented theory. With the determinant of "related and supporting industries", a large amount of theory and research has been carried out in this area within the discipline of industrial economic geography in such matters as agglomeration economies and the importance of growth poles to economic development. Porter's determinant of "demand conditions" covers a wealth of business marketing literature, which is today a professional discipline in

itself. The determinant of "factor conditions" covers the historical approach and the industrial economic geography approach, particularly in the manner in which it attributes a company's or an industry's success to particular attributes of the locality.

It is the longitudinal timescale or historical approach to testing the model that makes Porter's empirical work so convincing. With this approach, Porter is able to show at particular points in time when each of the determinants are important, when they act together simultaneously, and how they interact with each other to reinforce a company's or industry's competitive advantage. A potential drawback of this approach may be that high quality historical data may not be available, particularly if the current management has only been recently hired. However, in most cases, this would not be a major problem since sources such as company records, accounts and past managers can be called upon.

An important criticism of Porter's empirical work is that he does not demonstrate the relative importance of each of the determinants of competitive advantage, nor the sequence in which they might be expected to occur. The schematic representation of Porter's model suggests that all four determinants are equally important, but it is clear from Porter's empirical case studies that this is not the case. Much of Porter's work revolves around the determinants of firm strategy, structure and rivalry and demand conditions.

Porter's model would seem to be testifiable or verifiable, provided that a longitudinal framework of analysis is adopted together with a clear understanding of the industry's history. However, its weakness is that it has not been subjected to rigorous statistical analysis. Moreover, the requirement for historical data not just for the industry under scrutiny, but also on the industry's locality environment, requires a large research input. Furthermore, while such an analysis of an industry may initially give the impression of being didactic, it does leave the field wide open for speculation and can lead to misleading conclusions. Conclusions derived from possibly subjective interpretations, are difficult to check with Porter's approach, unless one is privy to all the primary research material gathered or knows the countries and industries examined independently. Hence, the usefulness of Porter's approach rests more heavily than other approaches on the researcher's (*or research team's*) intellectual honesty and integrity to gather all the facts pertaining to the industry/firms as accurately and comprehensively as possible, and then interpret them objectively, arriving at conclusions that are honest appraisals within the context of Porter's model. In one

sense, however, it could be argued that Porter's explanations and interpretations are easier to test because they are not obscured by some opaque 'scientific' techniques. Notwithstanding these points, the power of Porter's model lies purely in how well each case study is explained in terms of the model's determinants.

Although the unit of analysis in Porter's empirical work is that of an industry segment, Porter's work has examined growth in a wide range of diverse industry segments. This is because the main criterion of Porter's study was to examine industries that were successful in 1985 across ten nations. The approach taken by Porter was to examine in detail four studies in national competitive advantage: the German printing press industry; the American patient monitoring equipment industry; the Italian ceramic tile industry; and the Japanese robotics industry. And then to examine national competitive advantage in services. Finally, Porter examined the reasons behind national competitive advantage in America, Switzerland, Sweden, Germany, Japan, Italy, Korea and Britain.

Because industries are made up of firms, Porter would have formulated his views based on the aggregate of research results of firms for each industry sector examined. Therefore, by inference, Porter's work does have relevance for studying firm growth dynamics. Unlike other theories which focus on the internal attributes of the firm to the detriment of taking into account the impact of the firm's environment, Porter's work is a holistic approach which can be employed either in terms of functional units of analysis such as the individual firm, corporation, industry segment, or national economy, or in terms of spatial units of analysis such as a locality, region or nation state.

Unfortunately, because much of Porter's empirical evidence consists of aggregated data for various firms, it is difficult to say with any certainty just how diverse the firms examined were. The implication of the wide scope of Porter's work spanning 10 nations and many industry segments with firms ranging in size from small Italian tile manufacturers (*essentially family businesses*), up to and including electronics giants such as Hewlett Packard, and firms pursuing a wide range of management strategies, is that the firms that contributed to the study represented a good cross-section of firm types.

In the direct analysis of various industries, individual firm strategies are discussed by Porter only to a limited degree. The basic approach pursued by Porter is

to discuss the history of an industry segment and the main trends that established the success of that industry. A separate section of Porter's work discusses the implications of his research for company strategy in prescriptive fashion, but it does not make much detailed reference to individual cases to support the assertions made. Nevertheless, what comes across from Porter's discussion of implications for government policy (*see appendix A3F*) and individual company strategies (*see appendix A3G*) is an impressive synergy from his case study research in this book and drawn from the findings in his previous books.

The main theme in Porter's model of competitive advantage, is the importance of competition in terms of strong domestic rivalry, aggressive home-based suppliers and demanding local customers. The model's loose explanatory framework comprising of four determinants (*i.e. factor endowments; conditions in related and supporting industries; demand conditions; and firm strategy, structure and rivalry*) and two influencing conditions (*i.e. chance events and government policy*), is particularly powerful in explaining and understanding growth in an industry sector. The growth performance of individual firms can be examined, but Porter's model works more effectively within the context of an industry sector, since Porter's model would seem to imply that few firms grow successfully in the long term in the absence of any industry "clustering". The loose explanatory framework of Porter's model has the advantage of not refuting the theories/models/approaches pertaining to firm growth processes discussed in the previous chapter, while adding new understanding concerning how and why firms, industries, regions and nations grow. Perhaps the strongest endorsement of Porter's model is the depth of content put into the case studies which provide a convincing argument that the model works.

3.3 CONCLUSION

Two models which use holistic deterministic explanations of growth in firms were examined in this chapter.

Of the two models examined in this chapter, it would seem that Porter's (1990) model offers the most potential for developing an understanding of how firms in particular sectors grow. While the PA Consulting Group (*Department of Trade and Industry, 1990*) model seems to identify several important factors that must influence a firm's potential for growth, it is not clear how a firm interacts with them and its didactic, normative approach is not very helpful in conceptualizing the growth process in firms. Moreover, it appears to be lacking in solid empirical support. Ultimately,

Porter's model is better than the PA Consulting Group's model as a conceptualizing framework for further research into firm growth processes, because it is applicable to all sectors of the economy and not just manufacturing; it appears to be well supported empirically; it seems to work well as an explanatory framework; and it is much better at conceptualizing firm and industry sector growth processes over time.

The main research propositions to come out of the PA Consulting Group's model for manufacturing firms in Britain are: the importance of economic factors, demography and lifestyles, the environment, market factors and technology in producing external threats and opportunities that influence a company's competitive strategy; and the importance of technology, competitors and suppliers in shaping a company's strategy.

The research propositions generated out of Porter's model are:

1. Whether any weighting can be assigned to the relative importance of the model's determinants;
2. To investigate how important the role of chance events are in new firm development and determine whether this should be upgraded to a determinant of competitive advantage;
3. To investigate whether government's role is just secondary or another determinant of competitive advantage;
4. To assess whether competition between local firms is a positive or negative influence on balance;
5. To determine whether demanding customers affect the growth of firms;
6. To determine whether growth firms are strongly export oriented.
7. To determine the importance of firm strategy in facilitating growth;
8. To determine the significance of firm structure to a firm's propensity to grow; and
9. To determine the importance of suppliers to a firm's success.

The next chapter will argue why Porter's model appears to be the most appropriate conceptualization on growth processes in small to medium firms; develop the key research propositions to come out of the literature reviewed; and discuss the design of a survey to investigate the validity of Porter's model in conceptualizing growth processes in small to medium firms and investigate the other important research propositions to be developed out of the literature review.

FOUR

A SURVEY METHODOLOGY FOR RESEARCHING
GROWTH PROCESSES INTO SMALL-MEDIUM FIRMS

CHAPTER FOUR CONTENTS:

SECTION	CONTENT:	PAGE
4.0	INTRODUCTION	171
4.1	DEVELOPING THE RESEARCH QUESTIONS FOR UNDERSTANDING AND EXPLAINING GROWTH IN SMALL-MEDIUM FIRMS	171
4.1.1	The Main Issues for Research	171
4.1.2	Porter's Model of Competitive Advantage as the Best Model for Explaining and Understanding Growth in Small-Medium Firms	174
4.2	RESEARCH DESIGN AND METHODOLOGY	179
4.2.1	Research Methodology Approach	179
4.2.2	Some Important Survey Design Considerations	184
4.2.2.1	Choice of Sectors and Selection of a Survey Sampling Frame	184
4.2.2.2	Measuring Firm Growth	189
4.2.3	Questionnaire Survey Design	198
4.2.4	Case Study Design	201
4.2.5	Limitations in the Research Methodology	202
4.2.5.1	Postal Surveys	202
4.2.5.2	Case Studies	204
4.3	REPRESENTATIVENESS OF SURVEYS	206
4.3.1	Survey Response Rates	206
4.3.2	Nature of Respondents	207
4.4	ANALYSIS OF SURVEY RESULTS	210
4.4.1	Analysis Methodology	210
4.4.2	Limitations in the Analysis Methodology	211
4.5	CONCLUSION	212

<p>CHAPTER FOUR: A SURVEY METHODOLOGY FOR RESEARCHING GROWTH PROCESSES IN SMALL-MEDIUM FIRMS</p>
--

4.0 INTRODUCTION

The main purposes of the previous chapters were: to justify the need to research growth processes in small-medium firms; to review contemporary UK empirically based research into growth processes of small-medium firms; and to critically review and assess the various conceptualisations (*i.e. theories, models, approaches*) into firm growth processes that have so far been developed. The literature review will be used to develop various research questions in this chapter and to present a justification for selecting Porter's (1990) model of competitive advantage discussed in the previous chapter as potentially the most useful explanatory framework of all the conceptualisations examined in chapters 2 and 3 for understanding how and why growth occurs in small to medium firms.

The latter part of this chapter discusses the research design and analysis methodology formulated to investigate the validity of Porter's model and other research issues pertaining to growth in small-medium firms that the literature review has helped to develop.

4.1 DEVELOPING THE RESEARCH QUESTIONS FOR UNDERSTANDING AND EXPLAINING GROWTH IN SMALL-MEDIUM FIRMS

4.1.1 The Main Issues for Research

The main conclusions to come out of the first chapter were that financing, management style, management motivation, innovation and advice seeking behaviour are the main concerns of firms intent on growth. However, contemporary UK research into small-medium growth firms has so far failed to indicate growth firms as having a unique set of characteristics, behavioural patterns, or being subject to a particular set of factors, or implementing a particular growth strategy.

Issues and research questions developed out of the first chapter's review of contemporary UK empirical work into small-medium growth firms are the importance of:

1. The company's founder to growth. Research has so far failed to produce an "identikit" picture of a growth firm founder.
2. Management style. Research in this area appears to indicate that a skilled and experienced management is vital to a firm's growth prospects along the lines of the corporate model of management, but further research on this issue would be useful in indicating whether this is indeed the case.
3. Financial issues. There are some conflicting findings in this area that need resolution. For example, the Aston Business School (1991) and Cousins et al (1991) seem to imply that the existing UK institutional framework for investment finance is adequate, whereas the "State of British Enterprise" report (SBRC, 1992) pointed this out to be a major constraint to growth for small-medium firms.
4. Networking or advice-seeking behaviour. This tends to be in the form of collaborative partnerships or external advice. Evidence on how important this issue is in facilitating growth is somewhat lacking. Growth firms tend not to view it as having been a significant factor in their success, whereas non-growth firms viewed it as a negative factor and a constraint to their growth prospects. Further research is needed in this area to determine how important networking behaviour and the quality of advice received is to a firm's growth performance.
5. Management strategy and motivation. Prescriptive business texts view an active management strategy for growth and a management strongly motivated towards achieving growth as essential preconditions for a firm to grow. Discussion and research in this area tends to treat this issue as being of a normative nature. Research is required in this area to determine how important management strategy and motivation is in the growth process of small-medium firms.
6. Strong markets and competition from beyond the firm's local environment. Porter's model (1990) stresses the need for strong local demand and competition if infant growth firms and industries are to succeed, which conflicts with the empirical results derived in chapter 1. Further research is required in this area to settle this controversy.
7. Product development. Existing research suggests that product development is an important factor in a firm's growth prospects, but further research would be helpful in providing further validation of this point.
8. The availability of skilled labour. Empirical results so far achieved in this area are not particularly strong and would be enhanced by further research.

One problem that does arise out the empirical evidence so far researched in the UK context, is that it tends to concentrate on very broad

categorisations that obscure the considerable diversity in the small-medium firm sector. For example, small-medium firms tend to be lumped together as a single sector, which ignores the significant differences between service oriented and manufacturing-based firms. And within manufacturing, there are numerous industry sectors, each of which may be faced by a unique set of constraints and opportunities to growth that may require different strategies in the successful pursuit of growth. It would seem that any new research in this area should aim to tackle this issue to determine whether growth does vary by economic sector, since the generalisations of previous empirical studies may be overlooking important differences in small-medium firms' approaches to growth.

The research questions to be developed out of the literature review in chapters 2 and 3 regarding the causal determinants of growth are:

1. the importance of profit maximisation to a firm's management;
2. the importance of maximised production efficiency;
3. the motivations of the owner-manager/entrepreneur and management;
4. the importance of competition from new entrants and other rivals;
5. whether the form of ownership makes any difference to the objectives of management;
6. the importance of good management;
7. the importance of a strong 'value-driven' company culture;
8. the significance of the problem for small owner-managed or entrepreneurially-run firms in making the transition to a professionally managed firm;
9. the importance of management's problem solving capability;
10. whether production related issues really do dominate small firms' concerns in trying to remain competitive;
11. the elements in an entrepreneur's social and business networks that are most important to a firm's growth prospects;
12. equating a social network with a successful, growing business;
13. whether the characteristics of the owner-manager/entrepreneur have a bearing on the extent to which social and business networks are used;
14. the importance of social/business networking to firms with a growth strategy that are professionally managed and/or in the medium size category;
15. the importance of economic factors, demography and lifestyles, the environment, market factors and technology in producing external threats that influence a company's

competitive strategy through the creation of market, product and service opportunities;
and
16. the kinds of strategies that competitive firms pursue.

The main research questions and issues raised with Porter's model (1990) are:

17. the relative importance of determinants in Porter's model for firm growth;
18. whether the role of chance events in firm growth is significant enough to be treated as a determinant of competitive advantage;
19. whether government's role in firm growth is an influencing condition or more of a determinant of competitive advantage;
20. the importance of industry clustering to firm growth;
21. whether strong local competition leads to growth in firms or is destructive;
22. the importance of demanding customers to firm growth;
23. the importance of management strategy to firm growth;
24. whether the way that a firm's structure is organised has any effect on firm growth;
and
25. the importance of suppliers to firm growth.

4.1.2 Porter's Model of Competitive Advantage: The Most Useful Model for Explaining and Understanding Growth in Small-Medium Firms?

Chapters 2 reviewed various theories/models/approaches on growth in firms. Table 4.1 is a comparative, subjective assessment of these theories/models/approaches within the typological framework established in chapter 2. Each categorisation is assessed according to its utility as an analytic tool to policy-makers; its explanatory powers; various growth determinants; and its predictive capabilities using a rating from 1 (*poor*) to 5 (*excellent*). An aggregate of these ratings is given to help compare the merits of each categorisation. The higher the score achieved (*a maximum of 120 points is possible*), the more useful the categorisation is in explaining and understanding growth in small-medium firms.

In section 2.4, non-determinant approaches to studying growth in firms were examined and it was concluded that these approaches were not very helpful in understanding how and why growth occurs in firms. These are essentially descriptive theories that offer little insight into explaining growth within small-medium firms. They are also weak as an analytical tool to policy-makers. Being non-determinant

approaches to explaining growth, this categorisation of theories/models/approaches does not attribute growth to any particular factors, with the possible exception of the firm's economic environment. The predictive powers of this approach are poor, particularly in terms of indicating how firms will grow. Of the four categorisations examined in table 4.1, this categorisation performs the poorest in terms of its aggregate score of 36 points.

Section 2.5 examined theories/models/approaches that focus on the internal dynamics of the firm and included a broad range of sub-categories. It was concluded that the sub-categories of classical economics, neoclassical economics, the entrepreneurial approach, the organisational development approach, the stage model approach, the product/market development approach, and production oriented theory of growth have all made useful insights into small-medium firm growth processes, but that none provided a completely satisfactory explanatory framework of growth processes within firms. The focus of these theories/models/approaches on the internal dynamics of the firm, was seen as a major shortcoming because the effects of the firm's external environment on the firm's activities was largely ignored. Table 4.1 indicates the main strengths of this category of growth processes in firms to be in explaining the internal dynamics of growth in firms and in singling out important determinants of firm growth such as management, marketing skills, cash flow management, market demand, production technology and business strategy. Furthermore, it is useful in explaining how and why firms grow, although the divergence of focuses on growth processes in firms leaves considerable confusion about what the key to successful growth in small-medium firms might be. Compared to the other three categorisations examined in table 4.1, this category performs quite well, rating an aggregate score of 68, mainly due its strengths in explaining growth and its acknowledgement of the importance of a wide range of growth determinants.

Section 2.6 examined external determinant explanations of growth in firms, namely that of social networking theory/approaches, which emphasizes the importance of the firm's external social and business environment in facilitating growth and competitiveness. The social networking perspective offered an interesting insight into explaining and conceptualizing growth in a firm's early phases where it is owner-managed. However, in the final analysis it is insufficient as a theoretical/conceptual medium for explaining and understanding growth in small-medium firms because of its narrow focus on small owner-managed firms; its lack of discussion about growth strategies outside the social networking theme; and the

apparent inconclusiveness of the empirical data to support this theory. Table 4.1 provides further evidence that the social networking perspective has many deficiencies, as its relatively poor aggregate rating of 44 points clearly suggests. Although it has strong explanatory powers with regard to an owner-managed firm's early phases of growth, it cannot deal with professionally managed firms. Moreover, there is poor consideration of most of the likely determinants of growth. And it is very weak in predicting growth.

Chapter 3 examined two models in the genre of holistic determinant explanations of firm growth. The model developed by the PA Consulting Group for the Department of Trade and Industry (1990) concentrated on discussing what it perceived to be the main issues that UK manufacturing firms would face during the 1990s and in suggesting what sort of management, marketing and production practices are most appropriate for remaining competitive or growing during the 1990s. The lack of extensive empirical evidence to support this model was pointed out to be a serious deficiency, making its conceptualization seem somewhat speculative in nature. Also, since its basic remit is to suggest strategy for UK manufacturing firms to pursue, it cannot be applied to firms in service or resource related industries. On the other hand, Porter's model of competitive advantage (1990) with its main theme stressing the importance of competition in terms of strong domestic rivalry, aggressive home-based suppliers and demanding local customers, appears to be capable explaining and understanding growth both in an industry sector and in individual firms within the context of both manufacturing and service industry sectors. The loose explanatory model of Porter has the advantage of offering new insight into why firms, industry sectors and regions grow, while not necessarily rejecting the models/theories/approaches discussed in sections 2.4 and 2.5. Perhaps most importantly, Porter's model is well researched and backed up with a broad array of empirical evidence, not just pertaining to different industry sectors, but also from ten different national contexts. From table 4.1, it can be seen that the holistic growth determinant explanations of growth in firms have been given the highest aggregate score of all the four categorisations, with 92 points. The reasons why this categorisation performed well in this context are: because of its strong explanatory powers; and its capacity to take into account a wide range of possible growth determinants. Porter's model is appealing because of the way that it welds a strong explanatory framework together with a unique model conceptualization. Of all the models/theories/approaches reviewed in the categorisations of firm growth processes illustrated in table 4.1, Porter's model would seem to have the potential to be the most

convincing and flexible, offering the greatest potential to policy-makers that aim to understand the process of growth in small-medium firms and how the firm's external environment might be changed to facilitate competitive industries.

TABLE 4.1:
COMPARATIVE ASSESSMENT OF THEORIES/MODELS/APPROACHES
ON GROWTH IN FIRMS

	1.NON-DETERMINANT EXPLANATIONS (see section 2.4)	2.EXPLANATIONS THAT FOCUS ON DETERMINANTS INTERNAL TO THE FIRM (see section 2.5)	3.EXPLANATIONS THAT FOCUS ON DETERMINANTS EXTERNAL TO THE FIRM (see section 2.6)	4.HOLISTIC EXPLANATIONS OF GROWTH IN FIRMS (see chapter 3)
SUB-CATEGORIES OF EACH APPROACH	1A.Stochastic Models 1B.Financial performance approach	2A.Classical economics 2B.Neoclassical economics 2C.Entrepreneurial owner-manager approaches 2D.Organisational approaches 2E.Stage models 2F.Product/market development 2G.Production oriented theory	3.Social/networking theory approaches	4A. PA Consulting Group Model 4B.Porter's factor "diamond" of competitive advantage
THEORISTS:	Gibrat, Gudgin, Mansfield	2A: Adam Smith; Say; Ricardo 2B: Marshall; Solow 2C: Sexton & Bowman-Upton; Stevenson & Sahlman; England; McClelland; Smed; Chell;Kets deVries; MacMillan;Miles& Snow;Glaister; Palmer;Rotter & Malry;Schumpeter; Sandberg&Hofer; Brockhaus;Bamber-ger;Hornaday& Aboud;Davidson& Brynell;Frohlic& Pichler 2D: Downie; Marris;Penrose; Peters&Waterman Jnr;Resnik 2E:Steinmitz; Greiner; James; Deeks; Velu; Churchill & Lewis; Gill; Flamholtz 2F:Gibb&Scott 2G:O'Farrell & Hitchens	Stanworth & Curran; Johannisson; Docter, van der Horst & Stokman; Carsud & Johnson; Falemo; Mazzonis	PA Consulting Group; Michael Porter

TABLE 4.1: (CONTINUED)
COMPARATIVE ASSESSMENT OF THEORIES/MODELS/APPROACHES
ON GROWTH IN FIRMS

	1.NON-DETERMINANT EXPLANATIONS (see section 2.4)	2.EXPLANATIONS THAT FOCUS ON DETERMINANTS INTERNAL TO THE FIRM (see section 2.5)	3.EXPLANATIONS THAT FOCUS ON DETERMINANTS EXTERNAL TO THE FIRM (see section 2.6)	4.HOLISTIC EXPLANATIONS OF GROWTH IN FIRMS (see chapter 3)
BASIC THESIS	Growth in individual firms is viewed as a stochastic or random process and therefore cannot be attributed to determinants operating or having operated either within or outside the firm	The actions and behaviour of the employees and employers of the firm are the main determinants of growth	The growth performance of a firm, particularly small firms, will be dependent on how well the firm's participants can build and exploit social, business and political networks to their firm's advantage.	Growth is viewed as the result of a complex interaction of determinants originating both from within the firm and from the firm's social, economic, political and physical environment.
Applicability:				
-Small firms	yes	yes	yes	yes
-Large firms	yes	yes	weak	yes
Abstraction	high	med.-high	low-med.	med.
Growth Indicators:	c,t,p	c,t,e,p	c,t,e,p	c,t,e,p
Utility: Analytic Tool to Policy-makers	1	3	2	4
Explanatory Powers:				
*what growth is	5	5	3	5
*which firms grow	1	4	3	4
*how firms grow	1	4	2	4
*preconditions for growth	2	3	2	5
*factors that maintain growth	1	4	1	5
Growth Determinants				
*management	1	5	2	4
*capital	1	3	1	4
*cash flow	1	3	1	4
*production techn.	1	2	1	4
*emp.skills/avail.	1	1	2	5
*market demand	1	4	1	5
*access>resources	1	2	4	5
*entrepren.skills	1	4	4	2
*marketing	1	3	1	2
*product quality	1	1	1	5
*locality factors	1	1	3	5
*industry concent.	1	1	3	5
*economic enviro.	4	1	1	4
*strategy bus.plan	1	5	1	2
*government policy	2	1	1	4
Predictive Qualities:				
*how firms grow	1	4	2	4
*rate of growth	2	1	1	1
*ultimate size	3	3	1	3
TOTAL POINTS:	36	68	44	92

NOTES:

1.c=capital; t=turnover; e=employment; p=profit

2.RATINGS(FULFILMENT OF CRITERION): Range from 1 (poor) to 5 (excellent)

3.TOTAL POINTS is aggregate of ratings in column

4.2 RESEARCH DESIGN AND METHODOLOGY

4.2.1 Research Methodology Approach

Research of phenomena in the social sciences can be conducted with two different types of research methodology, according to Sayer (1985). The two methods are intensive and extensive research techniques. Table 4.2 provides a useful comparison of the key features of the extensive and intensive approaches to social science research. The intensive research methodology, (*what Sayer (1985) refers to as a realist approach*), involves explaining why things behave as they do by seeking to understand their structure and their properties. The extensive research methodology, which is broadly 'positivist', in seeking to explain processes, advocates the discovery of universal laws governing their behaviour. Sayer & Morgan (1985) consider extensive research to lack explanatory power because the relations that it discovers are formal ones of similarity, dissimilarity and correlation, rather than substantial causal relations of connection. The postal questionnaire survey approach tends to be the main example of extensive research techniques. Its particular problems and limitations include: a high rate of non-response which results in non-response bias; that it is self-report data; it requires independent checks on the validity of the data; there is a lack of control over who completes it; there is a tendency towards superficiality because of the need for simplicity and unambiguity; a possibility that respondents misinterpret questions; and a danger that key issues applicable to particular respondents are overlooked. Furthermore, it is sometimes very difficult for the researcher to make inferences about the nature of the interactions between the factors and variables. The extensive research approach (*Sayer & Morgan, 1985*) therefore tends to be descriptive with representative generalizations. Section 4.2.5 will discuss the limitations of the selected research methodology in greater detail.

By contrast, intensive research is primarily explanatory, usually yielding causal explanation of the production of certain objects or events, although it is not necessarily representative of a population. Sayer & Morgan (1985) claim that with intensive research, the researcher is not necessarily overwhelmed with detail, complexity and differentiation, because by examining firms within the contexts which are causally relevant to them and examining what they actually did, the logic or structure behind what seemed to be inexplicable patterns in the aggregate data becomes much clearer.

Both intensive and extensive research are important and although they both fulfil different functions, it should be possible for them to be complementary. For example, extensive research techniques could be used to identify growth firms in the small-medium firm sector, while intensive research techniques could be employed to study the dynamics of those particular growth firms. This would largely overcome the problem of extensive research sometimes making generalizations that are not representative of individual firms. Indeed, this was the compromise approach that has been adopted in this research project.

TABLE 4.2:
COMPARISON OF INTENSIVE WITH EXTENSIVE
RESEARCH METHODOLOGY

	INTENSIVE RESEARCH	EXTENSIVE RESEARCH
RESEARCH QUESTION	How does a process work in a particular case or small number of cases? What produces a certain change? What did the agents actually do?	What are the regularities, common patterns, distinguishing features of a population? How widely are certain characteristics or processes distributed or represented?
RELATIONS	Substantial relations of connection	Formal relations of similarity
TYPE OF GROUPS STUDIED	Causal groups	Taxonomic groups.
TYPE OF ACCOUNT PRODUCED	Causal explanation of the production of certain objects or events, though not necessarily a representative one.	Descriptive 'representative' generalizations, lacking in explanatory depth
TYPICAL METHODS	Study of individual agents in their causal contexts, interactive interviews, ethnography. Qualitative analysis.	Large scale survey of population or representative sample, formal questionnaires, standardized interviews. Statistical analysis.
ARE THE RESULTS GENERALIZABLE?	Actual concrete patterns and contingent relations are unlikely to be 'representative', 'average' or generalizable. Necessary relations discovered will exist wherever their relata are present, e.g. causal powers of objects are generalizable to other contexts as they are necessary features of these objects.	Although representative of a whole population, they are unlikely to be generalizable to other populations at different times and places. Problem of ecological fallacy in making inferences about individuals.
DISADVANTAGES	Problem of representativeness	Lack of explanatory power. Ecological fallacy in making inferences about individuals.

SOURCE: SAYER & MORGAN, (1985)

The idea of combining extensive and intensive survey research methodology for this research project was done for three main reasons:

1. To use an extensive research methodology by means of a comprehensive postal questionnaire survey to describe and generalize about growth firms as opposed to static or declining firms. The main objective in this case was to see whether growth

firms have a probability of being associated with certain characteristics or factors. An intensive research methodology for this part of the study simply would not have been efficient or effective in terms of cost and time.

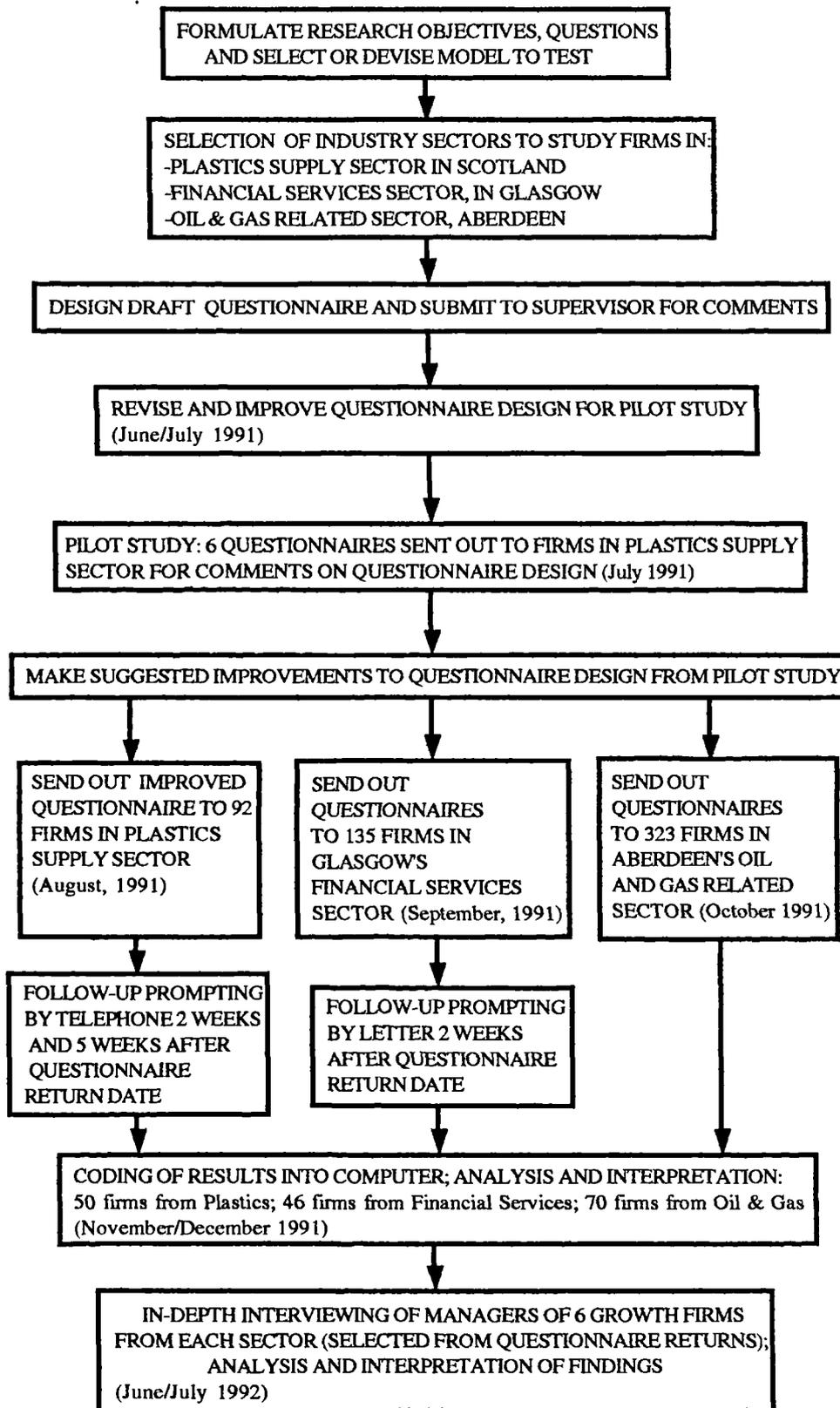
2. To use an extensive research approach (*using the postal questionnaire survey results*), for the purposes of testing and analysing Porter's model (1990) for statistical validity, at the simplest level of descriptive statistics, using chi-squared tests of cross-tabulations. To date, although Porter's model is backed up by impressive empirical evidence, it has been done using intensive research techniques. Extensive research techniques were needed to generate the various cross-tabulations that were used to test this model.

3. To use an intensive research approach by means of in-depth interviews of the general manager/managing director of each growth firm for the purposes of explaining in detail how growth was achieved, together with some insight into the nature of the process.

Figure 4.1 illustrates the research methodology procedure that was undertaken for this research project. The first step in the process was to formulate the research questions, set the research objectives and select or design a model that seemed to be the best conceptualization of the growth process in small-medium firms.

The second step involved designing a sampling frame, which required the selection of industry sectors likely to have a significant population of growing firms. Three industry sectors were selected, which were: the plastics supply industry in Scotland; the financial services sector in Glasgow; and the oil and gas related sector in Grampian region. Then, using the research questions, issues and Porter's model as a guide, a draft questionnaire was developed in June 1991 and submitted to Dr. Turok, the thesis supervisor, for assessment. Dr. Turok's suggestions were noted and incorporated into the revised questionnaire that was to be the basis of a pilot study. The pilot study involved sending out 6 questionnaires to firms in the plastics supply sector, asking firms to give any suggestions about how it could be improved, but not to complete it. The main concerns appeared to be about its length; the request for financially sensitive information towards the front of the questionnaire; and the level of detail requested concerning employment structure. The questionnaire was revised to incorporate the first two concerns into the questionnaire, but not with the employment issue, since it was considered important to have a breakdown of employment structure in order to see what impact growth may have had on it.

**FIGURE 4.1:
SURVEY FIELDWORK IMPLEMENTATION**



The next step was the postal questionnaire stage in which 92 firms throughout Scotland were targeted for the plastics supply sector; 135 firms in the Glasgow city centre area were targeted for the financial services sector; and 323 firms in the Aberdeen area (*in Grampian region*) were targeted for the oil and gas related sector. Two weeks after the return-by date, follow-up prompting was carried out by phone for the plastics supply sector; and by letter for the financial services sector. The plastics supply sector survey was conducted over August/September 1991; the financial services sector survey over September 1991; and the oil and gas related sector survey over October/November 1991. When all the postal questionnaires were returned, the results were coded onto computer during the period November/December 1991, using a spreadsheet package, Microsoft Excel.

The returned questionnaires were carefully scrutinized for firms that appeared to have performed well over the period 1988-1991 in terms of employment growth, growth in turnover or growth in profitability. Six growth firms (*5 in the case of the oil and gas related sector*) were then selected out of the pool of firms that participated for each sector, to give as wide a cross-section as possible of growth firms according to ownership (*indigenous growth versus inward investment to Scotland*), the type of products produced, the legal form of the company (*i.e. private versus public*) and the type of management (*entrepreneurial versus a professional management team*). Each of the growth firms selected for intensive study used in-depth interviewing of company managers to determine exactly what it was the company produced, some background history to the company, how growth was achieved and what factors they considered to be instrumental to their success. The interviews were also used to probe for whether Porter's model could be applied to explain their success. The interviews of managers were conducted in June/July 1992. They were contacted initially by letter, which was followed up by a phone-call requesting a suitable appointment time in which to conduct the interview. Most interviews were of about 45-60 minutes duration, although some lasted as long as two hours.

Originally, the intention of the survey design had been to rely exclusively on the results of the postal questionnaire, but Dr. Turok considered the aggregated data tended to be too descriptive without really revealing the underlying causes of growth in individual firms. Moreover, it was considered that intensive research techniques would be required to overcome inherent weaknesses of the postal survey methodology (*see section 4.2.5*). There was also a difficulty in explaining what the statistics generated actually meant, without there being any reference

framework of actual firm case studies to refer to. A decision was made in April 1992 to strengthen the research by combining the extensive methods used to describe the dynamics of the sectors studied with intensive methods of research for studying the dynamics of growth in individual firms. The final component of the fieldwork involved documenting, interpreting and explaining the findings of the postal questionnaire survey results and the company case studies.

4.2.2 Some Important Survey Design Considerations

4.2.2.1 Choice of Sectors and Selection of a Survey Sampling Frame

One of the main objectives of this research project is to test Porter's model of competitive advantage (1990). Since Porter's model was conceptualized around the dynamics of particular industry sectors, the fieldwork also had to be structured in a similar manner. It was considered that the fieldwork would yield the greatest benefit in understanding and explaining the growth process of firms and in testing how representative Porter's explanatory framework is at explaining growth in all firms, if the study included a manufacturing sector, a service sector and a resource based sector. The choice of sector within these three broad categorisations could be reasonably flexible, as long as there had been some historical evidence of growth in the sector and the sector had a significant population of small to medium firms. Evidence of growth in a sector was important for the simple reason that an expanding sector would be more likely to have a higher proportion of growth firms than a declining sector. A significant population of small to medium firms (*i.e. firms with less than 500 employees*) in the sector to be studied was important for the reasons outlined in chapter 1 (*i.e. this was the size category most likely to create new employment, economic growth and lead to an increase in the stock of businesses*). A significant population of firms would be large enough to procure the target of 50 firms per industry sector, to ensure that the survey results had statistical validity and were reasonably representative. Another very important consideration in the choice of sector, was its spatial context in terms of whether to focus on the UK as a whole or a region. The decision was made, mainly on practical but also on conceptual grounds to focus on sectors within the Scottish economy. The practical considerations were basically on cost grounds, since follow-up telephone calls and case study interviews would increase in expense the more dispersed throughout the UK the survey's participants happened to be. Porter's model stresses the crucial importance of the local milieu to the development of a sector which made the UK-wide approach inappropriate

and the selection of smaller more coherent areas such as Scotland or Grampian region more feasible to explaining and understanding the role of the local environment. Narrowing down the spatial context variable to a region also helps to simplify the locality related influencing conditions on a firm's growth and gives a common frame of reference for discussion about firms in the sector being studied.

Table 4.3 compares the change in output of Scotland's sector over the period 1987 to 1990. This table indicates that all of the sectors of the Scottish economy have performed reasonably well over the period 1987-1990, meaning that any sector comprised of businesses would be worthy of studying and be capable of meeting the necessary research objectives. The three broad sectors selected, energy and water supply; manufacturing; and the financial & business services, have all performed well in terms of growth in output during 1987-1990 and are all significant sectors of the Scottish economy with large populations of firms. During the period 1987-1990, the manufacturing sector increased its output by 22.8% to £8,345m; the energy and water supply sector increased its output by 20.4% to £1,849m; and the financial & business services sector increased its output by 37.2% to £5,503m, which

TABLE 4.3:
CHANGE IN OUTPUT OF SCOTLAND'S SECTORS, 1987-1990

INDUSTRY SECTOR	1987 (£m)	1988 (£m)	1989 (£m)	1990 (£m)
Agriculture, forestry and fishing	916 100	887 96.8	1,004 109.6	1,074 117.2
Energy and water supply	1,536 100	1,696 110.4	1,705 111.0	1,849 120.4
Manufacturing	6,797 100	7,415 109.1	7,935 116.7	8,345 122.8
Construction	2,154 100	2,467 114.5	2,758 128.0	3,178 147.5
Distribution, hotels and catering; repairs	3,980 100	4,526 113.7	4,875 122.5	5,529 138.9
Transport and communication	2,313 100	2,581 111.6	2,719 117.6	2,808 121.4
Financial and business services, etc	4,012 100	4,237 105.6	5,075 126.5	5,503 137.2
Ownership of dwellings	1,233 100	1,325 107.5	1,444 117.1	1,699 137.8
Public administration and defence	2,427 100	2,663 109.7	2,764 113.9	2,924 120.5
Education and health services	3,433 100	3,824 111.4	4,487 130.7	5,156 150.2
Other services	2,037 100	2,319 113.8	2,603 127.8	2,636 129.4
Adjustment for financial services	-1,358	-1,506	-1,887	-1,962
TOTAL	29,481 100	32,434 110.0	35,482 120.4	38,738 131.4

NOTE: Index of 100 for 1987 figures. Later years' figures divide by 1987 value and multiply by 100.
SOURCE: REGIONAL TRENDS 27, 1992, Central Statistical Office

would imply that a significant number of individual firms must have been growing (*although it could also be due to new firm start-ups, but it is unlikely that all the growth in these sectors was simply due to new firms over such a short period*). By themselves, these sectors were still too large to conduct a survey of every firm within them. The manufacturing sector in particular had too many sub-categories of industrial activity to be able to make meaningful inferences and generalisations about growth. In order to ease and simplify the operational tasks of researching a manufacturing sector, it was decided that the research should focus on a sub-category of the manufacturing sector that had performed well in recent times.

Table 4.4 examines growth in employment and the gross value added per employee in manufacturing industries in Scotland during 1986-1988. Using the criterion of employment change, the sector that appears to have performed most

TABLE 4.4:
CHANGE IN EMPLOYMENT IN SCOTLAND'S
MANUFACTURING INDUSTRIES, 1986-1988

INDUSTRY GROUP	EMPLOYMENT '000		% CHANGE IN EMPLOYMENT 1986-1988
	1986	1988	
MANUFACTURING INDUSTRIES	381.4	344.9	-9.6
Metal manufacturing	11.2	10.3	-8.0
Extraction of minerals nes	0.7	0.8	+14.3
Manufacture of metal goods nes	14.7	15.7	+6.8
Mechanical engineering	49.4	39.4	-20.2
Manufacture of office machinery and data processing equipment	9.1	10.3	+13.2
Electrical and electronic engineering	37.4	37.5	+0.3
Manufacture of motor vehicles and parts	4.7	4.7	0.0
Manufacture of other transport equipment	28.5	24.2	-15.1
Instrument engineering	6.9	6.6	-4.3
Food, drink and tobacco manufacturing industries	68.9	66.9	-2.9
Textile industry	31.1	28.6	-8.0
Manufacture of leather and leather goods	1.1	1.0	-9.1
Footwear and clothing industries	25.4	25.9	+2.0
Timber and wooden furniture industries	12.5	13.4	+7.2
Manufacture of paper and paper products; printing and publishing	32.7	32.7	0.0
Processing of rubber and plastics	10.5	12.3	+17.1
Other manufacturing industries	5.2	4.4	-15.4

NOTE:

Sectors lacking in statistics not included in this table. They are:

- Extraction and preparation of metalliferous ores
- Manufacture of non-metallic mineral products
- Chemical industry
- Production of man-made fibres

SOURCE: SCOTTISH OFFICE, *Scottish Economic Bulletin*, No.42, December 1990

impressively in proportionate terms, appears to be the "processing of rubber and plastics" sector. Employment in that sector increased during 1986-1988 by 17.1% to 12,300 jobs. Since policy-makers are largely concerned with growth in employment, it was decided to examine this sector more thoroughly to determine its feasibility for researching growth firms within the context of Porter's model. The Manufacturing Services Group of the Scottish Development Agency (*now Scottish Enterprise*) was contacted to determine if they had any information on firms in the Scottish plastics sector. A register of firms operating in Scotland with a plastics supply capability had been produced by the Scottish Development Agency in 1989 (*SDA, 1989*), consisting of 92 firms. The register's preface noted that there had been considerable growth in the sector, reflecting the marked growth in the market in Scotland for plastic components. Close examination of the register indicated that it would provide an ideal sampling frame, since it was operationally feasible to target all of the firms within the register; the register indicated that with the exception of a company called Fullarton Fabrication, all of the firms were small to medium business concerns (*i.e. less than 500 employees*); and the register provided detailed information on the production capabilities of these firms. Also, with the register being a snapshot of the industry in 1988/89, it would be interesting to see how this population of firms had fared over the period 1988-1991 in terms of growth in employment, turnover and profitability. It was not important for the register to be completely up to date, since the survey was designed to research the changes in the sector and in individual firms over the period 1988-1991, and new firm entrants to the sector since 1988 would not be of great interest to the research.

The sampling frame for the oil and gas related sector was further simplified by focusing in on the region of Scotland that has benefited the most by exploitation of the North Sea oil and gas resources, which happens to be Grampian region, with Aberdeen being the key service and production area within that region. Table 4.5 clearly demonstrates the dominance that Grampian region has had from 1980 through to 1990 in providing employment in the oil and gas related sector of Scotland's economy. In 1990, Grampian region provided 51,200 of the oil and gas sector's 63,300 jobs (*80% share*) throughout Scotland. During that ten year span, Grampian region had a minimum 70% of employment in this sector. Moreover, employment has steadily grown in Grampian region in this sector from 32,300 jobs at the start of the decade to 51,200 jobs in 1990. The impact of the oil and gas industry on Grampian region's economy is the main reason for Grampian's low unemployment rate of 4.3% compared to the UK average of 9.4% in January 1992 (*Regional Trends*

27, 1992). Clearly, table 4.5 makes Grampian region the most obvious choice as a sampling frame for the oil and gas related sector in Scotland.

Grampian's latest Business Directory (*Grampian Regional Council, 1991*) was used to construct the survey sampling frame for selecting firms in the oil and gas related sector. The Directory identified a total of 1,116 businesses in the oil and gas related sector in 1990, of which 701 were small firms (*1-25 employees*); 248 were medium firms (*26-100 employees*); 138 were large firms (*101-500 employees*); and 29 were very large firms (*more than 500 employees*), according to the definitions of firm size used by Grampian Regional Council (*these definitions of firm size it must be noted are different from the definitions given in chapter 1*). Since the research was more concerned with growth in firms with less than 500 employees, firms with 500 or more employees were excluded from the sampling frame, leaving a potential sampling frame of 1,087 firms. The sample frame was further narrowed down to a target of 323 firms by excluding firms outside the Aberdeen area, by only including firms undertaking manufacturing or servicing functions directly related to the oil and gas related industry and whose main customers were off-shore oil and gas operators; and by excluding firms belonging to the same umbrella corporation.

TABLE 4.5:
SCOTTISH EMPLOYMENT (THOUSANDS) IN COMPANIES WHOLLY
RELATED TO THE NORTH SEA OIL INDUSTRY 1980-1990

	1980	1982	1984	1986	1988	1990
SCOTLAND	46.3	58.3	64.0	61.4	53.7	63.3
CENTRAL AND LOTHIAN	0.9	1.2	1.0	0.4	0.6	0.3
FIFE	0.8	1.2	1.4	1.7	1.7	1.9
GRAMPIAN	32.3	40.0	49.5	48.3	44.2	51.2
HIGHLAND	4.4	7.4	4.4	4.0	2.4	3.9
STRATHCLYDE	2.7	3.8	3.4	3.1	1.3	1.8
TAYSIDE	1.8	2.5	2.3	1.8	1.2	1.7
ISLANDS	3.5	2.2	2.0	2.1	2.4	2.1

SOURCE: SCOTTISH OFFICE, Scottish Economic Bulletin, No.42, December 1990

Table 4.3 earlier demonstrated the financial services sector to be one of the best performing sectors of the Scottish economy over the period 1987-1990. Therefore, it seemed appropriate as a choice to research the dynamics of growth firms. The financial services sector in Scotland is concentrated in Scotland's two main cities, Glasgow and Edinburgh. Edinburgh is the main centre for financial services in Scotland (*FT survey, Thursday May 16, 1991*), but Glasgow is also a very important centre. For example, in 1990 Glasgow's world ranking as a global fund management centre was 26 compared to 14 for Edinburgh, and Glasgow was ranked third in the

UK after London and Edinburgh. In 1990, Glasgow had \$US19.8bn of equities under management compared to Edinburgh's \$US62.5bn (*FT survey, Thursday May 16, 1991*). Because the complications to the research of introducing two locational variables with two cities of quite different character, and because of the large number of firms in this sector and the operational difficulty in doing case study research in Edinburgh (*due to limited financial resources*), it was decided to restrict the sampling frame to Glasgow.

The City of Glasgow's 1991 Directory of Companies was used to identify a possible sampling frame of companies operating in the financial services. This directory categorised the financial services sector for the City of Glasgow into four sub-categories, which were banking; chartered accountants; insurance/assurance companies; and other financial services. The total financial services sector for the City of Glasgow comprised of 209 companies, of which 27 were in banking; 67 were chartered accountancies; 52 were insurance/assurance offices; and 63 were categorised as other financial services. Banks were excluded from the sampling frame because of their corporate nature and because many of the banks listed in the directory were agents of foreign banks. The size of the sampling frame was further reduced by excluding companies belonging to the same umbrella organisation; excluding companies with less than 10 employees or with 500 or more employees; and excluding companies operating their main place of business outside the city centre (*the area bounded by the M8 motorway to the north; the High Street to the east of the city; the Clyde River to the south; and the River Kelvin to the west*). The resulting size of the sampling frame for the financial services sector for Glasgow city centre was 135 firms, of which 46 were insurance/assurance offices; 48 were chartered accountancies; and 41 were other financial services.

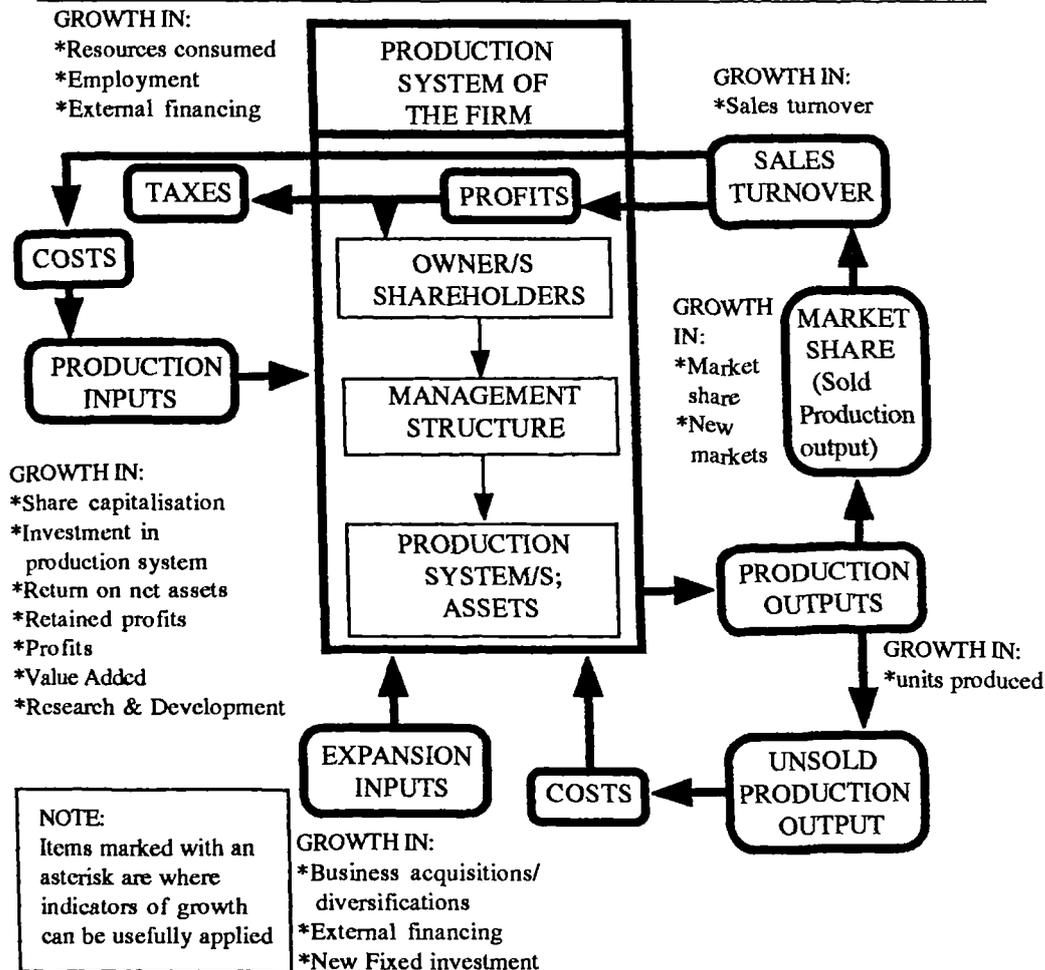
4.2.2.2 Measuring Firm Growth

Figure 4.2 illustrates in diagrammatic form, the production system of a firm to demonstrate where indicators of growth can be applied. From this diagram it can be seen that the areas of activity of a firm where measurement techniques of growth can be typically applied are:

1. Inputs: such as labour, costs in employment, external finance, materials and components, land and buildings, and the capital value of business acquisitions and diversifications.
2. Outputs: such as sales value, sales volume and market share.

3. Within the firm: such as assets, return on net assets, value added, investment, share capitalisation, management structure, specialisation of labour, retained profits and profits generally.

FIGURE 4.2:
MEASURING GROWTH IN THE OVERALL SCHEMA OF THE FIRM



The majority of growth indicators are quantitative measures of firm size, whose end product indices appear to produce an unambiguous and clearly tangible numeric description of the extent to which a firm has grown by. Only a few of the above mentioned indicators rely on qualitative assessments of growth within the firm, with the objective of demonstrating how the firm changes its characteristics through various growth processes, rather than relying on mechanistic descriptions of growth having taken place in the firm. The qualitative indicators include examining changes in management structure, changes in the specialisation of the work-force and

changes in the nature of employment tasks within the firm, which may be useful for indicating future growth potential.

From figure 4.2 it can be seen that there are a wide range of options available for measuring growth in a firm. This presents something of a dilemma when a decision has to be made regarding the most suitable choice of indicator for measuring growth. For example, for the sake of convenience and simplicity, growth indicators that monitor the inputs and outputs of the firm are perhaps the easiest to apply. However, it could be convincingly argued that this approach is limited because it concentrates only on the external symptoms of growth and not on the instigating factors of growth originating from within the firm. Table 4.6 reviews the various indicators of growth for firms, disaggregated into three broad categorisations: primary quantitative; secondary quantitative; and qualitative. The table is largely self-explanatory. The most useful growth indicators in terms of ease of application to historical growth in a firm are the primary quantitative indicators, while the qualitative growth indicators are perhaps most useful for detecting the potential for future growth, providing that the quantitative growth indicators are in agreement with them. For example, if the quantitative indicators show that a firm has not been profitable in the past, has not grown in turnover, has failed to secure finance, made little in the way of capital investment, or has not acquired other businesses or diversified, it would seem that qualitative indicators that hint at growth showing changes in the organisation structure and management, or the extent of networking with other firms and organisations, or increased research and development, should be treated with caution.

The secondary quantitative growth indicators detailed in table 4.6, such as value added, value of inputs consumed, external financing, the value of new capital investment, the capital value of business acquisitions and diversifications and market share, are not rated as highly as the primary quantitative indicators because of the practical difficulty of collecting such information. To policy-makers, however, a growth indicator such as value added by a firm in the production process is very useful because it indicates the value of the work being carried out in a local area and a high value added results in a much larger regional multiplier occurring for the firm's locality.

Different interests will value different growth performance measures in firms. The objective of the managers of a firm is usually to maximise profits or sales. With policy-makers, the objective tends to be employment or the amount of value

**TABLE 4.6:
REVIEW OF GROWTH INDICATORS FOR FIRMS**

MEASURES OF FIRM GROWTH	COMMENT	Description & analysis	Time frame required	Ease of measurement	Explanatory powers	Predictive capability	Clarity
Primary Quantitative							
1. Market capitalisation (MC)	Reflects growth aspiration of firm if MC increases through firm increasing the volume of shares that it has on issue	3	1yr	high (CA)	2	2	1
2. Turnover (TO)	Good reflection of long term growth if allied to increase in profits	4	1yr	high (CA)	3	2	3
3. Profits (PR)	Prerequisite for sustained growth, but growth will only occur if management translates increased profits into a firm expansion strategy. There is a difficulty in obtaining genuine profit appraisals	3	1yr	med. (CA)	3	1	1
4. Employment	Useful for predicting growth in labour intensive firms, but not so useful for capital intensive firms	4	1yr	high (CA)	3	2	3
5. Capital Employed (CE)	Does not indicate how effective or efficient CE is in facilitating growth	3	1yr	med. (CA)	2	2	1
6. Net Assets (NA)	Good indication of growth since assets can only grow through firm expansion. Poor indicator of future growth if increased capitalisation is obsolete or inappropriate	3	1yr	med. (CA)	2	2	1
7. Rate of Return on Net Assets	Good efficiency measure of firm's achievement of greater economies of scale. However, ambiguous with regard to heavily capitalised firms, (as opposed to labour intensive firms)	2	1yr	med. (CA)	2	2	1
Secondary Quantitative							
8. Value Added (VA)	Often requires primary research to determine. By itself, it says very little about the characteristics of growth. Confusion about what absolute VA index represents: increase in turnover; decline in input costs; or increase in product sophistication.	1	1yr	low (PR)	2	1	1
9. Value inputs consumed (VIC)	Requires primary research. This is a poor indicator of growth because the price of inputs is rarely fixed over time for a given quantity of inputs.	1	1yr	low (PR)	1	1	1

TABLE 4.6: (CONTINUED)
REVIEW OF GROWTH INDICATORS FOR FIRMS

MEASURES OF FIRM GROWTH	COMMENT	Description & analysis	Time frame required	Ease of measurement	Explanatory powers	Predictive capability	Clarity
Secondary Quantitative (Continued)							
10.External Financing (EF)	Poor indicator of growth since it only examines one aspect of a firm's financing activities. Also, it is not necessarily an indication of growth where EF is being used to replace an obsolete production system.	2	1yr	high (CA)	1	1	2
11.Value of New Capital Investment	Advantage of indicating where real growth is occurring in firm, however, need to be wary of simple plant upgrades of obsolescent equipment that does not involve expansion of the capacity of the production system.	3	1yr	med. (CA)	3	1	2
12.Capital Value of Business Acquisitions and Diversifications	This is an important aspect of growth but this indicator ignores growth that results from expansion of an existing production system.	3	1yr	med. (CA)	3	2	2
13.Market share	Useful indirect indicator of growth, provided that the market itself has not contracted.	3	1mth	med. (CA)	2	2	3
14.Sources of Funding	This indicator takes into account growth from retained profits and external financing. Its shortcoming is that it considers only inputs of the production system, while outputs are ignored.	3	1yr	med. (CA)	3	2	2
Qualitative Measures							
15.Changes in organisation structure & management	Reasonable if imprecise indicator of firm growth. Firm passes through various stages of development. Each stage is characterised by an increasing degree of specialisation, sophistication and complexity.	4	life of firm	low (PR)	4	2	1
16.Extent of Networking with other Firms and Organisations	Difficult to measure and interpret. No clear standards to compare growth by. Best suited to studying samples of firms with common survey parameters. Very indirect indicator.	3	life of firm	low (PR)	2	1	1

TABLE 4.6: (CONTINUED)
REVIEW OF GROWTH INDICATORS FOR FIRMS

MEASURES OF FIRM GROWTH	COMMENT	Description & analysis	Time frame required	Ease of measurement	Explanatory powers	Predictive capability	Clarity
Qualitative Measures (Continued)							
17.Changes in Social Relations of Firm	This indicator focuses on characteristics and interactions of owner-managers and firm's employees. Difficult to measure, quantify and interpret. Strong danger of making subjective assessments. Very uncertain survey methodology.	2	life of firm	low (PR)	2	1	1
18.Changes in Division and Specialisation of Labour	As a firm grows, its workforce becomes more specialised and structured according to the various production tasks of the firm. Useful qualitative indicator, but awkward in comparative studies. Suffers from being mainly descriptive and weak analytically.	3	life of firm	med. (PR)	2	1	1
19.Research and Development	For many production oriented growth firms, a clear linkage seems to exist between investment in R&D and the subsequent expansion of the firm. However, the critical flaw in this indicator is the uncertainty of growth following investment in R&D, which makes it potentially unreliable. Problems exist in determining yardsticks by which to measure growth. Enormous practical difficulties exist in conducting the survey methodology, due to the extreme commercial sensitivity associated with R&D programmes.	3	life of firm	low (PR)	3	1	1

KEY:

Rating for "Description and Analysis", "Explanatory powers" and "Predictive Capabilities":

1=very poor; 2=mediocre; 3=good; 4=very good; 5=excellent

Rating for clarity:

1=very unclear; 2=some ambiguity; 3=very clear

CA: Source of data from company accounts

PR: Primary survey data required

added so that through the multiplier effect, the amount of income in an area is increased. And with investors, the objective is to maximise the value of shares if it is a public company or share of the profits if it is a private company.

Another problem that arises is the conflict between the growth indicators used. A firm that may be growing in turnover and employment may not be growing in profitability. A firm that is growing in profitability may not be growing in terms of net assets, since few of its profits may actually be reinvested in the business, and its improved business performance may simply be the result of using its resources more efficiently. Profit as a measure of growth can be especially ambiguous. What is known euphemistically in business literature as "creative accounting", can disguise actual economic losses of a firm to create the misleading impression that a firm is profitable (FT, 11/01/1991). For example, partial liquidation of capital assets may be treated as normal income or loan repayments may be deferred to a later period. Other examples include substantial payments to suppliers being held back; government grants being treated as income; and the issuing of new loans being treated as part of the firm's income stream. Some firms employ dubious accounting practices, such as relegating the cost of acquisitions to the balance sheet rather than the profit/loss account; attempting to assign value to brand product names acquired from other firms, based on their previous market share performance; and assigning value to commercial goodwill in business acquisitions.

Logically, the linkages between the three indicators of growth, profit, turnover and capital employed, can be easily inferred. Figure 4.3 attempts to demonstrate how these three essential aspects of firm growth might interact with each other to determine a firm's success or failure over time. The growth spiral as it is called, is a schematic representation of how a firm will maintain a growth path in a strictly financial context by operating within the inner circle of the spiral, or degenerate towards business failure by falling away to the outer circles of the growth spiral. Of course, it must be stressed that figure 4.3 is schematic, since in the real world, profit, capital employed and turnover do not always follow such a tidy sequence, but rather happen simultaneously. However, where this schematic representation is accurate, is in setting the profitability of the firm as the lynchpin of the whole process of firm growth, because growth in the amount of capital employed is predicated on the firm's past operations demonstrating profitability. Growth in the amount of capital employed leads to improved production capacity of the firm if the capital is wisely invested, which in turn permits increased output and provided the products succeed in the

1. that profits are not reinvested in the productive capacity of the firm;
2. that capital is invested unwisely or simply squandered;
3. that the firm's productive capacity is poorly utilised;
4. that the firm's products fail in the market, despite the best investment intentions;
5. or that production costs exceed sales revenue resulting in a loss of profits.

When the firm falls out of the inner circle of the growth spiral it moves into the degradation cycle of the growth spiral which is characterised by the following sequence of events: a decline in profitability which leads to growth in the firm's debt, constraining the amount of capital employed, thereby insidiously corrupting the firm's production capacity, leading to a decrease in production output, culminating in a decline in sales turnover. If the cycle of decline becomes more exacerbated, the firm's capital base will begin to be depleted and the firm's production activities will become progressively marginalised to the point where the business no longer has any commercial viability. When the firm's business situation degenerates to this sorry state of affairs, the firm's creditors may decide to force the firm's closure and liquidate the firm to recover whatever remains of the firm's assets. A firm may, however redeem itself to the inner circle of the growth spiral if the firm's owners/managers can secure the necessary finance to improve the productive capability of the firm and generate sufficient sales turnover to earn a profit. The firm that therefore remains operating in the inner circle of the growth spiral will continue to expand. In practice, most firms would probably oscillate between the inner and middle circles of the growth spiral according to their fortunes in the marketplace and their ability to secure finance.

To conclude, a growth indicator must be reasonably simple to ensure that it is operational. The growth indicators chosen must also suit the purpose of the research, which in this case is to identify the firms that are most likely to contribute to the growth of the economy and employment. In the context of the survey, the primary purpose of selecting a growth measure is to practically determine which firms have grown and what impact that has had on the firm's employment. The conceptualization of the growth process in figure 4.3 clearly demonstrated the importance of turnover and profitability to the whole process of firm expansion. Value added during the production process can be sometimes difficult to ascertain in a postal questionnaire due to the fact that the value of inputs needs to be known, information which firms seem reluctant to divulge, particularly if they are a private company. Therefore, it was

deemed most appropriate to select the two financial measures of growth in sales and profits for the postal questionnaire, together with employment. Growth in employment is probably the least ambiguous of all the growth indicators, particularly in examining a firm's past growth performance since the firm would have to have had a proven track record of good business performance and good prospects for future growth in taking on more staff. One of the main reasons for selecting employment as a growth measure, was because of the important policy implications of growth firms to employment.

4.2.3 Questionnaire Survey Design

Three postal questionnaires were designed, one for each sector surveyed. They all covered approximately the same issues, but were adjusted to take into account the peculiarities of each sector. Each questionnaire was sent out with a covering letter requesting participation in the survey, giving an undertaking of confidentiality and explaining the survey's purpose. The survey was targeted at the chief executive or general manager of the company concerned in the covering letter accompanying the questionnaire. A stamped self-addressed envelope was included with the questionnaire. The covering sheet of the questionnaire had a short note giving general information to potential respondents about completing the questionnaire, together with a request for the name, position and contact phone number of the respondent. Each questionnaire had an identifying code so that the firms that had appeared to have grown significantly could be identified from the questionnaires returned, for the purposes of conducting a follow-up case study. A copy of the questionnaire for the Scottish plastics supply sector, Aberdeen's oil and gas related sector, Glasgow's Financial services sector, can be found in appendices A4A, A4B and A4C respectively.

The questionnaire for the plastics supply sector was divided into six sections:

A. General Information: This section sought to determine the firm's age; its functions; the degree to which functions were contracted out to other companies; and the firm's legal structure for trading purposes.

B. Ownership & Management: This section investigated whether a firm was owner-managed or run by a professional management; whether the firm was indigenous to Scotland or an example of inward investment; whether the firm's owners were

involved in the operational and strategic management of the firm; and the background details of the manager.

C. Business Objectives: This section asked for various business objectives to be rated in importance from 1 (*very important*) down to 5 (*not important*); the firm's attitude to growth; management's appraisal of the firm's performance during the past three years (1988-1991) in terms of sales, employment and production capacity; and management's appraisal of growth performance during the next three years (1991-1994) in terms of sales, employment and production capacity.

D. Factors in Business Development and Growth: The purpose of this section was to test Porter's model (1990), by asking the respondents to indicate the degree of difficulty that various issues had caused them during the past three years (*i.e. 1988-1991*). The categories of difficulty were: major, moderate, minor and none. A category "does not apply" was also provided. Respondents were asked to rate a total of 55 issues, distributed under ten subheadings which were as follows: management factors; production issues; financial factors; labour issues; market related issues; government related issues; general economic issues; location issues; the nature of competition; and related and supporting industries.

E. Changes in the Development of this Business: This section examined how the firm expanded over the period 1988-1991, if indeed it did; the source of development capital (*as opposed to working capital for the day-to-day running of the business*); the usefulness of various sources (*i.e. public and private agencies such as Scottish Enterprise, Local Authorities, Banks and Accountants*) in assisting the firm to develop during the period 1988-1991; changes in the firm's employment occupational structure during the period 1988-1991; and changes over the period 1988-1991 in the firm's annual sales turnover, annual profitability, total assets and annual capital employed. Respondents were asked to rate their firms' change in turnover, profitability, assets and annual capital employed in terms of one of ten percentage bands, ranging from a decrease of more than 50% up to an increase of more than 300%. Respondents were also asked to provide the approximate value of annual turnover, annual profitability, total assets and annual capital employed for the preceding financial year (1990-1991), which allowed a rough inference to be made about the changes of these growth performance indicators in absolute terms over the period 1988-1991.

F. Markets: Respondents were asked in this section to indicate where their competitors were based; and to estimate the percentage share of total sales destined to markets in Scotland, the rest of the UK and the rest of the world during 1990/91 and 1987/1988.

The questionnaire design for the financial services sector differed from the plastics supply sector questionnaire in the following respects:

1. It asked the respondent to describe the services provided by his/her firm (*the directory of firms used in the plastics supply sector already provided this data*);
2. The question concerning what functions the firm provided were adjusted to reflect a service oriented business;
3. The section designed to test the validity of Porter's model did not include a section on related and supporting industries and its questions were tailored to reflect a service oriented business; and
4. The order of the sections was changed, with the questions on markets placed in section D; while the questions on factors in business development and growth were placed in section F of the questionnaire.

The questionnaire design for the oil and gas related sector was carried out after the questionnaires were designed for the other 2 sectors. It was similar to the order of layout of the questionnaire design for the financial services questionnaire, but it did have some minor departures which are as follows:

1. The postal questionnaire surveys for the plastics supply and financial services sectors suffered from poor completion rates where respondents were asked to indicate the percentage change over the period 1988-1991 in total assets and annual capital employed. For this reason, these two indicators of company growth were not included in the questionnaire design for this sector.
2. Section F regarding factors in business development and growth was virtually identical to that for the plastics supply sector (*Section D in that instance*), apart from some minor alterations to reflect the locality specific nature of the oil and gas related sector to Aberdeen.
3. Some of the reasons given for refusing to participate in the plastics supply and financial services sector were that the questionnaire was too time consuming to be taken seriously. This questionnaire was made slightly shorter to try and make it more acceptable to survey participants. The questionnaire design for the oil and gas related sector had a concluding question requesting respondents to state the length of time the questionnaire took to complete. It was interesting to note that of the respondents that answered this question, most survey participants stated that the questionnaire required only about 20 minutes to complete and rarely more than 45 minutes. And yet one firm in the plastics supply sector sample that refused to participate claimed that it would

have taken half a day's work to complete the questionnaire. A common concern amongst private companies in all sectors refusing to participate was that they simply did not want to disclose any aspects of their business outside the firm, despite guarantees that the information provided would be kept confidential. The most ludicrous objection to the survey was that the questionnaire survey was thinly disguised industrial espionage.

4.2.4 Case Study Design

The purpose of having some case studies, was to examine in detail the factors responsible for growth and gain some insight into the process of growth in individual firms. The extensive approach adopted with the postal questionnaire surveys provided a useful descriptive overview of growth in the respective sectors, but had little explanatory power with regard to individual firms.

From a list of possible growth firms to be studied in detail (*refer back to the sampling procedure discussed earlier in this chapter*), a short-list of 8 growth firms from each sector was prepared. Letters were then sent out to each of these firms (*24 in total*), requesting their participation in follow-up case studies to be conducted by means of an in-depth interview. A week after the letters were sent out, the managers of these respective firms were contacted by telephone for an appointment to be arranged. Six interviews were arranged with growth firms in the plastics supply sector; 6 interviews were carried out with firms in the financial services sector; and 5 interviews were carried out with firms in the oil and gas related sector.

Before each interview, the relevant questionnaire earlier completed by the firm was studied carefully to determine any interesting aspects or inconsistencies that could be followed up in the interview. The interviews were semi-structured in that a list of issues to be examined was drawn up beforehand. The semi-structured approach allowed for contingencies in dealing with any interesting items that occurred during the course of the interview which may not have been covered by the interview structure plan. The interview plan was treated more as a check-list of items to be covered, rather than a rigid framework to be adhered to at all costs.

All interviews were recorded on a portable tape recorder. None of the respondents objected to the interview being recorded. Recording the interviews helped to ensure that all responses were accurately reported and also allowed responses to be double-checked.

The structure of the interview plan was divided into two main components. The first component dealt with general issues such as something about the history of the company; the background experience of the manager in the context of the firm; information about what the company does and the extent of innovation involved; and what the manager would attribute the firm's success to and the constraints to growth that it may have faced over the past four years. The second component dealt with issues related to Porter's model, such as factor conditions, government policy, competitiveness, strategy, demand conditions and related and supporting industries. The interview plan was more of a checklist to ensure that important issues were covered and to help to prompt the respondent in the event that the discussion stalled. Some of the issues detailed in the interview plan were already covered in the postal questionnaire, which was done to check consistencies of response and hear the respondent's views on those issues from his/her own perspective. A copy of the interview structure plan is included in the appendix A4D.

4.2.5 Limitations in the Research Methodology

4.2.5.1 Postal Surveys

The main drawbacks associated with the postal questionnaire surveys relate to: non-response bias; partial completion of the questionnaire; possible misinterpretation of questions; a lack of control over who completes the questionnaire; difficulty in verifying the validity of the data; a reliance on self-appraisal by the respondent; and difficulty in knowing whether close-ended questions requiring ticked responses have been considered carefully or ticked at random.

Specific flaws in the postal surveys, realised with the benefit of hindsight include: a lack of wholesale check on the validity of the data (*which came out in the viva*); the quality of the financial performance data obtained; nothing on the amount of development capital invested or the amount of value added; nothing on supplier linkages; explicit reasons for growth were not examined (*from management's perspective*); no questions with regard to how the business started and its management structure during its development; and there were no questions on growth strategies employed or that the firm intended to apply in future. The postal survey results would have been enhanced if these issues had been investigated, although this has to be balanced against the greater questionnaire length that may have resulted in, thereby increasing the possibility of a higher rate of non-response.

Non-response bias in postal surveys tends to exclude: those persons irritated by surveys; secretive private companies; firms performing badly; managers who are extremely busy; and managers new to the firm who may not be familiar with the past dynamics of the business. There could also be a personal bias, applicable in larger businesses, where there may be considerable differences of opinion among senior managers concerning perceptions of the firm's activities. Because the nature of the statistical analysis was to compare non-growth with growth firms, a lack of response from firms performing poorly and managers that are very busy, could potentially have had an adverse impact on the results, particularly since a sectoral approach was taken in the analysis. Checking of published company accounts could have determined the nature of non-response bias in terms of the financial performance characteristics of non-participant firms in the survey.

Partial completion of the questionnaire mainly impacted on the financial performance and employment data. Close-ended questions were generally fully completed by respondents, although it was never certain how honest responses were or whether any serious thought lay behind the responses. Since much of the postal surveys were attitudinal questions, a major limitation with this research technique is that it is almost impossible to check for validity. Attitudes could vary over time and between the various decision-makers of the firm.

A lack of control over who completes the survey is a severe limitation in this research methodology. However, section 4.3.2 regarding the nature of respondents, would seem to indicate that almost 80% of respondents could be described as being "key decision-makers". Hence, the postal surveys were reasonably representative of management attitudes, at least amongst those firms that participated.

Published company accounts would probably have significantly improved the pool of firms available for analysis by the growth measures of change in turnover and profitability, but would have done little to check the validity of close-ended attitudinal questions by respondents. It would also have improved the reliability of the analysis of the financial performance data volunteered by firms in the postal survey. The reason that a wholesale check on the validity of the postal survey data was not carried out was mainly due to a lack of financial resources and severe time constraints at the time of the survey. Moreover, it was thought that because only 63% of the participating firms were indigenous Scottish businesses, some aspects of

published company account data may be unreliable due to transfers between the parent company and its subsidiaries and because accounts are not available for branch plants.

The size of the firms in the sectors was another difficulty encountered. Definitions of what constitutes a small-medium firm in terms of employment, vary, as chapters 1 and 2 demonstrated. The aim in the design of the postal questionnaire had been only to target small-medium firms, but the survey results clearly indicate that some very large businesses were included in the results. This happened in 2 cases (*in the oil and gas related sector*) where firms in the samples that came under the definition of a small-medium firm in 1988 (*less than 500 employees*), had expanded during the period 1988-1991 into the large firm size category (*500 or more employees*) (*refer to table 4.9*). Three of the firms were large firms in both 1988 and 1991. At the time of sample design for each sector, however, the business directories referred to indicated all of the firms included in the sampling frame to be smaller than 500 employees.

4.5.5.2 Case Studies

The main limitations with regard to research methodology of case studies are: the difficulty in interviewing the appropriate person; the personal bias of the individual interviewed in relating the firm's experience; whether the characteristics and experience of a case study are representative of a sector or unique; non-reponse bias; and the validity of the data.

With the smaller case studies in the plastics supply and financial services sectors, no difficulty was experienced in securing the appropriate person to interview (*i.e. the chief executive*). However, with the medium to large firms in the oil and gas related sector (*i.e. ABB Vetco Gray, Rockwater and the Wood Group*) and the insurance company ("*Eternal Life*" (*an alias*)) in the financial services sector, it was either a marketing officer or person in middle-management that agreed to a personal interview. The principal person in charge of the firm or its Scottish subsidiary would not make themselves available for an interview in the larger firms (*i.e. typically those with more than 250 employees*), usually on the premise of a demanding personal schedule and because they had employees specifically employed to cater to what they perceived to be public relations issues. The problem with interviewing a representative of a firm not in senior management, is that they can be highly subjective in their opinions, and may merely be espousing the company's marketing dogma, rather than giving honest appraisals. Another problem that arises in speaking to an individual representing a company (*even if they happen to be the owner or chief executive*

officer), is that they may be highly biased in putting forward the significance of their role in their company's activities. It may be necessary to balance this against the opinions of other decision-makers in the firm (*if there are any*). The case studies may have suffered from these limitations, since only one person in each firm was interviewed.

It cannot be inferred from a single case study, that the findings are generalizable across a whole sector. However, if enough case studies are carried out, common themes should start to emerge. Around half a dozen firms in each sector were studied in-depth using personal interviews to try to discover generalizable phenomena about growth firms in the respective sectors, although it could be argued that this was still insufficient. Ideally, it would have been desirable to have conducted in-depth case study analysis of every growth firm in each sector, although this was not possible with the limited resources available at the time the research was being implemented.

It may have been useful to have matched non-growth firms against growth firms in the case study analysis. This was considered but rejected for the following reasons: (1) it would have doubled the number of case studies; (2) managers of declining firms were not very co-operative in the postal survey and it seemed doubtful that they would be any more co-operative with a personal interview; and (3) it seemed difficult to match a "growth" firm with a "non-growth" firm, in terms of size and similarity of activities carried out.

Non-response bias with the case study analysis was largely concealed within the postal surveys, with the exception of the financial services sector in which there were 10 refusals to participate in interviews. If the case studies had not used the postal surveys to identify firms worthy of intensive research, non-response bias would probably have been a significant weakness in the case study research.

The factual data contained in the case studies regarding employment and financial performance was validated against published company reports. Inconsistencies within the qualitative data provided in the postal questionnaire survey by the firms targeted for case-study analysis, were clarified and resolved in the interview. Apart from the problem of personal bias amongst the interviewees, it would seem that the information and insights gleaned from the case studies was a fair

and accurate portrayal of management's perception of factors responsible for the success of their firms.

4.3 REPRESENTATIVENESS OF SURVEYS

4.3.1 Survey Response Rates

The operational aim in the postal questionnaire survey was to have a yield of around 50 responses from each sector. The postal questionnaire survey of the Scottish plastics supply produced 50 responses, a response rate of 58% if one discounts the 6 firms that were no longer in business. The postal questionnaire survey of the financial services sector resulted in 46 responses, a response rate of 36% after discounting the 5% of firms no longer in business. And the postal questionnaire survey of the oil and gas related sector produced 70 responses, a yield of around 23% after discounting the 7% of firms no longer in business or having moved on. The different survey success rates reflect different approaches to following up the targeted firms in the survey sample. For example, before any follow-up phone calls were made in the plastics supply sector survey, 20 responses were obtained; 2 weeks after the requested return date, prompting calls by telephone were made, resulting in another 15 responses; and 5 weeks after the requested return date, the final 15 responses were secured. Further attempts improve this survey yield were proving counterproductive for the amount of time and effort involved and these reluctant respondents were not being particularly conscientious about fully completing the questionnaire. With the financial services sector, a different prompting approach was adopted. Reminder letters were sent out to firms that had not responded to the original mail-shot of questionnaires, about 2 weeks after the requested return date. Before any such prompting, 44 questionnaires had been received; 82 reminder letters only produced an additional 2 respondents, which was extremely disappointing given the expense and effort put into encouraging a better response rate. No use was made of the phone in the case of the financial services sector because it was thought it would be interesting to compare different methods of prompting reluctant non-respondents. Clearly, the telephone method of securing additional survey responses from a targeted survey sample was far more effective than using a letter. With the oil and gas related sector postal questionnaire survey, pressure of time and a personal cash flow problem prevented a comprehensive prompting procedure on the scale used with plastics supply sector or financial services sector. When 70 responses were secured for the oil and gas related sector, it was decided that this met the criterion to have a yield of 50

responses from a particular sector, and was therefore deemed to be sufficiently representative of the oil and gas related sector.

In selecting firms for the case study phase of the research, there was no real difficulty experienced in securing the participation of the targeted firms in the plastics supply and oil and gas related sector. However, in the case of the financial services sector, cooperation was very difficult to achieve with the targeted firms, for the simple reason that managers of these firms could not spare the necessary 45 to 60 minutes necessary for an interview. About 16 firms had to be contacted for 6 case study interviews to be generated and none were keen to be identified in the survey write-up of results. Being service businesses, it was stressed that their time cost them money. There were also concerns about confidentiality. As a result, interviews of firms in the financial services sector were not as thorough or detailed as with the other sectors. Ideally, more firms would have been selected for the case studies, but because many of these firms were dispersed throughout Scotland, cost (*see appendix A4E for details on fieldwork costs*) and time considerations constrained the potential comprehensiveness of the survey.

4.3.2 Nature of Respondents

As was mentioned earlier in section 4.2.3 on the design of the postal questionnaires, the person targeted in the firm was the key decision-maker. A definition of a key decision-maker would be the person in the firm ultimately responsible for all operational management decisions and who may have substantial input into strategic management decisions. Most firms will have one person responsible for all operational management decisions, but it is not always so clear-cut who is responsible for strategic management decision-making. For example, strategic management decision-making in larger companies is almost invariably a considered exercise by a group of individuals in the form of a committee, which may be: a group of owners and/or senior management in the case of private companies; a board of directors to represent shareholders interests in the case of public companies; or senior partners in professional practices or small businesses. It could be argued that the key decision-maker of a firm in the short-term is always the person/s responsible for operational management but that in the long-term, it is the owner/s of the firm who are the firm's key decision-makers, since they have the potential to determine strategic management decisions unless the owners have delegated that function exclusively to the firm's management.

The reason that it was considered important to have the firm's key decision-maker as a survey respondent, was because it was assumed that this person would be the most familiar with the firm's history, its operational dynamics, external pressures, rationale behind management decisions and would be the most articulate in giving reasons for the firm's growth or lack of it.

As can be seen from table 4.8, key decision-makers were seen to include: owners (*particularly with small firms, where the owner also manages the business*), partners, directors, the chief executive, general manager or senior manager. Non-decision makers were seen to be respondents such as: marketing executives; junior managers; skilled technical employees; other professional employees; the company secretary; employees in administration; and clerical staff.

Table 4.7 provides a detailed breakdown of the occupations of the postal survey respondents. Across all three sectors, 69% of respondents were identified as being key decision-makers in the firm, who either owned the company (23%) or were at the top of the firm's management hierarchy (46%). Another 10% of respondents were in senior management. About 10% of respondents were non-decision makers, while nearly 10% of respondents declined to state their position in the company. The results in table 4.7 show that management and ownership overlap mainly in the financial services sector (*41% of respondents*), whereas in the plastics supply and oil and gas related sectors, owners' involvement in the survey was much less significant (*14% and 16% of respondents respectively*). Nevertheless, in the plastics supply and oil and gas related sectors, despite owners' views being under-represented, large proportions of respondents were in the upper echelons of their respective firms' management hierarchies (*68% and 60% respectively*).

Table 4.8 is a cross-tabulation of the type of survey respondent (*i.e. either decision-maker, non decision-maker, or unknown*) by growth in employment (*by more than 25% during the period 1988-1991*) for each sector. This table demonstrates for all three sectors that respondents from "growth" firms were predominantly key decision-makers (31.3%) as opposed to non decision-makers (3.0%) or unidentified respondents (3.6%).

Table 4.9 illustrates the types of firms (*in terms of employment size*) that participated in the postal surveys for each sector. It shows that firms are well

TABLE 4.7:
COMPARISON OF OCCUPATION OF POSTAL SURVEY RESPONDENTS
IN FIRM BY SECTOR

OCCUPATION OF SURVEY RESPONDENT	PLASTICS SUPPLY SECTOR	OIL & GAS RELATED SECTOR	FINANCIAL SERVICES SECTOR	ALL SECTORS
Owner/Partner	8%	4%	41%	15.7%
Director/Chief Executive/ General Manager	52%	53%	30%	46.4%
Owner/Director	6%	11%	0	6.6%
Senior Manager	16%	7%	9%	10.2%
Owner/Senior Manager	0	1%	0	0.6%
Marketing Executive	6%	7%	4%	6.0%
Junior Manager	0	1%	0	0.6%
Skilled Technical Employee	2%	0	0	0.6%
Other Professional	0	1%	2%	1.2%
Company secretary	0	1%	0	0.6%
Administration/Clerical	0	1%	0	0.6%
Not stated	10%	10%	13%	10.8%
COLUMN TOTALS	100% n=50	100% n=70	100% n=46	100.0% n=166

TABLE 4.8:
COMPARISON OF TYPE OF POSTAL SURVEY RESPONDENT WITH
GROWTH BY EMPLOYMENT DURING THE PERIOD 1988-1991 BY SECTOR

NATURE OF SURVEY RESPONDENT	PLASTICS SUPPLY SECTOR	OIL & GAS RELATED SECTOR	FINANCIAL SERVICES SECTOR	ALL SECTORS
KEY DECISION-MAKER	82 %	77 %	80 %	79.5 %
*Employment growth >25%	16%	44%	28%	31.3%
*Stable/declining	46%	26%	37%	34.9%
*Unknown	20%	7%	15%	13.3%
NON-DECISION-MAKER	8 %	13 %	7 %	9.6 %
*Employment growth >25%	2%	4%	2%	3.0%
*Stable/declining	2%	6%	2%	3.6%
*Unknown	4%	3%	2%	3.0%
RESPONDENT NOT KNOWN	10 %	10 %	13 %	10.8 %
*Employment growth >25%	2%	6%	2%	3.6%
*Stable/declining	2%	4%	7%	4.2%
*Unknown	6%	0	4%	3.0%
COLUMN TOTALS	100% n=50	100% n=70	100% n=46	100.0% n=166

NOTES:

1. KEY DECISION-MAKER: Owner/Partner/Director/Chief Executive/General Manager/Senior Manager
2. NON DECISION-MAKER: Marketing Executive/Junior Manager/Skilled Technical/Other Professional/ Company Secretary/Administration/Clerical
3. ALL PERCENTAGES REFER TO RELEVANT COLUMN TOTALS

represented in the range of 3-499 employees in each of the three sectors. However, the oil and gas related sector has a full range of firm sizes in terms of employment.

The main limitations with the survey results here, is that quite high proportions of firms neglected to indicate their 1988 levels of employment (32% of firms in the plastics supply sector; 10% in the oil and gas related sector; and 22% of firms in the financial services sector). Results were better for 1991, although 26% of

firms in the plastics supply sector still refused to provide details of employment growth.

TABLE 4.9:
NATURE OF RESPONDENTS: FIRM SIZE BY SECTOR IN 1988 AND 1991

FIRM SIZE BY EMPLOYEES	PLASTICS SUPPLY SECTOR 1988	PLASTICS SUPPLY SECTOR 1991	OIL & GAS RELATED SECTOR 1988	OIL & GAS RELATED SECTOR 1991	FINANCIAL SERVICES SECTOR 1988	FINANCIAL SERVICES SECTOR 1991
1-2	0	0	7	6	0	0
3-10	8	9	15	9	9	7
11-49	19	15	21	26	20	25
50-499	7	13	18	23	6	9
500+	0	0	2	4	1	1
UNKNOWN	16	13	7	2	10	4
TOTAL	50	50	70	70	46	46

4.4 ANALYSIS OF SURVEY RESULTS

4.4.1 Analysis Methodology

The survey data from the postal questionnaire was coded and entered into a spreadsheet in Microsoft Excel on an Apple Macintosh computer. The analysis was conducted at three levels. At a basic level, analysis consisted of describing the aggregate behaviour of the respective sectors, in terms of estimating the various proportions given for each question in each survey. At another level, firms in each sector were split into a simple dichotomy of stagnant/declining firms versus firms that had grown by more than 25% over the period 1988-1991, in terms of employment, turnover and profits, and then cross-tabulated with the various issues investigated in the questionnaire. Where it seemed that a possible linear association existed between a variable and growth firms, a chi-square test was carried out to test the probability of the association having statistical significance. Because of the limited number of cases, cross-tabulations were kept as simple as possible involving only two categories of growth and two categories of the dependent variable in each instance. For tests of significance of a linear association to work best, column and row totals for the particular cross-tabulation should be roughly equal. Furthermore, individual cell frequencies should ideally have a magnitude of at least 10. Many of the chi-squared tests conducted on the cross-tabulations from the fieldwork results did not meet these basic criteria and therefore failed to produce chi-squared scores of any significance. This does not necessarily mean that there is no probability of there being an association, rather that the data available is insufficient to prove or disprove a relationship. For an association with one degree of freedom to reach a 0.05 level of

statistical significance, its chi-squared score should exceed 3.841. Appendix A4F provides further details on how chi-squared scores are determined and the levels of significance for smaller chi-squared scores.

Finally, at an intensive level of research, interesting growth firms were scrutinized in detail in order to investigate the key factors that management attributed their growth performance to and the interactions between the factors and variables.

4.4.2 Limitations in the Statistical Analysis Methodology

It must be stressed that the quantitative analysis based on chi-squared scores derived from cross-tabulations with one degree of freedom, are at the simplest level of statistical analysis. Correlation that may be exhibited in some of the cross-tabulations does not demonstrate causality, but rather the statistical probability that there may be a correlation. The chi-square test is used to see if there are statistically significant differences between the observed (*or actual*) frequencies and the expected (*or hypothesized, given the null hypothesis*) frequencies of two variables presented in a cross-tabulation.

The holistic nature of Porter's model means that it is multi-factorial, with interactions occurring between its variables. Thorough quantitative analysis of this model requires use of multiple regression. However, since around 60 variables were used within the context of Porter's model for each sector, factor analysis would be required to reduce this large number of variables down to the 6 basic components described in Porter's model (*see figure 3.2*).

Factor analysis (*Vogt, 1993*) is done by finding patterns among the variations in the values of several variables where a cluster of highly intercorrelated variables are a factor. A factor is therefore a cluster of related variables that is a distinguishable component of a larger group of variables.

Multiple regression (*Vogt, 1993*) is a form of statistical analysis that uses more than one predictor (*or independent variable*) to predict a single criterion (*or dependent variable*). The coefficient for any particular variable is an estimate of the effect of that variable while holding constant the effects of the other predictor variables.

The reason why multiple regression analysis was not applied in testing Porter's model is because of the complexity involved in this level of analysis, necessitating use of a main-frame computer statistical package such as SPSS or Minitab. Ignorance of factor analysis by the writer at the time the analysis was conducted made the multiple regression approach seem like a hopelessly daunting task, in view of the time constraints placed on the research. Moreover, without knowledge of factor analysis, multiple regression would have produced an extremely unwieldy equation describing firm growth in a sector, with typically 60 variables and their coefficients.

4.5 CONCLUSION

Porter's model (1990) of competitive advantage was put forward as the best explanatory framework for growth in firms, although it had to be conducted within an industry sector perspective and be argued along the lines of clustering of industry, intense local competition and strong demanding local buyers.

The survey research design and methodology was largely conceived as a compromise between extensive (*using a postal questionnaire*) and intensive (*in-depth interviewing of company managers of selected growth firms*), since this seemed to be the most effective means of researching growth in small-medium firms. The sampling frame selected three growing sectors of the Scottish economy, which were surveyed using a detailed postal questionnaire. They were: the plastics supply sector; the oil and gas related sector; and the financial services sector. Growth firms were identified from the returned questionnaires and in-depth personal interviews conducted with the relevant firms. The discussion on survey response rates demonstrated the greater effectiveness of follow-up prompting of firms in the sample frame by telephone when compared to sending out reminder letters. The analysis methodology concentrated on determining the probability of various factors being associated with firm growth through chi-squared analysis of various cross-tabulations in the context of Porter's model. It was stressed that the chi-squared analysis was a simple level of statistical analysis and that to really test Porter's model, multiple regression analysis would be required.

The following chapters will now discuss and interpret the research findings into growth firms in the three sectors examined within the context of the research issues and questions outlined earlier in this chapter and the explanatory framework of Porter's model.

FIVE

FIRM GROWTH IN
SCOTLAND'S PLASTICS SUPPLY SECTOR

CHAPTER FIVE CONTENTS:

<u>SECTION</u>	<u>CONTENT:</u>	<u>PAGE</u>
5.0	INTRODUCTION	213
5.1	OVERVIEW OF THE SCOTTISH PLASTICS INDUSTRY	214
5.2	THE SURVEYED FIRMS	216
5.3	GROWTH PERFORMANCE OF FIRMS	220
5.3.1	Employment	220
5.3.2	Financial Performance	223
5.3.3	Markets	227
5.3.4	Management's Attitudes to Growth	227
5.3.5	Nature of Growth	232
5.4	EXPLAINING GROWTH IN THE SECTOR	232
5.4.1	Factors and Issues Associated with Growth	233
5.4.2	Growth in the Context of Porter's Model: Statistical Tests for Significance of Growth Factors	241
5.4.3	Growth in the Context of Porter's Model: Case Studies of Growth Firms	252
5.4.3.1	Factor Conditions	258
5.4.3.2	Demand conditions	259
5.4.3.3	Firm strategy, structure and rivalry	261
5.4.3.4	Related and supporting industries	263
5.4.3.5	The influence of chance or random events	263
5.4.3.6	The influence of government policy	265
5.4.3.7	Interaction of the determinants of competitive advantage	265
5.5	CONCLUSIONS	266

<p>CHAPTER FIVE: FIRM GROWTH IN SCOTLAND'S PLASTICS SUPPLY SECTOR</p>

5.0 INTRODUCTION

This chapter has two main objectives. First, it discusses the growth performance of the surveyed firms in the Scottish plastics supply sector; and second, it aims to explain and understand the factors that have facilitated the growth of firms in this sector.

The first section sets the context of the Scottish plastics industry within the Scottish economy, in terms of its share of economic output, and its change in employment and gross value added compared to other economic sectors. Descriptions of the characteristics of the sector (*based on the postal survey*) such as the age of firms, type of ownership, characteristics of management, markets, competition and management objectives are confined to appendix A5B. The second section indicates how representative the postal questionnaire is of firms in the Scottish plastics supply industry in terms of the size of firm and its location within Scotland. Section 5.3 discusses the growth performance of the surveyed firms in terms of employment, financial performance and markets. It also examines management's attitudes and perceptions to growth. The interpretation of the survey results within an analytical framework is discussed in section 5.4. Section 5.4.1 conducts a general analysis using the postal questionnaire survey results to see if there are any statistically significant associations between growth and company characteristics; management characteristics; management's motivations; methods of attaining growth, sources of development capital and assistance; and the location of competitors and markets. Section 5.4.2 uses Porter's model (1990) as an analytical framework to interpret the survey results. The five main components of Porter's model are tested to see if they have any statistically significant associations with growth. Because the quantitative analytical approach pursued in this section failed to produce conclusive support for Porter's model, 6 case studies for detailed interview were selected from the postal survey results of firms that had grown significantly during the period 1988-1991. Using a more qualitative approach for interpreting and explaining the dynamics of growth firms in the Scottish plastics supply industry, it would appear that Porter's model offers a more helpful explanatory framework of growth.

The numerous cross-tabulations referred to in this chapter, the case studies of growth firms and the list of firms that participated in the postal questionnaire survey are confined to appendix A5.

5.1 OVERVIEW OF THE SCOTTISH PLASTICS INDUSTRY

The plastics supply industry (*SIC 4831-36*) in Scotland represents a modest portion of the Scottish economy. Most of its activities involve forming plastic raw material (*usually in the form of beads*) through various mechanical processes, into finished plastic products which include packaging materials, components in electronic consumer products and complete plastic products. It accounts for some 7,300 jobs provided by 202 establishments with total sales of £463m (*Scottish Office figures, 1988*). A detailed breakdown of the plastics supply industry is not available because of disclosure problems due to the relatively small number of firms. In the context of the overall Scottish economy, this represents 0.4% of the aggregate 1.88 million full-time and part-time jobs in 1988 (*or 0.5% of 1.5 million full-time jobs*) and 1.6% of the £29.3bn Gross Domestic Product generated by the Scottish economy (*1987 figures from the Standing Commission on the Scottish Economy, Final Report, November 1989*). The average annual sales per employee in what constitutes the Scottish plastics industry for 1988 was £63,507/employee/annum and the gross value added per employee was £22,671/employee/annum (*Scottish Office*). Table 5.1 details the basic statistics pertaining to the Scottish plastics industry.

TABLE 5.1:
SCOTTISH PLASTICS INDUSTRY: 1988

SIC	FIRMS n	TOTAL EMPLOYMENT '000	TOTAL SALES £m	GROSS OUTPUT £m	NET CAPITAL EXPENDITURE £m	GROSS VALUE ADDED £m
4831-33	33	2.5	243.5	245.2]	85.2
4834	24	0.9	43.6	43.7] >20.6*	16.5
4835	30	1.1	69.3	69.8]	20.1
4836	115	2.7	107.2	107.8	2.0	43.7
TOTAL	202	7.3	463.6	466.5	6.7	165.5

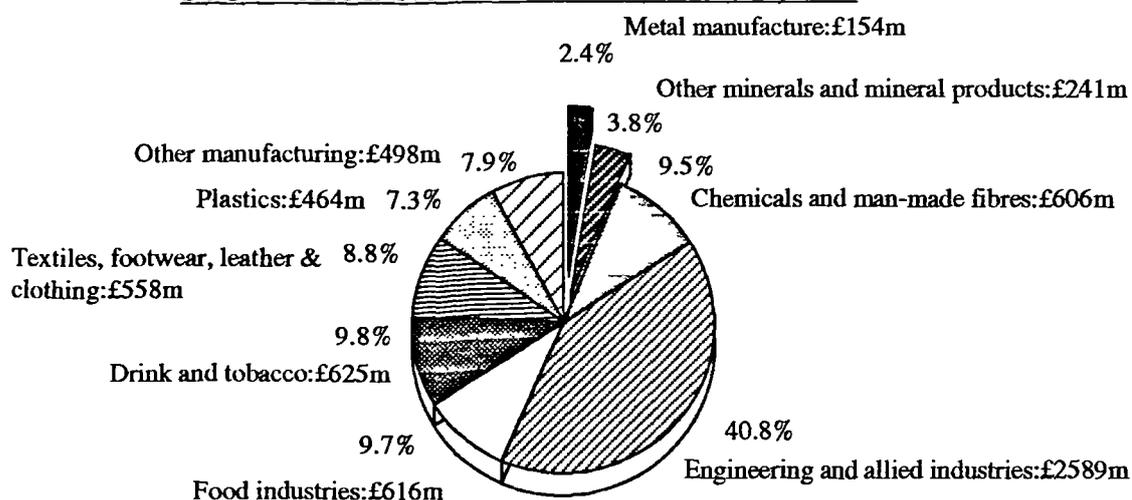
NOTES:

*4830 and 4834 amalgamated due to disclosure considerations
 4831 Plastic coated textile fabric
 4832 Plastics semi-manufactures
 4833 Plastics floorcoverings
 4834 Plastics building products
 4835 Plastics packaging products
 4836 Plastics not elsewhere specified

SOURCE: Annual Census of Production, Scottish Office

The Scottish plastics industry in 1986, contributed to 7.3% of Scottish manufacturing output, whilst the whole manufacturing sector accounted for 21.7% of Scotland's gross domestic product. Total Scottish manufacturing output in 1987 was valued at approximately £6,351bn. The 7.3% contribution of the Scottish Plastics industry to total Scottish manufacturing output compares with 40.8% for engineering and allied industries; 9.8% for drink and tobacco; 9.7% for food industries; 9.5% for chemicals and man-made fibres; 8.8% for textiles, footwear, leather and clothing; 7.9% for other manufacturing; 3.8% for other minerals and mineral products; and 2.4% for metal manufacture (see figure 5.1). Hence, although the plastics sector is not a dominant part of manufacturing, it does at least have rough parity with other important sectors of Scotland's manufacturing base.

**FIGURE 5.1:
SCOTTISH MANUFACTURING SECTORS, 1987**



SOURCE: Scottish Economic Bulletin, No.42

If one looks at the whole of the SIC 1980 Industry Group class related to the processing of rubber and plastics, 48, it appears to have performed well over the period 1986 to 1988 in terms of large absolute increases in employment, gross value added and gross value added per employee. Inspection of table 5.2 shows that significant growth has occurred in plastics compared to other sectors.

The official statistics available for the Scottish Plastics Industry are sufficient to paint a broad brush picture of the state of the industry, but are sorely lacking in detail that might explain the economic strengths of this sector. The evidence available suggests a prima facie case for this being a sector of importance to the

Scottish economy in terms of a high value added production process, high output per employee and strong growth over the past few years compared to other types of manufacturing activity in Scotland.

TABLE 5.2:
EMPLOYMENT AND GROSS VALUE ADDED IN
MANUFACTURING INDUSTRIES IN SCOTLAND

SIC 1980 INDUS. GROUP CLASS	EMP. '000 1986	EMP. '000 1988	EMP. % Change	Gross Value Added £m 1986	Gross Value Added £m 1988	Gross Value Added % Change	GVA/ emp. £ 1986	GVA/ emp. £ 1988	GVA/ emp. % Change
22	11.2	10.3	-8.0	110.8	338.5	205.5	9912	32737	230.3
23	0.7	0.8	14.3	21.5	22.9	6.5	29918	39447	31.9
31	14.7	15.7	6.8	194.2	249.3	28.4	13227	15866	20.0
32	49.4	39.4	-20.2	732.8	727.6	-0.7	14823	18461	24.5
33	9.1	10.3	13.2	382.4	639.7	67.3	42251	61839	46.4
34	37.4	37.5	2.7	564.8	642.7	13.8	15116	17137	13.4
35	4.7	4.7	0	34.0	114.8	237.6	7252	24544	238.4
37	6.9	6.6	-4.3	114.8	86.9	-24.3	16577	13192	-20.4
41/42	68.9	66.9	-2.9	1317.0	1479.0	12.3	19115	22096	15.6
43	31.1	28.6	-8.0	321.3	382.4	19.0	10322	13383	29.7
44	1.1	1.0	-9.1	13.7	17.1	24.8	13041	16684	27.9
45	25.4	25.9	2.0	232.0	262.1	13.0	9135	10467	14.6
46	12.5	13.4	7.2	143.2	226.9	58.4	11424	16957	48.4
47	32.7	32.7	0	618.6	752.5	21.6	18946	22995	21.4
48	10.5	12.3	17.1	203.6	269.3	32.3	19392	21960	13.2
49	5.2	4.4	-15.4	52.9	70.3	32.9	10257	16079	56.8
TOTAL	381.4	344.9	-9.6	6190.2	15951	157.7	16232	20814	28.2

KEY:

- 22: Metal manufacturing
- 23: Extraction of minerals
- 31: Manufacture of metal goods
- 32: Mechanical engineering
- 33: Manufacture of office machinery and data processing equipment
- 34: Electrical and electronic engineering
- 35: Manufacture of motor vehicles and parts
- 37: Instrument engineering
- 41/42: Food, drink and tobacco manufacturing industries
- 43: Textile industry
- 44: Manufacture of leather and leather goods
- 45: Footwear and clothing industries
- 46: Timber and wooden furniture industries
- 47: Manufacture of paper and paper products; printing and publishing
- 48: Processing of rubber and plastics
- 49: Other manufacturing industries

NOTE:

Some manufacturing industries not detailed here due to a lack of data.

SOURCE: Scottish Economic Bulletin, No.42

5.2 THE SURVEYED FIRMS

The predominant activities of firms in the plastics supply industry by proportion of firms engaged in that activity, are according to the Scottish Development

Agency's "*Register of Plastic Supply Capability in Scotland*" (1989): injection (53.3%); tool maintenance (44.4%); printing (40.0%); fabrication (37.8%); tool-making (35.6%); machining (33.3%); coatings and finishings (17.8%); vacuum forming (15.6%); extrusion (15.6%); compression (12.2%); blow forming (5.6%); and plastic foam mouldings (5.6%). 40.0% of firms offered other facilities for which a breakdown is not available, but which includes such activities as the manufacture of structural foam; dipping; high pressure forming; recycling of contaminated polythene; the manufacture of polythene bags; machine engraving; heatbaking; cutting and creasing; embossing; processing of semi-rigid PVC; rigid acrylics; labelling; hot sealing; design of packaging and bottle closures; signs; cleanroom facilities; modelling and prototyping; and complete design services.

The sample population for the survey was sourced from the SDA's Register which contains a total of 92 companies with a total of 5,558 employees (*employment for two companies in the register was not available*). This section will now discuss how representative the postal questionnaire survey is of firms in this register. A list of the firms that participated in the survey is detailed in appendix A5D.

Table 5.3 below details the participation rates of firms from the targeted survey sampling frame in terms of size by employment. From the overview of the Scottish Plastics industry presented in the previous section, it is clear that the register produced by the Scottish Development Agency cannot have been an exhaustive directory of plastics manufacturing firms in Scotland. Nevertheless, the register does account for 76.5% of employment in the Scottish plastics industry and 45.5% of its firms. The survey carried out for this research project represented 38.8% of employment in this industry and 24.8% of its firms.

From table 5.3, it can be seen that the bulk of employment in the firms covered by the register at approximately 54%, is in the medium category with between 100 and 499 employees/firm inclusive. The medium sized firms represent 18.5% of firms in the register. Although by number of establishments, very small firms (*1-25 employees/firm*) are the dominant category accounting for 51% of the firms in the register, they provide only 10.6% of total employment documented in the register. Even when all the small firm categories are aggregated together, that is all firms with less than 100 employees, it still only accounts for 31.8% of the total employment detailed in the register, although provided by 78.2% of the firms.

TABLE 5.3:
PARTICIPATION RATES OF FIRMS IN SURVEY
FROM SAMPLE POPULATION*

Size of Firm	Emp. Cat.	Firms in register	Firms particip. in survey	Proport. of firms in register	Total emp. in register	Emp/ firm in register	Total emp. in survey	Emp/ firm in survey	emp(sur) emp(reg) as a %
very small	1-25	47 51.0%	26	55.3%	590 10.6%	12.6	383 13.5%	14.7	64.9%
moderat. small	26-50	16 17.4%	10	62.5%	627 11.2%	39.2	379 13.4%	37.9	60.4%
small	51-99	9 9.8%	5	55.6%	555 10.0%	61.7	336 11.9%	67.2	60.5%
medium	100-499	17 18.5%	9	52.9%	3013 53.9%	177.2	1731 61.2%	192.3	57.5%
large	500+	1 1.1%	0	0%	800 14.3%	800.0	0 0%	NA	0%
missing observ.		2 2.2%	0	0%	NA	NA	0 0%	NA	NA
TOTAL		92 100.0%	50	54.3%	5585 100.0%	62.1	2829 100.0%	56.6	50.7%

NOTES:

1. Employment figures are 1988 results published in the Scottish Development Agency's 1989 "Register of Plastics Supply Capability in Scotland".

*Sample population represents all 92 firms detailed in Register (see note 1).

The register indicated that those firms that participated in the survey provided employment in 1988 of 2,829, representing about 51% of the total employment of firms listed in the register. In each of the firm size categories, with the exception of the "large" category, the survey provides a reasonably representative picture of the population of firms listed in the register, with in most cases a response rate for each firm-size category of around 60% being achieved in terms of total employment and the number of firms. This assertion is supported by comparing the average firm sizes obtained from the register listings of firms with those obtained for the survey participants, which in most cases were reasonably close to within +/-17%.

Table 5.4 demonstrates the distribution of employment and firms by region in the plastics supply industry both for firms with listings in the SDA's Register and for the subsequent survey that was carried out of firms detailed in the register. The table also documents the average size of firms by region. The table is intended to demonstrate firstly where employment and firms in the plastics industry are distributed in Scotland and secondly, how representative the survey is of the industry using as a basis the snapshot presented by the SDA's register in terms of firm sizes and distributions of firms by region.

TABLE 5.4:
DISTRIBUTION OF EMPLOYMENT AND FIRMS IN THE
SCOTTISH PLASTICS SUPPLY INDUSTRY BY REGION IN 1988

REGION	No. of Firms (Register)	Total Emp. (Register)	Average firm size (Register)	No. of Firms (Survey)	Total Emp. (Survey)	Average firm size (Survey)
STRATHCLYDE: Glasgow	36 39.1%	1864 33.4%	51.8	19 38.0% *52.8%	1195 42.2% **64.1%	62.9
STRATHCLYDE: Rural areas	11 12.0%	1441 25.8%	131.0	5 10.0% *45.5%	450 15.9% **31.2%	90.0
STRATHCLYDE: TOTAL	47 51.1%	3305 59.2%	70.3	24 48.0% *51.1%	1645 58.1% **49.8	68.5
LOTHIAN: Edinburgh	4 4.3%	292 5.2%	73.0	2 4.0% *50.0%	162 5.7% **55.5%	81.0
LOTHIAN: Ex-Edinburgh	8 8.7%	630 11.3%	78.8	4 8.0% *50.0%	270 9.5% **42.9%	67.5
LOTHIAN: TOTAL	12 13.0%	922 16.5%	76.8	6 12.0% *50.0%	432 15.3% **46.9	72.0
DUMFRIES & GALLOWAY	1 1.1%	20 0.4%	20.0	1 2.0% *100.0%	20 0.7% **100.0%	20.0
BORDERS	6 6.5%	397 7.1%	66.2	4 8.0% *66.7%	383 13.5% **96.5%	95.8
FIFE	11 12.0%	595 10.7%	54.1	9 18.0% *81.8%	180 6.4% **30.3%	20.0
TAYSIDE	5 5.4%	190 3.4%	38.0	4 8.0% *80.0%	183 6.5% **96.3%	45.8
CENTRAL	3 3.3%	25 0.4%	8.3	1 2.0% *33.3%	6 0.2% **24.0%	6.0
GRAMPIAN	1 1.1%	61 1.1%	61.0	0 0% *0%	0 0% **0%	NA
HIGHLAND	2 2.2%	24 0.4%	12.0	1 2.0% 50.0%	20 0.7% **83.3%	20.0
TOTAL	92 100.0%	5585 100.0%	62.1	50 100.0% *54.3%	2829 100.0% **50.7%	56.6

NOTES:

1. Register refers to SDA Register (1989), which was the basis for the survey sampling frame.
 2. "Survey" refers to firms listed in register that participated in survey.
 3. Average firm size in terms of jobs.
- *Proportion of firms in register for category concerned.
**Proportion of jobs in register for category concerned.

Generally, the survey information appears to be a fair representation of the spatial distribution of employment and firms in the plastics supply industry throughout Scotland, with perhaps a few exceptions. For example, the survey fails to reflect the extent of non-metropolitan Glasgow and Fife share of employment, while

conversely, exaggerating Borders and Tayside's share of employment. In terms of the relative share of firms between the regions, it appears that the survey has been relatively accurate in reflecting the proportional distribution of firms.

5.3 GROWTH PERFORMANCE OF FIRMS

This section discusses the growth performance of the firms that participated in the postal questionnaire survey. Three main areas are discussed: employment change; financial performance; and change in markets. The financial performance of firms is discussed according to four primary indicators, which are, change in: annual sales; annual profits; assets; and annual capital employed. Where the figures permitted, in-depth analysis was conducted using various derived financial performance measures such as the return on capital employed, sales/employee and profits/employee. The change in markets was investigated principally for the purpose of seeing whether growth in this sector was associated with an increased share of output by export markets. The latter part of this section examines and discusses the survey's findings of management's attitudes to growth. Section 5.3 concludes with an examination of the methods firms used to achieve growth.

5.3.1 Employment

Whilst the general trend for the sector was one of strong growth, the less skilled segment of the workforce has benefited the most (*increasing from 42.8% to 63.1%*) at the expense of the comparative shares of other occupations in the industry, such as the managerial and executive, skilled technical, clerical and administrative and skilled manual employees' occupations. However, it should be noted that in absolute terms, all the occupational groups experienced significant increases, mainly due to the very substantial industry-wide increases in employment (*refer to appendix A5B.4*).

The nature of growth in employment in the plastics supply industry has been examined in greater detail in tables 5.5 and 5.6. Table 5.5 studies employment growth in part-time and full-time employment over the period 1988 to 1991 and breaks down growth according to firms whose total full-time employment expanded by more than 50%; firms that experienced moderate growth (*from 26 to 50%*); firms whose growth was stable or slight (*from 1 to 25%*); and firms whose employment did not change or declined (*0% or less*). Only 36 firms (*72% of the sample*) provided sufficient details for this part of the analysis to be conducted. Growth in employment is examined according to two measures: firstly, the average absolute increase in

employment per firm for each particular growth category; and secondly, the average increase in employment per firm expressed as a percentage of the average firm's original employment in 1988. This format of analysis was similarly carried out in table 5.6, except that it provided a breakdown of change in employment by occupation for full-time employment.

TABLE 5.5:
GROWTH IN EMPLOYMENT FROM 1988 TO 1991

Employment Growth	No. of Firms (% of sample)	Change: Total Emp/firm Part-time	Change: Total Emp/firm Full-time
High >50%	5 (10%)	5.6 (34.8%)	33.2 (337.3%)
Moderate 26-50%	6 (12%)	5.8 (0.8%)	17.4 (39.3%)
Stable 1-25%	14 (28%)	1.2 (31.8%)	8.3 (16.0%)
Declining 0% <	11 (22%)	-0.1 (-0.1%)	-4.5 (-19.4%)

NOTES:

1. Based on 36 observations
2. Employment change measured in absolute terms expressed as an average increase in employees per firm for each respective employment growth category.
3. Percentages in brackets represent the average increases in employment per firm, expressed as a percentage.

High growth firms represented only 10% of the survey sample; those of moderate growth, 12%; those of slight or stable growth, 28%; and those with no growth or declining employment, 22%. The increase in full-time employment per firm for high growth firms, was 33.2 employees/firm (*a 337.3% average increase/firm*); 17.4 employees/firm (*39.3% average increase/firm*) for moderate growth firms; 8.3 employees/firm (*16.0% average increase/firm*) for stable or slight growth firms; and an average loss of 4.5 employees/firm (*average decline /firm of -19.4%*) for firms with no employment or declining growth. The largest absolute increase in full-time employment amongst the high growth firms was 109 and 26 for part-time employment. Many firms did not have significant part-time employment, which was particularly the case with firms with poor employment growth performance. It appears that expansion in employment for firms was largely channelled into full-time employment at between 3 and 8 times the rate of part-time employment growth, while with the declining firms, it was mainly full-time employment that was pared back, not part-time employment.

The main points to be derived from examining change in full-time employment by occupation, are twofold. Firstly, whatever the dynamic state of a

firm's economic fortunes, it seems to be that the less skilled manual occupational group is the most affected in terms of absolute changes in the numbers of employees. For expanding firms, the increase in the numbers of less skilled manual workers is at least fivefold that of any other occupational group, although in percentage terms, the increase of full-time employment is not especially outstanding when compared to the other occupational groups. Secondly, it is interesting that in the high growth category of firms, the skilled technical occupational group experienced the largest average increase in employment at 127% but in the moderate growth category, it was lowest at 6%. Amongst the slight or stable growth category of firms, this occupational group registered the largest average increase in employment per firm at 62%. Amongst declining firms, the skilled technical occupational group appeared to be less severely hit than any other occupational group (*a decline of 11%*), with the exception of the clerical/administrative group.

When it comes to examining part-time employment, the only occupational group to be significantly represented in all growth categories of firms, was the unskilled manual group. Surprisingly, the largest proportional increase in this occupational group at 35%, was in the stable growth category. The largest absolute increase in employment for unskilled manual employees was in the moderate growth category with 6.6 employees/firm.

The management/executive occupational and clerical/administrative occupational groups were the only other occupational groups to demonstrate significant part-time employment growth in the high growth category of firms with increases of 0.4 employees/firm (*a 20% increase*) and 0.2 employees/firm (*a 16.6% increase*) respectively.

Generally though, changes over the 1988-91 period to the pattern of part-time employment appeared to be fairly minimal compared to the changes that the pattern of full-time employment underwent. A qualification for the foregoing analysis is that it would have no doubt been considerably enhanced if more firms had participated in the survey. With only 36 firms providing enough detailed information about employment for this section of the survey, the data was not sufficiently comprehensive to arrive at definitive conclusions. Notwithstanding this proviso, data does provide evidence of a sector of the economy that is performing well in terms of job creation.

TABLE 5.6:
GROWTH IN FULL-TIME EMPLOYMENT BY OCCUPATION 1988-1991

Employment Growth Full-time	No. of Firms (% of sample)	Change: Managerial & Executive: Employees per firm; % change/firm	Change: Skilled technical: Employees per firm; % change/firm	Change: Clerical/ Administrative Employees per firm; % change/firm	Change: Skilled manual: Employees per firm; % change/firm	Change: Less skilled manual: Employees per firm; % change/firm
High >50%	5 (10%)	0.4 18.7%	1.9 126.7%	1.4 66.7%	0.6 50.0%	28.9 82.2%
Moderate 26-50%	6 (12%)	1.3 43.3%	1.3 6.3%	1.7 25.0%	1.3 17.5%	11.8 37.0%
Stable 1-25%	14 (28%)	0.4 9.0%	1.3 61.5%	0.3 0.9%	1.1 7.9%	5.2 16.2%
Declining 0% or less	11 (22%)	-0.5 -21.1%	-0.2 -11.3%	-0.9 -8.6%	-0.6 -17.3%	-2.3 -12.3%

NOTES:

1. Based on 36 observations
2. Employment change measured in absolute terms expressed as an average increase in employees per firm for each respective employment growth category.
3. Percentages represent the average increases in employment per firm, expressed as a percentage.

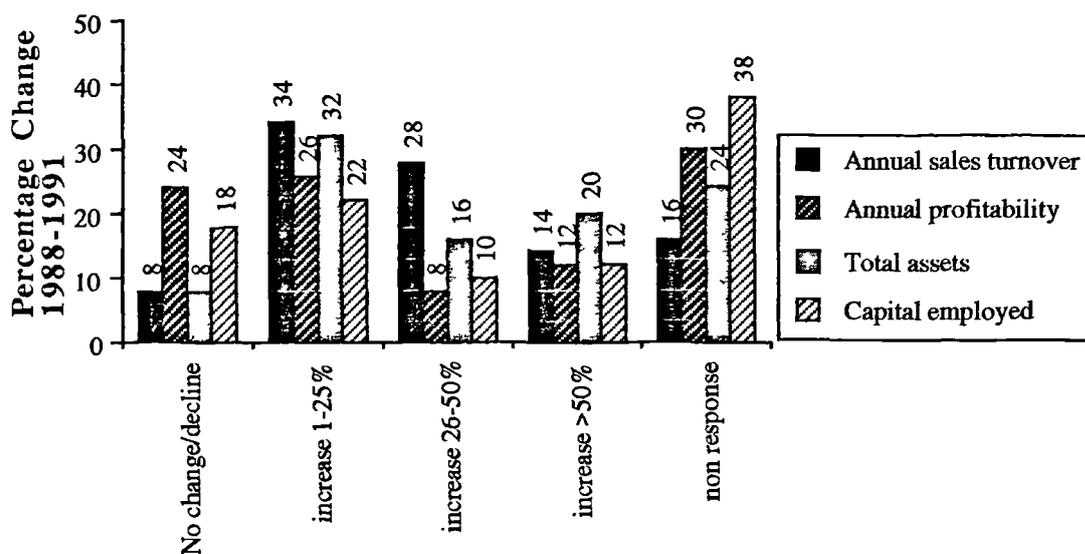
5.3.2 Financial Performance

The four primary growth indicators of financial performance that the survey investigated were change (*in percentage terms*) during the period 1988-91 of annual sales turnover, annual profitability, total assets and annual capital employed. In addition, firms were asked to divulge actual monetary values for 1991 for sales turnover, profitability, assets and capital employed. Respondents were given a choice of ten ranges of percentage bands to suit the change in their company's performance over the 1988-91 period, which for the purposes of this analysis, was collapsed into four bands, namely no change or decline (*i.e. 0% or contraction*); an increase of 1-25%; an increase of 26-50%; and an increase of >50%. The results of this analysis have been presented in figure 5.2 as a column graph of these four primary growth indicators.

For firms to keep pace with growth in the national economy over the period 1988-1991, they would have had to have grown by around 8% (*i.e. 2.5% per annum*). Using the national growth rate as a guideline, it seems reasonable to treat an increase in any of these financial performance indicators of 1-25% as representing slight growth; of 26-50% as representing moderate growth; and of more than 50% representing fast growth. On this basis, the proportion of firms in the plastics supply

sector that have grown significantly during 1988-1991 was 42% by the financial performance measure of annual sales turnover; 20% by the measure of annual profitability; 36% by the measure of total assets; and 22% by the measure of annual capital employed. This analysis does serve to draw attention to how inconsistent these financial performance indicators are in detailing changes in firms' financial performance.

FIGURE 5.2:
GROWTH PERFORMANCE OF PLASTICS SUPPLY INDUSTRY
BY TURNOVER, PROFITS, ASSETS AND CAPITAL EMPLOYED FOR 1988-91



Important measures of how well a firm is performing, in terms of efficiency and productivity, can be procured by comparing over a period of time (*in this case from 1988-91*), the changes occurring in the Return on Capital Employed (ROCE), the annual sales turnover per employee, the annual profitability per employee, the annual assets per employee and the Annual Capital Employed (ACE) per employee. This form of analysis was carried out for as many firms as possible where data permitted, but due to the commercially sensitive nature of the information being provided, non-response rates were high, ranging from 42% up to 74%. The results have been tabulated below in table 5.7.

Perhaps the most striking feature of the analysis detailed in table 5.7, is the enormous variation of results that these five financial performance indicators produce. Some firms appear to have experienced potentially disastrous declines in productivity and efficiency of around 90% while other firms have experienced meteoric increases of up to 440% in one instance. Response rates admittedly were

poor, but amongst those firms that responded, the modal values generated suggest that with the exception of profits per employee, at least half of the firms are stable or growing.

TABLE 5.7:
SUMMARY OF CHANGES IN FINANCIAL PERFORMANCE INDICATORS OF
FIRMS DURING 1988-91 PERIOD

Financial Indicator	Average	Standard deviation	Highest value	Lowest value	Modal value	Number of firms	% of firms growing*
ROCE	3.4%	20.1%	73.9%	-32.5%	0.0%	17	10.0%
Sales/emp	12.2%	34.0%	77.5%	-76.1%	4.8%	29	34.0%
Profit/emp	38.2%	134.8%	440.0%	-82.9%	-4.5%	17	16.0%
Assets/emp	17.5%	45.2%	112.3%	-92.3%	20.1%	19	24.0%
ACE/emp	19.1%	61.1%	127.3%	-88.0%	10.4%	13	16.0%

NOTES:

1. Survey sample population of 50 firms.

2. Change in financial indicator expressed as a proportion of 1988 value.

*Refers to proportion of sample population and does not take into account the very high non-response rates.

ROCE: Return on capital employed.

ACE/emp: Annual capital employed per employee.

Sales/emp: Annual total sales per employee.

Profit/emp: Annual profitability per employee.

Assets/emp: Assets per employee.

The financial performance indicators detailed in table 5.7 produced averages for the firms surveyed based on aggregated data. In order to check how consistent these financial performance indicators are with each other, it is best to examine them on a firm by firm basis. This has been done for the 13 firms that provided sufficient data to allow calculation of each performance indicator. The firms were then ranked in descending order according to their change in sales. The results of this exercise are detailed in table 5.8.

The firm that experienced the largest percentage change in annual sales turnover (201-300%) with annual sales of £3.878m per annum, was actually the worst performer in terms of the percentage change in sales per employee (-76%), profits per employee (-83%), and annual capital employed per employee (-88%), although this firm did produce the largest increase in return on capital employed of 8.7%. This would suggest that growth in employment has been at the expense of the firm's financial performance.

The firm ranked lowest in terms of percentage change in sales (0%), with annual sales of £1.75m, performed poorly in terms of the measures of change in sales per employee (-8.8%), assets per employee (-20.2%), and annual capital

employed per employee (-20.2%), but performed satisfactorily when assessed by the measures of change in ROCE (a 1.8% increase), and profits per employee (a 2.6% increase).

TABLE 5.8:
RANKINGS OF FIRMS BY GROWTH IN SALES WITH COMPARATIVE FINANCIAL PERFORMANCE INDICATORS FOR 1988-91 PERIOD

%Change in ROCE	%Change: Sales/Emp	%Change: Profits/Emp	%Change: Assets/Emp	%Change: ACE/Emp	%Change in Sales	Annual Sales 1991 (£m)
8.7	-76.1	-82.9	-92.3	-88.0	201-300	3.878
0	40.0	10.4	40.0	10.4	51-100	0.168
-1.7	40.0	-20.0	10.4	10.4	51-100	4.500
0	17.2	17.2	112.3	17.2	26-50	4.200
8.4	77.4	350.0	44.6	125.0	26-50	0.260
-10.1	20.1	-13.0	20.1	20.1	26-50	1.800
-32.5	25.5	25.5	2.3	127.3	26-50	1.300
0	1.7	28.9	84.2	28.9	26-50	7.000
0	-19.9	-34.7	-19.9	-34.7	26-50	0.785
0	-22.1	-22.1	-22.1	-22.1	1-25	0.800
-4.0	-19.6	-64.3	78.6	78.6	1-25	0.205
0	-4.5	-4.5	-15.2	-4.5	1-25	1.000
1.8	-8.8	2.6	-20.2	-20.2	0	1.750

NOTES:

1. Only 13 firms out of the 50 firms surveyed provided full figures on employment, sales, profits, assets and capital employed to allow comparisons of how firms fared for all the main financial performance indicators.

2. Change in financial indicator expressed as a proportion of 1988 value.

ROCE: Return on capital employed.

ACE/emp: Annual capital employed per employee.

Sales/emp: Annual total sales per employee.

Profit/emp: Annual profitability per employee.

Assets/emp: Assets per employee.

The firm with the largest sales turnover in this group, of £7.0m per annum, performed well in nearly all areas. It increased its sales by between 26 and 50% inclusive; increased its annual sales turnover per employee by 1.7%; increased its profits per employee by 28.9%; increased its assets per employee by 84.2%; and increased its annual capital employed by 28.9%. There was no change in the firm's ROCE.

The firm that produced the largest increase in annual sales turnover per employee and profits per employee at 77.4% and 350% respectively, only had an annual sales turnover of £260,000. It also posted the second highest ROCE in this group of 8.4% and performed well in most other respects, increasing assets per employee by 44.6%, annual capital employed per employee by 125% and sales by between 26 and 50% inclusive.

The firm that turned in the largest increase in annual capital employed per employee at 127.3% with an annual sales turnover of £1.3m, rather surprisingly fared the worst in this group when it came to its change in ROCE (*a 33.2% decline*). However, it performed strongly when assessed against the other indicators increasing its sales per employee by 25.5%, its profits per employee by 2.3% and its sales by between 26 and 50% inclusive.

This analysis has demonstrated that no single measure in isolation can be relied upon to produce an accurate assessment of a company's growth performance. It would seem that several indicators are required to produce a reasonably reliable guide towards confidently assessing a company's current financial well-being and its potential to grow in the future. Some of the inconsistencies in table 5.8 might also be due to several respondents misinterpreting the questions.

5.3.3 Markets

Growth firms (*as defined by the measures of increase in employment, increase in sales and increase in profits over the period 1988-91*) were cross-tabulated with change in market share by location in table 5.9.

It appears from table 5.9, that by whatever growth indicator firms are assessed by, that the general pattern in markets for the plastics supply industry, has over the period 1988-91, shifted marginally away from local Scottish markets, mainly towards world markets and to a lesser extent, other UK markets. Only two categories of firms (*stable/declining and increasing by 1-25%*), when assessed against all three growth indicators of change in employment, sales and profits, demonstrated a consistent shift away from Scottish markets to either the remaining UK markets or world markets. The pattern of changing market share for firms that expanded by more than 25% was not consistent across the three main measures of growth and provides weak support for the hypothesis that growth in the industry is associated with a shift away from a reliance on Scottish markets into primarily world markets and to a lesser extent, other UK markets.

5.3.4 Management's Attitude to Growth

The survey investigated management's attitudes to growth, their perceptions of growth during the past three years and their expectations of growth for the next three years. The survey results are detailed in figures 5.3, 5.4 and 5.5.

TABLE 5.9:
CHANGE IN MARKET SHARE BY LOCATION BY CHANGES IN
EMPLOYMENT, ANNUAL SALES AND ANNUAL PROFITS

<u>CHANGE IN EMPLOYMENT</u>	<u>MAGNITUDE OF CHANGE</u>	<u>SCOTLAND</u>	<u>REST OF UK</u>	<u>REST OF WORLD</u>	<u>NUMBER OF FIRMS</u>
	no change or decrease	-5.0%	+5.0%	0	7
	increase of 1-25%	-0.3%	-5.1%	+5.4%	11
	increase of 26-50%	-7.7%	+5.5%	+2.2%	6
	increase of >50%	+1.7%	-1.7%	0	3
	average change	-2.9%	+0.2%	+2.7%	27
<u>CHANGE IN SALES</u>					
	no change or decrease	-9.3%	+5.0%	+4.3%	4
	increase of 1-25%	-8.4%	+5.1%	+3.3%	14
	increase of 26-50%	+5.5%	-5.5%	0	12
	increase of >50%	0	-1.3%	+1.3%	4
	average change	-2.6%	+0.6%	+2.0%	34
<u>CHANGE IN PROFITS</u>					
	no change or decrease	-4.5%	+3.0%	+1.5%	8
	increase of 1-25%	-5.9%	+1.0%	+4.9%	12
	increase of 26-50%	+5.0%	-6.5%	+1.5%	4
	increase of >50%	-2.5%	+2.5%	0	4
	average change	-3.5%	+0.7%	+2.8%	28

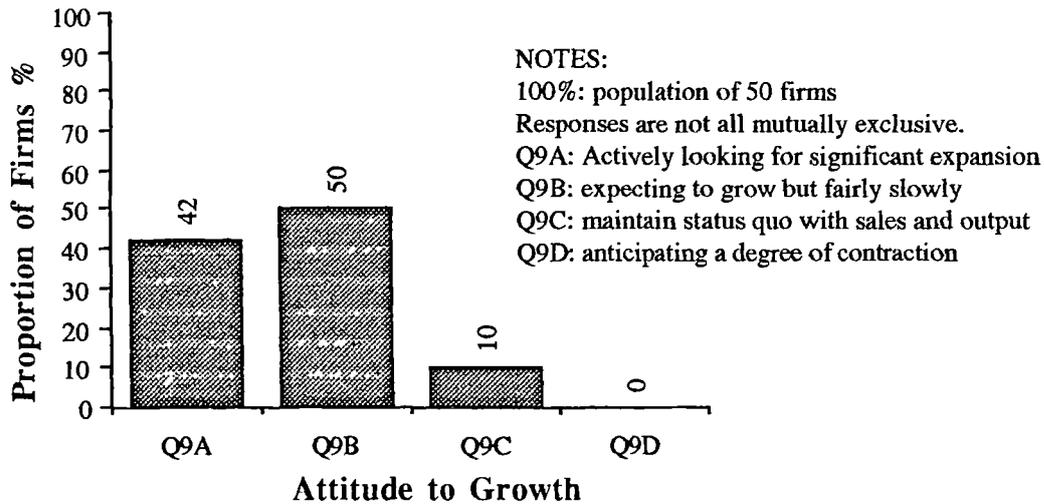
NOTES:

- 1.The magnitude of change refers to growth over the 1988 figures posted by firms expressed as a percentage.
- 2.The change in market share for the 1988-91 period is simply in terms of the difference in percentage points between the 1988 and 1991 market shares for particular market segments.
- 3.The survey sample had a total population of 50 firms.

When respondents were asked directly what their firm's attitude to growth was (*see figure 5.3*), 42% stated that they were actively looking for significant expansion, 50% expected that they were expecting to grow but fairly slowly, and 10% sought to maintain the status quo with sales and output. None of the firms admitted to anticipating a degree of contraction, in spite of the fact that the UK economy is in the grips of one of its longest and most severe recessions in modern times. It should be noted that some of the responses given were not mutually exclusive.

Respondents were asked to consider their perceptions of their firm's growth performance during the past three years according to the yardsticks of production capacity, employment and sales. The results are detailed in figure 5.4. During the past three years, there was considerable variation amongst the three measures in indicating the proportion of firms that were contracting, with 2% declining by the measure of production capacity; 14% declining by employment and 6% declining by sales. The proportion of stable/no growth firms was by the measure of production capacity 24%, but 30% by employment and 20% by sales. Most managers considered their firms to have experienced steady slow growth during the past three

FIGURE 5.3:
MANAGEMENT'S ATTITUDES TO GROWTH



years which was the case for 56% of firms by the measure of production capacity, 42% by employment and 48% by sales. Firms whose managers said that they experienced quick controlled growth were in the minority, but significant nonetheless with 14% in this category by the measure of production capacity, 10% by employment, and 20% by sales. The proportion of firms experiencing rapid ad hoc growth was minimal, with only one firm having claimed to have grown in this manner by the measures of production capacity and sales. The analysis in figure 5.4 demonstrates clearly the variability of outcomes when analysing change in firms using the measures of changes in production capacity, employment and sales. It also demonstrates that fast growth amongst firms, while not a rare occurrence, is clearly not the average experience of firms in the plastics supply industry.

In a follow-up question to respondents' perceptions of their firms' growth performance during the past three years, they were asked what their expectations of growth for their firms were for the next three years. Predictably, none gave the doomsday prognosis that they expected to decline rapidly, although one firm (2%) did expect its employment to decline slightly. The proportion of firms that did not expect change over the next three years was 16% by the measure of production capacity, 30% by employment and 12% by sales. Most firms however, appeared to be cautiously optimistic of the future, with the proportion of firms expecting steady slow growth numbering 70% by the measure of production capacity, 62% by employment and 68% by sales. Firms expecting quick controlled growth were in the minority but

FIGURE 5.4:
MANAGEMENT'S PERCEPTIONS OF GROWTH OVER THE PAST 3 YEARS IN
TERMS OF PRODUCTION CAPACITY, EMPLOYMENT AND SALES

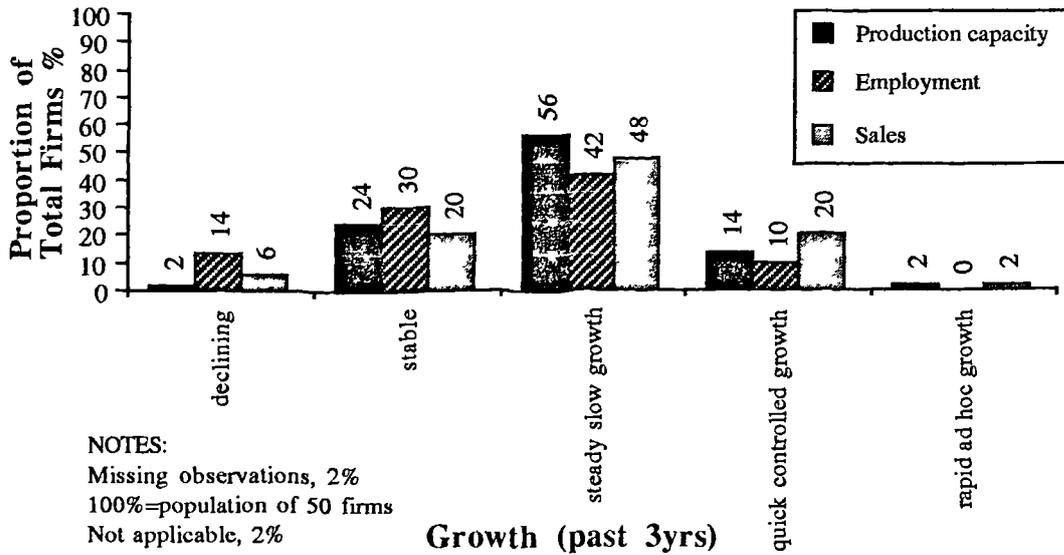
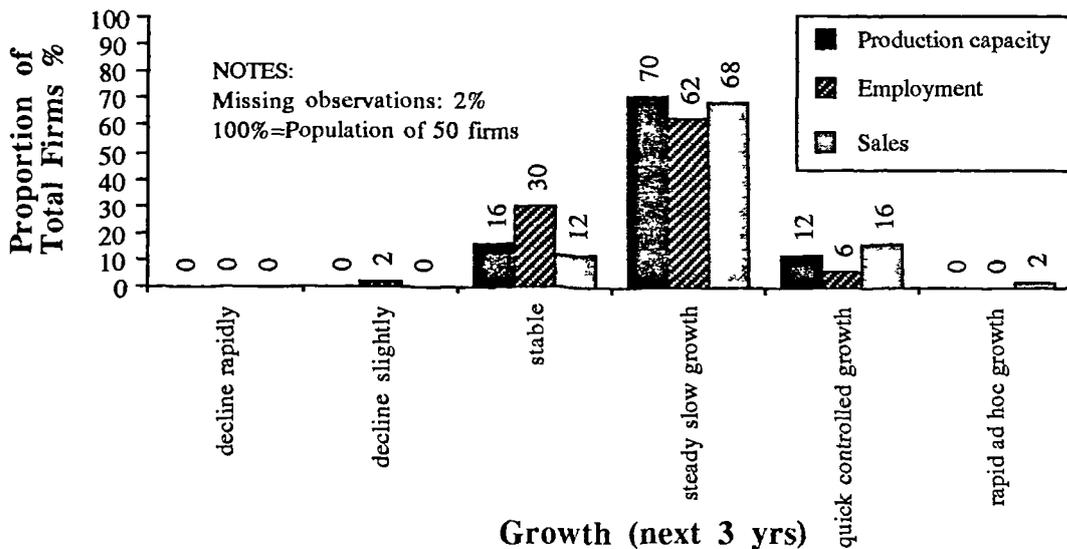


FIGURE 5.5:
MANAGEMENT'S EXPECTATIONS OF GROWTH FOR THE NEXT 3 YEARS
IN TERMS OF PRODUCTION CAPACITY, EMPLOYMENT AND SALES



nevertheless significant, with 12% of firms expecting this growth scenario by the measure of production capacity, 6% by the measure of employment and 16% by the measure of sales. Only one firm expected rapid growth over the next three years and that was just by the measure of sales. What is interesting about this analysis, is that by the measure of employment change, firms are much more circumspect about their growth prospects than they are by the measures of changes in production capacity and

sales. It may be that in an industry of high capital investment and constantly improving production technology, that firms see growth coming from improved productivity and production efficiency and not necessarily increased employment. It is also interesting to note that the measures of growth, production capacity and sales, seem to be roughly in agreement with each other, in both figures 5.4 and 5.5.

TABLE 5.10:
GROWTH IN PAST 3 YEARS VERSUS GROWTH NEXT 3 YEARS

FUTURE↓ PRODUCTION CAPACITY	PAST EXPERIENCE→	STAGNANT/ DECLINE(firms)	GROWING (firms)	TOTAL (firms)	CHISQUARE
STAGNANT/DECLINE (firms)		4	4	8	
GROWING (firms)		8	32	40	
TOTAL (firms)		12	36	48	1.800
EMPLOYMENT					
STAGNANT/DECLINE (firms)		13	3	16	
GROWING (firms)		9	23	32	
TOTAL (firms)		22	26	48	10.080
SALES					
STAGNANT/DECLINE (firms)		3	3	6	
GROWING (firms)		9	33	42	
TOTAL (firms)		12	36	48	1.016

NOTE:

Growth in past 3 years refers to 1988-91 and like growth expectations for the next 3 years, is based on management's view

One of the objectives behind asking firms what management's perception of growth over the period 1988-91 and management's expectation of growth for the next three years, was to see if there was any association behind a firm's success in the past and its expectations of future success according to the measures of change in production capacity, employment and sales.

Firms were categorised into two simplified groups, one for stable/declining firms and another for firms that were growing. Then simple cross-tabulations of firms' perceptions of historical growth for the previous three years versus firms' expectations of growth, were carried out for the measures of change in production capacity, employment and sales. These cross-tabulations were then tested for levels of statistical significance, using the chi-squared test. Table 5.10 details the results of that exercise. A null hypothesis was adopted along the lines that no association exists between firms' perceptions of past growth and expectations of future growth. From table 5.10, it is clear that only the measure of employment change, which achieved a chi-squared score of 10.08 placing it at the 0.005 level of significance, provides conclusive statistical support of there being some relationship

existing between firms' that perceive themselves to have grown during the past three years and firms with growth expectations for the next three years. For the measures of changes in production capacity and sales, the chi-squared test for significance provided only weak support for such an association, failing to reach the 0.05 level of significance.

5.3.5 Nature of Growth

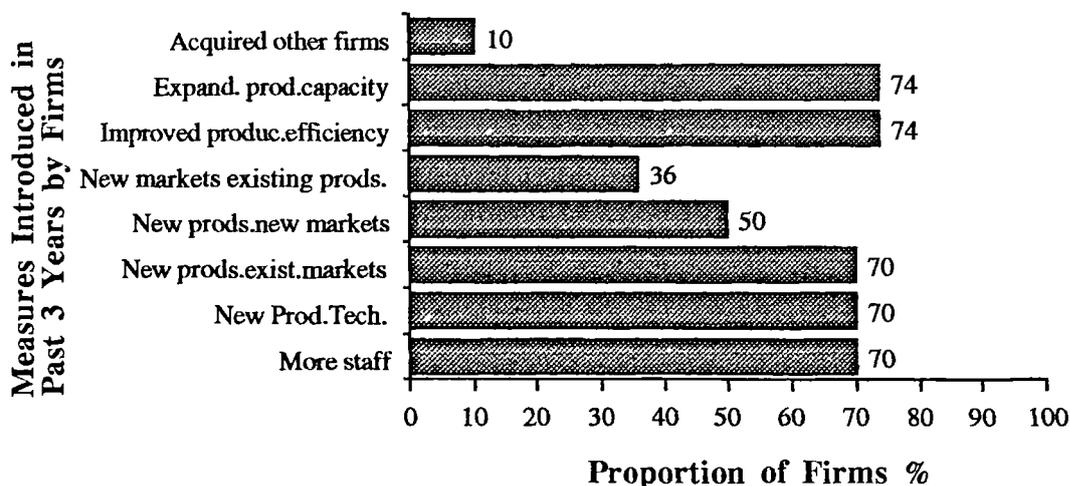
Eight approaches were isolated by which firms could expand their operations for the purposes of increasing turnover and/or profitability. The most conventional methods of expansion are simply to employ more staff, expand production capacity, improve production efficiency or acquire other businesses. More risky for firms is the introduction of new production techniques, new products or new markets. Most firms from the survey data appeared to be actively pursuing growth strategies, although only a fraction on these firms appear to be fortunate to convert their efforts into tangible growth in the form of increased sales or improved profitability. Figure 5.6 details graphically the methods of growth pursued by firms in the plastics supply industry over the past three years. During the period 1988-91, the most popular growth strategies pursued by firms were to expand production capacity and improve production efficiency, with 74% of firms adopting this approach. The next most popular growth strategies by 70% of firms were to introduce new products into existing markets, new production techniques and employ more staff. Other strategies pursued included introducing new products into new markets (50% of firms) and creating new markets for existing products (36% of firms). Acquiring other firms was the least popular strategy: five firms (10%) claimed to have undertaken this approach.

5.4 EXPLAINING GROWTH IN THE SECTOR

So far this chapter has presented an overview of the Scottish plastics supply sector and discussed the growth performance of the surveyed firms. This section analyses and interprets the postal questionnaire and case study survey results for the purposes of explaining why some firms appear to have successfully grown. The first part of this analysis simply investigates general factors and issues that may be associated with growth, while the second and third parts investigate it within the analytical framework of Porter's model (1990) of competitive advantage. Two approaches were taken in analysing Porter's model, one quantitative and the other qualitative. The first approach was to conduct chi-squared tests for statistical significance of associations between firm growth and factors or issues asked in the

postal questionnaire survey relevant to Porter's model (*refer to question 12 of the questionnaire in appendix A4A*), while the second approach selected six case studies of growth firms and analysed them on a firm by firm basis.

FIGURE 5.6:
METHOD OF GROWTH FOR FIRMS OVER THE PAST 3 YEARS



NOTES:

1. Missing observations: 4%
2. 100% = population of 50 firms

5.4.1 Factors and Issues Associated with Growth

This section investigates and interprets from the survey data if there are any general factors associated with growth. Three basic growth indicators have been selected covering the period from 1988 to 1991 inclusive, namely, change in employment, change in sales turnover and change in profitability. A growth firm is defined as one that has changed by more than 25% over the period 1988 to 1991 according to the aforementioned growth indicators. Firms that grew by 25% or less were treated as firms that had remained stable or declined. The dichotomy of stable/declining and growth firms were then cross-tabulated with as many characteristics of firms as possible, with the objective of discovering a factor or issue unique to growth firms. The factors/issues that were cross-tabulated with the three basic growth indicators are listed below:

1. Company characteristics: age; legal form; management type; and ownership.
2. Personal characteristics of management: age; educational background; and tenure as manager.
3. Motivations of management: business objectives; and attitudes to growth.

4. Method of attaining growth.
5. Sources of development capital.
6. Sources of assistance.
7. Location of competitors.
8. Location of markets.

Most of the tables for these cross-tabulations are documented in appendix A5A. Tests for statistical significance of an association between growth by each of the growth indicators and the abovementioned variables were also conducted and these incorporated into the tables containing the various cross-tabulations. Because of the limited number of cases, cross-tabulations were kept as simple as possible involving only two categories of growth and two categories of the dependent variable in each instance. Few of the chi-squared scores approached 3.841 for the 0.05 level of significance, which does not provide strong support for simple growth determinants when examined independently. However, all cross-tabulations with chi-squared scores of 1.000 (*the 0.3 level of significance*) or more have been presented, although scores less than 2.7 are of weak significance.

The cross-tabulations that yielded even weak statistically significant relationships are detailed below in table 5.11. There are a total of 17 cross-tabulations whose chi-squared scores for either one or more of the growth measures of employment, sales or profits, suggested the weak possibility of a relationship existing between firm growth and variables such as markets, company age, methods of growth, the influence of owners in management, whether the firm was indigenous to Scotland, the location of competitors, type of management control, usefulness of advice and the importance of various business objectives. The cross-tabulations included in table 5.11 all have a chi-squared score for at least one measure of growth, of at least 1.000. However, there were only six cross-tabulations (*refer to tables 5.12 through to 5.17 inclusive*) with a statistically significant relationship at the 0.05 level of significance or better, between growth and the variable in question, which indicated that growth was synonymous with: a high concentration of markets in Scotland (*i.e. greater than 33%*); younger firms (*less than 10 years old*); companies that chose expansion through greater employment (*an obvious result that was to be expected*); managers without tertiary education; companies that chose expansion through enlarged production capacity; and expansion through acquisition of other firms. Out of these relationships, the most interesting are the apparent importance of markets concentrated

TABLE 5.11:
SUMMARY OF ASSOCIATIONS WITH GROWTH
WITH SOME STATISTICAL SIGNIFICANCE

NATURE OF RELATIONSHIP IN CROSS-TABULATION: HIGH GROWTH SYNONYMOUS WITH:	Table in Appd.	Rank of Chisq	Emp. Chisq. Score	Emp. no. of firms	Sales Chisq. Score	Sales no. of firms	Profits Chisq. Score	Profits no. of firms
*High concentration of markets in Scotland (>33%)	text	1	0.0	28	8.2	34	0.2	28
*Young company age (<10yrs)	text	2	6.0	28	1.0	34	0.1	29
*Expansion through employment	text	3	4.5	35	0.6	42	0.0	35
*Managers without tertiary education	text	4	0.0	35	0.0	41	4.0	34
*Expansion of production capacity	text	5	3.8	35	0.2	42	0.0	35
*Acquisition of other firms	text	5	3.8	35	0.0	42	0.0	35
*Owners involved in strategic management	A5.4	6	3.7	21	0.7	24	0.2	21
*Ownership outwith Scotland	A5.3	7	0.0	35	3.3	42	0.6	35
*Not developing new markets with existing products	A5.21	8	3.0	25	0.1	42	0.0	35
*Low prop. of markets located in rest of UK (less than 34%)	A5.39	9	0.1	28	2.8	34	0.0	28
*Management employed by Owners	A5.2	10	2.4	33	0.0	38	0.6	31
*Usefulness of banks(By emp):	A5.34	11		20	1.6	26	0.7	23
*Uselessness of banks(By sales):			1.5					
*Competitors in rest of UK (>33%)	A5.37	12	0.6	34	1.4	41	0.3	35
*Competitors in rest of world (>33%)	A5.38	12	0.9	34	1.4	41	0.2	35
*Uselessness of Enterprise Initiative	A5.32	13	1.3	10	0.1	13	0.5	12
*Low importance of creating innovative products	A5.14	14	0.0	33	0.7	40	1.2	34
*Not introducing new products into existing markets	A5.19	15	1.2	35	0.1	42	0.1	35
*Introducing new products into new markets	A5.20	16	0.1	35	0.9	42	1.0	35

*See appendix A5A for full cross-tabulation.

NOTE:

1. Growth firm is defined as one that has changed by more than 25% over the period 1988-1991 according to one of the growth indicators of employment, profitability and sales turnover.

in Scotland to growth firms (*possibly due to the deepening recession in the rest of Britain*); the fact that growth is associated with younger firms; and that growth is associated with expansion through the acquisition of other firms. The possible implications of these findings are firstly that the industry seems to be strongly localised in Scotland with regard to markets; that once firms attain maturity (*at 10 years or older*), their growth slows; and that growth through firm acquisition suggests firms that are not particularly dynamic with their products and/or services, since they wish to utilise their resources to eliminate the competition whose products cannot be too dissimilar to their own.

The remaining associations with growth investigated in table 5.11 are interesting because of the themes that they raise, but unfortunately it must be cautioned that their chi-squared scores are not high enough for these associations to be definitive in statistical terms, at least by the criterion of the 0.05 level of significance. Four issues come out of the remaining cross-tabulations which are:

1. ownership/management issues;
2. market issues;
3. competition issues; and
4. production issues.

With the ownership/management issues, it seemed that growth firms had owners involved in strategic management (*chi-squared score of 3.7 by the measure of employment*), and that growth firms were owned outwith Scotland, mainly in England (*chi-squared score of 3.3 by the measure of sales*). Furthermore, growth firms tended to have professional managers employed by the owners (*chi-squared score of 2.4 by the measure of employment*). The implication here seems to suggest that indigenous, owner-managed firms are not likely to fare as well as externally owned professionally managed firms.

With market issues, growth firms seemed to adopt a cautious approach. For example, growth firms seemed to be averse to developing new markets with existing products (*chi-squared score of 3.0 by the measure of employment*); introducing new products into existing markets (*chi-squared score of 1.2 by the measure of employment*); and introducing new products into new markets (*chi-squared score of 1.0 by the growth measure of profits*). By a process of deduction, this implies that growth firms have achieved their success by relying on existing products in existing markets, which is consistent with the strong statistical association previously derived between growth and the importance of Scottish markets for these firms.

Only one production issue appeared to be associated with growth firms, which was the low importance placed on creating innovative products (*chi-squared score of 1.2 by the growth measure of employment*). This would seem to reinforce the above discussion on growth firms' reluctance to develop new products for either existing or new markets, and also explains firm acquisition as one of the two

**TABLE 5.12:
GROWTH VERSUS COMPANY AGE**

GROWTH MEASURE (Employment./Sales/Profits)→ AGE OF COMPANY↓	STAGNANT/ DECLINE (no. firms)	GROWING >25% (no. firms)	TOTAL (no. firms)	CHISQUARE
*<10 YEARS OLD (no. firms)	Emp:1 Sales:2 Profits:6	Emp:6 Sales:6 Profits:2	Emp:7 Sales:8 Profits:8	
*10 YEARS OR MORE (no. firms)	Emp:16 Sales:14 Profits:13	Emp:5 Sales:12 Profits:8	Emp:21 Sales:26 Profits:21	
*TOTAL (no. firms)	Emp:17 Sales:16 Profits:19	Emp:11 Sales:18 Profits:10	Emp:28 Sales:34 Profits:29	E:6.039 S:1.049 P:0.051

**TABLE 5.13:
GROWTH VERSUS EDUCATIONAL BACKGROUND OF MANAGER**

GROWTH MEASURE (Employment./Sales/Profits)→ EDUCATIONAL BACKGROUND OF MANAGERS↓	STAGNANT/ DECLINE (no. firms)	GROWING >25% (no. firms)	TOTAL (no. firms)	CHISQUARE
*NO TERTIARY EDUCATION(no. firms)	Emp:13 Sales:11 Profits:11	Emp:5 Sales:12 Profits:9	Emp:18 Sales:23 Profits:20	
*TERTIARY EDUCATION(no. firms)	Emp:11 Sales:9 Profits:13	Emp:6 Sales:9 Profits:1	Emp:17 Sales:18 Profits:14	
*TOTAL (no. firms)	Emp:24 Sales:20 Profits:24	Emp:11 Sales:21 Profits:10	Emp:35 Sales:41 Profits:34	E:0.013 S:0.031 P:4.001

**TABLE 5.14:
GROWTH VERSUS EMPLOYMENT**

GROWTH MEASURE (Employment./Sales/Profits)→ EXPANSION THROUGH EMPLOYMENT↓	STAGNANT/ DECLINE (no. firms)	GROWING >25% (no. firms)	TOTAL (no. firms)	CHISQUARE
*YES (no. firms)	Emp:14 Sales:15 Profits:21	Emp:11 Sales:18 Profits:8	Emp:25 Sales:33 Profits:29	
*NO (no. firms)	Emp:10 Sales:6 Profits:4	Emp:0 Sales:3 Profits:2	Emp:10 Sales:9 Profits:6	
*TOTAL (no. firms)	Emp:24 Sales:21 Profits:25	Emp:11 Sales:21 Profits:10	Emp:35 Sales:42 Profits:35	E:4.537 S:0.566 P:0.045

**TABLE 5.15:
GROWTH VERSUS GREATER PRODUCTION CAPACITY**

GROWTH MEASURE (Employment./Sales/Profits)→ EXPANSION THROUGH GREATER PRODUCTION CAPACITY↓	STAGNANT/ DECLINE (no. firms)	GROWING >25% (no. firms)	TOTAL (no. firms)	CHISQUARE
*YES (no. firms)	Emp:15 Sales:18 Profits:21	Emp:11 Sales:16 Profits:9	Emp:26 Sales:34 Profits:30	
*NO (no. firms)	Emp:9 Sales:3 Profits:4	Emp:0 Sales:5 Profits:1	Emp:9 Sales:8 Profits:5	
*TOTAL (no. firms)	Emp:24 Sales:21 Profits:25	Emp:11 Sales:21 Profits:10	Emp:35 Sales:42 Profits:35	E:3.763 S:0.154 P:0.006

**TABLE 5.16:
GROWTH VERSUS ACQUISITION OF OTHER FIRMS**

GROWTH MEASURE (Employment./Sales/Profits)→ EXPANSION THROUGH ACQUISITION OF OTHER FIRMS↓	STAGNANT/ DECLINE (no. firms)	GROWING >25% (no. firms)	TOTAL (no. firms)	CHISQUARE
*YES (no. firms)	Emp:15 Sales:2 Profits:4	Emp:11 Sales:3 Profits:1	Emp:26 Sales:5 Profits:5	
*NO (no. firms)	Emp:9 Sales:19 Profits:21	Emp:0 Sales:18 Profits:9	Emp:9 Sales:37 Profits:30	
*TOTAL (no. firms)	Emp:24 Sales:21 Profits:25	Emp:11 Sales:21 Profits:10	Emp:35 Sales:42 Profits:35	E:3.763 S:0.000 P:0.006

**TABLE 5.17:
GROWTH VERSUS MARKETS IN SCOTLAND**

GROWTH MEASURE (Employment./Sales/Profits)→ LOCATION OF MARKETS: SCOTLAND↓	STAGNANT/ DECLINE (no. firms)	GROWING >25% (no. firms)	TOTAL (no. firms)	CHISQUARE
*0 TO 33% (no. firms)	Emp:14 Sales:17 Profits:16	Emp:7 Sales:7 Profits:5	Emp:21 Sales:24 Profits:21	
*34% TO 100% (no. firms)	Emp:4 Sales:1 Profits:4	Emp:3 Sales:9 Profits:3	Emp:7 Sales:10 Profits:7	
*TOTAL (no. firms)	Emp:18 Sales:18 Profits:20	Emp:10 Sales:16 Profits:8	Emp:28 Sales:34 Profits:28	E:0.000 S:8.186 P:0.233

preferred growth strategies by successful firms (*the other being expanded production capacity*). It could be that growth firms are pragmatic with realistic expectations and cautious, preferring slow and steady "controlled growth", perhaps in response to recession conditions.

The perception of strong competition from the "rest of UK" and "the rest of the world" seemed to be associated with growth firms (*with chi-squared scores of 1.4 by the measure of sales*). The implication here is that strong competition from competitors outwith Scotland or at least a perception of pressure from these sources may be linked with the success of these growth firms. What is perplexing is that these firms appear satisfied with a cautious and conventional approach to marketing and product development in the face of external competitive threats, which may have the resources to introduce more innovative products in rapid time and have the marketing muscle to facilitate the success of those products in the local Scottish market. Perhaps since these growth firms are mainly English owned, the competitive threat from external sources is not seen as being disproportionate to their own capabilities.

The cross-tabulations detailed in table 5.18 below could not be proven statistically using chi-squared tests for significance. They can be grouped under the following headings:

1. Source of development capital;
2. Usefulness of sources of assistance;
3. Business objectives: maximising market share; maximising productivity; improving product quality; good working conditions; good rapport between management and employees; high job satisfaction for employees; high profits; high sales; high sales turnover; and the creation of jobs.
4. Managerial characteristics: age and tenure.
5. Expansion through the introduction of new production techniques and/or improved production efficiency.
6. Markets and competition issues.
7. The legal form of the firm (*i.e. public versus private*).

The two main reasons for the lack of statistical significance in these cross-tabulations is that the total number of firms in the cross-tabulation may have been too low and because of large imbalances in column totals and row totals. For example, all firms tended to stress high profits and high sales as being important business objectives regardless of their growth performance, which meant that there was very little dichotomy between stable and growing firms with variables such as these.

A final point on methodology, is the lack of agreement between the growth measures used for the chi-squared scores of the various cross-tabulations discussed in table 5.11, underlines the need for caution in interpreting these results. While there is no disputing that growth in employment, sales and profits all measure firm growth, they do not always do so in unison with each other, which is why all three measures should be examined when trying to determine any patterns. Indeed, some measures clearly contradict each other, where in table A5.39 for example, growth by the measure of employment was associated with the assistance of banks being useful, whereas growth by the measure of sales was associated with the assistance of banks being of no use at all.

To conclude, it would seem that the growth firms are not fundamentally different from stable firms. They seem more likely to rely on their existing local

TABLE 5.18:
SUMMARY OF CROSS-TABULATIONS WITH GROWTH NOT
STATISTICALLY SIGNIFICANT

NATURE OF RELATIONSHIP IN CROSS-TABULATION: HIGH GROWTH SYNONYMOUS WITH:	Table in Appd.*	Rank of Chisq	Emp. Chisq. Score	Emp. no. of firms	Sales Chisq. Score	Sales no. of firms	Profits Chisq. Score	Profits no. of firms
*Introduction of new production techniques	A5.18	1	1.0	35	0.1	42	0.0	35
*Importance of maximising market share	A5.12	2	0.2	34	0.1	41	0.7	35
*Development capital from firm's resources	A5.23	3	0.7	28	0.0	33	0.1	26
*Improved production efficiency	A5.22	4	0.0	35	0.6	42	0.2	35
*Usefulness of Scottish Office	A5.31	5	0.0	12	0.0	17	0.5	15
*Development capital from bank loans	A5.25	6	0.2	27	0.5	33	0.3	26
*Usefulness of Regional/District councils	A5.33	7	0.1	16	0.1	19	0.4	19
*Usefulness of SDA/Scottish Enterprise	A5.30	8	0.4	25	0.0	32	0.0	29
*Importance of maximising productivity	A5.11	9	0.4	34	0.0	41	NA	35
*Importance of improving product quality	A5.13	9	0.4	34	0.0	41	NA	35
*Importance of good working conditions	A5.15	9	0.4	34	0.0	41	NA	35
*Importance of good rapport between managem and employees	A5.16	9	0.4	34	0.0	41	NA	35
*Importance of high job satisfaction for employees	A5.17	9	0.4	34	0.0	41	NA	35
*Development capital from financial instit. other than banks	A5.26	10	0.1	27	0.4	33	0.3	26
*Usefulness of accountants	A5.35	11	0.3	20	0.3	26	0.3	23
*Development capital from owner's personal finances	A5.27	12	0.2	27	0.0	33	0.3	26
*Developm.cap.from other financial resources	A5.29	13	0.1	27	0.0	33	0.3	26
*Competitors in Scotland	A5.36	14	0.0	34	0.3	41	0.3	35
*Importance of high profits	A5.7	15	0.0	34	0.1	41	0.2	35
*Importance of high sales turnover	A5.8	15	0.0	34	0.1	41	0.2	35
*Legal form of company	A5.1	16	0.1	34	0.2	42	0.2	35
*Large firm size in terms of production capacity	A5.9	17	0.1	34	0.1	41	0.0	35
*Markets in rest of world	A5.40	18	0.1	28	0.1	34	0.1	28
*Development capital from grants	A5.28	19	0.1	28	0.0	34	NA	27
*Importance of creating jobs	A5.10	20	0.0	34	0.0	39	0.1	35
*Age of manager	A5.5	21	0.0	33	0.1	38	0.0	31
*Tenure of manager	A5.6	22	0.0	33	0.0	39	0.0	33
*Development capital from equity	A5.24	23	NA	27	NA	33	NA	26

**See Appendix A5A for full cross-tabulation*

NOTE:

1. Growth firm is defined as one that has changed by more than 25% over the period 1988-1991 according to one of the growth indicators of employment, profitability and sales turnover.

markets and products and professional management to ensure their continued success. When they expand, they look to increased production capacity or firm acquisition as the means to achieving their aims. External ownership (*outwith Scotland but mainly based in England*) may account for why these firms can grow in Scotland, without involving themselves in the same degree of risk that indigenous firms would be subjected to. The real or perceived threat as the case may be, from firms in the "rest of the UK" and the "rest of the world" that competition will enter the Scottish market for plastics products may have spurred these growth firms on, unless it is simply that being successful, they look outside their local market to potential threats to their continued market share.

5.4.2 Growth in the Context of Porter's Model: Statistical Tests for Significance of Growth Factors

This section applies the same methodological approach that was taken in the preceding section, only within the context of examining Porter's model of competitive advantage. Hence a statistical quantitative approach has been employed here to examine the validity of Porter's model (*albeit at the simplest level of statistical analysis*) in understanding growth in the Scottish plastics supply industry. If, as the previous section suggests that the characteristics of growth firms are not unique, then perhaps Porter's model can be used to indicate what might be the key factors/issues associated with growth firms as opposed to stable/declining firms in this industry sector.

In the postal questionnaire survey, respondents had been asked to rate a range of 60 issues (*some external to the firm, others internal to it, categorised according to the five main components of Porter's model*), regarding their perception of difficulties experienced during the period 1988-1991, according to whether they judged it to be negligible, minor, moderate or major. The dichotomy of stable/declining and growth firms by the growth measures of change in annual sales turnover, annual profitability and employment during the period 1988-1991 (*a growth firm being one that has grown by 25% or more*) were then cross-tabulated according to a simple dichotomy of whether or not firms had experienced difficulties with these issues over the same period. The basic hypothesis taken in investigating each issue was to determine whether there was any association between a firm having no difficulty with a particular issue/factor and a firm having grown during the period 1988-1991. Chi-squared tests for statistical significance were conducted on these cross-tabulations to determine which factors/issues appeared to be most strongly

associated with growth firms. As with the previous section, few of the chi-squared scores approached 3.8 necessary for the 0.05 level of significance. This suggests that Porter's determinants are not strongly associated with growth when considered on their own. All cross-tabulations with chi-squared scores of 1.0 or more have been selected for discussion here, although the level of significance here is weak.

The factors/issues that were cross-tabulated with the three growth indicators were subdivided according to five components of Porter's model: factor conditions; demand conditions; firm strategy, structure and rivalry; related and supporting industries; and government.

Table 5.19 documents the cross-tabulations that produced statistically significant associations with a chi-squared score of 1.0 or better. Out of the total of 60 issues investigated, only 24 yielded chi-squared scores of 1.0 or better for one or more of the three growth measures of employment, sales or profits. Details of the cross-tabulations referred to in table 5.19 are described more fully in appendix A5A.

Only three cross-tabulations produced statistically significant associations better than the 0.05 level of significance, suggesting that growth was synonymous: with the factor condition of securing government grants by the growth measure of profitability (*with a chi-squared score of 4.0*); the firm strategy/structure/rivalry issue having sufficient plant capacity by the growth measure of employment (*with a chi-squared score of 6.2*); and a government related issue regarding the rate of company taxation by the growth measure of profits (*chi-squared score of 4.3*). The remaining cross-tabulations detailed in table 5.19 suggested associations of weak statistical significance.

The finding that there is a strong association between growth and securing government grants may be an important feature of successful firms in this industry sector. This would seem to conflict with Porter's view (1990, p640) on the role of government policy in assisting firms in which he states that subsidies dull incentives and create an attitude of dependence that stifles the innovation needed to achieve competitiveness in an industry. The alternative to subsidies that Porter (1990, p640) suggests are tax incentives and government investment in areas such as education, research institutions and advanced infrastructure.

**TABLE 5.19:
SUMMARY OF ASSOCIATIONS WITH GROWTH WITH SOME
STATISTICAL SIGNIFICANCE WITHIN CONTEXT OF PORTER'S MODEL**

NATURE OF RELATIONSHIP IN CROSS-TABULATION: HIGH GROWTH SYNONYMOUS WITH:	Table in Appd.	Rank of Chisq	Emp. Chisq. Score	Emp. no. of firms	Sales Chisq. Score	Sales no. of firms	Profits Chisq. Score	Profits no. of firms
FACTOR CONDITION ISSUES								
Securing government grants	A5.44	1	0.0	21	0.5	27	4.0	21
Distance from markets	A5.42	2	0.2	27	0.0	35	2.4	31
Suitability of service infrastructure and services	A5.45	3	1.6	33	0.3	40	0.0	33
Raising equity finance	A5.44	4	0.3	5	1.5	7	0.8	6
Adequacy of recreational amenities	A5.45	4	0.1	29	1.5	36	0.1	31
Availability of finance through building societies/insurance firms/merchant banks	A5.44	5	0.2	10	1.4	13	0.3	11
Affordable unskilled & semi-skill. labour	A5.41	6	1.3	31	0.4	38	0.6	32
Suitability of premises	A5.42	6	1.2	21	0.0	28	1.3	19
DEMAND CONDITION ISSUES								
Strong demand from export markets	A5.46	1	0.6	18	3.1	22	0.1	20
Finding sufficient market demand	A5.46	2	1.5	34	0.9	42	0.1	35
Finding new geographic markets	A5.46	3	0.0	28	0.0	35	1.0	30
FIRM STRATEGY, STRUCTURE & RIVALRY ISSUES								
Sufficient plant capacity	A5.48	1	6.2	33	0.0	40	0.0	34
Maintaining sufficient cash flow	A5.49	2	0.0	35	1.6	42	2.7	35
Sufficient management skills to plan, organize and manage growth	A5.47	3	0.8	33	2.3	31	0.4	35
Raising finance from firm's internal financial resources	A5.49	4	0.8	23	0.1	30	1.8	24
High product quality relative to similar products of competitors	A5.48	5	0.1	34	1.7	40	0.0	33
Creating innovative production techniques	A5.48	6	0.0	27	1.6	31	0.3	26
Sufficient training capability for staff needs	A5.48	7	0.1	32	1.0	38	1.2	32
Strong competition from other Scottish firms	A5.51	8	0.0	32	1.0	40	0.0	33
RELATED AND SUPPORTING INDUSTRY ISSUES								
Companies involved in the production of products that are complementary to your company's products	A5.52	1	2.4	27	1.4	35	2.0	29
Components' suppliers in the local area	A5.52	2	1.9	28	0.0	34	0.3	28
Proximity to raw material suppliers	A5.52	3	0.0	32	0.0	40	1.8	33
GOVERNMENT RELATED ISSUES								
Rate of company taxation	A5.53	1	1.0	33	1.0	39	4.3	33
Usefulness of Enterprise Initiative	A5.55	2	1.3	10	0.1	13	0.5	12

**See appendix A5A for full cross-tabulation.*

NOTE:

1. Growth firm is defined as one that has changed by more than 25% over the period 1988-1991 according to one of the growth indicators of employment, profitability and sales turnover.

The finding that growth by employment has a strong association with a firm having sufficient plant capacity, suggests that firms must have made the investment in capital equipment in anticipation of the growth that followed. When this finding is combined with the admittedly weak associations between growth and raising equity finance (*by the growth measure of sales*), it becomes clear that firstly finance has to be available for the necessary investment in capital equipment to be made, and secondly, that sufficient plant capacity has to be invested in to meet the anticipated growth in demand. Firms in the case studies tended to confirm that if growth in demand was not perceived as a constraint to growth, lack of plant capacity rather than a shortage of labour acted as the more significant constraint to a firm's expansion. At this level of micro-economic detail, Porter's model has little comment to make since he is more interested in marketing strategies that firms adopt, rather than basic issues such as the quantity of output that a firm decides to produce.

The finding that growth by profits has a strong association with the rate of company taxation (*stable/declining firms found that the rate of company tax to be a constraint while growth firms did not*), could be taken to imply that stable/declining firms have little left over from their profits to reinvest in the capital investment necessary for growth. This would seem to support Porter's view (1990, p640) that high rates of company tax can constrain a firm's growth prospects because it makes it difficult for a firm to make the necessary levels of investment to improve productivity and efficiency.

The 22 cross-tabulations of measures of growth (*employment, sales and profits*) versus factor condition issues that produced weak statistical associations with chi-squared scores of 1.0 or better in descending order of importance were: (1) securing government grants; (2) distance from markets; (3) suitability of service infrastructure and services; (4) raising equity finance; (5) adequacy of recreational amenities; (6) availability of finance through building societies/insurance firms/merchant banks; (7) affordable unskilled and semi-skilled labour; and (8) suitability of premises. In summary then, location issues, the cost of labour, and finance issues may be relevant to a firm's growth prospects, although the associations are quite weak with the available data. The case studies of 6 growth firms helped to reinforce these findings. For example, securing government grants was important in 3 of the 6 firms examined; location considerations such as service infrastructure and premises were particularly important in the start-up phase of all of the case studies; being close to markets was important to 5 of the 6 case study firms because of the

large bulk and relatively low value of the finished product; cheap labour was important in all of the case studies; and lack of finance resulted in 2 of the 6 case study firms becoming part of international corporations and all of the case study firms had to rely on their own finances as a source of development capital (*on average, 74% of a firm's development capital for all the surveyed firms was sourced from the firm's own resources*).

The 7 cross-tabulations of measures of growth (*employment, sales and profits*) versus demand condition issues, produced only three statistical associations with chi-squared scores of 1.0 or better, which were in descending order of importance: (1) strong demand from export markets; (2) finding sufficient market demand; and (3) finding new geographic markets. The cross-tabulation with "strong demand from export markets" was possibly a spurious correlation since it indicated that growth firms had difficulty meeting strong demand from export markets when it would have been stable/declining firms that one would have expected as being unable to cope. The case studies questioned the importance of export markets outside the UK, showing that the markets for the Scottish plastics supply industry were largely confined to England and Scotland. For all of the firms in the survey, export firms accounted for no more than 7% of firms' total markets. Finding new geographic markets came out as a significant constraint to growth, since amongst the case study firms, not much potential was seen beyond the UK market.

The 18 cross-tabulations of measures of growth (*employment, sales and profits*) versus firm strategy, structure and rivalry issues, produced a total of eight statistical associations with chi-squared scores of 1.0 or better, which were, in descending order of importance: (1) sufficient plant capacity; (2) maintaining sufficient cash flow; (3) having sufficient management skills to plan, organize and manage growth; (4) raising finance from the firm's internal resources; (5) high product quality relative to products of competitors; (6) creating innovative production techniques; (7) having sufficient training capability for staff needs; and (8) strong competition from other Scottish firms. It is interesting to note that the three issues that produced the strongest associations for this component of Porter's model were all operational management issues, followed by three strategy related issues, while the two remaining issues relating to firm structure and rivalry produced relatively weak associations with growth. This is perhaps unsurprising that growth firms seemed to be associated with operational management issues because the case study firms clearly underlined management's focus on good operational management rather than issues of strategy

and rivalry. The manager of Silleck Mouldings for example, said that most of his rivals were technically competent (*regarding the issues of high product quality relative to similar products of competitors and creating innovative production techniques*), which meant that he had to compete mainly on the grounds of price.

All 3 cross-tabulations of measures of growth (*employment, sales and profits*) versus related and supporting industry issues, with chi-squared scores of 1.0 or better, were, in descending order of importance: (1) companies involved in the production of products that are complementary to your company's products; (2) component/s suppliers in the local area; and (3) proximity to raw material suppliers. Very few of the firms in the survey produced end-products in themselves: most were subcontractors to other firms. Therefore, for example, firms that produced packaging material for computers are dependent on computer manufacturers performing well in the marketplace. The issues of "component suppliers in the local area" and "proximity to raw material suppliers" were treated by most surveyed firms as one and the same issue, since most of the plastics supply firms simply convert a single raw material in the form of plastic beads in to the finished product which does not require the use of other components except perhaps cardboard packaging material. The actual cross-tabulations (*see appendix A5A*) suggested that not being proximate to a raw material supplier could be a constraint to growth, however, the case studies all indicated that proximity to a raw material supplier was not a significant locational determinant because of the compact nature and high value/weight ratio of the raw material, and the fact that manufacturers in Germany, Japan and the USA can provide them with raw materials at competitive prices to those available in the UK.

There are 10 cross-tabulations of measures of growth (*employment, sales and profits*) versus government related issues produced only two statistical associations with chi-squared scores of 1.0 or better. They were, in descending order of importance: (1) rate of company taxation; and (2) the usefulness of the Enterprise Initiative. The implication of this finding is that non-growth firms viewed the rate of company taxation as a constraint to growth and that growth firms appeared to be weakly associated with receiving useful advice from the Enterprise Initiative.

In Porter's model, chance or random events cover technological breakthroughs, discontinuities in inputs costs such as occur with oil shocks, major political changes and wars. With the Scottish Plastics industry, there have been few distinct chance events in the past that can be said to have categorically shaped this

industry or been responsible for its inception in Scotland. This is mainly due to the fact that the Scottish Plastics industry has generally not been an instigator of innovation in plastics production processes or products.

The Scottish Plastics Industry has adopted products and production techniques pioneered elsewhere in the UK or the world. The survey results support this statement to some extent since when firms were questioned about the difficulty involved in "producing innovative, market leading products" and "creating innovative production techniques", a substantial proportion of firms (*32% and 26% respectively*) replied that this was not an issue applicable to their operations. The upshot of this is that the chance events that instigated the Plastics Supply industry in Scotland were sourced from outside Scotland. The discovery and subsequent exploitation of North Sea Oil is a chance event that has resulted in less costly, more accessible petrochemical inputs into the industry, but it is debatable whether this has had a causal effect on the industry, since local demand from manufacturers and consumers may have been sufficient in themselves to ensure the economic viability of this industry and in the case study firms, most of their raw material suppliers were located in England, Germany, Japan or the USA. The trend towards de-industrialisation in Scotland created a massive fall-out in industrial employment, but whether this "chance event" was a causal factor that led to the unemployed striking out with entrepreneurial spirit and vigour to establish their own businesses is highly uncertain and not easily proven. It could be argued that if it were not for the process of de-industrialisation, government policy may not have strived with such persistence to redress the problems brought on by de-industrialisation such as unemployment, de-skilling of the workforce and the diminishment of the wealth-creating sectors of the economy, by seeking to attract inward investment, fostering the spirit of entrepreneurship and assisting the establishment of small firms. Programmes such as "Locate in Scotland" and the work of the Scottish Development Agency have been particularly effective in encouraging investment from outside the UK economy to invest in the Scottish electronics industry. This has created demand for plastic components that may not have eventuated if this form of inward investment had not occurred. Unfortunately, the exact extent of that demand and its impact on the Scottish Plastics Supply industry could not be determined within the constraints of the survey that was conducted.

The role of "chance" in Porter's model is perhaps the most difficult and contentious aspect to adapt to the context of competitive advantage in this industry. Porter's model is couched within the framework of explaining how competitive

advantage develops in world-beating national industries at the cutting edge of competitiveness, but this notion sits somewhat awkwardly with many of the firms in this industry, which generally have more prosaic concerns of satisfying local and UK demand for plastics, than in producing the best plastics products in the world.

Table 5.20 summarises the cross-tabulations of issues with the growth measures of employment, sales and profits that did not produce statistically significant associations within the context of Porter's model of competitive advantage. These issues are not necessarily unimportant to a firm achieving competitive advantage, since statistical tests for association will only indicate those issues that are uniquely associated with growth firms as opposed to non-growth firms.

The factor condition issues that appeared to have no association with growth covered finance, infrastructure, labour and location. Finance issues that growth did not appear to be associated with included: (1) finance through venture capitalists; and (2) the availability of bank loans. This implies that both stable/declining and growth firms have the same difficulty in obtaining finance by these means. Infrastructure issues that growth did not appear to be associated with included: (1) the adequacy of telecommunications; (2) adequacy of transport links serving the industrial area; (3) the adequacy of education facilities; and (4) the adequacy of community and cultural facilities. Labour issues not particularly associated with growth included: (1) proximity to a major city; and (2) the attractiveness of local residential areas for current and prospective employees. The completed postal questionnaires gave the impression that few of the firms considered the factor conditions of infrastructure provision, labour supply and location issues to present any significant constraints or confer particular advantages to their growth prospects.

The demand condition issues that appeared to have no association with growth were: (1) strong demand from the Scottish and the rest of the UK market; (2) demanding customers wanting top quality products; and (3) finding a suitable market niche for the product/s. This conflicts with Porter's (1990) theory that strong local demand for high quality products is an essential ingredient for producing competitive firms and that successful firms are usually those that have carved out a distinctive market niche for themselves.

TABLE 5.20:
SUMMARY OF ASSOCIATIONS WITH GROWTH WITHOUT STATISTICAL
SIGNIFICANCE WITHIN CONTEXT OF PORTER'S MODEL

NATURE OF RELATIONSHIP IN CROSS-TABULATION: HIGH GROWTH SYNONYMOUS WITH:	Table in Appd.	Rank of Chisq	Emp. Chisq. Score	Emp. no. of firms	Sales Chisq. Score	Sales no. of firms	Profits Chisq. Score	Profits no. of firms
FACTOR CONDITION ISSUES								
Availability of finance through venture capitalists	A5.44	7	0.0	6	0.8	6	0.8	6
Adequacy: telecommunications	A5.45	8	0.1	35	0.0	41	0.7	34
Suitability of public transport serving industrial area	A5.45	9	0.0	29	0.0	36	0.6	30
Adequate supply skilled labour	A5.41	10	0.1	35	0.5	42	0.2	35
Adequacy of secondary and primary education facilities	A5.43	11	0.1	30	0.2	37	0.4	32
Adequacy of higher education facilities	A5.43	11	0.4	27	0.0	33	0.1	28
Adequacy: community services and facilities	A5.45	11	0.4	29	0.2	35	0.3	31
Availability of bank loans	A5.44	12	0.3	21	0.0	27	0.0	21
Adequacy of cultural facilities	A5.45	13	0.2	18	0.1	37	0.1	31
Proximity to a major city	A5.42	13	0.2	32	0.0	38	0.1	31
Attractiveness of local residential areas for current and prospective employees	A5.42	13	0.0	30	0.2	37	0.0	31
Poor training local population	A5.41	13	0.0	26	0.2	34	0.0	33
Adequacy of local road infrastructure serving industrial area	A5.45	14	0.0	33	0.1	40	0.1	33
Adequacy of main road network serving industrial area	A5.45	14	0.0	33	0.1	40	0.1	33
DEMAND CONDITION ISSUES								
Strong demand from Scottish market	A5.46	4	0.2	30	0.0	37	0.0	31
Demanding customers wanting top quality products	A5.46	5	0.0	33	0.1	40	0.0	33
Strong demand from UK market not including Scotland	A5.46	6	0.1	28	0.1	34	0.0	29
Finding suitable market niche for product/s	A5.46	7	0.0	27	0.0	33	0.1	28
FIRM STRATEGY, STRUCTURE & RIVALRY ISSUES								
Producing innovative, market leading products	A5.48	9	0.2	21	0.1	26	0.7	21
Influence of trade unions in company business	A5.50	10	NA	10	0.0	11	0.6	10
Surplus management time to plan growth	A5.47	11	0.5	27	0.0	33	0.0	28
Attaining satisfactory overall profitability	A5.49	11	0.2	33	0.1	40	0.5	34
Achieving a high sales turnover	A5.49	12	0.0	31	0.1	38	0.4	33
High level production efficiency	A5.48	13	0.0	35	0.0	42	0.2	35
Good work ethic amongst employees	A5.50	14	0.0	34	0.1	40	0.1	33
Strong competition from other UK firms	A5.51	14	0.0	33	0.0	41	0.1	34
Strong competition from imports	A5.51	14	0.0	29	0.0	35	0.1	29
Good labour relations between employees and management	A5.50	15	0.0	35	0.0	41	0.0	34

TABLE 5.20 (CONTINUED)

NATURE OF RELATIONSHIP IN CROSS-TABULATION: HIGH GROWTH SYNONYMOUS WITH:	Table in Appd.	Rank of Chisq	Emp. Chisq. Score	Emp. no. of firms	Sales Chisq. Score	Sales no. of firms	Profits Chisq. Score	Profits no. of firms
GOVERNMENT RELATED ISSUES								
High interest rates	A5.54	3	0.1	30	0.7	38	0.2	32
Usefulness of Scottish Office Department/s	A5.55	4	0.0	12	0.0	17	0.5	15
Usefulness of Regional/District Council/s	A5.55	5	0.1	16	0.1	19	0.4	19
Usefulness of Scottish Development Agency	A5.55	6	0.4	25	0.0	32	0.0	29
Lack of tax exemptions for company expenses	A5.53	7	0.2	30	0.0	34	0.1	32
Depressed local economic conditions (i.e.within region)	A5.54	8	0.1	23	0.0	30	0.0	27
Depressed national economy	A5.54	9	0.1	31	0.1	38	0.1	33
Usefulness of Locate in Scotland	A5.55	10	0.0	7	0.0	10	0.0	12

*See appendix A5A for full cross-tabulation.

NOTE:

1. Growth firm is defined as one that has changed by more than 25% over the period 1988-1991 according to one of the growth indicators of employment, profitability and sales turnover.

The firm strategy issues that appeared to have no association with growth were: (1) producing innovative, market leading products; (2) good labour relations between employees and management; and (3) surplus management time to plan growth. The firm structure issues that had no association with growth were: (1) the influence of trade unions in company business; (2) attaining a satisfactory level of overall profitability; (3) achieving a high sales turnover; (4) a high level of production efficiency; and (5) a good work ethic amongst employees. The firm rivalry issues that had no association with growth were: (1) strong competition from other UK firms; and (2) strong competition from imports. Porter (1990, p110) stresses the importance of firms having clear company goals if they are to achieve success, so it is somewhat surprising that no association was found between growth and the issue of "surplus management time to plan growth". That growth was not associated with producing innovative, market leading products was perhaps to be expected since a number of managers from the case study firms commented that their products could not be considered innovative because they simply manufactured products to the specifications laid down by their customers. On the issue of labour, almost all respondents believed that this was not a constraint to their growth prospects, nor did it offer any particular opportunities for growth. Operational issues relating to the firm's finances, production efficiency and the work ethic of employees provoked responses from respondents that were either indifferent (*with regard to labour*) or that stressed them as a constraint to company growth. A similar problem occurred with the rivalry issues in which both stable/declining and growth firms were concerned about the strength of

competition from other UK firms and not so concerned about the strength of competition from imports.

Government related issues that had no association with growth were: (1) business advice; (2) the economic environment; and (3) finance matters. Business advice from the Scottish Office, Regional/District Councils, the Scottish Development Agency and Locate in Scotland did not appear to be determining factors in growth firms' success. The general perception of the surveyed firms was that depressed local and national economic conditions were being significant constraints to achieving growth, so these issues did not stand out as determining growth factors. All of the surveyed firms considered the financial issues of high interest rates and lack of tax exemptions for company expenses to be constraints to growth, so that these issues were not unique to stable/declining firms.

The foregoing analysis in this section has demonstrated that the quantitative approach within the analytical context of Porter's (1990) model of competitive advantage, has pointed to growth possibly being associated with: the factor condition issues of securing government grants and distance from markets; the demand condition issue of strong demand from export markets (*which was not backed up by the information received in the case studies*); the firm strategy, structure and rivalry issues of sufficient plant capacity, maintaining sufficient cash flow, and sufficient management skills to plan, organise and manage growth; the related and supporting industry issue of "companies involved in the production of products that are complementary to your company's products"; and the government related issue of the "rate of company taxation". However, of the 60 possible associations tested against 3 measures of growth (*employment, sales and profits*) over the period 1988-1991, resulting in 180 cross-tabulations, only 6 produced statistically significant associations with chi-squared scores better than 2.0. The findings secured, therefore, cannot be said to provide statistical validity for Porter's model at this level of analysis, in explaining growth within the Scottish plastics supply industry. This may be because the survey methodology of a postal questionnaire has difficulty in picking up on the complexities and nuances of a multi-dimensional theory such as Porter's. Moreover, the small sample size which results in crude cross-tabulations of the binary variety are simply not fine-grained enough to demonstrate linear relations between the variables. Another difficulty with the postal questionnaire survey is that cross-tabulating quantitative measures of growth against the qualitative and possibly subjective assessments of management to the difficulties faced with the various issues

may have contributed to the practical problems in using Porter's model to explaining the main issues behind growth firms in the Scottish plastics supply industry. The next section will redress the limitations of the postal questionnaire survey by applying Porter's model to six case studies of successful firms that participated in the postal questionnaire survey.

5.4.3 Growth in the Context of Porter's Model: Case Studies of Growth Firms

Six companies were selected for the purposes of intensive survey research to determine the reasons for growth amongst actual firms. Appendix A5C provides a detailed account of these firms' history and growth record. This section will concentrate on the main findings to come out of the case studies as to why and how growth has occurred in these firms.

The firms examined in the case studies illustrate the diversity of products produced in the plastics supply sector. Tenma (U.K.) Ltd. at Cumbernauld and Silleck Mouldings Ltd., Renfrew for example, produce plastic components for electrical consumer goods, such as TV sets and other consumer electronic goods (*e.g. Polaroid camera casings*). Polbeth Packaging at Livingston produce plastic packaging products for the food industry and manufacturers of toiletries and cosmetics. Vitapac Ltd. at Paisley and Foam Plus Ltd. at Linwood produce polystyrene packaging material principally for large electrical goods such as personal computers. And Forbes (Plastics) at Kelso produce large plastic storage tanks for various industrial and water supply applications.

These firms were selected because of their strong growth in employment and good financial performance in terms of annual turnover/employee and annual profitability/employee. They were all medium-sized businesses ranging in size from 50 to 270 employees. Larger firms were selected over small firms because it was considered that they would have demonstrated a more tangible record of growth and would have a sufficiently well developed management to articulate whether growth was part of a deliberate expansion strategy. Table 5.21 compares the key features of the case study firms, such as their growth in employment, form of business registration, ownership, 1991 financial performance, reasons for growth, constraints to growth, growth strategy and growth objectives.

Two of the firms, Polbeth and Foam Plus, are Scottish registered private limited companies; Silleck Mouldings and Forbes Plastics are English registered private limited companies; Vitafoam is an English registered public company; and Tenma is a UK registered private company although it is part of a public Japanese registered corporation. Polbeth, Foam Plus, Forbes Plastics and Silleck Mouldings started as owner-managed businesses indigenous to the UK. Vitafoam was an example of inward investment from a Manchester Corporation (*exhibiting the branch plant syndrome*), while Tenma was inward investment from Japan to serve as a supplier to JVC and Mitsubishi Electric. It is interesting to note that even though Polbeth and Foam Plus started out as indigenous Scottish companies, none of the selected case studies have any Scottish ownership. The owner-managers of Polbeth and Foam Plus were both approached by foreign corporations because of their favourable record of growth and sold out to them since both firms' managements believed that their company's growth prospects would be better within the context of a large corporation. Although it was never made explicit, the postal questionnaire clearly demonstrated that companies prefer to rely on their own resources to fund investment and make comparatively little use of loans from financial institutions. This would seem to suggest that the owners of such firms are reluctant to be saddled with debt because all of the case study firms indicated that they had no difficulty in procuring finance from banks and other financial institutions. The ages of the firms' Scottish operations ranged from a minimum of 4 years with Tenma up to a maximum of 27 years with Vitafoam. Employment growth was most spectacular with Tenma during the period 1988-1991, with an increase of nearly 90 full-time jobs, but the caveat to this is that this was for a manufacturing operation almost starting from scratch. For steady, sustained employment growth over the long-term, the best performers have been Polbeth (*increasing from a handful of employees to 270 in a decade*); Foam Plus (*growing from 5 to 118 employees in 6 years*); and Silleck (*growing from 120 to 160 employees in 3 years*). In terms of annual sales generated per employee, these three companies have performed well, generating between £30k and £48k per annum. Forbes Plastics generated the highest annual sales per employee of £77k, but this did not translate into high growth due to the high costs of inputs into the production process and the need for costly capital investment.

The forms of growth that the firms in the case studies underwent were: an expansion of production capacity; increased employment and the introduction of new products. New production techniques were introduced such as computer aided design in the case of Polbeth; Forbes semi-automated tank fabricating machine;

Vitafoam's computerised foam cutting machines; and Silleck's innovative heat recovery mechanism to save on power consumption. All of the companies introduced production efficiency measures of one kind or another. With Polbeth and Vitafoam it involved installation of the latest production technology; Forbes introduced productivity related bonuses to its employees; Tenma and Silleck aimed at achieving economies of scale through large production runs; and Foam Plus adopted a team based approach with management and employees. Silleck and Foam Plus were running their production facilities 24 hours a day, 5 to 7 days a week to ensure maximum production efficiency with its available capital equipment. All of the case study companies with the exception of Tenma had vigorously sought out new markets. Silleck was the only company in the group to have acquired another firm for the purposes of expansion, although it was the English parent firm that initiated and implemented the acquisition.

There was considerable variation in the reasons for growth amongst the case study firms, but some common themes did emerge which are: (1) the importance of competent, highly motivated management, knowledgeable of the production process (*Polbeth, Silleck, Vitafoam, Foam Plus and Forbes*); (2) the importance of government financial assistance during the start-up phase of a firm (*Polbeth, Tenma, Forbes*); (3) the importance of good customer relations, particularly where the firm is dependent on a small number of customers (*Polbeth, Tenma, Silleck, Foam Plus, Forbes*); (4) in the case of Polbeth and Forbes, recognised market leadership played an important part in their success; (5) being well capitalised with the best production equipment (*important in all of the case study firms*); and (6) being part of a larger company seemed to be crucial to a firm's future long-term growth prospects. Other reasons for growth seemed to be economies of scale through large production runs (*Tenma, Silleck and Foam Plus*); and being quick to exploit new market opportunities as they arose (*Tenma, Silleck and Foam Plus*). It is interesting to note that both Silleck and Tenma entered into the Scottish market almost simultaneously, so both companies were aware that a large market had opened up in Scotland for TV cabinets.

Only two companies, Vitafoam and Foam Plus had explicit growth objectives which was for a 10% annual growth in sales for the former and 10-15% annual growth in assets for the latter. For the other companies, managers took the attitude that they would pursue any opportunity the market presented for growth, but they would not jeopardise the financial stability of their company for the sake of growth. All of the managers of these successful firms recognised a growth strategy as

risky if the return was uncertain and the resources to fund the investment for growth were in short supply. This partly explains why Polbeth and Foam Plus teamed up with international businesses to provide some security and assistance (*management skills and experience*) to minimise the risks of a growth strategy.

All of the case study firms were experiencing falling demand in 1992 as a result of the current UK recession. However, each of the case study firms faced particular constraints to growth. In Tenma's case, the main constraint was extreme dependency on two customers and a lack of flexibility to enter into other products if it were to lose its customers. Tenma cannot really have a growth strategy because it is dependent on the demand for JVC's and Mitsubishi Electric's products in the UK. With Polbeth, the main constraint to growth was uncertainty about continued demand from its customers, particularly in light of the current recession and the impact that may have on consumer demand for its customers' products. Before Polbeth was taken over by an American packaging corporation, the main constraint to growth had been a lack of resources. Silleck's main constraint to growth was too much competition, which falling consumer demand in the economy generally has made the firm especially sensitive to. As with Tenma (*the source of most competition to Silleck*), a very small pool of customers also has the potential to constrain the company's growth if demand from even one of them slackens for any reason. This is also a constraint to growth faced by Foam Plus, although the manager of Foam Plus did not view a small pool of large customers as potentially volatile since large long-term contracts allow better long-term planning for growth than numerous small short-term contracts. The other main constraint to growth of Foam Plus is the unreliable nature of labour and restricted space of its premises. The problems with labour constrain growth because it acts as a drain on management's resources. The constraint to growth for Vitafoam is declining demand from the Scottish furniture industry, which appears to be facing demise. Forbes Plastics face the constraint of the small size of the UK market for its products and the fact that it cannot gain any economies of scale in its manufacturing process, due to the fact that each of its products are one-off creations.

At the time of the postal questionnaire survey in August 1991, all of the case study firms indicated that they were optimistic about their growth prospects. However, when the personal interviews were conducted in June 1992, a time when the effects of the recession began to set in the Scottish economy, only Foam Plus was still optimistic about the favourable long-term growth prospects. Polbeth, Tenma,

**TABLE 5.21:
CHARACTERISTICS OF GROWTH IN FIRM CASE STUDIES**

Company	Polbeth	Tenma	Silleck	Vitafoam	Foam Plus	Forbes
Est. date parent firm	Not applicable	1948	1967	unknown	Not applicable	1960
Est. date Scot. operat.	1981	1988	1987	1965	1985	1970
Location	Livingston	Cumbernauld	Inchinnan	Paisley	Linwood	Kelso
Products	Food packaging	Plastic TV casings	Plastic TV casings and plastic components for consumer goods	Furniture foam inserts; consumer product packaging	Packaging for electronic consumer products & food products	Large plastic vessels for industrial applications
Form of Registration	Private Ltd Scotland	Private Ltd UK	Private Ltd England	Private Ltd England	Private Ltd Scotland	Private Ltd England
Ownership	American Corporation	Japanese Corporation	English company	UK Corporation	Irish Corporation	English company
Background	Indigenous Scottish firm that has sold out to US Corporation in 1990	Inward investment to supply Japanese firms	Expansion into Scottish market	Takeover of Scottish firm to serve Scottish market	Indigenous Scottish firm that sold out to Irish Corporation in 1989	Transfer of English firm production operations to Scotland to take advantage of grants
1991 F/T Employment	190	117	100	102	71	53
1988-1991 Employment change (F/T)	+50	+87	+30	+22	+35	+8
1991 P/T Employment	80	--	60	--	47	--
1988-1991 Employment change (P/T)	+20	--	+10	--	+26	--
1991 Sales/employee	£30,435*	£33,333	£47,700*	£45,000	£42,328*	£77,064
1991 Profit/employee	£1,739	£5,128	--	£1,000	--	£6,422
Reasons for growth	*Industry related experience of founders *Entrepren. drive *Customer driven *Governm. grants. *Market leadership	*Corporate might; *Guaranteed market *Established technology *Governm. grants *Economies of scale	*Quick to exploit new market opportunity in Scotland *Good management *Good customer relations *Innovative technology *Economies of scale	*Backing of large UK corporation *Large & diverse market for packaging material. *High production efficiency *Good management	*Good man-management highly committed to company *Clear explicit growth strategies *Solid core of dependable customers *Well capitalised *Economies of scale	*Innovative application of plastics *Good labour relations *Efficient, knowledgeable and highly motivated owner-management *Governm. grants *Market leadership

TABLE 5.21 (CONTINUED)

Company	Polbeth	Tenma	Silleck	Vitafoam	Foam Plus	Forbes
Constraint to growth	*Lack of capital resources before takeover *Lack of demand	*Extreme dependency on only 2 customers	*Lack of demand *Too much competition	*Lack of demand for furniture products in Scotland	*Falling demand *Restricted premises *Unreliable labour	*No economies of scale because each product is unique *Small size of UK market
Growth Strategy	*Good operational management *Customer service	*Good operational management *Serve key customers *Production efficiency *Quality products	*Good operational management *Seize any market opportunity *Production efficiency	*Good operational management *Seek out new customers *Production efficiency	*Good operational management *Production efficiency	*Good operational management
Growth Objectives	None made explicit	None	None made explicit	10% p.a. in sales	10-15% p.a. in assets	None made explicit

NOTE:

*Assumes part time employment: 2 part-time jobs=one full-time job

Silleck, Vitafoam and Forbes were much more pessimistic about the prospects of growth.

To conclude, the six case studies just discussed have helped to describe the characteristics of growth firms in the Scottish plastics supply industry. It demonstrates that growth can occur for a variety of reasons; that individual firms face particular constraints; and that a firm need not have explicit growth objectives for growth to occur. However, several important themes stand out as being crucial to growth in small to medium businesses which are: (1) the importance of good proactive, highly motivated management; (2) vigorous pursuit of new customers and market opportunities (*with the possible exception of Tenma*); (3) maintaining good customer relations, especially since most firms are highly reliant on a small pool of customers; (4) a clear concentrated focus on the core products of the business; and (5) the need to be part of a large organisation to secure the resources to fuel growth. Most firms appeared to have difficulty having an explicit growth strategy because of the market of plastic supply firms is a derived market, highly reliant on the business fortunes of their customers. A common and unsurprising constraint to growth amongst the case study firms as the lack of demand due to the current recession.

This discussion of the case studies has helped to give some understanding as to the reasons why and how some firms have grown, but it lacks a

conceptualisation that explains the dynamics of the growth process in these firms. The views of the managers while insightful, subjectively focus on the internal dynamics of their firms. The discussion that follows will examine whether Porter's model of competitive advantage is an adequate conceptualisation of growth in the Scottish plastics supply industry through qualitative analysis of the case study material.

Porter's model stresses the importance of the local environment, be it the region or nation state, in determining a firm or an industry sector's chances of success. In the spatial context of this analysis, the term 'local' is taken to mean the Scottish market and the term 'export' refers to any market outside the UK. The ratings of importance of each factor to the firm's success detailed in table 5.22 (*ranging from 1=no importance to 5=very important*) are based on the views of managers obtained through face-to-face interviews and general observations of each firm's facilities and the immediate environment of the firm. Therefore, although the ratings were intended to be as impartial as possible, subjective judgements may have crept into these assessments in interpreting managers' responses to various questions.

5.4.3.1 Factor Conditions:

For each of the six case studies detailed in table 5.22, the importance of factor conditions was assessed according to the criteria of infrastructure provision, physical resources, capital resources, knowledge resources and human resources available throughout each firm's development period up to the present time, within the spatial context of Scotland. Speaking to managers of the respective case study firms, they seemed most acutely aware of the importance of good factor conditions during the start-up phase of their firm's development. In selecting an industrial location, all six case study firms considered infrastructure provision (*i.e. a well serviced industrial estate with good transport links and good premises, easily accessible to its main markets*), to be extremely important. This was particularly the case with Tenma and Forbes which required greenfield sites for large factory premises before they could commence manufacturing operations in Scotland. However, once firms have emerged from the start-up phase of their development, infrastructure provisions tended not to be viewed by managers as a deciding factor in their competitive advantage and were taken for granted, unless future deterioration of the firm's local infrastructure were to later place the firm at a locational disadvantage.

Local capital resources were critical in the start-up phase of Polbeth, Tenma and Forbes. Government financial support helped to ensure that Polbeth, an

indigenous Scottish firm comfortably survived the embryonic period of its development. In the case of Tenma and Forbes, a Regional Development Grant for 15% and 40% of start-up costs respectively, ensured that these firms located in Scotland and not elsewhere in the UK. Two of the case studies did seem to suggest that capital resources in Scotland are lacking since Polbeth and Foam Plus have sold out to major corporations to further their expansionist aims, rather than seeking capital from financial institutions within Scotland. This would seem to be supported by the postal questionnaire survey results which found that on average, firms had 73.8% of their development capital derived from the firm's or owner's resources.

The only physical resources factors that were really critical to the success of the case study firms, were suitable factory premises and a site that permitted expansion of the factory buildings if necessary. With Polbeth, Tenma and Forbes, having suitable factory premises with sufficient adjacent land to permit future expansion of the factory's floor area, was a particularly important location decision at the time of start-up.

Local knowledge resources were not particularly important factor conditions in any of the case study firms, with the exception of Forbes, which is heavily reliant on skilled manual workers. The town of Kelso in which Forbes is located, seems to be well provided with skilled manual workers, a reflection of the good local training facilities available. However, the factor condition of good local knowledge resources was not critically important to Forbes' success or the success of the other 5 case study firms since the low level of skill involved meant that most employees could learn the skills on the job within a matter of months.

Local human resources were important factor conditions for all of the case study firms especially in terms of the quantity of labour available and its cost. Skills were not an essential component of human resources for these firms because the bulk of labour in most cases was required to perform simple, repetitive tasks. Only Forbes was reliant on skilled manual employees, although all of the case study firms employed a small cadre of skilled technical staff to ensure the smooth operation of their factories.

5.4.3.2 Demand conditions:

Two of the case study firms, Polbeth and Forbes, had as their primary market the whole of the UK, with Scotland accounting for less than 10% of that

market share. Tenma, Silleck and Vitafoam catered almost exclusively to the Scottish market, although the end-products that these firms contributed towards were destined for UK-wide markets.

Only Forbes had managed to carve out a distinctive market niche for itself, but in a UK-wide context. Its clever substitution of polymer materials for steel in industrial vessels has resulted in it achieving renown in the UK for its products. Polbeth comes close to achieving a market niche with its packaging design and production capability, but the technology, capital equipment, and skills that they utilise are not unique. Any sufficiently well capitalised and knowledgeable firm could theoretically enter the market and usurp Polbeth's market leadership.

Porter's (1990) thesis that sophisticated and demanding buyers create firms with a competitive advantage was supported by every case study firm with the exception of Vitafoam. These firms all stressed the importance of ensuring satisfied customers, mainly because each of these firms tended to be heavily reliant on a small pool of major customers. Moreover, since most of these firms had to custom design and build the products to their customers' specifications, a close working relationship with the customer was cited as an essential requirement for business success.

Porter's (1990) thesis that home market buyers (*i.e. the UK market*) anticipate buyer needs in other markets was not supported by the case studies, because the products/services that these firms produce are intended only for the UK market and since the technology employed in the capital equipment utilised by many of these firms comes from either Germany or Japan, the demand in the UK market is not anticipating buyer needs in other world markets. Furthermore, none of the case study firms had significant export markets and none intended going after export sales. Porter's hypothesis that growth will follow as a result of a saturated local market leading to an export drive, was not backed up by the case study firms whose managers could not see the merit in pursuing export sales. Only one of the case study companies, Tenma, had the possibility of earning export sales from its two Japanese multinational customers and has yet to be given the opportunity to do so.

Tenma, Silleck and Vitafoam were established to serve the Scottish market and have grown successfully in striving to fulfil that criterion. Polbeth and Forbes, however, have grown as a result of strong demand in the UK market as a whole. Therefore, the case studies would generally seem to support Porter's (1990)

thesis that strong demand in a firm's home market is an essential prerequisite to a successful growing business.

The case studies failed to provide support for Porter's (1990) hypothesis that firms with a large number of independent local customers are more likely to be successful, because nearly all of the case studies (*with the exception of Vitafoam*) were extremely dependent on a handful of large customers.

Porter's (1990) hypothesis that a rapidly growing local market creates successful growing firms was supported by 5 of the case study firms (*Forbes being the exception*), but the 1990-1992 UK recession had halted growth in 1992. Tenma and Silleck now found it difficult to maintain output and the manager of Silleck expressed the opinion that he believed the market had become saturated.

5.4.3.3 Firm strategy, structure and rivalry:

All six case study firms exhibited management goals for growth, but only Vitafoam and Foam Plus had explicit growth targets (*between 10-15% growth per annum by sales or assets*). Polbeth and Foam Plus had joined with multinational corporations as part of their long term growth strategies, since by doing so would provide the capital and management resources necessary to facilitate growth. The manager of Silleck's operation at Inchinnan did not have any specific growth strategy other than to maximise sales within the Scottish market, since the Inchinnan factory was basically a branch plant of an English-based company. However, the head office of Silleck appeared to be ambitiously pursuing a growth strategy aiming to serve the growing Scottish electronics consumer industry's demand for plastic components, that had led to the establishment of Silleck's Inchinnan factory and the acquisition of another plastics firm (*Douglas Plastics*) at East Kilbride. Tenma's management at its Cumbernauld plant, do not have any specific growth strategies other than to meet the demand of its two major customers, which it hopes will increase when the UK emerges from its current recession. Forbes operates within a very small market niche, so its options for long term growth are quite restricted. However, it has a strategy of maximising sales wherever possible by constantly seeking new product applications for its plastic fabricating technology and ensuring excellent customer relations through stringent product quality control and close customer liaisons with the objective of attracting repeat business. In summary then, the case study material generally supports Porter's (1990) hypothesis that clear management goals are a prerequisite for growth.

Porter's (1990) hypothesis that sustained management commitment to the firm is essential for a firm to successfully expand, was largely supported by the case studies, although to a greater extent by the firms of Polbeth, Tenma and Forbes. The dedication and commitment to the firm in the case of Polbeth and Forbes can be put down to enthusiastic owner-management throughout the development years of these firms. With Tenma, key personnel from the firm's Japanese operations who demonstrated great commitment and dedication to the firm, were selected to ensure that the implementation of their UK plant at Cumbernauld was a success. The managers interviewed of Silleck, Vitafoam and Foam Plus, while committed to the business, did not seem to have the same degree of personal commitment to the firm as the managers of Polbeth and Forbes who really believed in their firm because it was their own creation.

Porter (1990) believes that the two basic strategies that firms can employ in their bid to be successful and grow, are: (1) competing on cost; and (2) competing on product differentiation. The managers of Tenma, Silleck, Vitafoam and Foam Plus basically compete on cost since most of their competitors are technically competent and offer reasonable customer service. Polbeth and Forbes, on the other hand, while aware of the need to keep prices in check, produce differentiated products to suit their customers' needs. Tenma and Silleck have very little product differentiation since their production equipment is geared to saving costs through economies of scale achieved by having very few types of products, each of which are produced in very large volumes. Forbes has the greatest product differentiation, since each one of its products is custom built to the customer's specifications.

Porter's (1990) hypothesis that strong local rivalry amongst firms in an industry encourages firms to grow and be successful, appeared to be a strong contributing factor to growth in only Tenma and Silleck, but with demand now declining, that competitive atmosphere seems more likely to be destructive to firms' profitability as they all compete on price and attempt to gain a competitive edge by undercutting each other. Vitafoam and Foam Plus managers gave the impression that although they faced competition, it was not fierce. Once a sale was secured to the customer, that customer would usually give the company repeat business. Polbeth and Forbes faced no local rivalry at all in Scotland, but did face some UK rivals. However, with Polbeth being amongst the UK market leaders in food packaging and Forbes having carved out a distinctive market niche for itself, strong local rivalry in the

UK-wide context, could not be construed as a major determining influence on these firms' past growth record.

5.4.3.4 Related and supporting industries:

Porter's hypothesis (1990) that local clustering of related and supporting industries confers competitive advantage on firms, was only partially supported by the case studies. While Tenma, Silleck, Vitafoam and Foam Plus all located in the central belt of Scotland to be accessible to their key customers (*mostly in consumer electronic goods*), none of the case study firms had supplier firms in Scotland. Indeed, Foam Plus even imported its raw materials from Germany, but most of the case study firms had their suppliers located in England. The clustering of locally related industries (*i.e. consumer electronics firms across the central belt of Scotland*), did seem to be a strong contributing factor to the success of Tenma, Silleck, Vitafoam and Foam Plus. By contrast, Polbeth and Forbes appeared to be almost independent operations with no need to have proximity to either related industries, supplier firms or their customers.

5.4.3.5 The influence of chance or random events:

The influence of "chance" events on the case study firms was somewhat uneven. Invention as a chance event was extremely important in the growth of Forbes, because the firm's founder attributed much of his firm's early success as being due to his firm having pioneered a way to weld plastic sheeting together to form large vessels for industrial applications.

Entrepreneurship was a crucially important factor in the growth of Polbeth, Foam Plus and Forbes (*it was also important in Silleck's case, but only in the context of the parent firm's growth in England*). "Chance" or "shock" events as Porter (1990) puts it, played an important part in almost all of the firms' growth. With Tenma, Silleck, Vitafoam and Foam Plus, the government's decision to attract inward investment to Scotland in the form of consumer electronics firms such as IBM, Compaq, Mitsubishi Electric and JVC, greatly expanded the demand for plastics supply firms. In Forbes' case, the invention of new plastic materials at certain stages during the firm's development, helped to create a new market niche for itself because the new materials permitted plastics to be put to uses that had not been previously considered.

**TABLE 5.22:
GROWTH IN SELECTED CASE STUDY FIRMS WITHIN THE
ANALYTICAL FRAMEWORK OF PORTER'S MODEL**

Company	Poibeth	Tenna	Silleck	Vitafoam	Foam Plus	Forbes
LOCAL FACTOR CONDITIONS						
*infrastructure	4	5	4	4	4	5
*capital resources	5 (grants)	5 (grants)	1	1	3 (banks)	5 (grants)
*physical resources	4	4	3	3	3	4
*knowledge resources	2	2	2	2	2	3
*human resources:						
-quantity	5	5	5	5	5	3
-skills	3	2	2	2	2	3
-cost	4	5	5	5	5	4
LOCAL DEMAND CONDITIONS						
*Primary market served	UK	Scotland	Scotland	Scotland	Scotland	UK
*Market niche	no	no	no	no	no	yes
*Sophisticated & demanding buyers	yes	yes	yes	no	yes	yes
*Home market buyers anticipate buyer needs in other markets	no	no	no	no	no	no
*Strong demand in Scottish market	1	5	5	5	4	2
*Strong demand in UK market	5	1	1	1	3	5
*Large number of independent local customers	1	1	2	4	3	1
*Rapidly growing local market	Yes until end 1991	Yes until end 1991	Yes until end 1991	Steady growth	Yes	Steady growth
*Early saturation of demand in local market	no	NA: inward investm.	NA: English branch	NA: English branch	no	no
*Export markets	no	no	no	no	no	no
*Local market with multinational customers provide export business	no	yes	no	no	no	no
LOCAL FIRM STRATEGY, STRUCTURE & RIVALRY						
*Management goals for growth	4	3	3	5	5	3
*Strategy: compete on cost	3	5	5	5	5	3
*Strategy: compete on product differentiation	4	1	1	4	4	5
*Owner management structure	5	1	1	1	3	5
*Professional management	1	5	4	4	4	1
*Sustained management commitment to firm	5	5	4	4	4	5
*Strong rivalry in Scotland	1	5	5	4	4	1
*Strong UK rivalry	3	2	2	2	2	3
LOCAL RELATED & SUPPORTING INDUSTRIES						
*Cluster of related industries	1	4	4	3	4	1
*Cluster of supporting industries	1	1	1	1	1	1
*Strongly competitive local supplier firms	1	1	1	1	1	1
*Strongly competitive local related firms	1	3	3	3	3	1
INFLUENCE OF CHANCE EVENTS						
*Invention	1	1	1	1	1	4
*Entrepreneurship	5	1	1	1	1	5
INFLUENCE OF GOVERNMENT						
*Business advice	4	5	2	3	2	4
*Government grants	5	5	1	2	1	5

NOTE: Rating of importance of issue to firm growth: 5 (=extremely important)- 1 (=not important at all)

A problem with Porter's model that does seem to arise, is treating entrepreneurship as an influencing variable on a firm's potential for success, rather than as a determinant of growth. It is clear from the interviews of firms that developed as owner-managed firms (*all except Tenma, Silleck and Vitafoam*), that this is a factor of growth in small-medium firms that is grossly underrated in Porter's model.

5.4.3.6 The influence of government policy:

Government policy in the form of business advice and financial assistance, seems to have been a positive influence on most of the case study firms. Indeed, during the start-up phase of Polbeth's, Tenma's and Forbes' operations in Scotland, government industry advice and financial assistance in the form of grants, were crucial factors to the survival of these business ventures during their infancy. Porter's model (1990) grossly underestimates the importance of government policy to firm's growth prospects in peripheral regional economies such as Scotland's, in relegating government policy to that of an influencing condition of competitive advantage in firms, instead of a determining condition, which it would tend to be in a more interventionist economy. This is probably due to Porter's philosophical view that government should not directly determine an industry's extent of competitive advantage, but rather aim to create a favourable economic environment for business through upgrading factor conditions and a regulatory framework that leads to clustering of related and supporting industries, a competitive business environment and stimulating demand conditions.

5.4.3.7 Interaction of the determinants of competitive advantage:

Porter's (1990) concept that further growth in an industry is facilitated by the determinants of competitive advantage interacting with each other to continually upgrade and reinforce areas of competitive advantage, was not particularly well supported by the case studies. It appeared that in the case of Tenma, Silleck, Vitafoam and Foam Plus, favourable factor conditions had been established to encourage inward investment from major consumer electronics firms, which in turn stimulated demand for plastic and packaging components and thereby encouraged plastic suppliers to locate in central Scotland to take advantage of this demand. As many plastic suppliers entered the market, strong rivalry developed, allowing varied choice which in turn further stimulated demand. Growth in the plastics supply firms resulted in successful firms formulating explicit expansion strategies and restructuring to improve production efficiency and their growth potential. However, it does seem that from the evidence in

the case studies, that the clustering effect of plastics supply firms with consumer electronics firms has not especially helped to reinforce factor conditions as a source of competitive advantage.

5.5 CONCLUSIONS

This chapter has shown the plastics supply sector to be an important though modest sector of the Scottish economy, and that while not experiencing spectacular success, has nevertheless maintained steady growth performance. The owners and managers were found to be cautiously optimistic about their growth prospects in spite of the severity of the current recession, but have in the past demonstrated a conservative, almost reluctant approach to growth by refusing to burden their firms with external debt that may be vital to fund expansion strategies. With respect to the growth in employment, the industry appears to have performed strongly and consistently, although not spectacularly with almost every occupational group registering an increase in absolute employment. The growth in employment of low skilled manual workers in the industry does not seem to have been commensurate with increases in either the growth in total assets or the amount of capital employed. It may be that production capacity in the past has been under-utilised, implying that growth in employment may simply reflect management's determination to utilize existing production capacity more fully.

An important objective of this chapter, was to explain and understand the factors that have facilitated the growth of firms in the Scottish plastics supply sector. Section 5.4.1 found that growth firms were not fundamentally different from stable firms. Growth firms seemed more likely to rely on their existing local markets and products and professional management to ensure their continued success. However, in the long-term, the wisdom of reliance on local markets as a basis for growth is questionable if it induces overdependency. The data seemed to suggest that external ownership (*outwith Scotland but mainly based in England*), could account for growth in these firms. Moreover, growth may have been spurred on by the real or perceived threat of competition by growth firms in the Scottish market. It would seem then from section 5.4.1, that within the context of Porter's model (1990), the determinant of demand conditions and the determinant of firm strategy, structure and rivalry, have been the main contributing determinants to growth.

The findings obtained in section 5.4.2 using the quantitative statistical approach did not provide statistical validity for Porter's model at the level of statistical

analysis employed. However, the findings in this section did point to growth being possibly associated with: the factor condition issues of "securing government grants" and "distance from markets"; the demand condition issue of "strong demand from export markets" (*although this did not seem to be backed up by the data in the case studies*); the firm strategy, structure and rivalry issues of "sufficient plant capacity", "maintaining sufficient cash flow" and "sufficient management skills to plan, organise and manage growth"; the related and supporting industry issue of "companies involved in products that are complementary to your company's products"; and the government related issue of the "rate of company taxation".

Section 5.4.3 attempted to redress the limitations of a quantitative statistical methodology in testing Porter's model by using a case study approach. This survey approach was more successful in employing this analytical framework, but presented difficulties in attempting to generalise about phenomena, because each firm's development is unique.

Factor conditions were important during the start-up phase of a firm's development but not so critical once the firm was established. Scotland does seem to be lacking in capital resources for this industry sector since none of the case study firms utilised significant private local capital resources during their development; the two case study firms indigenous to Scotland sold out to international corporations to fulfil their future growth ambitions; and development capital for most firms in this sector was largely derived from the firm's own resources. Low cost, plentiful supplies of labour seemed to be an important factor condition in keeping the case study firms in the area.

Demand conditions were an important in each of the case study firm's success, but not in the way argued by Porter. The overall thrust of Porter's argument concerning the importance of demand conditions is that growth principally follows from a strong local market leading to substantial export market sales, was not reflected in any of the case study firms. Strong local demand (*either in the Scottish or UK market context*) was an extremely important component in the success of all the case study firms, but none saw any export potential in their products. Growth for these firms has been dependent on growth in the UK market.

The relative importance of firm strategy, structure and rivalry conditions, varied significantly amongst the case study firms. However, what did

stand out as a common feature in all of these growth firms is that each manager appeared to have had a sustained commitment to the business and that each manager perceived rivalry from other UK firms to be strong. The case studies suggested that strong competition in this industry forced firms to compete on cost, rather than on providing a differentiated product. The structure of management (*owner-managed versus a professional management team*), did not make an appreciable difference to the growth prospects of the case study firms, since both management structures demonstrated strong commitment to their respective firms. This was in contrast to the statistical tests for this issue, which suggested the opposite.

The growth determinant of related and supporting industries was only important in four of the case study firms. Clustering of related industries (*but not supplier firms*) in the form of the consumer electronics industry throughout the central belt of Scotland, helped to create demand for the plastics industry that might not have otherwise occurred.

Porter's relegation of "chance events" to that of an influencing condition on the four main determinants of competitive advantage in his model, seems questionable from three of the case studies examined, where entrepreneurship appeared to be a determining factor in these firms' success during their early stages of development. In making the transition from a proprietor business to a professionally run business, the drive and enthusiasm of the business founder/entrepreneur appeared to be the key factor in these firms' early success.

The role of government in three of the case study firms, particularly in terms of financial assistance, was greatly underrated within the analytical framework of Porter's model. The decision to start-up in Scotland was a determining factor in two of the case study firms and in the other case study firm (*an example of indigenous growth*) government financial assistance was judged to be almost a make-or-break factor to the firm's survival in its infancy.

In conclusion then, Porter's model appeared to be applicable as an explanatory framework of growth in firms of the Scottish plastics supply sector, when applied on a case by case basis, but lacking in statistical validity at the simple level of quantitative analysis employed, relying on chi-squared tests for statistical significance of associations between growth and factors or issues relevant to the determinants and influencing conditions of Porter's model. The main limitation with Porter's model

would seem to be that its holistic nature means that it can be effectively manipulated to explain almost anything.

The next chapter will determine the applicability of Porter's model in explaining and understanding growth in firms in Aberdeen's oil and gas related sector.

SIX

FIRM GROWTH IN
ABERDEEN'S OIL AND GAS RELATED SECTOR

CHAPTER SIX CONTENTS:

<u>SECTION</u>	<u>CONTENT:</u>	<u>PAGE</u>
6.0	INTRODUCTION	270
6.1	OVERVIEW OF OIL AND GAS RELATED SECTOR	270
6.2	THE SURVEYED FIRMS	280
6.3	GROWTH PERFORMANCE OF FIRMS	283
6.3.1	Employment	283
6.3.2	Financial Performance	284
6.3.3	Markets	288
6.3.4	Management's Attitudes to Growth	288
6.3.5	Nature of Growth	290
6.4	EXPLAINING GROWTH IN THE SECTOR	292
6.4.1	Factors and Issues Associated with Growth	292
6.4.2	Growth in the Context of Porter's Model: Statistical Tests for Significance of Growth Factors	300
6.4.3	Growth in the Context of Porter's Model: Case Studies of Growth Firms	307
6.4.3.1	Factor Conditions	318
6.4.3.2	Demand conditions	320
6.4.3.3	Firm strategy, structure and rivalry	322
6.4.3.4	Related and supporting industries	324
6.4.3.5	The influence of chance or random events	324
6.4.3.6	The influence of government policy	326
6.4.3.7	Interaction of the determinants of competitive advantage	327
6.5	CONCLUSIONS	328

CHAPTER SIX: FIRM GROWTH IN ABERDEEN'S OIL AND GAS RELATED SECTOR
--

6.0 INTRODUCTION

The main objectives of this chapter are to discuss the growth performance of the surveyed firms in Aberdeen's oil and gas related sector; and to explain and develop an understanding of the factors that have facilitated firm growth in this sector. The first part provides an overview of what is going on in the sector in general. The oil and gas related sector is dependent on the fortunes of the oil and gas industry in the UK sector of the North Sea. Section 6.2 discusses the part of Aberdeen's oil and gas related industry the surveyed firms represent. Appendix A6B discusses the characteristics of the firms in the postal questionnaire survey in greater detail (*see appendix A6D for a complete listing of these firms*).

The growth performance of the surveyed firms is discussed in depth in section 6.3. The majority of firms (53%) by the measure of employment, have experienced growth of more than 25% in employment during 1988-1991.

Section 6.4 includes analysis of both the extensive (*from the postal questionnaire*) and intensive (*personal interviews of case study firms*) survey results. It starts with a quantitative analytical approach, which proved not to be conclusive, although there were some interesting findings which seemed to be reinforced by the case study material. Therefore, 5 case studies were selected for detailed interviews of growth firms. Appendix A6A details the cross-tabulations of growth by various factors and issues investigated in this section, while appendix A6C contains a detailed account of each firm's case history, its growth performance and the reasons for its growth.

6.1 OVERVIEW OF OIL AND GAS RELATED SECTOR

The gross domestic product of the Scottish economy was £38,738 million in 1990. Exports of petroleum and petroleum products through Scottish ports amounted to £4,298 million (*HMSO, Scottish Office, 1992*). The actual market value of crude oil (*not including gas*) pumped out from the UK sector of the North Sea in 1990 based on the North Sea Brent Crude oil price of \$US18.60 per barrel (*1992 market price*) and annual output of 855 million barrels, was about £9.9 billion (*derived from Scottish Economic Bulletin No.45 and The Economist, December 1992*). So far,

the oil and gas industry has contributed more than £115 billion to the Exchequer in royalties and taxes since 1968. The North Sea oil industry has permitted the UK to achieve self-sufficiency in oil and UK-wide, it provides more than 30,000 jobs directly (*Sunday Times, January 17, 1993*). Since Aberdeen is the prime service centre for the oil and gas industry in the northern North Sea, there should in theory have been a considerable economic benefit for companies in the Grampian region serving offshore oil company operators.

Very few direct statistics are available on firms that are not oil and gas companies but which have a significant part of their trade with oil and gas operators in the UK sector of the North Sea. Grampian Region's Business Directory for 1991, indicated that there were 1,116 businesses ranging from small business concerns with a handful of employees to large corporations employing several thousand people, that were either directly or partially involved in the exploration or production activities in the oil and gas fields. However, this directory fails to give any insight into the magnitude or the nature of trade that these firms have with the oil and gas industry. Scottish Business Insider magazine (*December 1991*) stated that there are around 1,800 indigenous oil sector related companies in Scotland, although it is not at all clear how this figure was arrived at. A survey conducted in 1990 by the Scottish Office (*Cunneen, 1992*), helps to shed some light on this issue, although the figures are aggregated values for the whole of Scotland and do not give any indication of the picture for Grampian region. The survey contained results for 1,129 firms located in Scotland out of a target sample of 3,290 firms. The survey estimated through extrapolating the survey results, that direct sales to oil and gas operators in the North Sea came to £2,320.8 million; indirect sales totalled £487.1 million; export sales totalled £664.7 million; and sales relating to the extraction of mineral oil and gas totalled £640.4 million. The export sales of £664.7 million accounted for 8.9% of Scotland's exports in 1990. Total oil related sales by oil related companies amounted to £4,113.0 million in 1990, of which 79% were from wholly oil related companies and 21% were from partly oil related companies (*i.e. firms which are between 1 and 99% involved in oil and gas related activity*).

The sectors of the Scottish economy that appear to have benefited the most from sales to the oil and gas operators in the UK sector of the North Sea (*see table 6.1*) are: the SIC division of metal goods engineering and vehicles with total sales of £1,038.3 million; followed by the SIC division of energy and water, with total sales £664.7 million. The SIC divisions of chemical and metal manufacture, other

manufacturing, with £108.0million and £36.9million in sales respectively, performed relatively poorly compared with the SIC divisions of construction (*with sales of £386.2million*); distribution, hotels and catering (*with sales of £448.1million*); transport and communication (*with sales of £366.5million*), and business services (*with sales of £397.7million*). Table 6.1 details total direct and indirect sales by oil related companies located in Scotland.

TABLE 6.1:
TOTAL DIRECT AND INDIRECT SALES BY OIL RELATED COMPANIES
LOCATED IN SCOTLAND (£ MILLION)

SALES BY DIVISION	SIC	DIRECT SALES	INDIRECT SALES	SUB-TOTAL SALES	OTHER SALES	TOTALS SALES
Energy and water	1	0.0	0.0	0.0	664.7	664.7
Chemical & Metal Manufacture	2	80.6	27.5	108.0	0.0	108.0
Metal Goods Eng. and Vehicles	3	887.5	150.8	1,038.3	0.0	1,038.3
Other manufacturing	4	24.8	12.0	36.9	0.0	36.9
Construction	5	335.2	51.0	386.2	0.0	386.2
Distribution, Hotels & Catering	6	338.8	109.3	448.1	0.0	448.1
Transport & Communication	7	322.1	44.5	366.5	0.0	366.5
Business services	8	310.1	87.6	397.7	0.0	397.7
Other Services	9	21.6	4.5	26.2	0.0	26.2
TOTAL		2,320.8	487.1	2,807.9	664.7	3,472.6

SOURCE: THE SCOTTISH OFFICE, No.45, Summer 1992, Table 3C

Table 4.5 earlier demonstrated how Grampian region dominated oil industry employment in Scotland in 1990, with almost 81% of Scotland's 63,300 employees in companies wholly related to the North Sea oil industry. According to Grampian Regional Council (1991), oil related employment in the Grampian Region had peaked in 1990 at 52,200, which was 3,000 higher than the previous peak in 1985. The Council believes that this is a function of three factors: (1) the pace of offshore development, particularly with regard to exploration and the time to bring oil production from new fields onstream; (2) safety modifications introduced in response to the Piper Alpha disaster in 1988; and (3) the continuing relocation of functions, jobs and companies into the region. These have included Stena Offshore transferring functions and management from Leith to Aberdeen, the expanded Met Office offshore service, and most significantly, the establishment in Aberdeen of Occidental's UK headquarters instead of in London. The Regional Council also considered the opening of the International Drilling and Downhole Technology Park as an important addition to the facilities in the region to serve the offshore oil industry. However, despite the growth in employment in the region, the Regional Council believes that a shortage of skilled labour with the necessary level of offshore experience will be one of the major concerns for the industry over the coming decade. Some contractors require

employees to have a minimum of 5 years relevant experience before they are allowed into an offshore environment (*Furmanite Engineering*).

The cyclical nature of the oil related industry in Aberdeen, creates a volatile employment climate. The price of oil is determined on world markets, so external factors that ostensibly appear to have little connection with the UK economy, can actually have a considerable impact on UK oil income. A glut of oil on world markets for example could have a detrimental effect on the North Sea oil and gas industry because it faces higher exploration and production costs than many other oil producing regions. Employment grew quite quickly in the 1970s and 1980s as the offshore activity built up, only to decline when a crisis of confidence followed the 1986 oil price crash. However, it picked up again to reach a new peak in 1990, but has dipped again in 1992, probably as a result of the 2 year old UK recession finally catching up with the industry through falling consumer demand in the UK economy. The collapse of the oil price in 1986/87 led to serious job losses in the Grampian region (locally 25% of oil related employment) and a perception in many quarters that Aberdeen's future as a major base for the North Sea oil industry had been seriously undermined. This view turned out to be unduly pessimistic, since companies in the oil and gas related sector began to trim costs and take a more realistic view of projects, in other words, doing more with less.

In 1990, the oil industry is different to what it was in 1985. The basic economics have changed. The application of technology, greater accountability and tighter management has reduced the actual costs of exploring and developing reservoirs, thereby allowing it to cope better with fluctuating prices.

The consequences of the Iraqi invasion of Kuwait in August of 1990, where the price of oil rose from \$US16 a barrel in June 1990 on occasions to \$US40 a barrel, produced undoubted short-term benefit to the UK oil industry (*Grampian Business Directory, 1991*). However, it has to be said that oil and gas projects require a long-term view and are not planned to depend on any crisis. The long-term future for the North Sea oil industry is secure if the "real" oil price based on supply and demand remains, at around \$US20 per barrel. In late 1992, the price of a barrel of North Sea Brent crude oil was \$US18.60 (*The Economist, December 12, 1992*) The flow-on effect of higher prices due to the Gulf War has resulted in more exploration and appraisal work being done in the North Sea. In the Northern and central North

Sea alone, following the Gulf War in 1991, the number of rigs operating rose from 32 to 43.

The Piper Alpha tragedy in 1988, in which 178 oil workers died when their platform exploded in the Piper field of the North Sea, had an enormous impact on the oil industry, both in terms of government regulation of the industry and in the changed approaches adopted by companies working in the industry. Most companies now give the impression in their public relations material that employee safety is an uppermost consideration on par with any business objectives and everything possible is done to ensure that work is carried out with minimal safety risk, in what is by nature a very hazardous environment. The greater safety consciousness has enhanced oil related industries by making them produce products and services that are as safe as technology permits. The spinoff from this has been world-class products and services of high quality, reliability and durability to cope with some of the most punishing physical environments around. An added benefit is that the safety angle helps to create a more marketable product or service, important to offshore operators wanting to avoid a repeat of the Piper Alpha tragedy.

The contribution of petroleum and petroleum based products to Scotland's exports in 1990 is further evidence of how important the oil industry is to Scotland's economy (*The Scottish Office, No.45*). When the oil industry reached a peak in 1985, it accounted for £11,506million, (*i.e.* 83%) of Scotland's total export income. Following the slump in the oil industry in 1986/1987, in which its oil exports declined to £5,487million in 1986, Scotland's total exports declined dramatically to £7,464million. Even by 1990, Scotland's exports had barely risen to £7,213million, of which £4,298million (*about* 60%) came from petroleum and petroleum based products.

A small group of offshore operators in the UK sector of the North Sea determines most of the subcontract work available to companies whose custom is either wholly or partially related to the oil industry (*The Scottish Office, No.45*). In 1992, there were 22 operators either exploring or producing oil and gas, from a total of 70 fields. Table 6.2 provides some details of the oil company operators in the UK sector of the North Sea.

An interesting aspect of any industry based on mineral extraction processes is that the industry has a finite life-span determined simply by the reserves

TABLE 6.2:
OIL/GAS COMPANY OPERATORS IN THE UK SECTOR OF THE NORTH SEA

Oil Company Operator	Year of Discovery	No. of fields	Estimated Reserves in 1991 m tonnes(1)	Rate of Oil Production in 1991 m tonnes	Total Oil Production 1975-1991 m tonnes	Estimated Date When Production Ceases(6)
Shell	1971	11	558.2 (3.9 gas)	24.5	355.5	2013
BP	1970	7	523.3 (119.4 gas)	17.4	355.1	2021
Statoil	1975	1	445.7	4.6	46.3	2087
EE Caledonia (4)	1973	5	245.0	3.9	166.2	2054
Chevron	1974	2	207.7	4.2	124.9	2040
Mobil	1972	3	131.9	5.0	68.9	2017
Marathon	1975	4	109.0	4.2	39.9	2017
Britoil	1972	4	87.9	2.1	66.8	2033
Conoco	1973	3	82.5	2.0	48.7	2031
Amerada Hess	1975	5	78.6	3.0	7.2	2017
Enterprise	1988	1	56.7	0	0	2018
Amoco	1969	5	48.5 (37.9 gas)	2.1	27.1	2014
Texaco	1975	4	40.5 (9.5 gas)	1.9	19.6	2012
Total Oil Marine	1975	1	29.0	4.0	15.3	1998
Phillips	1973	2	28.6	1.9	25.2	2006
Agip	1977	2	22.1	0	0	2017
Unocal	1973	1	13.7	0.5	12.5	2018
Hamilton Bros	1971	4	13.4	0.2	13.2	2058
Sun Oil	1975	1	13.3	1.3	8.0	2001
Sovereign	1981	1	3.0	0	0	2017
Sun Oil Britain	1982	2	2.4	0.5	1.4	1996
Lasmo	1985	1	0.9 (0.8)	0	0	2017
TOTAL		70	2877.5 (171.5 gas)	117.1	1401.8	2016

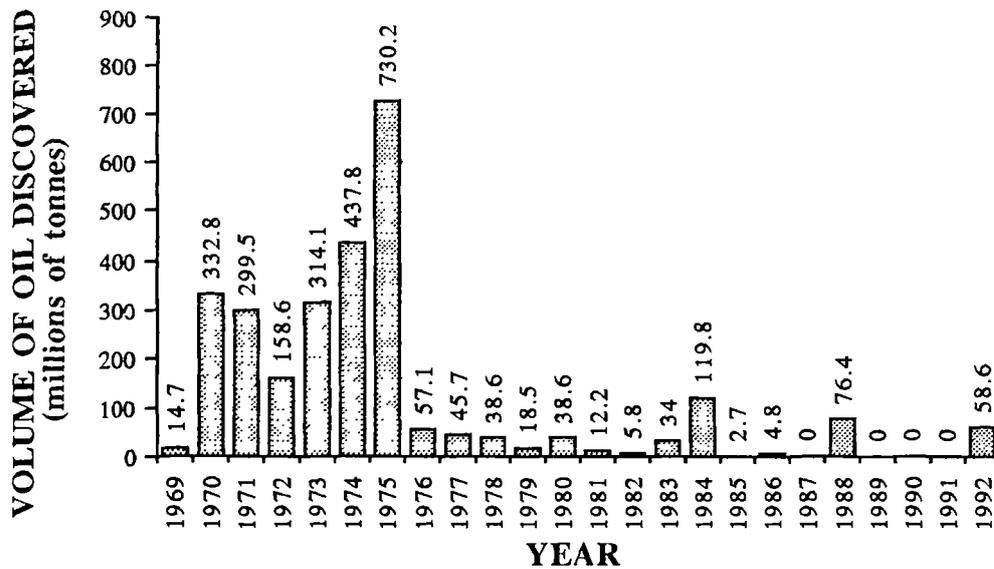
SOURCE: Adapted from statistics in HMSO, SCOTTISH ECONOMIC BULLETIN, No.45, Summer 1992

NOTES:

1. Operator's estimate of proven recoverable reserves (million tonnes)
2. Figures rounded to the nearest 100,000 tonnes.
3. Gas output measured in billion cubic metres
4. No production in Piper field (reserves of 135.6 million tonne) between 1988 to 1992 due to Piper Alpha platform being destroyed.
5. Oil output measured in million of tonnes.
6. Date when production will cease estimated by dividing reserves by 1991 production levels.
7. 1 tonne of oil=7.3 barrels of oil.

of the mineral in the ground and the rate of extraction (*which is influenced by the profit that can be earned and demand for the product*). Nobody is quite sure the exact reserves of oil and gas in the UK sector of the North Sea, but judging from the declining rate of new finds and the relatively small sizes of finds compared to the early years of the industry (*see figure 6.1*), it seems that the estimated reserves in 1992 of around 3,000 million tonnes is a reasonable guide to the expected life of these oilfields. At the 1992/1993 price for crude oil of \$US18.60 per barrel, this means that the value of the remaining reserves would be a ball-park figure of £255 billion. The

FIGURE 6.1:
VOLUME OF OIL DISCOVERED BY YEAR IN THE UK SECTOR OF THE
NORTH SEA, 1969-1992



SOURCE: Produced from statistics in HMSO, SCOTTISH ECONOMIC BULLETIN, No.45, Summer 1992

UK government would like to extend Britain's oil industry well into the next century and to achieve this end, government ministers intend approving exploratory work at up to 122 new sites around the UK coastline in the first half of 1993 (*Sunday Times, January 17, 1993*). This estimate of the remaining reserves is not completely certain, because new technology is constantly shifting the oil and gas industry equation, making it economic to extract reserves from previously uneconomic fields through the use of underwater wellheads, thereby dispensing with the need for a costly servicing platform above the sea and also making it possible to explore fields in deep sea locations (*at the moment, 150m is about the maximum depth most operators work in-new techniques could double that to 300m*). The industry is also very sensitive to fluctuations in the world price for oil, but can compete reasonably effectively as long as the world price does not drop too far below \$US20 per barrel. Although events like the Gulf War in 1990/1991 witnessed the price of oil climbing into the low \$US30s per barrel, the oil operators know not to base their economic viability calculations for their fields on wild fluctuations that could bankrupt them if and when the slump comes. Table 6.2 provides some rather crude estimates on the expected longevity of each operator's reserves, based on their 1991 rate of production. The average life expectancy for the whole UK sector based on the 1991 rate of production is about 25 years. It may even be less than that if demand for oil increases or lower world oil prices render some fields redundant due to much increased oil production, which is possible, given that Russia, China, Kuwait and Iraq may become important oil

producers over the next decade or more. Furthermore, the OPEC countries, Saudi Arabia, Iran, Venezuela, Mexico, United Arab Emirates, Nigeria and Libya want to increase production by about 53 million tonnes a year by the middle of the decade.

Grampian Regional Council (1991) has a much more optimistic view of the UK's oil and gas fields' longevity. From its sources, it indicated that over 80 further fields are forecast to be developed over the next two decades, which is 15 more than were forecast in 1989. Moreover, it indicated that by 2011, there could still be nearly 50 fields in production, an increase of 10 over the number forecast in 1989. This prediction is based on the experience of other oil provinces around the world, which have had a longer life than was expected because of technological advances resulting in greater economies of scale.

Nevertheless, there is a limit to what technology can do, and when the North Sea oil fields do run dry, no amount of high-tech wizardry will conjure up oil that is no longer there. When that day comes, indigenous service firms that have grown up around the Grampian region to service the offshore oil industry will have to look to other offshore oil provinces for markets. If they have not already got into the habit of exporting their products and have become too locked into single customers operating in the North Sea, they will be left without any custom when the offshore oil operators pack up and move off to greener pastures. Ian Wood, chairman of the Wood Group, a home-grown Aberdeen oil service corporation, is acutely aware of this scenario, even though he optimistically declares that the North Sea oil fields will probably have a 50 year life span (*The Scotsman, Tuesday, April 1991*). Local companies will have to get into the way of exporting if they want to outlive the North Sea oil industry. However, it will not be enough to simply export any product or service. Ian Wood exhorts Scottish companies to become specialists in providing unique technological products and services, since major global oil service companies such as Schlumberger and Halliburton already provide all the basic services efficiently and effectively (*Scottish Business Insider, December 1991*). Aberdeen is recognised the world over to be at the forefront in its application of subsea technology (*Rockwater*). The successful activities of the Wood Group have shown that it can be done. Indeed, Grampian Regional Council would like Grampian companies to follow the Wood Group's example of internationalising and diversifying their operations, which it has done by capturing segments of the market requiring higher levels of expertise and technology, since local sources are usually less able to supply such services and the added value in higher technology activities is usually much higher.

Scottish Enterprise in a private inquiry laments the fact that almost £100 billion of investment over two decades in the UK's oil and gas fields has failed to produce what it calls "world ranking players" (*Scottish Business Insider, December, 1991*). Scottish Enterprise surveyed 1,100 companies, of which 65% were Scottish owned. The key findings of the survey are tabulated in table 6.3. Scottish Enterprise found that the Scottish-owned firms were invariably smaller, with poorer performance ratings and lower export horizons than their UK- and US-owned counterparts operating in Scotland. Only 4% of the £1,025million in sales attributable to Scottish firms has oil related sales to export destinations. This compares with 4.8% of £1,639million in sales for UK-owned firms and 18.8% of £629million in sales for other US-owned firms. Furthermore, nearly two-thirds of those Scottish company sales were realised in Scandinavian countries which contrasts with the UK- and US-owned companies which are striking harder into markets with greater future growth, such as the Americas and the European Community countries. According to Scottish Enterprise's chief executive, Crawford Beveridge (*Scottish Business Insider, December, 1991*), Scottish companies must broaden their level of risk and transfer their expertise to developing hydrocarbon provinces if Scotland is to become a long-term player in the oil/gas industry. It is implied that Scottish companies should look to the key offshore market growth areas in 1995, which will be in South-East Asia, Australasia and North America. Beveridge acknowledges that Scotland may have the world's highest concentration of subsea expertise, but says that its companies are too small, their staff and financial base too restricted for them to capitalise easily on overseas opportunities. Beveridge considers that Aberdeen lacks headquarter functions, decision-makers, a world-class R & D network and accessible finance.

Five other main issues came out of the Scottish Enterprise Inquiry (*Scottish Business Insider, December, 1991*). First, that too many indigenous Scottish companies have been content to survive on minor subcontract work while the US dominated contractors pick up all the main jobs, a view endorsed by Ian Wood, head of the Scottish-owned Wood Group. However, there are some Scottish companies serving the oil industry, such as the Wood Group, Salvesen, Balmoral, Ben-Odeco, Weir and Geolink among them, which are either already playing a significant role overseas or have clear potential and ambition to do so. Second, much of the technology has been split between Scotland and England, with major contracts going to London based companies while Aberdeen has had to be content with the jobs for smaller fields. Third, too many local operators are dependent on large single

customers with as much as 70-80% of their turnover coming from BP or Shell alone. Fourth, a lot of the expertise and special equipment produced in Scotland, often by Scots, has been as part of US or other international oil service companies. The concern seems to be that when the oil industry in the North Sea winds down, these subsidiaries will cease to be, since the international firms will just pack up and move on to the next big offshore province. And fifth, many local companies have become part of international groups because they cannot operate by themselves due to the amount of capital that has to be invested. Since the oil-price crises of the 1970s and 1980s, banks are wary of lending to small oil service companies, and the large oil companies prefer to deal with larger, more established companies.

Another possible dark cloud on the horizon for oil-related companies that concerns Grampian Regional Council (1991), is the extent to which UK companies will have a level playing field with the creation on the single market at the end of 1992. British companies are very concerned about this issue, since the British market for offshore supplies constitutes no less than 70% of the EC total, and there is a fear that other EC countries may gain more access than domestic ones. However, Grampian Regional Council believes that if local companies remain competitive and the European Commission ensures that foreign companies do not receive hidden subsidies, Grampian based companies should continue to do well in the new environment.

TABLE 6.3:
COMPARISON OF SCOTTISH WITH OTHER UK AND US OIL-RELATED COMPANIES OPERATING IN THE UK SECTOR OF THE NORTH SEA

OWNERSHIP OF OPERATIONS LOCATED IN SCOTLAND	SCOTTISH	UNITED KINGDOM	UNITED STATES
average employees/company	40	170	290
Number of companies	717	254	72
OIL RELATED SALES	SCOTTISH	UNITED KINGDOM	UNITED STATES
UK sector	£984m	£1,561m	£511m
Exports	£41m	£78m	£118m
TOTAL	£1,025m	£1,639m	£629m
LARGEST SINGLE EXPORT MARKET	SCOTTISH	UNITED KINGDOM	UNITED STATES
Non-EC Europe	60%	---	---
N & S America	---	48%	---
EC	---	---	68%

SOURCE: SCOTTISH BUSINESS INSIDER, December 1991

From the few studies that have been undertaken into the oil related sector of the UK North Sea oil and gas industry, the picture seems somewhat negative. Nevertheless, in terms of employment, Grampian region has done very well

out of the oil industry, with unemployment at only 3.7% in 1992 compared to around 10% in the Southeast of the UK, despite the fact that the UK economy is in the grips of its worst recession in postwar years. The Scottish Enterprise survey suggests that around 1,800 Scottish companies have arisen to serve the oil and gas sector (*Scottish Business Insider, December, 1991*). The UK has become self-sufficient in oil and it has helped to lessen the severity of the 1990-1992 recession in Scotland because of its strong performance through 1990 and 1991. Scottish Enterprise is ambitious in its expectations for indigenous Scottish companies to challenge the long established might of American companies in the oil and gas field with typically 60 years experience, and technical and capital resources that are difficult to match. In terms of its population and wealth, Scotland would seem to have the odds weighted against it (*to put it in perspective, the US economy in 1992 had more than 90 times the GDP output of Scotland and 50 times as many people (The World in 1993: The Economist)*). Following the 1986/87 downturn in the industry, Scottish banks appeared to be reluctant to underwrite firms in this sector (*Grampian Regional Council, 1991*) and the political will that resides in Westminster views the North Sea oil and gas fields as a UK resource not a Scottish one. Yet in spite of the odds, indigenous Scottish firms and the Scottish subsidiaries of foreign owned companies have still managed to make Aberdeen the foremost centre for subsea technology in the world (*according to discussions with the case study firms*). If indigenous businesses such as the Wood Group, Salvesen, Balmoral, Ben-Odeco, Weir and Geolink can realise their ambitions to become worldplayers in the offshore oil industry over the next decade, Scotland will have lasting benefit to come out of the North Sea oil and gas fields, even when they reach the end of their economic life.

6.2 THE SURVEYED FIRMS

The postal questionnaire survey targeted 323 firms within the Aberdeen area that had no more than 500 employees in 1988 that were engaged in manufacturing or service functions for oil and gas operators in the UK sector of the North Sea. 70 firms returned completed postal questionnaires the results of which form the main part of this chapter. After discounting the 23 firms that had either failed or moved away, almost 1 in 4 firms in the Aberdeen area were represented by the survey results. The yield of 70 responses was sufficient to conduct chi-squared statistical tests of association with one degree of freedom and identify growth firms for the case studies. A list of the companies that helpfully participated in the survey is contained in appendix A6D. The information in the returned postal questionnaires was used to select 5 case studies of growth, each with different characteristics, for the purposes of

producing a representative cross-section of growth in the sector. One of the case study firms preferred not to be identified in the case studies and so has been given a fictitious name, but in all other respects, the details that this firm divulged are accurately recorded. The companies that were selected for in-depth study were: Rockwater, Furmanite, ABB Vetco Gray, Wood Group Engineering Offshore and Neptune Marine (*an alias*). Detailed accounts of the respective case studies in terms of their history and growth record can be found in appendix A6C.

The Grampian Business Directory (1991) does not describe in detail what each of the firms in the oil and gas related sector actually do in terms of products or services. Only the postal questionnaire was able to accurately ascertain what services or products each firm brings to the marketplace. Table 6.4 provides details of the activities undertaken by the aggregated firms, according to two general categorisations: firms that are providers of services; and firms that are manufacturers. It should be noted that many firms undertake a range of service and production activities, and therefore the activities detailed in the table are not mutually exclusive.

The main service activities provided by the surveyed firms were: (1) specialist engineering activities for deployment offshore and onshore (*38.6% of firms*); (2) stockist/supplier of specialist equipment (*34.3% of firms*); (3) repair and maintenance services of specialist equipment (*25.7% of firms*), and (4) specialist design work (*24.3% of firms*). Most manufacturing activities carried out by firms were in either light, low to moderate precision engineering (*25.7% of firms*) or high precision technology engineering (*20.0% of firms*).

Appendix A6B details the characteristics of the surveyed firms. The main features are discussed as follows. The average age was 11.4 years and more than 75% of firms had been established since the first oil and gas fields became operational in 1976, which suggests that many of these businesses may have come into being as a result of the oil industry using Aberdeen as its main base. Almost 9 in 10 firms were private companies and only 1 in 20 firms were public limited companies. Most of the surveyed firms were either indigenous to the UK (80%) or Scotland (64%). The average size of firms was 88 employees in 1991. Firms had an average annual sales turnover of £11.6m in 1991, with each employee generating average annual sales of £165,347 (*more than four times the equivalent average in the plastics supply industry-see appendix A5B.6*). The average annual profitability in

1991 was £600,000 (*more than 50% higher than that obtained for firms in the plastics supply sector*).

TABLE 6.4:
WHAT OIL AND GAS RELATED FIRMS IN THE
POSTAL QUESTIONNAIRE SURVEY DO

PROVIDER OF SERVICES	NO. OF FIRMS	PROPORTION %
Personnel Recruitment	5	7.1
Stockist/supplier of specialist equipment	24	34.3
Specialist equipment for hire	6	8.6
Repair and maintenance services of specialist equipment	18	25.7
Specialist design work	17	24.3
Equipment inspection service	10	14.3
Operator of specialist offshore equipment	5	7.1
Specialist engineering services for deployment onshore and offshore	27	38.6
Management services (including project management)	4	5.7
Provider of non-engineering related services to the oil and gas industry such as catering	2	2.9
Subcontracting	5	7.1
MANUFACTURING		
Chemical products and/or treatments	5	7.1
Heavy industrial engineering	2	2.9
Light, low to moderate precision engineering	18	25.7
High precision technology engineering	14	20.0
Electronics equipment	3	4.3
Other	2	2.9

SOURCE: Postal questionnaire survey of 70 oil and gas industry related firms in Aberdeen, 1991

The average occupational structure of the surveyed firms was found to have approximately 10% of employees in each of the categories of "managerial & executive", "professional", "clerical & administrative"; 40% in the "skilled technical" category; and 28% in the "unskilled manual" category. Table A6B.1 in the appendix provides details of the occupational structure of employment in 1988 and 1991. The contrast with the occupational structure of firms in the plastics supply sector is quite marked. The plastics supply sector was found to be dominated with manual labour jobs (73%) whereas oil and gas related companies are dominated by skilled technical and professional jobs (50%). Part-time employment in the oil and gas related sector was found to be almost insignificant, while in the plastics supply sector, it accounted for 1 in 10 jobs. Also interesting is the contrast between the sectors in the proportion of employment engaged in either "managerial & executive" or "clerical administrative" occupations, accounting for 11% of employment in the plastics supply sector compared with 21% of employment in the oil and gas related sector. Using the plastics supply sector as a benchmark, it would seem that the jobs provided by the oil and gas related sector in Aberdeen are of a high quality.

6.3 GROWTH PERFORMANCE OF FIRMS

This section discusses the growth performance of the firms that participated in the postal survey, in terms of change in employment, sales/employee, profits/employee and markets.

6.3.1 Employment

Between 1988 and 1991, the occupational structure of firms did not change appreciably, although there were considerable absolute increases in employment across all the occupational categories. The average size of firm increased over this period from 75.7 employees per firm to 99.6 employees per firm, an increase of almost a third (*see table A6B.1 in the appendix*). The average annual growth in employment for the surveyed firms was 9.6%, which is quite remarkable when set against the backdrop of the UK recession in which national unemployment increased to from a low of 6% in 1989 to 9% in 1991 (*HMSO, Key Data, 1992*).

Table 6.5 provides further evidence of the exceptional growth in this sector, in terms of the high proportion of growth firms over the period 1988-1991. 17% of the surveyed firms experienced moderate employment growth in the range of 26-50%, while twice as many firms experienced employment growth of more than 50%. Stable and declining firms accounted for 17% and 20% of firms respectively. What is perhaps more remarkable are the large average absolute increases in employment per firm amongst the growth categories of firms. For example, the high growth firms increased on average by 66 employees and the moderate growth firms increased by an average of 22 employees.

TABLE 6.5:
GROWTH FIRMS BY MEASURE OF EMPLOYMENT: 1988-1991

Employment Growth	No. of Firms (% of sample)	Average Change: Total emp/firm (full-time)	Average change in total employment/firm expressed as a %
High >50%	25 (36%)	+66.4	+161.7%
Moderate 26-50%	12 (17%)	+22.0	+38.2%
Stable 1-25%	12 (17%)	+14.6	+13.9%
Declining 0% or less	14 (20%)	-30.0	-9.1%

NOTES:

1. Based on 63 observations.
2. Employment change measured in absolute terms expressed as an average increase in employees per firm for each respective employment category.

The impact on the occupational structure of firms of growth in employment is examined in detail in table 6.6. Amongst the growth categories of firms, the occupational groupings of "professional", "skilled technical", and "unskilled manual" stand out as being the main beneficiaries of growth. In the high growth category of firms, the largest proportionate increase was for "skilled technical" with 228.4%, followed by "professional" with 154.1%. In terms of the average absolute change in employment, "skilled technical" increased by an average 30.3 employees per firm, while "unskilled manual" increased by 23.2 employees per firm. With the moderate growth category of firms the picture was very similar. Clearly, this analysis has demonstrated that the "skilled technical" occupational group has been the prime beneficiary of growth in this industry sector. The "professional" and "unskilled manual" occupational categories, have however, also gained from growth.

TABLE 6.6:
GROWTH FIRMS: IMPACT ON OCCUPATIONAL STRUCTURE OF FIRMS
DURING 1988-1991

Employment Growth Full-time	No. of Firms (% of sample)	Change: Managerial & Executive: Employees per firm; % change/firm	Change: Professional: Employees per firm; % change/firm	Change: Clerical/ Administrative Employees per firm; % change/firm	Change: Skilled Technical: Employees per firm; % change/firm	Change: Unskilled manual: Employees per firm; % change/firm
High >50%	25 (36%)	+3.3 (+77.0%)	+8.9 (+154.1%)	+6.0 (+118.9%)	+30.3 (+228.4%)	+23.2 (+140.7%)
Moderate 26-50%	12 (17%)	+2.4 (+36.0%)	+0.8 (+65.0%)	+0.9 (+31.0%)	+11.7 (+47.4%)	+6.1 (+28.2%)
Stable 1-25%	12 (17%)	+3.1 (+12.8%)	+2.0 (+4.7%)	+2.5 (+13.4%)	+4.5 (+10.8%)	+2.2 (+10.5%)
Declining 0% or less	14 (20%)	-0.5 (-9.1%)	+0.1 (+20.4%)	+0.1 (+0.3%)	-0.1 (-2.2%)	-3.8 (-15.0%)

NOTES:

1. Based on 63 observations
2. Employment change measured in absolute terms expressed as an average increase in employees per firm for each respective employment growth category.
3. Percentages represent the average increases in employment per firm, expressed as a percentage.

6.3.2 Financial Performance

Respondents were asked to provide details about the change in sales and profits for their firms during the period 1988-1991. This information was then used to derive the financial performance indicators of sales/employee and profits/employee, the results of which are tabulated below in table 6.7. According to these financial performance indicators, the oil and gas related sector performed strongly, with 42.9% of firms growing in terms of sales/employee, and 38.6% of firms growing in terms of profits/employee. The average change in sales/employee

was +11.1% with a modal value of +7.4% for 56 of the surveyed firms and for profits/employee, it was +16.8% with a modal value of 8.5% for 48 of the surveyed firms. The extent of agreement between these two financial performance indicators would suggest that the estimate of the number of growth firms in the sector is fairly reliable and can be taken to be about 40%. This is noticeably better than that obtained for the plastics supply sector, which suggested that between 34% and 16% of firms were growing by these financial performance measures.

TABLE 6.7:
SUMMARY OF CHANGES IN FINANCIAL PERFORMANCE INDICATORS
OF FIRMS DURING 1988-1991 PERIOD

Financial Indicator	Average Change	Standard deviation	Highest value	Lowest value	Modal value	Number of firms	% of firms growing*
sales/emp	+11.1%	46.2%	+118.8	-72.7	7.4%	56	42.9%
profits/emp	+16.8%	61.5%	+237.5	-59.7	8.5%	48	38.6%

NOTES:

1. Survey sample population of 70 firms.
 2. Change in financial indicator expressed as a proportion of 1988 value.
- *Refers to proportion of sample population and does not take into account non-response rate.
Sales/Employee: Annual total sales per employee.
Profits/Employee: Annual profits per employee.

Table 6.8 ranks in descending order of importance, all of the surveyed firms that had equal or better than modest growth in sales (*i.e. more than 25% change in sales during the period 1988-1991*). About 36% (25 firms) of the surveyed firms provided sufficient statistics to be ranked in this manner. The excluded firms either did not achieve growth in sales during the period 1988-1991 of more than 25% or did not have the full range of statistics detailed in table 6.8. The growth firms in 1991 ranged in employment size from 2 to 805 with an average size of 134 employees/firm and from sales of £140,000 up to £125m, with average sales of £12.4m/firm. Growth in sales was generally synonymous with growth in employment, although with two firms, growth in sales did not translate into growth in employment. With these two firms, growth in sales has resulted from higher labour productivity, since both firms experienced large increases in sales/employee and profits/employee. The fastest growth firm (1991 sales of £10m) in terms of change in sales (>300%), also experienced the fastest growth in employment, increasing by 940% in three years to a 1991 employment level of 104 employees. However, this seems to have been achieved at the expense of growth in sales/employee and profits/employee, both of which decreased by 57% over this period. The second fastest growing firm (1991 sales of £60m) by change in sales (*growth by >300%*) performed well by all the criteria detailed in table 6.8, growing in employment by 133% to 805 employees,

TABLE 6.8:
RANKING OF FIRMS BY GROWTH IN SALES WITH COMPARATIVE
FINANCIAL PERFORMANCE INDICATORS FOR 1988-1991 PERIOD

%Change: Sales/employee	%Change: Profits/employee	%Change: Sales	%Change: Employment	1991 Employment	Annual Sales 1991 (£m)
-56.7	-56.7	>300%	940.0	104	10.000
92.9	50.0	>300%	133.3	805	60.000
116.4	178.2	201-300%	61.8	550	22.800
118.8	56.3	201-300%	60.0	8	0.650
75.0	125.0	201-300%	100.0	2	0.140
60.7	-11.3	101-200%	55.6	28	1.600
17.1	17.1	101-200%	113.5	79	3.000
87.5	237.5	101-200%	33.3	80	10.000
38.7	38.7	51-100%	26.2	265	20.000
12.9	-11.0	51-100%	55.0	31	4.400
25.0	25.0	51-100%	40.0	7	10.000
-30.0	80.0	51-100%	150.0	25	1.100
75.0	38.0	51-100%	0.0	28	2.600
-15.9	-45.9	51-100%	108.0	520	19.000
16.7	-25.0	51-100%	50.0	9	0.700
45.8	45.8	51-100%	20.0	24	0.800
0.0	157.1	51-100%	75.0	7	0.750
-23.0	-50.5	51-100%	127.3	25	0.350
-2.8	38.9	51-100%	80.0	18	2.430
-4.8	-22.4	26-50%	45.0	303	10.500
-23.3	-44.4	26-50%	80.0	360	125.000
-3.8	-21.6	26-50%	43.5	33	1.800
28.1	4.5	26-50%	7.7	14	0.500
25.5	25.5	26-50%	10.0	11	1.380
38.0	12.5	26-50%	0.0	2	0.450

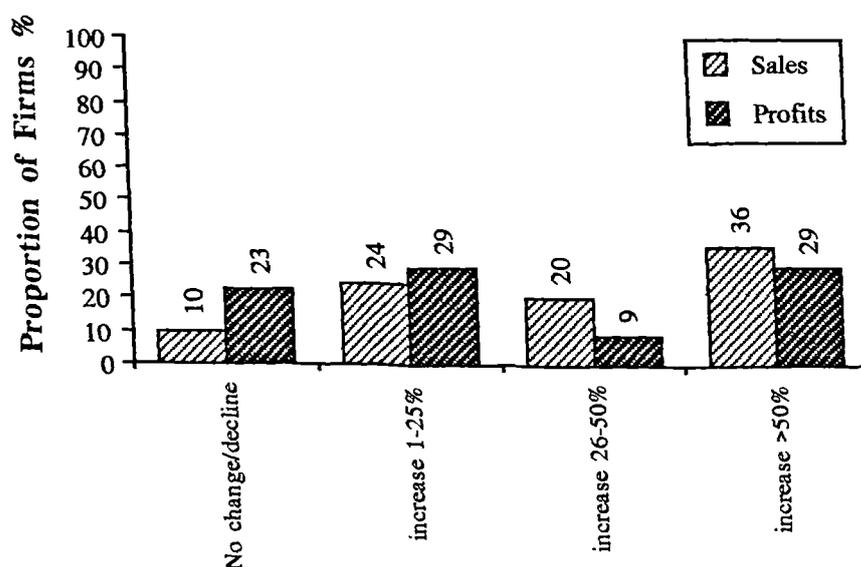
NOTE:

Table contains statistics for all firms (first 25 ranked in descending order of magnitude by change in sales) that had moderate or better levels of growth in sales (26-50%) over the period 1988-1991, for which full statistics were provided by the respondents.

while experiencing growth in sales/employee of 93% and profits per employee of 50%. The firm with the highest sales, (1991 sales of £125m), had strong employment growth (increasing by 80% to 360 employees in 1991), but experienced only moderate growth in sales (26-50%) and performed poorly in terms of change in sales/employee (-23%) and profits/employee (-44%). Although a positive change in sales/employee and profits/employee is not essential to a firm's further growth prospects if it already generates very high sales and profits per employee, in the long term profitability is bound to suffer with the result that a firm's growth ambitions would have to be curtailed in order to finance the investment necessary to facilitate further growth. It would seem that a number of growth firms during the period 1988-1991 have perhaps taken on too many employees than can be justified by the growth in sales and profits over the corresponding period. For example, 6 of the growth firms examined experienced negative change for both sales/employee and profits/employee, although employment growth ranged from between 43% and 940% for these firms. A further 3

firms experienced a negative change in profits/employee but not in sales/employee, which suggests that the prospects for continued growth in these cases is still good as long as these firms remain profitable. Another 2 firms experienced a negative change in sales/employee but not in profits/employee, which is a somewhat puzzling phenomenon since it suggests that these firms have been able to drastically reduce their cost structure in spite of declining sales/employee of 30% for one of these firms. Table 6.8 would seem to suggest that after discounting all those firms that had negative change in sales/employee and/or profits/employee, only 15 firms (21% of the surveyed firms) had strong prospects for continued growth, and these firms in 1991 ranged in size from 2 employees to 805 employees and annual sales from £0.14m to £60m, with an average firm size of 134 employees and annual sales of £9.5m.

FIGURE 6.2:
GROWTH PERFORMANCE OF ABERDEEN'S OIL AND GAS RELATED
SECTOR BY TURNOVER AND PROFITS OVER PERIOD 1988-1991



NOTES:

1. Missing observations, 10%
2. 100%=population of 70 firms

Figure 6.2 above shows the growth performance of this sector during the period 1988-1991, by the measures of change in annual sales turnover and annual profits. Here growth firms (*increasing by more than 25%*), account for 56% of firms by the measure of sales and 38% by the measure of profits. Fast growth firms (*increasing by more than 50%*), account for 36% of firms by sales and 29% of firms by profits. The variation between the indicators requires some caution in producing a prognosis for further growth in the sector, however, since long term profitability is a

prerequisite for investing in a firm's further growth, profits are probably a more realistic indication of likely future growth amongst the sector's firms.

6.3.3 Markets

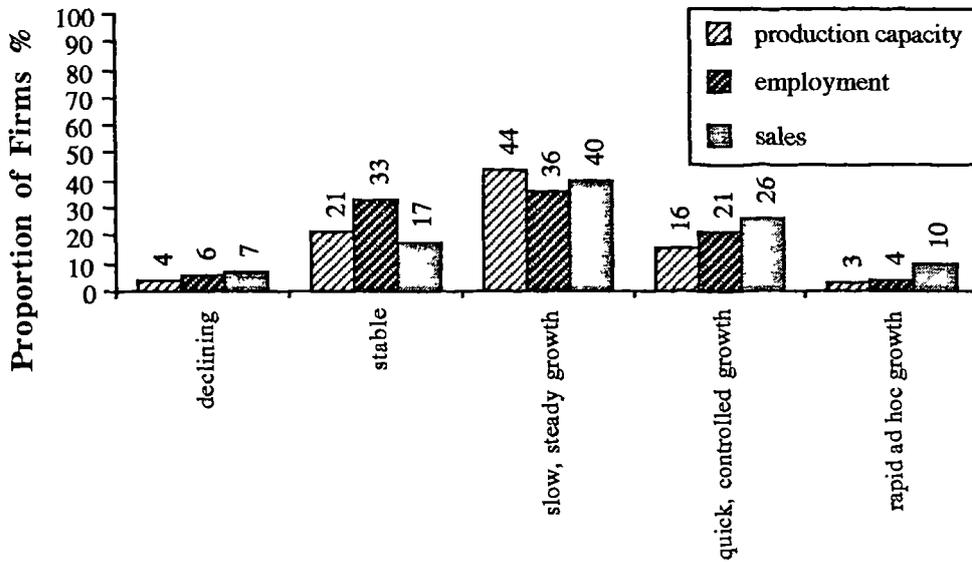
The surveyed firms were found to be heavily dependent on the Grampian region as a source of markets, accounting for a 54% share. The rest of Scotland held a 9% share; the rest of the UK a 15%; and the rest of the world a 22% share. This dependence on the the Grampian region for markets (*and the UK economy in general*) did not change significantly during the period 1988-1991. Therefore, it would seem that the growth that has occurred in the sector during this period can not be put down to change in the structure of the surveyed firms' markets.

6.3.4 Management's Attitude to Growth

Most management's perception of their firm's growth over the past three years according to the measures of production capacity, employment and sales, was that they had grown (*see figure 6.3*). For example, 63% of managers judged their firms to have grown in terms of production capacity; 61% in terms of employment; and 76% in terms of sales. There was a significant proportion of firms that experienced quick, controlled growth (*16% by production capacity; 21% by employment; and 26% by sales*). Declining firms were in the minority, accounting for no more than 7% of firms by the measure of sales. Stable firms accounted for a small, though significant proportion of firms (*21% by production capacity; 33% by employment; and 17% by sales*). In terms of growth in production capacity and employment, few firms experienced rapid ad hoc growth. However, 10% of firms experienced rapid ad hoc growth in sales, a much higher proportion than was found in the case of plastics supply firms with 2%. Managements' general appraisal of their firms' performance seemed to be that most firms had experienced growth by the measures of production capacity, employment and sales, with only a very small proportion actually declining.

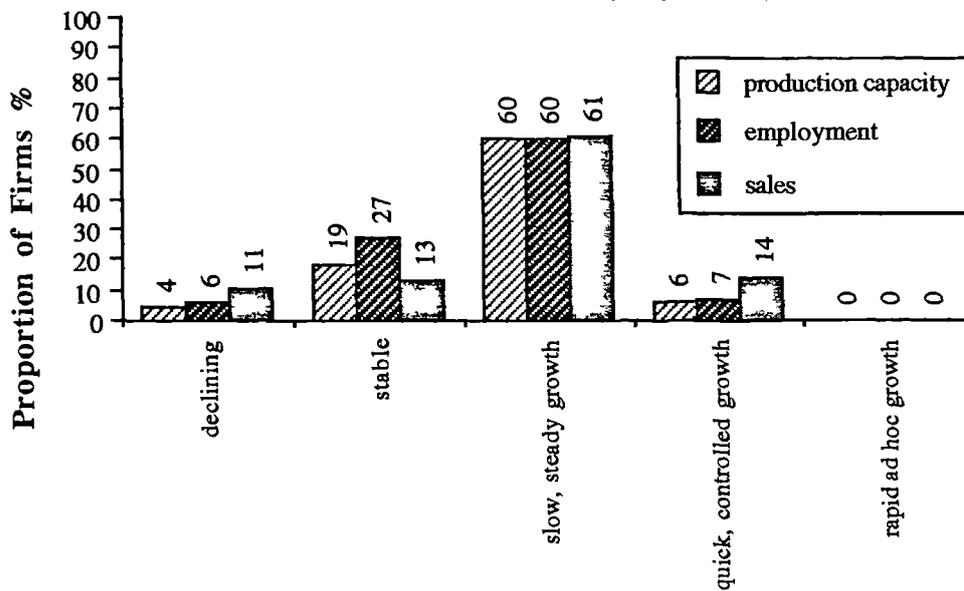
The perception of management's expectation of growth for their firms' over the next three years (*i.e. 1991-1994*) was generally much more cautious than their record of growth for the past three years would have suggested. This could be because the effects of the UK recession were just beginning to take effect in the industry. When the case studies were conducted in mid-1992, the mood had definitely swung round to one of pessimism in the short-term at least, as it became clear that orders had fallen in 1992. For example, 11% of firms expected sales to decline, 13%

FIGURE 6.3:
MANAGEMENT'S PERCEPTION OF GROWTH OVER THE PAST THREE YEARS IN TERMS OF PRODUCTION CAPACITY, EMPLOYMENT AND SALES



NOTES:
 1. Missing observations, 12% for production capacity variable
 2. 100%=population of 70 firms

FIGURE 6.4:
MANAGEMENT'S EXPECTATIONS OF GROWTH FOR THE NEXT 3 YEARS IN TERMS OF PRODUCTION CAPACITY, EMPLOYMENT AND SALES



NOTES:
 1. Missing observations, 12% for production capacity variable
 2. 100%=population of 70 firms

to remain stable, 61% to grow steadily but slowly and 14% to grow in a quick controlled manner. With employment, 6% of firms expected employment to decline; 27% to remain stable; 60% to grow steadily, and 7% to grow in a quick, controlled manner. With production capacity, 4% of firms expected to decline, 19% expected to remain stable, 60% expected slow steady growth and 6% expected growth in a quick controlled manner. Compared to the plastics supply sector, 11% more managers expected growth over the next three years than amongst managers in the oil and gas related sector. This is surprising given that the oil and gas related sector is recognised in the statistics (*and is confirmed by this survey*) to be much more dynamic component of the Scottish economy than the plastics supply sector.

Management's judgement of their firm's growth over the past three years was cross-tabulated with management's expectation of growth for the next three years according to the three growth measures of employment, sales and production capacity (*see table 6.9*). The purpose of this cross-tabulation was to see if managers that had experienced growth in the past expected growth to occur in the future. The expectation of growth variable was broken down into two simple categories, that of no-growth and growth, while management's judgement of growth over the past three years was broken down into a dichotomy of growth or stable/declining over the past three years. The results are somewhat surprising, because although the chi-squared scores indicate that there is a statistically significant association at the 0.05 level of significance by the growth measures of employment (*chi-squared score of 6.301*) and sales (*chi-squared score of 6.532*), and at the 0.005 level of significance by the growth measure of production capacity (*chi-squared score of 15.919*), they are all in the opposite direction to what one would expect. In other words, managers of growth firms were pessimistic of future growth whereas managers of non-growth firms were optimistic of future growth. Even taking into account the fact that managers could foresee in 1991 at the time the survey was conducted that the UK recession would start to bite into sales in 1992, one would have expected all firm managers to be pessimistic about future potential for growth, or at the very least, for managers of growth firms to be slightly more optimistic of their growth prospects and more capable of achieving growth than their non-growth counterparts.

6.3.5 Nature of Growth

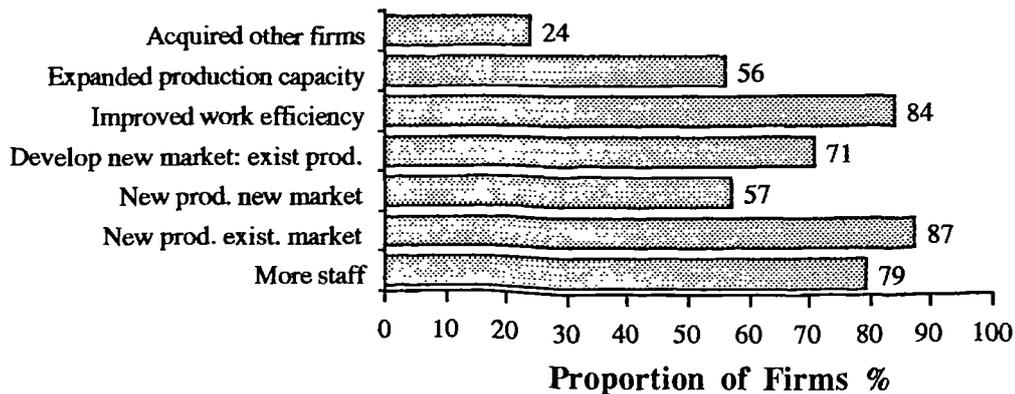
Figure 6.5 details the methods of growth employed by firms during the period 1988-1991. It should be noted that the categories are not mutually exclusive, since some firms expanded by more than one method. The survey found that the most

TABLE 6.9:
MANAGEMENT'S EXPECTATION OF GROWTH FOR NEXT 3 YEARS
VERSUS MANAGEMENT'S JUDGEMENT OF GROWTH IN PAST 3 YEARS

MANAGEMENT'S EXPECTATION OF GROWTH OVER NEXT THREE YEARS (Emplmt/Sales/Prod.Cap.) → MANAGEMENT'S VIEW OF GROWTH OVER PAST THREE YEARS (Employment/Sales/Production Capacity) ↓	Expectation of no-growth next three years (no. firms)	Expectation of growth next three years (no. firms)	TOTAL (no. firms)	CHISQUARE
*Growth over past three years	Emp:34 Sales:45 Pro.Cap.:39	Emp:13 Sales:9 Pro.Cap.:7	Emp:47 Sales:54 Pro.Cap.:46	
*Stable/declining over past three years	Emp:9 Sales:8 Pro.Cap.:5	Emp:14 Sales:9 Pro.Cap.:11	Emp:23 Sales:17 Pro.Cap.:16	
*TOTAL (no. firms)	Emp:43 Sales:53 Pro.Cap.:44	Emp:27 Sales:18 Pro.Cap.:18	Emp:70 Sales:71 Pro.Cap.:62	E:6.301 S:6.532 PC:15.919

common methods of expansion was to introduce a new product/service into an existing market (87% of firms) and improving work efficiency (84% of firms). Employing more staff (79% of firms) and developing new markets with existing products/services (71% of firms) were the next most common methods of expansion. Introducing new products/services into a new market (57% of firms) and expanding production capacity/service potential (56% of firms) were methods of growth adopted by more than half the surveyed firms. Acquisition of other firms was the least common method of firm expansion, but still pursued by a significant minority of firms (24% of firms).

FIGURE 6.5:
METHOD OF GROWTH FOR FIRMS OVER THE PAST THREE YEARS



NOTE:
 100%=population of 70 firms

6.4 EXPLAINING GROWTH IN THE SECTOR

The main objective of this section is to explain the factors responsible for growth in Aberdeen's oil and gas related sector. This is done by analysing and interpreting the postal questionnaire and in-depth case study survey results. The first part of this analysis investigates the general factors and issues that may be associated with growth from the postal survey, while the second and third parts investigate growth within the context of Porter's model (1990) of competitive advantage.

6.4.1 Factors and Issues Associated with Growth

This section investigates from the postal questionnaire survey data why some firms have grown and others have not. The methodology adopted is identical to that taken with the plastics supply sector in section 5.4.1. Growth firms were defined according to firms that changed by one of three growth measures by more than 25% during the period 1988-1991: employment, annual sales and annual profits. The resulting dichotomy of stable/declining and growth firms by the three respective growth measures, was then cross-tabulated with various factors/issues whose broad categories were defined as follows:

1. Company characteristics: age; legal form; management type; and ownership.
2. Personal characteristics of management: age; educational background; and tenure as manager.
3. Motivations of management: business objectives; and attitudes to growth.
4. Method of attaining growth.
5. Sources of development capital.
6. Sources of assistance.
7. Location of competitors.
8. Location of markets.

Tests for statistical significance of association for the various cross-tabulations utilised the chi-squared test. Table 6.10 is a summary of the cross-tabulations with growth whose associations were found to be of very weak significance or better (*i.e. with chi-squared scores of 1.000 or better*). The tests for associations with the strongest statistical significance have been included in this section (*see tables 6.13 to 6.15 inclusive*), while those cross-tabulations with associations of either weak or negligible statistical significance have been confined to appendix A6A. Table 6.16 summarises those cross-tabulations with growth that were found not to be statistically significant, (*with chi-squared scores of less than 1.000*). Out of a total of

50 cross-tabulations conducted, 21 were found to have high enough chi-squared scores for either one or more of the growth measures of employment, sales or profits, to suggest associations of weak significance or better. These were: (1) growth synonymous with more staff employed (*chi-squared score of 10.4 by the growth measure of employment and 2.6 by the growth measure of sales*); (2) growth synonymous with good working conditions for employees not being important (*chi-squared score of 6.3 by the growth measure of employment*); and (3) growth being synonymous with the importance of high profits (*chi-squared score of 4.5 by the growth measure of employment*).

The strong association between "more staff employed" and the growth measure of employment and to a lesser extent, the growth measure of sales (*see table 6.11*) was to be expected. More interesting perhaps was the fact that no association was found with the growth measure of profits. This could possibly be explained by growth in employment displacing growth in profits, as profits are reinvested or retained to either take on new staff or increase the capitalisation of the firm.

The strong association found between the issue of "good working conditions for employees not important" with growth by the measure of employment suggests that perhaps employment conditions in the industry are generally very good, therefore implying that firms will not necessarily perceive there to be any competitive advantage in attracting the best employees by providing even better working conditions than the industry norm. Alternatively, management do not view employment working conditions as being an issue with any significant bearing on a firm's growth potential.

The association found between the issue of the "importance of high profits" and the growth measure of employment in table 6.13 is interesting. It demonstrates clearly that growth firms (*in terms of employment*) in this sector stress profitability as perhaps the most important business objective to focus on.

Two other issues that had a moderate association with growth, with chi-squared scores of more than 3.0 but failing to reach the score of 3.8 necessary for a 0.05 level of significance, were: (1) in table 6.14, the uselessness of advice/assistance from accountants by the growth measure of employment (*chi-squared score of 3.2*) and the usefulness of such advice/assistance by the growth measure of profits (*chi-squared score of 3.6*); (2) in table 6.15, no expectations of growth in sales over the next three years (*chi-squared score of 3.4 by growth measure*

of sales). The contradictory results obtained for the issue of accountants' utility suggests that there might be significant differences in attitudes to accountants between firms that appear to be growing by employment and those that appear to be growing by profitability. This could perhaps be explained by firms that have expanded by employment but not by profits as being dissatisfied with their financial management through accountants, while firms that have performed well in terms of profitability, have been happy with their accountants. The association of growth by the measure of sales with the management not having any expectation of growth in sales over the next three years seems to be due to growth firms (*in terms of sales growth*), sensing that the oil and gas industry is entering into another downturn, which has been commented upon earlier in this chapter. The reason that growth firms may be more acutely aware of an impending downturn in the industry is because they are probably the first firms to feel the effects of the offshore contractors delaying or cancelling new orders than non-growth firms, which may have had difficulties securing such orders even in the boom times, and so remain falsely optimistic of the actual state of the industry.

Weak to moderate associations resulted from the cross-tabulations of "development capital from the firm's internal resources by the growth measure of sales (*chi-squared score of 2.4*); the "importance of maximised market share" by the growth measure of sales (*chi-squared score of 2.0*) and profits (*chi-squared score of 2.1*); and the "importance of maximised production efficiency" by the growth measure of sales (*chi-squared score of 2.1*) and profits (*chi-squared score of 1.3*). The issue of "development capital from the firm's internal resources" being associated with growth is revealing, because analysis of the five case study firms tended to back up this finding very strongly. Larger private growth firms tended to rely almost exclusively on their own financial resources for investment purposes. Also interesting is the importance of maximised market share. In speaking to the case study firms, the comment came up that the market had reached a peak in 1991 and further growth would only come through increased market share since the expectation was for the market to contract somewhat in 1992. The issue of production efficiency was also supported by comments from the case study firms that after the industry nosedived in 1986/87, firms could only survive and grow by being "leaner and fitter", in other words, doing more with less.

Other cross-tabulations detailed in table 6.10 were of very weak significance, achieving chi-squared scores of between 1.0 and 2.0. They are that

**TABLE 6.10:
SUMMARY OF ASSOCIATIONS WITH GROWTH WITH SOME
STATISTICAL SIGNIFICANCE**

NATURE OF RELATIONSHIP IN CROSS-TABULATION: HIGH GROWTH SYNONYMOUS WITH:	Table in Appd.*	Rank of Chisq	Emp. Chisq. Score	Emp. no. of firms	Sales Chisq. Score	Sales no. of firms	Profits Chisq. Score	Profits no. of firms
*More staff employed	text	1	10.4	61	2.6	63	0.1	62
*Good working conditions for employees not important	text	2	6.3	61	0.1	63	0.0	62
*Importance of high profits	text	3	4.5	61	0.2	63	0.5	62
*Uselessness of advice/assistance from accountants by measure of employment	text	4	3.2	60	0.0	62	3.6	61
*No expectations of growth in sales over next 3 years	text	5	1.0	61	3.4	63	0.0	62
*Development capital from the firm's internal resources	A6.32	6	0.1	57	2.4	60	0.8	59
*Importance of maximised market share	A6.15	7	0.1	60	2.0	62	2.1	61
*Importance of maximised production efficiency	A6.14	7	0.6	58	2.1	59	1.3	58
*Location of markets in rest of world >33%	A6.30	8	0.1	60	1.4	62	1.9	61
*Location of competitors in Grampian >33%	A6.23	9	1.8	58	0.3	60	0.3	60
*Introduction of new products and services into existing markets	A6.31	9	1.8	61	0.0	63	0.2	62
*Public form of company	A6.2	10	0.1	59	1.7	63	0.2	62
*Useful advice/assistance from management consultants by measure of profits	A6.33	11	0.0	60	0.2	62	1.5	61
*Importance of product quality improvement by measure of employment *Product quality improvement not important by measure of profits	A6.16	12	1.4	60	0.5	62	1.0	61
*Job creation not important	A6.18	12	0.1	60	1.4	62	0.2	61
*Useful advice/assistance from Enterprise Initiative	A6.48	12	0.1	61	0.0	63	1.4	62
*Importance of large firm size in terms of capital assets	A6.10	13	1.3	59	0.8	61	0.1	60
*Useful advice/assistance from banks by measure of profits	A6.33	14	0.5	61	0.0	63	1.1	62
*Professional form of management	A6.3	14	1.1	56	0.0	63	0.2	57
*Location of competitors in rest of Scotland =<33%	A6.24	14	0.0	58	0.0	60	1.1	60
*Introduction of new products and services into new markets	A6.31	15	0.9	61	1.0	63	0.3	62

*See Appendix A6A for full cross-tabulation

NOTE:

1. Growth firm is defined as one that has changed by more than 25% over the period 1988-1991 according to one of the growth indicators of employment, profitability and sales turnover.

**TABLE 6.11:
GROWTH VERSUS METHOD OF GROWTH: EMPLOYMENT OF MORE STAFF**

GROWTH MEASURE (Employment./Sales/Profits) → EMPLOYED MORE STAFF ↓	STAGNANT/ DECLINE (no. firms)	GROWING >25% (no. firms)	TOTAL (no. firms)	CHISQUARE
yes	Emp:15 Sales:16 Profits:28	Emp:32 Sales:34 Profits:22	Emp:47 Sales:50 Profits:50	
no	Emp:11 Sales:8 Profits:8	Emp:3 Sales:5 Profits:4	Emp:14 Sales:13 Profits:12	
*TOTAL (no. firms)	Emp:26 Sales:24 Profits:36	Emp:35 Sales:39 Profits:26	Emp:61 Sales:63 Profits:62	E:10.384 S:2.641 P:0.129

**TABLE 6.12:
GROWTH VERSUS IMPORTANCE OF GOOD WORKING CONDITIONS
FOR EMPLOYEES**

GROWTH MEASURE (Employment./Sales/Profits) → GOOD WORKING CONDITIONS FOR EMPLOYEES ↓	STAGNANT/ DECLINE (no. firms)	GROWING >25% (no. firms)	TOTAL (no. firms)	CHISQUARE
important	Emp:24 Sales:20 Profits:28	Emp:24 Sales:30 Profits:21	Emp:48 Sales:50 Profits:49	
not important	Emp:2 Sales:4 Profits:8	Emp:11 Sales:9 Profits:5	Emp:13 Sales:13 Profits:13	
*TOTAL (no. firms)	Emp:26 Sales:24 Profits:36	Emp:35 Sales:39 Profits:26	Emp:61 Sales:63 Profits:62	E:6.302 S:0.091 P:0.000

**TABLE 6.13:
GROWTH VERSUS THE IMPORTANCE OF HIGH PROFITS**

GROWTH MEASURE (Employment./Sales/Profits) → HIGH PROFITS ↓	STAGNANT/ DECLINE (no. firms)	GROWING >25% (no. firms)	TOTAL (no. firms)	CHISQUARE
important	Emp:25 Sales:22 Profits:30	Emp:28 Sales:33 Profits:24	Emp:53 Sales:55 Profits:54	
not important	Emp:1 Sales:2 Profits:6	Emp:7 Sales:6 Profits:2	Emp:8 Sales:8 Profits:8	
*TOTAL (no. firms)	Emp:26 Sales:24 Profits:36	Emp:35 Sales:39 Profits:26	Emp:61 Sales:63 Profits:62	E:4.460 S:0.223 P:0.541

**TABLE 6.14:
GROWTH VERSUS USEFULNESS OF ADVICE/ASSISTANCE: ACCOUNTANTS**

GROWTH MEASURE (Employment./Sales/Profits) → ADVICE/ASSISTANCE FROM: Accountants ↓	STAGNANT/ DECLINE (no. firms)	GROWING >25% (no. firms)	TOTAL (no. firms)	CHISQUARE
Useful	Emp:17 Sales:11 Profits:13	Emp:15 Sales:19 Profits:16	Emp:32 Sales:30 Profits:29	
Not useful	Emp:8 Sales:13 Profits:23	Emp:20 Sales:19 Profits:9	Emp:28 Sales:32 Profits:32	
*TOTAL (no. firms)	Emp:25 Sales:24 Profits:36	Emp:35 Sales:38 Profits:25	Emp:60 Sales:62 Profits:61	E:3.175 S:0.003 P:3.600

TABLE 6.15:
GROWTH VERSUS MANAGEMENT'S EXPECTATIONS OF GROWTH IN SALES OVER THE NEXT THREE YEARS, 1991-1994

GROWTH MEASURE (Employment./Sales/Profits) → MANAGEMENT'S EXPECTATION OF GROWTH IN SALES OVER NEXT THREE YEARS ↓	STAGNANT/ DECLINE (no. firms)	GROWING >25% (no. firms)	TOTAL (no. firms)	CHISQUARE
*Expecting growth	Emp:17 Sales:9 Profits:10	Emp:28 Sales:6 Profits:6	Emp:45 Sales:15 Profits:16	
*Not expecting growth	Emp:9 Sales:15 Profits:26	Emp:7 Sales:33 Profits:20	Emp:16 Sales:48 Profits:46	
*TOTAL (no. firms)	Emp:26 Sales:24 Profits:36	Emp:35 Sales:39 Profits:26	Emp:61 Sales:63 Profits:62	E:0.965 S:3.403 P:0.016

growth by the measure of employment is synonymous with: (1) a concentration of competitors in Grampian; (2) growth through the introduction of new products and services into existing markets; (3) the importance of product quality improvement; (4) the importance of large firm size in terms of capital assets; and (5) a professional form of management. And that growth by the measure of sales is synonymous with: (1) a public form of company; (2) job creation not being important as a business objective; and (3) the introduction of new products and services into new markets. And that growth by the measure of profits is synonymous with: (1) a concentration of markets in the rest of the world; (2) useful advice/assistance from management consultants; (3) the non-importance of product quality improvement; (4) the usefulness of the Enterprise Initiative; (5) the usefulness of banks; and (6) and a small proportion of competitors in Scotland.

Table 6.16 is a summary of the cross-tabulations that were not statistically significant. The more interesting cross-tabulations in this category included the cross-tabulation of growth with: (1) management's expectation of growth in production capacity or employment over the next three years; (2) firm ownership either outwith Scotland or the UK; (3) having the most innovative products on the market; (4) maximised productivity; (5) companies less than ten years of age; (6) growth through improved production efficiency; (7) acquisition of other firms; (8) a good rapport between management and employees; and (9) the importance of high sales turnover to management.

To conclude, although the analysis in this section suggests that as with the plastics supply sector, growth firms do not seem to be fundamentally different

TABLE 6.16:
SUMMARY OF CROSS-TABULATIONS WITH GROWTH THAT ARE
NOT STATISTICALLY SIGNIFICANT

NATURE OF RELATIONSHIP IN CROSS-TABULATION: HIGH GROWTH SYNONYMOUS WITH:	Table in Appd.*	Rank of Chisq	Emp. Chisq. Score	Emp. no. of firms	Sales Chisq. Score	Sales no. of firms	Profits Chisq. Score	Profits no. of firms
*Management's expectation of growth in production capacity over next three years	A6.22	1	0.0	55	0.9	55	0.0	54
*Having the most innovative products in the market not important	A6.17	2	0.0	59	0.1	60	0.8	60
*Ownership outwith Scotland	A6.4	3	0.7	61	0.6	63	0.3	62
*Importance of maximising productivity	A6.13	3	0.4	58	0.7	60	0.3	59
*Importance of large firm size in terms of turnover	A6.11	3	0.4	59	0.5	61	0.7	60
*Management's expectation of growth in employment over next three years	A6.21	3	0.7	61	0.3	63	0.1	62
*Company age <10 years	A6.1	3	0.2	60	0.7	62	0.1	61
*Importance of high sales turnover	A6.9	3	0.1	61	0.0	63	0.7	62
*Growth through developing new markets with existing products/ services over past 3 years	A6.31 (3)	3	0.0	61	0.7	63	0.0	62
*Ownership outwith the UK	A6.5	4	0.6	64	0.0	59	0.0	62
*Importance of good rapport between management and employees (by profits) *Not important (by employment)	A6.19	5	0.5	61	0.0	62	0.5	61
*Growth through acquisition of other firms	A6.31 (6)	5	0.3	61	0.3	63	0.1	62
*High job satisfaction not important	A6.20	5	0.5	61	0.2	63	0.1	62
*Growth versus location of markets in rest of UK>33%	A6.29	5	0.0	60	0.5	62	0.1	61
*Development capital from bank loans>33%	A6.32 (3)	5	0.1	58	0.5	60	0.0	59
*Development capital from owner's personal financial resources>33%	A6.32 (5)	6	0.1	58	0.2	60	0.4	59
*Growth through acquisition of other firms	A6.31 (6)	7	0.3	61	0.3	63	0.1	62
*Development capital from financial institutions other than banks>33%	A6.32 (4)	7	0.3	58	0.2	60	0.1	59
*Location of competitors in rest of UK>33%	A6.25	7	0.3	58	0.0	60	0.2	60
*Age of manager=<35yrs	A6.6	7	0.3	61	0.0	63	0.0	62
*Growth through reorganising the way work is carried out to improve production efficiency	A6.31 (4)	8	0.2	61	0.2	63	0.0	62
*Importance of large firm size in terms of employment	A6.12	8	0.1	60	0.1	62	0.2	61
*Location of markets in rest of Scotland>33%	A6.28	8	0.1	60	0.2	62	0.0	62
*Location of markets in Grampian>33%	A6.27	8	0.0	60	0.0	62	0.2	61
*Location of competitors in rest of world>33%	A6.26	8	0.0	58	0.0	60	0.2	60

TABLE 6.16(CONTINUED)

NATURE OF RELATIONSHIP IN CROSS-TABULATION: HIGH GROWTH SYNONYMOUS WITH:	Table in Appd.*	Rank of Chisq	Emp. Chisq. Score	Emp. no. of firms	Sales Chisq. Score	Sales no. of firms	Profits Chisq. Score	Profits no. of firms
*Development capital from government grants>33%	A6.32 (6)	8	0.0	58	0.0	60	0.2	59
*Education of manager	A6.7	9	0.1	61	0.0	63	0.0	61
*Tenure of manager	A6.8	9	0.0	61	0.0	63	0.1	62
*Development capital from equity>33%	A6.32 (2)	10	0.0	58	0.0	60	0.0	59
*Useful advice/assistance from Universities/Colleges	A6.33 (1)	10	0.0	60	0.0	62	0.0	61

*See Appendix A6A for full cross-tabulation

NOTE:

1. Growth firm is defined as one that has changed by more than 25% over the period 1988-1991 according to one of the growth indicators of employment, profitability and sales turnover.

related sector seem to be: the importance of high profits; the firm's internal resources as the main source of development capital; the importance of maximised market share; and the importance of maximised production efficiency.

These findings become all the more interesting when reference is made to some of the comments that came through from the case studies. For example, all of the case study growth firms stressed the importance of profitability over maximised sales; all seemed to rely on their own capital resources to finance expansion. Moreover, after the shock of the 1986/1987 oil price crash, firms became more acutely aware that the finite nature of this type of market meant that growth could only be achieved in the coming downturn (*i.e.* 1992/1993) by increasing market share at the expense of their competitors and increasing production efficiency so that profitability can be enhanced even in spite of a contracting market.

Some of the other associations summarised in table 6.10, would be very interesting indeed if it were not for the very weak levels of statistical significance obtained (*chi-squared scores of less than 2.0*). Despite the low chi-squared scores obtained for these particular associations, it seemed that growth firms sensed a high concentration of competitors in the Grampian region and were more likely to have more than a third of their markets located in the rest of the world, which lends support to Porter's (1990) thesis that intense local competition is a catalyst for growth. Growth firms were likely to have grown by introducing new products/services into existing markets (*i.e.* in this case, *Grampian region*); received advice/assistance from management consultants, the Enterprise Initiative and banks; have a professional form of management; be a public form of company; value the importance of product quality;

and not be too concerned about creating jobs. Becoming a public company tends to be strongly indicative of a firm that has achieved good growth in the past, since it requires a considerable test of faith in the company and commitment to growth from the firm's owner/s who stand to lose control over the firm to shareholders brought in to provide the necessary finance for a high growth strategy. The chairman and owner of the Wood Group of companies, Ian Wood, is currently toying with this dilemma between making the Group public for the purposes of providing finance for large firm acquisitions or being satisfied with slow, moderate growth through profit retentions, whilst maintaining ultimate management control by virtue of majority ownership.

6.4.2 Growth in the Context of Porter's Model: Statistical Tests for Significance of Growth Factors

The previous section produced some interesting findings, but unfortunately, there was only one positive finding based on an association that exceeded the 0.05 level of statistical significance. The objective of this section is to analyse the survey data against a number of issues/factors within the context of Porter's model, to see whether there are any features or factors unique to growth firms. This statistical approach is the same as that which was applied to the plastics supply sector (*refer to section 5.4.2*).

The cross-tabulations that produced statistically significant associations between growth and various factors or issues with a chi-squared score of 1.0 or better, have been detailed in table 6.17. Out of the total of 59 issues investigated, only 31 yielded chi-squared scores of 1.0 or better for any one of the three growth measures of employment, sales or profits. This was a slightly better result than what was achieved for the plastics supply sector analysis within the context of Porter's (1990) model, in which only 24 out of 60 associations produced chi-squared scores of 1.0 or better. Table 6.18 summarises the remaining 28 cross-tabulations that failed to produce statistically significant associations with chi-squared scores of 1.0 or better. Details of the cross-tabulations referred to in tables 6.17 and 6.18 are described in full in appendix A6A.

Five of the cross-tabulations produced associations almost equal to or better than the 0.05 level of statistical significance. The strongest association resulted from the cross-tabulation of growth by employment with the firm strategy/structure/rivalry issue of "sufficient training capability for staff needs which reached the 0.025 level of statistical significance with a chi-squared score of 5.3. Three cross-tabulations

TABLE 6.17:
SUMMARY OF CHI-SQUARED TESTS WITH STATISTICAL SIGNIFICANCE
WITHIN THE CONTEXT OF PORTER'S MODEL

NATURE OF RELATIONSHIP IN CROSS-TABULATION: HIGH GROWTH SYNONYMOUS WITH:	Table in Appd.*	Rank of Chisq	Emp. Chisq. Score	Emp. no. of firms	Sales Chisq. Score	Sales no. of firms	Profits Chisq. Score	Profits no. of firms
FACTOR CONDITION ISSUES								
Securing government grants	A6.37	1	3.7	31	4.4	30	0.0	31
Adequacy of higher education facilities in area	A6.36	2	0.0	57	0.0	58	3.8	57
Adequacy of telecommunications	A6.38	3	0.8	61	0.0	62	2.1	61
Distance from company's markets	A6.35	4	0.8	52	0.0	53	2.1	53
Adequacy of secondary education facilities in area	A6.36	5	0.0	58	0.0	59	2.0	58
Suitability of premises	A6.35	6	2.0	39	0.0	39	0.0	39
Adequate supply of skilled labour	A6.34	7	1.9	60	0.5	62	0.1	61
Poor training of local population	A6.34	8	0.1	54	1.8	55	0.4	54
Suitability of service infrastructure and services	A6.38	9	1.7	60	0.5	61	0.0	60
Adequacy of community services and facilities	A6.38	10	1.2	60	1.5	61	0.1	60
Suitability of public transport	A6.38	11	0.0	55	0.0	55	1.5	54
Adequacy of cultural facilities	A6.38	12	0.3	61	0.1	62	1.3	61
Availability of finance through building societies/insurance companies/banks	A6.37	13	0.2	16	1.3	17	0.0	16
Adequacy of recreational amenities	A6.38	14	0.2	59	0.1	60	1.0	60
Attractiveness of local residential areas for current and prospective employees	A6.35	15	0.2	60	1.0	61	0.6	60
DEMAND CONDITION ISSUES								
Demanding customers who settle for nothing less than top quality products	A6.39	1	3.7	60	0.0	62	0.0	61
Finding suitable market niche for product/s	A6.39	2	2.2	56	0.0	58	1.7	56
Finding new geographic markets	A6.39	3	0.1	52	0.1	53	1.7	56
Finding sufficient market demand	A6.39	4	1.6	61	0.1	63	0.1	62
FIRM STRATEGY, STRUCTURE AND RIVALRY ISSUES								
Sufficient training capability for staff needs	A6.41	1	5.3	54	1.8	55	0.1	54
Strong competition from imports	A6.44	2	0.0	46	4.2	48	0.3	48
Sufficient plant capacity	A6.41	3	2.9	48	0.1	49	1.1	48
High level of production efficiency	A6.41	4	1.9	48	0.0	48	0.3	47
High product quality relative to similar products of competitors	A6.41	5	0.5	49	0.0	50	1.7	49
Attaining satisfactory overall profitability	A6.42	6	1.1	60	0.1	62	1.1	61
RELATED AND SUPPORTING INDUSTRIES								
Components suppliers in the locality	A6.45	1	1.7	53	0.3	54	0.0	53
Companies involved in the production of products that are complementary to the firm's products	A6.45	2	1.4	52	0.0	54	0.2	53

TABLE 6.17(CONTINUED)

NATURE OF RELATIONSHIP IN CROSS-TABULATION: HIGH GROWTH SYNONYMOUS WITH:	Table in Appd.*	Rank of Chisq	Emp. Chisq. Score	Emp. no. of firms	Sales Chisq. Score	Sales no. of firms	Profits Chisq. Score	Profits no. of firms
<i>GOVERNMENT RELATED ISSUES (Continued)</i>								
Depressed local economic conditions	A6.47	1	0.0	43	1.9	43	0.0	42
Depressed national economic conditions	A6.47	2	1.7	54	1.0	55	0.3	54
Enterprise Initiative	A6.48	3	0.1	61	0.0	63	1.4	62
High interest rates	A6.47	4	0.0	52	1.1	53	0.0	52

*See Appendix A6A for full cross-tabulation

NOTE:

1. Growth firm is defined as one that has changed by more than 25% over the period 1988-1991 according to one of the growth indicators of employment, profitability and sales turnover.

that reached the 0.05 level of statistical significance were: growth in sales by the factor condition issue of "securing government grants" (*chi-squared score of 4.4*); growth in sales by the firm strategy/structure/rivalry issue of "strong competition from imports" (*chi-squared score of 4.2*); and growth in profits by the factor condition issue of "adequacy of higher education facilities in area" (*chi-squared score of 3.8*). The remaining cross-tabulation of growth in employment by the demand condition issue of "demanding customers who settle for nothing less than top quality products" almost reached the 0.05 level of statistical significance with a chi-squared score of 3.7.

It would seem from this analysis then that the key reasons for growth in the sector has been due to government grant assistance; the suitability of higher education and employee training facilities in the Aberdeen area; customers that demand a quality product/service; and strong competition from imports.

The government grant assistance reason for growth needs to be qualified in that it was only applicable to 43% of the surveyed firms. However, it is interesting that there were growth firms in this grouping whose performance appears to be associated with securing government grants. Referring back to the plastics supply sector, securing of government grants was also found to be an important feature of growth firms. This would seem to conflict with Porter's (1990) view that government subsidies do little to help firms achieve a competitive advantage.

Education and training of the workforce stand out as a key issue in this industry, which is perhaps not surprising given the skilled nature of much of the work undertaken in this sector (*as is evident from the average occupational structure of the surveyed firms compared with those in the plastics supply sector referred to in*

appendix A6B), and which was frequently commented upon by the case study firms. This provides some support for the factor condition component of Porter's model, which stresses that an educated, highly skilled workforce, together with educational and industrial training facilities of a high standard, are crucial to an industry sector's long term success.

The customers for firms in the oil and gas related sector, are oil and gas companies that base their North Sea offshore operations out of Aberdeen or Peterhead. In speaking to the case study firms, the common experience was of unrelenting pressure from the oil companies to ensure that the products/services that they contract meet the highest standards technically possible in terms of durability, reliability and dynamic performance, for the lowest cost. This places considerable pressure on firms to meet the demands of their customers while holding down costs. After the Piper Alpha disaster in 1988, safety became a prime consideration in contract work, and since safety in this industry is the corollary of high quality in products/services, offshore contractors have placed particular emphasis on this aspect since 1988. This finding would seem to provide support for an important aspect of the demand component of Porter's model, which is that sophisticated and demanding buyers (*i.e. the oil company contractors*), encourage producers to develop increasingly sophisticated products/services to meet buyer needs, and in so doing, increase their level of competitive advantage (*i.e. potential for growth*).

The rivalry issue of "strong competition from imports", should probably be seen in the context of foreign companies setting up branch operations in Aberdeen or local subcontractors offering imported products for sale or hire. American firms are the source of considerable competition for Scottish and UK firms in Scotland, securing £629 million in oil related sales compared to £1,025 million by Scottish companies in 1991 (*Scottish Business Insider, December 1991*). All of the case study companies were using indigenous technology and skills to a large extent, although some products/service were adaptations of designs and techniques researched and developed overseas (*usually the United States*). They were all aware of the competitive environment in which their products/services had to meet certain standards whilst remaining competitively priced, otherwise competitors would quickly snap up their business. Porter's model stresses local rivalry amongst domestic firms as being crucial to local firms achieving competitive advantage, particularly in an industry sector's early stages. However, once local firms have established competitive advantage in a local context, Porter suggests that they may be well positioned to

**TABLE 6.18:
SUMMARY OF CHI-SQUARED TESTS WITHOUT STATISTICAL
SIGNIFICANCE WITHIN CONTEXT OF PORTER'S MODEL**

NATURE OF RELATIONSHIP IN CROSS-TABULATION: HIGH GROWTH SYNONYMOUS WITH:	Table in Appd.*	Rank of Chisq	Emp. Chisq. Score	Emp. no. of firms	Sales Chisq. Score	Sales no. of firms	Profits Chisq. Score	Profits no. of firms
FACTOR CONDITION ISSUES								
Good work ethic amongst employees	A6.34	16	0.8	58	0.0	60	0.9	59
Adequacy of main road network	A6.38	17	0.0	60	0.7	61	0.1	60
Affordable unskilled and semi-skilled labour	A6.34	18	0.4	53	0.2	55	0.2	53
Adequacy of local road infrastruc.	A6.38	19	0.1	60	0.3	61	0.0	60
Availability of finance through bank loans	A6.36	20	0.0	40	0.0	39	0.2	38
Proximity to Aberdeen	A6.35	21	0.0	59	0.0	60	0.2	60
Availability of finance through venture capitalists	A6.37	22	0.1	15	0.0	15	0.1	15
Raising equity finance	A6.37	23	0.0	14	0.0	14	0.0	14
DEMAND CONDITION ISSUES								
Strong demand: export markets	A6.39	5	0.8	46	0.1	48	0.8	47
Strong demand: Scottish market	A6.39	6	0.1	53	0.1	54	0.1	55
Strong demand from UK market excluding Scotland	A6.39	7	0.0	47	0.1	50	0.1	50
FIRM STRATEGY, STRUCTURE AND RIVALRY ISSUES								
Good employee work ethic	A6.43	7	0.8	58	0.0	60	0.9	59
Strong competition from other UK firms	A6.44	8	0.0	56	0.8	58	0.1	57
Good labour relations between employees and management	A6.43	9	0.6	60	0.2	62	0.3	61
Producing innovative, market leading products	A6.41	10	0.0	35	0.0	41	0.5	39
Influence of trade unions in company business	A6.43	11	0.1	18	0.2	18	0.0	17
Competition from other Grampian firms	A6.44	12	0.1	56	0.0	58	0.2	57
Creating innovative production techniques	A6.41	13	0.2	38	0.0	40	0.1	38
Surplus management time to plan growth	A6.40	14	0.1	54	0.0	54	0.0	53
Achieving a high sales turnover	A6.42	15	0.0	58	0.0	59	0.1	59
Maintaining sufficient cash flow	A6.42	16	0.0	59	0.0	61	0.0	60
RELATED AND SUPPORTING INDUSTRIES								
Proximity:raw material suppliers	A6.45	3	0.9	50	0.1	51	0.9	50
GOVERNMENT RELATED ISSUES								
Advice/assistance from Locate in Scotland	A6.48	5	0.9	61	0.0	63	0.1	62
Advice/assistance from SDA/ Scottish Enterprise	A6.48	6	0.3	61	0.0	64	0.7	62
Regional/District Council/s	A6.48	7	0.0	61	0.0	63	0.3	62
Rate of company taxation	A6.46	8	0.0	56	0.1	57	0.3	57
Advice/assistance from Scottish Office/Department/s	A6.48	9	0.0	60	0.0	64	0.0	61
Lack of tax exemptions for company expenses	A6.46	10	0.0	53	0.0	54	0.0	54

*See Appendix A6A for full cross-tabulation

TABLE 6.18(CONTINUED)

NOTE:

1. Growth firm is defined as one that has changed by more than 25% over the period 1988-1991 according to one of the growth indicators of employment, profitability and sales turnover.

compete globally and against imports. Much of the strong competition from imports referred to by firms, is from the local subsidiaries of foreign companies and local companies acting as agents for imported products and the high concentration of these firms within the Grampian region, does give rise to the clustering effect that Porter considers to be so important in fostering the competition needed to develop successful local firms. Therefore, when the finding that strong competition from imports is viewed in this context, it does lend some support to Porter's thesis concerning rivalry conditions.

Out of the 22 factor condition issues that were cross-tabulated with the growth measures of employment, sales and profits, 15 cross-tabulations suggested associations of at least weak statistical significance (*i.e. with a chi-squared score of 1.0 or better*). The factor conditions that produced the strongest association with growth were "securing government grants" and "adequacy of higher education facilities in area", which have already been discussed. The four factor conditions that had moderate associations with growth (*with chi-squared scores from 2.0 to 3.8*) were: adequacy of telecommunications; distance from company markets; the adequacy of secondary educational facilities in the area; and the suitability of premises. The 9 remaining factor conditions that produced weak associations with growth (*with chi-squared scores from 1.0 to 1.9*) were: poor training of the local population; the suitability of service infrastructure and services; the adequacy of community services and facilities; suitability of public transport; the adequacy of cultural facilities; availability of finance through building societies/insurance companies/banks; adequacy of recreational amenities; and the attractiveness of local residential areas. There were 7 factor condition issues that had no statistically significant association with growth, which covered issues such as road infrastructure, the availability of finance (*through banks, venture capitalists and equity*) and the affordability of labour (*unskilled and semi-skilled*).

Seven demand issues were cross-tabulated with the growth measures of employment, sales and profits, of which 4 cross-tabulations suggested associations of at least weak statistical significance (*chi-squared score of 1.0 or better*). The demand condition issue that produced the strongest statistical association with growth

was "demanding customers wanting top quality products" (*chi-squared score of 1.0 or better*), which was already commented upon earlier. Demand condition issues that produced a weak association with growth (*with a chi-squared score of 3.0 or less*) were: finding a suitable market niche; finding new geographic markets; and finding sufficient market demand. Three demand condition issues had no statistically significant association with growth. They were: strong demand from export markets; strong demand from the Scottish market; and strong demand from the Scottish market excluding Scotland.

Sixteen firm strategy, structure and rivalry issues were cross-tabulated with the growth measures of employment, sales and profits, of which 6 associations had at least weak statistical significance with growth (*i.e. with a chi-squared score of 1.0 or better*). The 2 associations with a strong statistical association (*which have already been commented on*) were: sufficient training capability for staff needs; and strong competition from imports. There was only one association that had a moderate degree of statistical significance, and that was between growth by employment and having sufficient plant capacity (*with a chi-squared score of 2.9*). The remaining statistically significant associations were weak (*chi-squared scores between 1.0 and 2.0 inclusive*). They are: employment growth by a high level of production efficiency; profit growth by high product quality relative to competitors; and employment growth and profit growth by attaining satisfactory overall profitability. The remaining 8 firm strategy/structure/rivalry issues that had no statistically significant association with growth were: good work ethic amongst employees; strong competition from other UK firms; good labour relations between employees and management; producing innovative, market-leading products; the influence of trade unions in company business; competition from other Grampian firms; creating innovative production techniques; surplus management time to plan growth; achieving a high sales turnover; and maintaining sufficient cash flow.

Two of the three related and supporting industry issues had associations with growth, albeit weakly (*chi-squared scores between 1.0 and 2.0*). The issues related to growth were: "components suppliers in the locality" and "companies involved in the production of products that are complementary to the firm's products". The issue of "proximity to raw material suppliers", did not appear to have any association with growth. None of these issues produced particularly strong associations with growth because most of the surveyed firms were subcontractors to the oil industry which either produced a product/service in their own right for the

major offshore oil company contractors or imported products/components from outside the locality.

The government related issues, of which there were 10, had very weak or nonexistent associations with growth. What associations there were with growth (*of which there were 4*), had chi-squared scores ranging from 1.0 to 2.0. They were: depressed local economic conditions; depressed national economic conditions; the usefulness of the Enterprise Initiative; and high interest rates. Issues which had no statistically significant association with growth were: advice/assistance received from either "Locate in Scotland", Scottish Enterprise, the Scottish Office or Regional/District Council/s; the rate of company taxation; and lack of tax exemptions. The quantitative statistical approach that has been employed in this section within the framework of Porter's model, has not been able to provide convincing reasons as to what distinguishes growth firms from so-called non-growth firms. However, what associations with growth there were at the 0.05 level of statistical significance or better, would seem to suggest that factor conditions (*particularly government grant availability and higher education facilities in the area*), sophisticated local demand; and the firm strategy/structure/rivalry determinants (*training for employees and strong competition from imports*) would stand out as the components of Porter's model most likely to be contributing factors/issues to growth in the oil and gas related sector located in Aberdeen.

6.4.3 Growth in the Context of Porter's Model: Case Studies of Growth Firms

The purpose of this section is to determine the main reasons for growth amongst firms that performed particularly well by the growth measures of employment, sales or profits. A qualitative approach is adopted in testing Porter's model (1990), by examining five case studies of firms that experienced considerable growth during the period 1988-1991 in the oil and gas related sector of Aberdeen's economy. Growth performance was not the sole criterion used in selecting suitable case studies for intensive research. It was also considered important to illustrate the diversity of firms in this sector for the purposes of being as representative as possible of the range of oil and gas related firms that experienced growth. While it would be dangerous to claim that the case study firms are barometers of the oil and gas related sector, they do represent a significant proportion of the surveyed firms in the postal questionnaire (7%), and did provide some very valuable insights which were never

apparent from examining the postal questionnaire survey results in isolation. The characteristics of the case study firms are detailed in table 6.19.

Generally, the products/services provided by the case study firms were all predominantly aimed at the needs of the North Sea oil and gas offshore operators, although Furmanite and the John Wood Group did have customers outside this sector. Taken as independent firms, even though all the case study firms serve the North Sea oil and gas industry, none were really competitors of each other, with the possible exception of the John Wood Group. Furmanite, Rockwater and ABB Vetco Gray offer many services and products that are unique amongst the case study firms. Only Neptune would probably consider the John Wood Group as its direct competitor. Each firm provided different types of services: only fireproofing was a common service in three of the case study firms. Neptune Marine provided services such as: industrial coatings; scaffolding and insulation; fireproofing and accommodation fitout; blasting and painting; industrial cleaning; and technical survey work. Furmanite's main specialty is in sealing industrial pressure leaks without shutting down the system being repaired, however, they are also involved in the design and installation of passive fire protection; pipe connector products; and oil pollution clean-up products. Rockwater plays a major role in the exploration and development phase of new oilfields, but also carries out maintenance work on offshore facilities. It is involved in: the research and development of oil and gas field installation projects; marine and subsea construction work; the installation of pipelines, infield flowlines and cables in marine environments; providing inspection maintenance and repair services of offshore facilities. ABB Vetco Gray's main involvement in the industry is with its surface and subsea "Christmas tree" valve assembly products and related products such as subsea wellhead tubulars and capital marine equipment. It also provides servicing, repairs and spares of the equipment it markets. The John Wood Group, through its 36 companies, aims to provide a comprehensive range of services to offshore contractors that meets all of their subcontract requirements. The John Wood Group's services are spread over seven divisions: (1) oil and logistics and supplies; (2) engineering contracting; (3) engineering design; (4) fire and safety (5) gas turbine services; (6) engineering services; and (7) drilling and production services.

Neptune, ABB Vetco Gray and the John Wood Group all moved into oil services in Aberdeen at the start of the North Sea oil and gas industry back in 1972/73; Furmanite and Rockwater were relative latecomers to the scene, entering in on the boom period of the oil industry in the first half of the 1980s.

All of the case study firms are private limited companies. Neptune, Rockwater and the John Wood Group, all started off as small indigenous firms in the Aberdeen area directly in response to the oil and gas industry developing in the North Sea, but only the John Wood Group has remained a largely Scottish-owned company, still based in Aberdeen. Neptune was acquired by a London-based holding company, whose ultimate ownership is in the hands of a Danish corporation. Rockwater, after acquiring a small American diving firm, Taylor, that was partly owned by the Texan-based oil services Halliburton Company, was eventually taken over completely by Halliburton, which subsequently merged with Smit Contractors of Smit International, to form the Rockwater Company in 1990. Furmanite started off as a Cumbrian company (*based in Kendal, England*), using American patent technology under licence, but since 1990 has been in the ownership of an American corporation, Kaneb. ABB Vetco Gray, an example of inward investment from the United States to take advantage of Scotland's burgeoning oil industry in the 1970s, is now owned by the Swedish-Swiss Asea Brown Boveri group of companies. Although on casual inspection this would seem to be an example of the branch-plant syndrome, ABB Vetco Gray's Aberdeen operations are in fact a crucial lynchpin in Vetco Gray's operations, since it serves as the headquarters for the company's eastern hemisphere operations (*covering Europe, the Middle East and West Africa*) and has extensive manufacturing, research and development facilities in Aberdeen.

In terms of their 1991 employment, the case study firms are all medium to large firms. Furmanite's Aberdeen operations are the smallest with 104 employees (*although world-wide Furmanite employs 1,700 people*); Rockwater has 360 employees; Neptune has 550 employees; ABB Vetco Gray has 692 employees (*and its Aberdeen administration is responsible for over 1,000 employees*); and Wood Group Offshore has 805 employees (*with an additional 1,700 employees in its other companies*). The sales and profit performance of the case study firms in 1991 on an employee per capita basis, varies considerable from £41,454/employee/annum (*Neptune*) to £347,222/employee/annum (*Rockwater*) for sales; and from £723/employee/annum (*ABB Vetco Gray*) to £24,038/employee/annum (*Furmanite*) for profits. In terms of annual profits as a proportion of annual sales, the return for the case study firms ranged from only 0.6% with ABB Vetco Gray to 25.0% with Furmanite, although the mode of 6.7% (*John Wood Offshore*) is probably more representative of the typical return on sales in this sector.

In terms of employment growth, the case study firms all performed exceptionally well during the period 1988-1991, posting increases ranging from 16% (*ABB Vetco Gray*) to 940% (*Furmanite*), with the modal increase being 80% (*Rockwater*). The *Furmanite* results in proportionate terms seem astounding, but closer inspection suggests that because this is an example of inward investment by an English company, and *Furmanite's* pessimistic view of future growth, the enormous growth in employment is simply due to *Furmanite* establishing a meaningful presence in Aberdeen. Nevertheless, the impressive annual per capita profitability of *Furmanite* at around £24,000, indicates *Furmanite* to be exceptionally profitable on relatively moderate annual per capita sales of approximately £96,000, which is about the average posted amongst the firms in the postal survey. The growth in sales during the period 1988-1991 ranged from modest (*a change of 26-50% for Rockwater and ABB Vetco Gray*) to very great (*more than 200% for Neptune, Furmanite and Wood Group Offshore*). With profits, growth during the same period was more than 200% for *Wood Group Offshore*, *Neptune* and *Furmanite*, negligible in the case of *Rockwater*, and undeclared with *ABB Vetco Gray* (*possibly suggesting a decline, since its 1991 profit margin was only 0.6%*).

In terms of the case study firms being seen as independent business units, growth was largely organic. In other words, firms retained their core production/service functions throughout their development history and grew by increasing their output to meet increased demand. The increase in output was facilitated by taking on more staff and through increased capital investment to increase their production capacity. However, with the exception of the *John Wood Group*, none of the firms are independent business units: they are all part of international conglomerates. The *John Wood Group* is still an independent Scottish company, but it has ambitions to become an international conglomerate, and indeed, is already the most significant UK conglomerate of oil service companies. The management philosophy pursued by the *John Wood Group* is to create a group capable of meeting all the subcontracting needs of the oil and gas industry. This is achieved through vertical and horizontal integration of the Group by acquiring related specialist businesses in the oil and gas related sector. The other case study firms appear to be undergoing the same process but they are on the receiving end of it.

There were numerous reasons for growth in the case study firms. Common themes in all of the case studies were: financial strength conferred by being part of a large business conglomerate (*usually international in marketing reach*); highly

**TABLE 6.19:
CHARACTERISTICS OF GROWTH IN FIRM CASE STUDIES**

Company	Neptune Marine (alias)	Furmanite Engineering Limited	Rockwater	ABB Vetco Gray	John Wood Group
Est. date parent firm	1953 UK	1967 UK	1919 (Halliburton)	1930 California	1955 Aberdeen
Names and location of parent firm/s	UK holding company but Danish firm is ultimate owner	Furmanite in Cumbria. Recently sold to Kaneb, a US company 1990	In 1990, Smit International (Holland) merged with 2W Taylor (a Halliburton company from Texas) to form Rockwater	Asea Brown Boveri group of companies: Joint Swedish Swiss company	John Wood Group, Aberdeen, Scotland
Establishment date Scottish operations	1973	1985	early 1980's; since 1990 under the name of Rockwater	1973 (as Vetco Offshore); '86 as Vetco Gray. '90 part of ABB	1955 (moved into oil industry work in 1972)
Products/ Services	*Industrial coatings services. *Scaffold. and insulat. services *Fireproofing and accomod. fitout. *Blasting and painting. *Indust. clean. *Technical services	*Seals industri. pressure leaks without shutting down system being repaired; *Design and installation of passive fire protection; *pipe connectors *oil pollution clean-up products	*R&D oil/gas field installatn. projects *Marine/subsea construction *Installation of pipelines, infield flowline & cables *Inspection, maintenance & repair of offshore facilities	*Surface/subsea Christmas tree valve assemblies *Subsea wellhead tubulars and capital marine equipment *Servicing of equipment; repairs; spares	*Oil logistics and supplies *Engineering contracting *Engineering design. *Fire & safety *Gas turbine services *Engineering services *Drilling and production services
Form of Registration	Private limited company	Private limited company	Private limited company	Private limited company	Private limited company
Ownership	Danish holding company	American corporation, Kaneb	Halliburton (Texas):50% Smit Internatl. (Holland):50%	Asea Brown Boveri ASEA AB (Sweden):50% BBC Brown Boveri (Switzerland):50%	Wood Family headed by Ian Wood, chairman (Aberdeen)73% Institutional investors: 18% Employees:9%
Background	Indigenous Aberdeen firm starting off in industrial coatings. Acquired in 1984 by London-based firm ultimately owned by Danish company	Indigenous to England. Started using US patent under licence. Scottish operations started as agent operating out of Glasgow in 1983. Set up a permanent presence in Aberdeen in 1985 to service offshore activities and provide worldwide support for firm's branches in 22 countries.	Indigenous Aberdeen firm. Started off as a small diving company 2W. Mid-1980's 2W acquired Taylor, a small US diving company to become 2W-Taylor. In 1988 Halliburton acquired 100% ownership of 2W-Taylor. In January, 1990 2W-Taylor merged with Smit Contract.	Vetco Gray started out as 3 independent US companies. Vetco Offshore, Gray Tool Co, & Hughes Offshore merged in 1986 under ownership of Hughes Tool Co. In 1990, Asea Brown Boveri, a global corporation, acquired Vetco Gray. The fore-runners of ABB Vetco Gray all	Indigenous Aberdeen firm established by John Wood in 1955 when he bought out his share of Wood & Davidson, a small ship repair firm. Ian Wood, the founder's son and current chairman, entered the business in 1964. An entrepreneurial figure, he is

TABLE 6.19(CONTINUED)

Company	Neptune	Furmanite	Rockwater	ABB Vetco G.	Wood Group
Background (Continued)		Acquired by Kaneb corporation in 1991.	in an equal partnership to form Rockwater which is now a global concern with branches in Norway, US, United Arab Emirates, India & Singapore.	had branches in Scotland dating back to 1973 before merging The Aberdeen branch is the headquarters for the company's eastern hemisphere division which has branches in Denmark, France Italy, Holland, Norway, UK & Nigeria.	widely credited with transforming the firm into the UK's largest oil&gas industry service company, when in the early 70s he diversified the company from ship repair into engineering&support services for the North Sea oil & gas industry. The Wood Group is now a holding company presiding over 36 firms.
1991 Employment	550	104 ww(1,700)	360	692 ww(3,000)	805** ww(2,500)
1988-1991 Employment change	+204	+94	+160	+96	+465
1991 Sales/employee	£41,454	£96,154	£347,222	£130,058	£74,534
1991 Profit/employee	£2,909	£24,038	£8,333	£723	£4,969
Profits as a proportion of sales	7.0%	25.0%	2.4%	0.6%	6.7%
Reasons for growth	<ul style="list-style-type: none"> *Selling out to hold.company gave the firm finan. strength *Professional management team with very experienced managers. *Management philosophy of greater efficiency, safety, reliability and quality *Programme of development & innovation. *Employment strategy: job security; strong core group of employees; service personnel employed on a perman. basis; good work environment for staff 	<ul style="list-style-type: none"> *Selling out to US Kaneb Corp gave the firm finan. strength *One of top UK firms in its area *Strong commitment to firm by employees. *Excellent customer relations *World-class expertise. *Diversified into a wide range of industrial plant maintenance services. *Highly motivated employees through long term job security and a profit sharing scheme. *Professional management 	<ul style="list-style-type: none"> *Selling out to Hallib.& SmitC gave the firm finan. strength *Ability to differentiate itself from its competitors by emphasis on quality as opposed to price. *An aim to be world leader in its field. *The effectiveness and quality of its "in-house" R & D. *The company culture favours openness with employees & customers. This allows problems to be nipped in the bud. *Professional management. 	<ul style="list-style-type: none"> *Selling out to ABB Group gave the firm finan. strength *"State-of-the-art" technology combined with high product quality. *After-sales services with emphasis on solving problems for customer. *Teamwork approach to organisation of firm. *Survived the 1986/87 downturn because it looked after its core customer base. It cut back on staff while maintaining stringent quality control. 	<ul style="list-style-type: none"> *Aggressive firm acquisition policy of firms in related areas *Dynamism, enthusiasm, motivation, entrepreneurial flair and commitment to the Group by Ian Wood, the founder's son. *Ian Wood's realisation that his firm needed to diversify from ship repair into servicing the oil&gas sector *Singleminded pursuit of goal to become a major global service firm to the oil&gas sector by acquisition of

TABLE 6.19(CONTINUED)

Company	Neptune	Furmanite	Rockwater	ABB Vetco G.	Wood Group
Reasons for growth (Continued)				<ul style="list-style-type: none"> *Professional management *Significant R & D facilities with capability to custom design and build products. 	<ul style="list-style-type: none"> *specialist firms *Works well in partnership with other firms in solving specific engineering problems. *Investment in R & D. *Management and personnel training. *Willingness to take risks. *Enthusiasm & commitment of firm's employees. *Providing the performance, technology, quality and value demanded by customers *Investing in quality control programmes *Emphasis on employee welfare & safety.
Constraint to growth	<ul style="list-style-type: none"> *Lack of finance in early years. *Major oil companies force them to operate on very low profit margins. *Many rules and regulations increase overheads *Stiff competition drives down profit margins. *Inconsistent demand due to seasonal nature of work. *Difficulty recruiting middle management. *Limited life-span of North Sea oilfields. 	<ul style="list-style-type: none"> *Downturn in oil prices in 1992 has made increased business in this sector difficult. *Lack of capital for investment before becoming part of American Kaneb Corport. *Lack surplus management time and skills to plan, organize and manage growth. 	<ul style="list-style-type: none"> *Oil companies operate on a cost basis forcing subcontractors to operate on very low profit margins. *One vessel out of commission during 1991. *Lack of equity in the business relationship between oil companies and subcontractors. *Declining market for platform services as exploration and extraction relies more and more on subsea techniques. *Minor tax effect, but this impacts on the oil companies rather than their suppliers. 	<ul style="list-style-type: none"> *Cyclical nature of the oil industry. *Considerable financial constraints before becoming part of ABB Group. *The Aberdeen site has only limited room for expansion. 	<ul style="list-style-type: none"> *Cyclical nature of oil industry. *New investment and acquisition can only be financed out of retained profits, or from an institutional investor. *Wood family wants to retain majority ownership of Group *Prefer not to acquire public companies in case they become a reverse takeover of the Wood Group. *Difficulty in Group's early days of getting joint venture partners to share in development costs.

TABLE 6.19(CONTINUED)

Company	Neptune	Furmanite	Rockwater	ABB Vetco G.	Wood Group
Growth Strategy	*Become less dependent on oil companies through diversification into protective industries	*Further diversification: new service products or markets. *Organic growth of existing business thru improved services, technical innovat. and regulation driven. *Diversify into maintenance work associated with new UK gas-fired power stations. *On the lookout world-wide for any new opportunities in the oil&gas exploration industry	*Look for sales on a global basis. *Consult with oil companies early on in the process of oil exploration. *Shoulder some of the risks of exploration work in exchange for a share of the income stream from a new field. *Internalising of all company debt. *Favour long-term contracts. *World-class industry leader. *Flat organisation structure to empower employees to make their own decisions.	*Maintain core customer base: concentrating key accounts. *Compete on product quality, performance and reliability. *Total quality management approach. *Close vertical integration of supplier firms. *Emphasis on staff training, particularly developing a problem solving capability. *Reduce design & manufacture time for product *Team based approach to projects. *Flat management structure. *Very close liaison with customer. *Change attitude of customer to consider a product's cost over the lifetime of the product, not just its initial outlay.	*Strengthen its North Sea market share. *Expand into overseas markets. *Develop a wide range of oil production and exploration services. *Develop exportable technology and niche products in the drilling and production sector. *Diversify into non-oil activities. *Acquire firms that complement the Group's activities.
Growth Objectives	Slow, steady growth	None made explicit-Views stagnation in the current economic climate as inevitable	None made explicit. Aim to concentrate on consolidating the business by building up its profitability	Expects slow, steady growth. Main objective is to hold or increase current market share.	Very explicit objective to double the Group's sales to £400m by 1995.
Form of growth	Organic + intensification + selling out to UK holding company	Organic + selling out to major US corporation	Organic + created by merger of a Dutch with a US corporation	Organic + merger in 1986 of 3 companies +selling out to ABB, a multi-national conglomerate	Organic + Vertical and horizontal integration through acquisition of related businesses

NOTE:

*All employment figures detailed here are based on full-time employment. Part-time employment negligible in each of the case study firms

*Worldwide employment for Furmanite, ABB Vetco Gray and the Wood Group of companies in brackets with prefix "ww"

**1991 Employment for Wood Group Offshore.

*Information for Wood Group based on information procured from Wood Group Offshore, Aberdeen.

skilled, motivated and capable employees committed to the firm; a professional management team; the best possible product service quality; and customer satisfaction ensuring repeat business (*important in an industry where the market has only 24 offshore contractors*). With Rockwater, ABB Vetco Gray and the John Wood Group, a common reason for growth that emerged was the effectiveness and quality of their research and development efforts. Furmanite does have a research and development function, but its Aberdeen operations have mainly branch plant service functions. Neptune has a programme of development and innovation, but it is not at the level stressed in the other case studies, mainly because it is a service company. A common theme in all of the case studies (*except Neptune*) was a driving ambition to be leader in their respective fields. With Furmanite, Rockwater and ABB Vetco Gray, this ambition to attain leadership seemed to be more in the context of having the best product/service on offer. However, in the Wood Group's case, the ambition is much more naked and singleminded to become a leading global service firm to the oil and gas sector. Other reasons given for growth unique to particular firms included: Neptune's employment strategy of job security and in maintaining a core group of employees in what is usually a seasonal area of employment in the industry; Rockwater's company culture which favours openness with employees and customers; ABB Vetco Gray's attention to after sales service; and the Wood Group's aggressive programme of acquiring firms in related businesses and its willingness to take risks.

In the interviews, the general perception was that there had not been any crippling constraints to growth, apart from the downturn in the industry in 1986/87, when many oil and gas related firms had to cut back on their operations and undertake significant shedding of jobs. The growth in the industry post-1987 for some firms, was therefore more a case of rebuilding profitability back up to pre-1986 levels. The strongest constraint to growth that the case study firms typically experienced, was a lack of finance during the early years of their respective firm's development, making it difficult to fund levels of capital investment and the increased employment necessary to facilitate extra growth. In the case of Neptune, Furmanite, Rockwater and ABB Vetco Gray, this constraint was overcome by selling out to international conglomerates with very large capital resources at their disposal. With the Wood Group however, which prefers not to become a public company, growth has to be financed out of profit retentions. It did recently seek additional funding from institutional investors by permitting their share of the Wood Group to increase from 9% to 18%, but the Wood family would be reluctant to relinquish ownership control over the Group by allowing itself to become a minority shareholder. Neptune,

Furmanite and Rockwater commented on the pressure that the oil companies placed on them to keep costs down to an absolute minimum, which tended to squeeze their profit margins. The manager of Furmanite indicated that the oil companies ensure that the profit margins of their subcontractors are kept to a minimum by insisting that contracts are fully costed out, right down to the pension plans of employees. And Rockwater talked of there being something akin to a "master-slave" relationship in the way that the oil companies dealt with subcontractors. Neptune talked of there being a skills shortage in the area of middle management as constraining growth to some extent. As the oil and gas industry entered a recessionary phase in 1992, Neptune considered there to be too many competitors chasing a stagnant or even a declining market.

Interestingly, a common theme to come out of the case studies was that the repercussions of the 1986/87 downturn was for the use of technological innovation to drive down exploration and production costs in the oil fields. A case in point, is the move away from massively engineered oil and gas rig platform structures typically 150m high, with crew quarters, production and exploration facilities supported on enormous steel legs anchored to the seabed, towards subsea facilities operated by underwater robot vehicles, the end-result of which is a declining market for platform services. Rockwater is not particularly worried by this development since it is actually involved in developing subsea exploration and production technology itself. However, it has been involved in supplying platform services and indicated that there is not as much sales revenue to be had for subcontractors in the move towards the new subsea techniques. Neptune, which is almost exclusively involved in platform services, would be hit hard by such a development, but did not mention it as a possible constraint to its growth (*either because they were unaware of its implications or do not think it significant*). Indeed, Neptune expressed the view that there was a possibility that their business could increase as older platforms require increased maintenance. Already the signs are that the impact has already been felt with the closure of McDermott's fabrication yard in Inverness in mid-1992, a company that fabricates oil-rig platforms. Furmanite and ABB Vetco Gray believed that what they offer oil contractors is so specialised and indispensable to the industry, that they do not anticipate any challenge to their markets in the next 10 to 15 years. The Wood Group is sufficiently diversified not to be crippled by the move to subsea technology, although its platform related services are bound to be affected. A long-term concern for Neptune, was the longevity of the North Sea oilfields, particularly as the rate of new finds seems to be declining.

All of the case study firms had growth strategies to a greater or lesser extent. Common themes that emerged were to become less dependent on the oil companies through greater diversification; and to be on the look-out for global opportunities in oil and gas exploration and production work. Rockwater's strategies are to vertically integrate its operations with the oil companies by consulting with them early on in the oil exploration process and by shouldering some of the risks of exploration work in exchange for a share of the income stream from a new field. It also talked of aiming for long-term contracts, which only Furmanite appears to have achieved amongst the case study firms in its dealings with Shell Expro. ABB Vetco Gray appeared to have a cornucopia of strategies, the more important of which are: maintaining its core customer base; a total quality management approach; close vertical integration of supplier firms; reducing the design and manufacture cycle time for a product; and changing the attitude of the customer to consider a product's total cost over its lifetime, rather than just its initial outlay. The Wood Group's strategy is sixfold: (1) to strengthen its North Sea market share; (2) expand into overseas markets; (3) to develop a wide range of oil production and exploration services; (4) to develop exportable technology and niche products in the drilling and production sector; (5) diversify into non-oil activities; and (6) to acquire firms that complement the Group's activities.

Neptune, Rockwater and ABB Vetco Gray were cautiously optimistic about their prospects for growth during the period 1991-1994. By contrast, Furmanite was pessimistic of growth in the current economic climate, while the Wood Group was very confident of rapid growth, although Wood Offshore was cautiously optimistic. At the time of the interviews in mid-1992, all but the Wood Group had revised their prospects from what they had said in the postal survey in late 1991, to one of pessimism, unless there was an improvement in oil prices during 1993 for the industry.

The previous discussion of the case studies has helped to give a precis of a sample of important growth firms in Aberdeen's oil and gas related sector. Although the reasons for growth amongst the case study firms has given some useful insight into why and how growth has occurred, as with the plastics supply sector, this approach does not really conceptualise growth satisfactorily. By virtue of the fact that the research material is procured from an insider within the respective firms', the focus is unavoidably on the firm's internal dynamics with little or no reference to the firm's

external context. The discussion to follow will examine the findings gleaned from the case study research, but within the conceptual framework of Porter's model.

Table 6.20 rates the importance of each factor or issue to the firm's success (*ranging from 1=no importance to 5=very important*). These are based on the views of managers obtained through face-to-face interviews and general observations of each firm's facilities and its local environment (*mainly the Aberdeen urban area and Peterhead where relevant*). The ratings were intended to be as impartial assessments as possible, but there may have been some subjective judgements of managers' responses to various questions.

6.4.3.1 Factor conditions

For each of the five case studies detailed in table 6.20, the importance of factor conditions were assessed according to the criteria of infrastructure provision, capital resources, physical resources, knowledge and human resources available throughout each firm's development period up to mid-1992, within the spatial context of the Grampian region. The managers of all the case study firms tended to take infrastructure provision for granted. None of the case study firms experienced any particular difficulty in obtaining an industrial site suitable to their needs. This is not particularly surprising, given that Aberdeen is Scotland's third largest city with a population of approximately 220,000; it is a major fishing and shipping port on Scotland's east coast; it is the main service centre for the rich agriculture of the Grampian region; and by 1970, it was apparent to Aberdeen's authorities that the city would be well placed to capitalise on the oil bonanza to follow, and therefore capital investments were made in improving the harbour and industrial estates to assist companies become established in the oil and gas related sector. Hence, it is to be expected that Aberdeen would be fairly well provided for in terms of infrastructure. However, perhaps the strongest single determining factor condition in Aberdeen's favour is its harbour for ocean going vessels centrally located to the UK's sector of the North Sea. Many firms in the industry would have been prepared to put up with less than perfect infrastructure provision to be close to the main UK base serving the North Sea oil offshore oil and gas fields. Its debatable where the UK's North Sea oil and gas industry would have gravitated to if Aberdeen had been without its harbour. Newcastle-upon-Tyne or Teesside in north-eastern England may have been second choice as a base for the major oil company contractors, since these localities offered the advantages of a deep-water port and a large urban area capable of providing the necessary personnel for administrative tasks.

Local capital resources (*even in the UK context*) were not significant in helping any of the case study firms to grow, with the possible exception of the Wood Group. In fact, a lack of willingness on the part of UK banks and other institutional investors would seem to be the underlying reason for Neptune Marine, Furmanite and Rockwater (*firms which all started off as indigenous UK concerns*) becoming part of larger corporations in order to finance growth. ABB Vetco Gray also had difficulty procuring local capital resources, which combined with the problems its US parent was facing, necessitated selling out to Asea Brown Boveri in order to finance the capital investment required to hold or increase its market share. When questioned about this, the case study firms indicated that UK investors became reluctant to invest in North Sea oil and gas related businesses after burning their fingers (*financially speaking*) during the 1986/87 oil price slump. The Wood Group appears to be the exception here. It has the backing of quite a number of Scottish institutional investors such as Scottish Investment, Standard Life and Scottish Amicable who hold up to 18% of the Group's share issue, although much of its growth has been financed through profit retentions.

The key physical resources that have been most responsible for the success of the oil and gas related industry are: the oil and gas fields of the UK sector of the North Sea which are most proximate to Scotland's Grampian coastline; and the large harbour at Aberdeen combined with Peterhead's deep-water port facility (*60km north of Aberdeen*).

The case study firms did not explicitly consider the local knowledge resources (*i.e. education facilities and local people knowledgeable enough to work effectively and efficiently in the industry*) to have been a significant factor condition, since the exploitation of oil and gas resources attracts suitably skilled people and companies from all over the world. However, implicitly the case study firms considered local education and training facilities to be crucial to their continued prosperity, because once the industry became established and matured, recruitment was usually local (*at least for the lower echelon jobs*). Notwithstanding this point, the case study firms have all developed specialised knowledge in a specific local context in order to make the best use of the resources provided by the oil and gas resources.

Before the 1986/87 oil price slump, the case study firms had little difficulty in procuring human resources, although for some skilled positions, it was

sometimes difficult recruiting labour locally. After the slump, however, many people lost their jobs (*up to 25% of oil related employment*) and never returned to the industry even when the situation later improved. As a result, some case study firms found that they had to deal with a shortage of suitably skilled workers (*Neptune, Furmanite and the John Wood Group*).

If any factor conditions stand out as having been crucial to the success of the oil and gas related industry, it is the physical resources of the oil and gas fields with their close proximity to Aberdeen; Aberdeen's harbour for ocean-going vessels; and the facilities conferred on Aberdeen by virtue of its urban area being a small city. These factor conditions have undoubtedly bestowed on Aberdeen competitive advantage in the UK in developing the proprietary technologies needed to explore and produce oil and gas reserves in hostile offshore environments. Unfortunately, many of the technologies developed locally (*especially with the case study firms*), appear to be by foreign-owned companies. Nevertheless, the factor condition component of Porter's model is very strongly supported by the experience in Aberdeen of the oil and gas related industry and the case study firms.

6.4.3.2 Demand conditions

Local demand conditions have proved to be crucial to the growth of the oil and gas related industry in Aberdeen. The offshore operators' activities associated with the exploration and production of the UK sector of the North Sea's oil and gas fields, have concentrated their onshore functions in Aberdeen and Peterhead, resulting in a concentrated local market for firms wishing to provide subcontract services to the UK oil and gas industry. With the exception of the oil industry slump in 1986/1987, local demand has been exceptionally strong since the first oil fields came on stream in the mid-1970s. Also important to the growth of firms in the industry and in them acquiring international competitive advantage, has been that the offshore operators have been extremely sophisticated and demanding buyers, who place tremendous pressure on subcontractors to deliver products and services at the minimum practicable costs. In the harsh environment of the North Sea oil and gas fields, this has meant that increasingly sophisticated technological solutions have had to be pursued to achieve the levels of production efficiency at the safety levels demanded by the oil companies.

A rapidly growing local market contributed to growth in the industry until the slump of 1986/1987, but although the market picked up again during 1986-1991, the opinion amongst the oil and gas companies is that the local market is

**TABLE 6.20:
GROWTH IN SELECTED CASE STUDY FIRMS WITHIN THE
ANALYTICAL FRAMEWORK OF PORTER'S MODEL**

Company	Neptune Marine	Furmanite Engineerin. Limited	Rockwater	ABB Vetco Gray	John Wood Group
LOCAL FACTOR CONDITIONS					
*infrastructure	3	3	5	4	5
*capital resources	1	1	1	1	2
*physical resources	5	5	5	5	5
*knowledge resources	4	4	5	4	5
*human resources:					
-quantity	4	3	3	3	4
-skills	4	5	5	5	5
-cost	3	2	4	4	4
LOCAL DEMAND CONDITIONS					
*Primary market served	5	4	5	5	5
*Market niche	3	5	5	5	4
*Sophisticated & demanding buyers	4	5	5	5	5
*Home market buyers anticipate buyer needs in other markets	3	5	5	5	4
*Strong demand in Scottish market	5	5	5	5	5
*Strong demand in UK market	2	5	1	3	1
*Large number of independent local customers	1	1	1	1	1
*Rapidly growing local market	5	5	5	5	5
*Early saturation of demand in local market	1	1	1	1	1
*Export markets	1	4	4	4	1
*Local market with multinational customers provide export business	1	3	3	3	1
LOCAL FIRM STRATEGY, STRUCTURE & RIVALRY					
*Management goals for growth	3	3	3	2	5
*Strategy: compete on cost	3	1	2	1	2
*Strategy: compete on product differentiation	4	5	5	5	4
*Owner management structure	2	1	1	1	5
*Professional management	5	5	5	5	5
*Sustained management commitment to firm	5	5	5	5	5
*Strong rivalry in Scotland	4	2	3	2	2
*Strong UK rivalry	1	2	1	1	2
LOCAL RELATED & SUPPORTING INDUSTRIES					
*Cluster of related industries	3	4	5	4	5
*Cluster of supporting industries	2	3	4	4	5
*Strongly competitive local supplier firms	1	1	2	2	2
*Strongly competitive local related firms	1	1	2	2	2
INFLUENCE OF CHANCE EVENTS					
*Discovery of oil fields	5	4	5	5	5
*Invention	2	4	5	4	5
*Entrepreneurship	3	3	3	1	5
INFLUENCE OF GOVERNMENT					
*Business advice	2	1	1	1	1
*Government grants	2	1	1	1	1

NOTE: Importance of issue to firm growth rated in the range from 5 (=extremely important) down to 1 (=not important at all); Local refers to Grampian region

entering into the doldrums again. Export market potential arising from developing world-class expertise in response to local demand conditions, has only arisen with some of the case study firms, such as Furmanite, Rockwater and ABB Vetco Gray, because the local market consists of multinational customers (*i.e. the oil companies*), who help to provide export opportunities to other offshore oil and gas provinces around the world. Porter (1990) stresses that an important demand condition in facilitating growth, is where home market buyers (*in this case the oil companies based in Aberdeen*) anticipate buyer needs in other markets. This has been the case in Aberdeen, which has pioneered considerable subsea oil exploration and production technology, that has applications in the world's other offshore oil and gas provinces.

Porter's (1990) thesis that an important demand condition is to have a large number of independent local customers (*i.e. the oil companies in this case*) for an industry to grow, was not supported in discussions with the case study firms. Two firms talked of there being almost a cartel arrangement amongst the oil companies for the purposes of controlling prices amongst subcontractors, although tangible evidence of this was lacking.

Generally, Aberdeen's oil and gas related industry seems to support the demand conditions' component of Porter's model based on the evidence from the case studies.

6.4.3.3 Firm strategy, structure and rivalry

In examining firm strategy issues, the case study firms were investigated as to whether they had any clear goals for growth and what their product or service strategy happened to be. Only in the Wood Group was there a 100% commitment to growth, together with clear and explicit growth targets to aim for (*i.e. sales of £400 million by 1995*). The other case study firms had adopted cautious "wait and see" approaches to growth, preferring to wait for market openings rather than risking overcommitment of their resources, which might not eventuate in anything. Neptune, the Wood Group and Furmanite's long term strategy was to diversify in to products and services not so dependent on the North Sea oil industry; Rockwater and ABB Vetco Gray had a strategy of diversifying into other oil and gas provinces around the globe. All of the case study firms were well aware of the cycle of boom and bust that the oil industry goes through, sometimes because of world political events seemingly far removed from the UK economy. As the industry entered into a downturn in 1992, the mood ranged from pessimism in the case of Furmanite to wary

predictions of slow, steady growth. What seemed to be clear to all of the case study firms, is that their future strategy would have to look beyond the UK North Sea oil and gas industry if they had long term growth or even survival as their objective. Porter's (1990) thesis here is that firms that have clear strategies for growth are most likely to grow. Amongst the case study firms, this was true only for the Wood Group of companies. For the remaining case study firms, this thesis may be valid for these firms as part of the corporate strategies of the various conglomerates that absorbed the respective case study firms. Another theme stressed by Porter as being crucial to a firm's success, is that it have a clear product strategy, which seemed to be largely supported by the evidence of the case studies. A firm should be clear about whether it is competing on cost or product differentiation (*i.e. offering a wide range of products of high quality*). Interestingly, the case study firms gave the impression that the offshore contractors were forcing competition on a cost basis from their subcontractors but also demanding product differentiation and occasionally what Porter calls "focused product differentiation" (*i.e. customized-designed products/services for one-off tasks*). This appears to be causing constraints to further growth in the oil and gas related industry, although all of the case study firms were clearly competing on a product differentiation basis (*more so with Furmanite, Rockwater and ABB Vetco Gray than Neptune and the John Wood Group*).

A sustained management commitment to the firm is another prerequisite of Porter's model for growth. The findings from the case study firms appeared to lend support to this thesis. What was particularly striking about each of the case study firms, was the professionalism of the management and the overt nurturing of a clear and distinct corporate culture. This commitment to the firm by management in each of the case studies, seemed to be reflected by the dedication and motivation of employees to the firm. Porter is somewhat ambiguous about what type of management structure is best suited to a growth strategy, suggesting that it will vary with national culture. The case study firms reflected this ambiguity, with the John Wood Group's aggressive expansion strategy clearly attributable to the entrepreneurial flair of the chairman and Group's owner, Ian Wood (*although considerable reliance is still placed on professional management teams*) and the remaining case study firms having been successful in recent times due to professional management. However, it is interesting to note that Neptune, Furmanite and Rockwater all started off as small entrepreneurial concerns indigenous to the UK. If it had not been for the drive, enthusiasm and skill of the entrepreneurial figures that founded these firms, it seems doubtful that they would have entered into a professionally managed phase of development.

Porter's thesis that strong rivalry is necessary for growth was only reflected in the case of Neptune and then it was actually perceived as being more of a destructive influence on a limited market than a positive force to encourage growth through competition. Furmanite, Rockwater, ABB Vetco Gray and the John Wood Group were aware of competition, but considered themselves to be operating in such distinct market niches that rivalry was viewed as an indifferent force. None of the case study firms considered themselves to face significant UK wide rivalry, mainly because the theatre of operations for all of the case study firms was Scotland.

To conclude, it would seem that the three main features associated with the determinant of local firm strategy, structure and rivalry to be most important in facilitating growth amongst the case study firms are: competing on product differentiation (*sometimes focused product differentiation*); having a professional management structure; and a sustained management commitment to the firm.

6.4.3.4 Related and supporting industries

The fourth component in Porter's model (1990) refers to a local clustering of related and supporting industries. From the case study firms and in examining the nature of the oil and gas industry and its related sectors in Aberdeen, this component of Porter's model is strongly supported. Few industries in the UK have such a concentrated spatial focus as occurs in the oil and gas related sector. There are oil and gas related companies located throughout the UK, but a large proportion of them are concentrated in Aberdeen. This cluster of related and supporting firms was most keenly appreciated by Rockwater, ABB Vetco Gray and the John Wood Group, although both Neptune and Furmanite were aware of it. Because the case study firms were themselves subcontractors to the offshore oil and gas operators, they did not rely on supplier firms to any great extent and therefore did not consider strong competition amongst local supplier firms to have been a relevant issue in their success. Although there are related firms to the case study firms, none of the case study firms considered the strength of competitiveness amongst them to have had a significant influence in their own success.

6.4.3.5 The influence of chance or random events

The single most significant "chance" event in the development of the oil and gas related industry was the discovery of the North Sea oil and gas fields in the late 1960s. Only the John Wood Group would have existed in Aberdeen out of the

case study firms, and then in a very much abbreviated form (*probably a tenth of its current size*) most likely restricted to marine engineering work for the fishing fleet based in Aberdeen. Neptune, Rockwater and ABB Vetco Gray's activities are so inextricably tied into serving the offshore oil contractors that it is clear that they would not have been established in Aberdeen if North Sea oil had never been discovered. Furmanite is a sufficiently diversified company not to be exclusively dependent on oil and gas contracts, but being an English based company and from the history of its Aberdeen branch, it seems clear that serving the offshore oil operators based in Aberdeen was the only reason that they established a branch in Aberdeen.

Furmanite, Rockwater, ABB Vetco Gray and the John Wood Group are all technologically driven companies. Therefore "invention" is crucial to their continued growth. As was previously mentioned, the offshore oil contractors are continually pressuring their subcontractors to reduce costs, particularly in light of falling oil prices. The implication of this pressure to reduce costs has had to be solved by subcontractors pursuing technological solutions which requires a significant research and development effort. Increasingly, the industry is resorting to subsea technology to exploit difficult or previously marginal oil and gas fields, technology that Rockwater is at the forefront of.

The entrepreneurship displayed by the Wood Group's chairman, Ian Wood, has played a pivotal role in that company's success. Even 20 years after the Wood Group decided to focus on oil services, the drive behind the company's continued growth still seems to emanate from the entrepreneurial approach taken by Ian Wood. During the early development years of Neptune, Rockwater and Furmanite (*only in its English context*), the founders who were entrepreneurial types, played crucial roles in developing their firm to the point that they could be effectively run by a professional management team. In the past 5 years however, growth in these firms has been characterised by a professional management team structure.

As with the plastics supply sector, Porter's relegation of "chance" events to that of being and influencing condition on the other four determinants of his model, appears to minimise the impact of entrepreneurship in the early development of firms. While the evidence suggests that few entrepreneurial types can continue to provide a firm's drive for growth as it becomes a large business concern requiring professional business management skills, it is clear that in four of the case study firms, it was a determining factor in these firms' growth phase.

6.4.3.6 The influence of government policy

A striking feature of all of the case study firms is how self-reliant they appear to have been during their development. None appeared to attribute government policy as having had anything more than an incidental role in their company's growth. Only Neptune had made use of government grants, and that was during the firm's start-up phase. The manager of Neptune, although not around during the firm's infancy, indicated that such was the strength of the market for oil and gas related products/services, that the firm would have grown regardless of whether his firm had or had not taken advantage of such grants.

When business advice was needed, the case study companies indicated that they either utilised their own resources (*either from within the company or from the parent company*) or they used private sector sources of advice such as banks or management consultants. With the exception of the John Wood Group, none of the case study firms placed any significant reliance on outside investors or advice from public or private agencies. Part of the reason for this, is that after the oil price crash in 1986/1987, investors became extremely wary of firms in the oil and gas related sector. Another reason is that firms seem wary of the threat of takeover and are therefore reluctant to be too open about difficulties they may be facing to outsiders.

Nearly all of the case study firms mentioned that since the Piper Alpha disaster, government regulation of the industry had become much more active, particularly in the area of safety for personnel working in offshore environments. This had not worried the case study firms because they claimed that their products and services were already safety driven and of the highest possible quality with the technology available. Only Rockwater mentioned a tax effect on the sector, but hastened to add that this was more an issue for the oil companies and besides, those costs are simply built into the market cost that UK customers must pay for UK petroleum products, and therefore subcontractors do not carry a significant tax burden. If general taxation of the North Sea oil and gas industry was too high, UK demand for petroleum products might be affected, which would in turn lower demand by the oil companies for the products and services provided by their subcontractors. So far, reduced UK aggregate demand for petroleum products through excessive taxation appears not to have been an issue, given that UK consumers pay some of the lowest petrol prices in the European Community (*The Economist, January 9, 1993*).

Apart from taxation of oil and gas production, the government's other direct influence over the oil and gas industry and its related sectors, is through the Department of Trade and Industry in granting exploratory licences for oil and gas in UK territorial waters. Recently it was reported that the government aims to lengthen the life-span of Britain's oil industry through the approval of exploratory work at up to 122 offshore sites (*The Sunday Times, January 17, 1993*). This would have a positive spin-off effect for companies in the oil and gas related sector such as the case study firms.

In summary then, it would seem that the influence of government policy has a three pronged effect: taxation of oil and gas receipts from the oil and gas producers; safety regulation; and the granting of exploration licences. Safety regulation was the area that the case study companies felt impacted most directly and significantly on their business. In the context of Porter's model (1990), government policy appears to behave as a strong though indirect influencing condition on growth in the oil and gas related industry, but has not been a determining condition of growth. The vagaries of world oil prices and market conditions in fact, probably have a much more significant influencing role on the industry than UK central government policy.

6.4.3.7 Interaction of the determinants of competitive advantage

The growth and development of Aberdeen's oil and gas related sector provides strong support for Porter's (1990) thesis that the determinants of competitive advantage have interacted and progressively reinforced each other over the industry's 25 year history. The catalysts in the whole process have been the oil and gas resources of the North Sea and strong UK and world demand for petroleum products. When oil and gas resources were first discovered in the North Sea, Aberdeen already had a strength in maritime engineering and good port facilities by virtue of it being a well established base for the North Sea fishing fleet. The oil and gas resources capitalised on Aberdeen's strengths in these areas, considerably upgrading them to suit their own purposes. By using Aberdeen as a base for many of their operations, the oil and gas operators encouraged a clustering of related and supporting industries to develop in Aberdeen from both indigenous and inward investment sources. This clustering of industries has helped to upgrade Aberdeen's factor conditions, particularly in terms of education facilities and physical infrastructure such as Aberdeen's port, airport and industrial estates. High quality factor conditions have in turn attracted additional clustering of related and supporting industries in Aberdeen and even some new oil and gas operators (*e.g. Enterprise and Lasso*). Even BP has been

sufficiently impressed by Aberdeen's growth and development as a service centre to want to relocate the administration functions of BP Exploration from Glasgow to Aberdeen, which was completed in 1993.

6.5 CONCLUSIONS

The first section demonstrated that the UK's oil and gas industry has given the UK energy independence, contributed handsomely in taxes and spawned many firms and jobs to service its subcontracting needs. Like many other extractive mineral resource activities involving large bulk, weight and heavy production equipment, the base for operations tends to be spatially concentrated at a few locations, so much so that Aberdeen has assumed the mantle of "oil capital of Europe". The overview of the industry indicated that the two major issues which have governed the behaviour of the oil industry with immediate repercussions for its related industries have been: the cyclical nature of the industry oscillating between boom and bust depending on world oil prices; and the Piper Alpha disaster which made the industry much more safety conscious than it had previously been and made the industry subject to much greater government safety regulation.

From the discussion regarding the growth performance of the oil and gas related sector, it is clear that firm growth during 1988-1991 was fairly commonplace, although this period was a boom time on the heels of the worst slump (1986/87) since the industry began (*in other words, part of the growth may have been the industry returning to equilibrium*). In terms of employment, the majority of the surveyed firms (53%) actually grew by more than 25% during 1988-1991. The most common methods of growth adopted by firms were: to introduce a new product/service into an existing market; and to improve work efficiency. Managers of growth firms were found to be pessimistic of future growth (*i.e. during 1988-1991*), suggesting that there was a strong sense of the industry entering into another "bust" phase in 1992/1993.

Of the general issues tested for an association with growth, the most interesting positive findings apparently synonymous with growth were: the importance of high profits; development capital derived from the firm's internal resources; the importance of maximised market share; the importance of maximised production efficiency; a concentration of competitors in the Grampian region; and the introduction of new products and services into existing markets. These findings underline the spatial focus of the oil and gas industry on the Grampian region in terms of the market

and the self-reliance of firms. It suggests a market that is stagnant so that growth for firms in this industry can only be achieved through increased market share, greater efficiency and the introduction of new products and services. Prerequisites for firm growth would seem to be that a firm has profitability as its prime business objective and its own capital resources. Local competition being important as a factor in growth is evidence of support for Porter's model (1990) that strong local rivalry is an essential condition for firms to be successful.

Of the factors tested for an association with growth from the postal survey, within the conceptual framework of Porter's model, the main associations with growth appeared to be with: the factor condition issues of government grant assistance and the suitability of education and employee training facilities in Aberdeen; the demand condition issue of customers demanding a quality product/service; and the firm strategy/structure/rivalry issue of strong competition from imports. Growth firms from the postal survey did not seem to view clustering of related and supporting industries to have had a significant contribution to their success. The finding that government grant assistance was important was not supported by the case study firms.

With the case study firms, common themes that emerged as reasons for growth were: the financial strength conferred by being part of a large international business conglomerate; highly skilled, motivated and capable employees totally committed to the firm; a professional structure of management; providing the best possible product or service; and high customer satisfaction ensuring repeat business. The strongest constraints to growth faced by the case study firms were the oil price crash in 1986/1987 (*reflecting the cyclical nature of the industry*), and lack of financial resources during the start-up phase of the business in its early development years. The main growth strategies pursued by the case study firms, were to be on the look-out for global market opportunities and to become less reliant on the oil companies through greater diversification.

The qualitative methodology used to test Porter's model through detailed analysis on a firm-by-firm basis, was more successful than the quantitative methodology that preceded it, although as with the plastics supply sector, there were difficulties in generalising phenomena of firms, each of which had a unique development.

Being ultimately a resource based industry, factor conditions among the case studies stand out as being a crucial determinant of growth, which is as Porter's model would suggest. However, all of the case study firms tended to take the infrastructure of the Grampian region for granted. The key factor conditions that appear responsible for growth in the industry are: the oil and gas fields in close proximity to Aberdeen; Aberdeen's harbour facilities; and the facilities (*particularly education and training*) conferred on Aberdeen, by virtue of it being a city. As with the plastics supply industry, local capital resources were found to be insignificant with all of the case study firms having to substantially rely on their own financial resources to fund their development. When Scottish Enterprise bemoans the fact that there are too few indigenous Scottish oil and gas related firms, this is the single most important reason why.

From the case studies, demand condition component of Porter's model, is very much a contributing factor to growth in this industry, although some demand condition aspects that Porter considers important in facilitating success are not in evidence, such as a small number of customers (*i.e. the oil companies*) behaving in cartel fashion to force down the costs of their subcontracting work. Two key demand condition themes of Porter's model that were very much in evidence from the case studies were: sophisticated and demanding customers forcing subcontractors to develop state-of-the-art subsea technology; and home market buyers (*i.e. the oil companies operating in Aberdeen*), anticipating buyer needs in other markets.

The determinant of firm strategy, structure and rivalry in Porter's model, was partially supported by the results of the case study findings. For example, the key issues that seemed common to the case studies were: competing on product differentiation; having a professional management structure; and a sustained management commitment to the firm. Because the case study firms (*with the exception of Neptune*) considered themselves to be in market niches, they did not see rivalry (*i.e. competition*) as being a driving force in their growth or product/service development. Neptune, which was subjected to stiff competition, viewed rivalry as a destructive force, especially in a stagnant market, which contradicts Porter's view that competition is always a positive force for growth.

Casual observation of the oil and gas industry in Aberdeen seems to point to a distinct clustering of oil and gas related firms serving the needs of the offshore oil operators, suggesting strong support for Porter's notion that clustering of

related and supporting industries will facilitate growth. However, the case study firms did not provide evidence of strong competition amongst related and supplier firms as having had a role in their success, perhaps because with them being subcontractors, they were upstream of the hierarchy of the network of supplier and related industries serving the offshore oil and gas industry.

As with the plastics supply industry, the treatment of entrepreneurship as a "chance event" seemed inappropriate given the determining role that entrepreneurial persons seemed to have in the early development of four of the case studies and continues to have with the John Wood Group. The issue of "entrepreneurship" strikes a discordant note in Porter's model in that it is far too underrepresented as being simply an "influencing condition" of the model's four main determinants.

The influencing condition of "government policy" behaved as Porter's model predicted it would, judging from the evidence of the case studies. Its most important role seems to be in safety regulation of the industry. Being what might be called a glamour industry with plenty of business opportunity, many companies started up and set up in Aberdeen, attracted to it like bees to a honey pot. The reality of surviving, turned out to be somewhat harsher than expected even for some of the case study growth firms, in that with the indigenous firms, local capital resources were lacking. If it had not been for inward investors being prepared to underwrite the necessary investment in the industry, the industry may never have developed. Clearly, if Scottish Enterprise is disappointed with the lack of large indigenous Scottish businesses in the oil and gas related sector, it will have to look towards solving the problem of having adequate local capital resources accessible to developing indigenous businesses.

To conclude, argued qualitatively, the oil and gas industry with its related sectors in Aberdeen, reflects important aspects of Porter's model in action. However, when examined with the statistical techniques employed, it fails to be a convincing explanatory framework of growth in the industry.

The next chapter will now focus on determining the applicability of Porter's model in explaining and understanding growth in firms of Glasgow's financial services sector.

STEVEN

FIRM GROWTH IN
GLASGOW'S FINANCIAL SERVICES SECTOR

CHAPTER SEVEN CONTENTS:

<u>SECTION</u>	<u>CONTENT:</u>	<u>PAGE</u>
7.0	INTRODUCTION	332
7.1	OVERVIEW OF SCOTTISH FINANCIAL SERVICES	332
7.2	THE SURVEYED FIRMS	339
7.3	GROWTH PERFORMANCE OF FIRMS	342
7.3.1	Employment	342
7.3.2	Financial Performance	345
7.3.3	Markets	347
7.3.4	Management's Attitudes to Growth	348
7.3.5	Nature of Growth	348
7.4	EXPLAINING GROWTH IN THE SECTOR	351
7.4.1	Factors and Issues Associated with Growth	352
7.4.2	Growth in the Context of Porter's Model: Statistical Tests for Significance of Growth Factors	361
7.4.3	Growth in the Context of Porter's Model: Case Studies of Growth Firms	372
7.4.3.1	Factor Conditions	379
7.4.3.2	Demand conditions	383
7.4.3.3	Firm strategy, structure and rivalry	384
7.4.3.4	Related and supporting industries	386
7.4.3.5	The influence of chance or random events	387
7.4.3.6	The influence of government policy	387
7.4.3.7	Interaction of the determinants of competitive advantage	387
7.5	CONCLUSIONS	388

CHAPTER SEVEN: FIRM GROWTH IN GLASGOW'S FINANCIAL SERVICES SECTOR
--

7.0 INTRODUCTION

This chapter has two main objectives: to discuss the growth performance of the surveyed firms in Glasgow's financial services sector; and second, to explain and understand the factors that have facilitated the growth of firms in this sector. A secondary aim of this chapter is to present an overview of the Scottish financial services sector.

The first section sets the context of the Scottish financial services sector in the Scottish economy. The Scottish financial services sector has been used as a surrogate for Glasgow's financial services sector because detailed figures for Glasgow were not available. The second section indicates how representative the survey respondents are of firms in Glasgow's financial services sector in terms of the services that they provide. The third section discusses the growth performance of the surveyed firms in terms of employment change, their financial performance and change in markets during the period 1988-1991. This section also examines management's attitudes to growth amongst the survey respondents and the nature of growth that characterised the surveyed firms. Section 7.4 interprets the survey results employing three approaches: a general quantitative approach using the postal survey results; a quantitative approach using the postal survey results within the conceptual framework of Porter's model; and a qualitative approach based on personal interviews of managers from case studies of growth firms selected from firms that cooperated in the postal survey, also analysed within the conceptual framework of Porter's model.

The reader is advised to consult appendix A7 for: full details on the cross-tabulations that the analysis in section 7.4 refers to; the characteristics of the surveyed firms in the postal questionnaire; the case studies of the selected growth firms; and the list of the survey participants.

7.1 OVERVIEW OF SCOTTISH FINANCIAL SERVICES

The financial services sector is an important component of the Scottish economy. Indeed, Scottish Business Insider magazine concluded in a review of the key parts of the Scottish economy in July 1992, that finance was the "core business of Scotland plc". Edinburgh dominates Scotland's financial services sector, but Glasgow

is also a very important provider of financial services. The dominant sector by employment in Glasgow is in services (*general services of which financial services would be a significant contributing component*), providing 262,182 (74.9%) of its 349,885 jobs in 1992. Several of Glasgow's major employers are in financial services such as National Savings Group, Scottish Amicable, Scottish Mutual (*Insurance*) and Alexander Stenhouse Ltd (*Insurance brokers*). Much of the expansion in Glasgow's property market during the past five years has been to house the service economy (*Financial Times, June 25, 1992*). A further indication of Glasgow's status as a centre of financial services, is its Stock Exchange which is the only "trading floor" in Scotland and one of only three in Britain. It is part of the International Stock Exchange formed by an amalgamation in 1973. It is no longer so important though because the bulk of dealings today are done on computer screens.

Financial institutions employ over 217,000 people in Scotland (*about 11% of the workforce*) and contribute around 15% towards Scotland's gross domestic product, which is twice the average for the European Community (*Scottish Office News Release, November 1992*). In a speech given by the Minister of State at the Scottish Office (*IBID*), it was claimed that the Scottish financial services sector, with £160 billion of funds under its management, was a force to be reckoned with in European and world financial markets. Moreover, the Scottish Office indicated that it is likely to continue being an area of growth in the future. The creation of a Single Market within the European Community in 1992 is considered by the Scottish Office to offer the main opportunities for further growth in the Scottish financial services sector.

According to the Standard Industrial Classification (*SIC*) of 1980 (*Central Statistical Office, 1980*), division 8 activities are far-ranging in their scope, covering banking, finance, insurance, all manner of business services and leasing. Banking and finance activities include central banking authorities, banks and discount houses, savings banks, institutions specialising in the granting of credit (*e.g. building societies, specialist finance leasing companies, etc.*) and institutions specialising in investment in securities. Insurance companies include composite insurance institutions, institutions specialising in ordinary long-term insurance (*including life*), and institutions specialising in insurance other than long-term. Business services include activities auxiliary to banking and finance (*carrying out transactions on behalf of third parties*); business services auxiliary to insurance (*e.g. insurance brokers and agents*); house and estate agents; legal services; accountants, auditors and tax experts;

architects, surveyors and consulting engineers; technical services; advertising; computer services; management, market research and public relations consultants; document copying, duplicating and tabulating services; miscellaneous business services (*e.g. employment agencies, security services, typing services, etc.*); head offices of enterprises operating abroad; central offices of mixed activities that cannot be classified elsewhere; renting of movables; and owning and dealing in real estate.

This chapter focuses in on only certain areas of division 8 activities pertaining to financial services (*excluding lending companies*) described by the Central Statistical Office, such as institutions specialising in investment securities, insurance companies, business services auxiliary to banking and finance, business services auxiliary to insurance, and management consultants. Banks and other financial institutions, leasing companies and business services not primarily involved in financial services were excluded from the survey sample frame either because they were not characteristic of small-medium enterprises or because their activities have little to do with financial services.

Unfortunately, the only available statistics for the sector tend to be aggregated statistics for division 8 activities as a whole. A further limitation of the data is that it does not provide a detailed breakdown of output and employment any further than the spatial context of the Scottish economy, primarily for the reason of maintaining the confidentiality of businesses. Therefore, the survey results discussed within this chapter pertaining to the state of Glasgow's financial services sector have no direct basis for comparison with official statistics. The inference that is taken in the following analysis, is that since Glasgow is a major centre for financial activity in Scotland (*the other being Edinburgh*), the official statistics must be assumed to be fairly indicative of the state of affairs within Glasgow's financial services sector.

Tables 7.1 and 7.2 demonstrate that SIC division 8 activities (*banking, finance, insurance, business services and leasing*) have been an area of sustained growth in employment and output, and high productivity when compared with either the aggregate results for the Scottish or UK economies. During the decade 1981-1991, employment in division 8 activities increased by 59.6% from 128,972 to 205,838, in spite of the overall contraction of Scotland's workforce by 1.1%. The growth in employment for division 8 activities was largely mirrored in the UK economy (*with a 54.4% increase*) from 1.7million to 2.7million employees. What is particularly interesting about the growth in employment in division 8 activities in the

TABLE 7.1:
CHANGE IN EMPLOYMENT 1981-1991 IN SIC DIVISION 8 ACTIVITIES:
BANKING, FINANCE, INSURANCE, BUSINESS SERVICES & LEASING

	EMPLOYMENT		% CHANGE 1981-1991
	1981	1991	
SCOTLAND (Div.8 SIC)	128,972	205,838	+59.6%
% of Scottish workforce	6.4%	10.4%	+4.0
Total Scottish workforce	2,002,000	1,980,000	-1.1%
UK (Div.8 SIC)	1,744,254	2,694,201	+1.6%
% of UK workforce	8.0%	12.1%	+4.1
Total UK workforce	21,893,000	22,234,000	+54.4%

SOURCE: REGIONAL TRENDS 27, 1992 Edition

TABLE 7.2:
CHANGE IN OUTPUT 1987-1990 IN SIC DIVISION 8 ACTIVITIES:
BANKING, FINANCE, INSURANCE, BUSINESS SERVICES & LEASING

	£MILLION 1987	£MILLION 1990	% CHANGE 1987-1990	Estimated gross domestic product per employee**
SCOTLAND DIV. 8 (SIC)	4,012	5,503	37.2%	£28,873
% of Scotland's total GDP	13.6%	14.2%	+0.6	
SCOTLAND (TOTAL GDP)	29,481	38,738	31.4%	£20,775
UK DIV. 8 (SIC)	59,836	87,260	46.9%	£34,979
% of UK'S total GDP	16.6%	18.3%	+1.7	
UK (TOTAL GDP)	358,297	477,747	33.3%	£23,421

SOURCE: Derived from data in REGIONAL TRENDS 27, 1992 Edition

NOTE:

**Estimated using extrapolation of 1990 GDP figures by 8% and 1991 employment figures

Scottish economy, is that this sector went from being a relatively minor component of the Scottish economy in 1981 (*with a mere 6.4% of the workforce*) into one of the main sectors of the Scottish economy in 1991 (*with 10.4% of the workforce*), whereas in the UK economy, division 8 activities were a significant component of the economy in terms of its share in employment in both 1981 (*with 8.0% of the workforce*) and 1991 (*with 12.1% of the workforce*). The growth in output for division 8 activities has been equally dramatic as that for employment. While Scotland's performance during the period 1987-1990 in gross domestic output for this sector lagged behind the performance of the equivalent sector in the UK economy, it was still nonetheless impressive. Output for Scotland's division 8 activities increased by 37.2% (*from £4,012million to £5,503million*), which compares favourably with the Scottish economy's growth of 31.4% and the UK economy's growth of 33.3% (*from £358,297million to £477,747million*), although not as well as the growth in division 8 activities for the UK economy of 46.9% (*from £59,386million to £87,260million*).

Moreover, it increased its share in the Scottish economy's gross domestic product from 13.6% to 14.2%.

In terms of productivity, division 8 activities of the Scottish economy have performed strongly in 1991, producing an estimated gross domestic product output per employee of £28,873, compared to £20,775 in the Scottish economy and £23,421 in the UK economy, although it was not as high for the equivalent sector in the UK economy at £34,979.

A number of surveys examining the performance of particular firms in the Scottish financial services sector have been conducted in the recent past by the magazine *Scottish Business Insider* (*January 1993*), the *Scotsman* newspaper (*11 December, 1991*) and the *Financial Times* (*May 16, 1991*). The limitation with these surveys is that they all tend to focus on the top 10 or 20 performers for the sector, many of which tend to be of a corporate nature and are therefore not representative of small to medium businesses.

The most recent survey by *Scottish Business Insider* (*January 1993*) concluded that although financial services during 1992 remained one of Scotland's strongest sectors, one of its largest employers and one of its best prospects for future growth, the 1990-1992 recession, together with uncertain stock markets have taken their toll on all but a handful of companies. The top 25 financial services companies were surveyed and it was found that aggregate profits declined by nearly 2% and that 14 companies experienced a decline in earnings. The top 5 companies by the measure of growth in profitability in 1992 were: (1) *Standard Life* (*increasing profits by £86.4million to £847.3million*); (2) *TSB Bank Scotland* (*increasing profits by £15.93million to £76.9million*); (3) *Scottish Provident* (*increasing profits by £10.65million to £131.6million*); (4) *Scottish Life* (*increasing profits by £6.68million to £103.7million*). *Scottish Business Insider's* prognosis for the sector, was that the continuing recession was likely to impact badly on the sector in 1993.

The *Scotman's* survey (*11 December 1991*) indicated which Scottish insurance and finance companies were amongst Scotland's top 300 companies in 1991. *Standard Life* (*insurance*), *Scottish Widows* and *Scottish Amicable* were ranked first, second and third respectively as Scotland's most profitable companies. There were 7 other insurance companies amongst Scotland's 300 top companies, and these were: *Scottish Equitable*, *Scottish Life*, *Scottish Provident*, *Scottish Mutual*, the

Life Association of Scotland, Britannia Life and General Accident. And there were 11 financial institutions in the ranking for Scotland's top 300 companies, which included: Bank of Scotland; Royal Bank of Scotland; Clydesdale Bank; Aberdeen Trust; TSB Group; Murray Management; Edinburgh Fund Managers; Ivory & Sime; Dunfermline Building Society; Chart Services; and Adam & Company. Table 7.3 details the financial performance and employment figures for these companies. Turnover ranged from £23.2million (*Adam & Company*) to £4,215million (*Standard Life*); profits ranged from a loss of £121.3million to a profit of £2,212.1million (*Standard Life*); and employment ranged from 96 (*Edinburgh Fund Managers*) to 40,015 (*TSB Group*). Profits per employee ranged from a massive £411,900 (*Standard Life*) to a loss of £3,621 (*General Accident*), while sales per employee ranged from £54,000 (*Murray Management*) up to £775,101 (*Standard Life*). The very high profits and sales per employee generated by Scotland's top finance and insurance companies indicates this to be a very high value added area of the economy, but because it concentrates on the "high flyers" in the financial services sector, small to medium firms are not well represented.

The Financial Times survey of Scottish Financial and Professional Services (*May 16, 1991*) established Edinburgh and Glasgow to be two major global fund management centres, ranking 14th and 16th respectively in the world and second and third after London in the United Kingdom. In 1990, Edinburgh had \$US62.5billion of equities under management compared to Glasgow's \$US19.8billion. The survey found that Scottish expertise is rather narrowly based in fund management and insurance. It has important clearing banks but only small merchant banks. Financial markets tend to be lacking. The survey commented that although both Glasgow and Edinburgh have a critical mass of human talent in fund management activities, the same does not apply in institutional broking, market-making or corporate finance. A key advantage Glasgow was said to have over the City of London until the 1990-1992 recession was that office rents were up to 25% lower. However, the glut of office space in London, particularly during 1992, underlined by the commercial failure of the massive Canary Wharf office complex in London's Docklands, has made the advantage less significant.

A distinctive feature of Scotland's financial and business services sector, is that it has retained its separate institutions. In England, most banks and insurance companies have been absorbed into London-based giants. Scotland, by comparison, has three locally based clearing banks, several assurance companies and a

large general insurer (*General Accident*). The desire to remain independent from the rest of the financial services sector in the UK was recently reinforced by the decision of the Institute of Chartered Accountants of Scotland to reject a proposal in 1991 to merge with its larger sister institute in England and Wales, ostensibly because members of the profession feared that their profession would become centralised in the City of London (*Financial Times, May 16, 1991*).

The Scottish life assurance companies were commented on in the *Financial Times* survey as having been one of the sector's striking success stories. In 1990, they employed 12,000 people in Scotland, attracted premiums and investments of £3.89billion and had funds under management of £90billion. They hold over 20% of the UK market, although Scotland's share of the UK population is only 8.9%. The survey concluded that Scottish life companies have prospered by selling long-term investment products, backed by a modest element of life insurance, into the English market from a base in Scotland, where the costs are low but the skills are relatively high. The low costs allow the Scottish companies to maintain an integrated structure with a single main office, whereas in London, companies tend to have fairly fragmented operations. Skills are high because the Scottish actuarial profession has always been strong, producing a steady stream of bright graduates with the right educational background for the industry.

The main strengths of Scottish fund managers over their London counterparts are fourfold (*The Economist, December 19, 1987*). Screen-based trading has eliminated the advantages of being close to the London stock exchange. Scottish fund managers tend to take the long term view and tend to hold on to their pension-fund investments for about three years, which is almost twice the UK average. Scottish fund managers tend to be more loyal and the distance from London tends to keep salaries required to hold on to good fund managers appreciably lower than they are in London, where high living costs and job-hopping results in higher costs. Finally, the fact that the Scottish funds have been keen supporters of international diversification and long-term investment in small companies seems to have contributed to their success.

The trade association Scottish Financial Enterprise was devised in 1986 in response to the deregulation of London's financial markets in October 1986 (*The Economist, December 19, 1987*) in an effort to promote Scotland as a money centre by bringing mutual awareness and collective purpose to the diverse constituents of the

Scottish financial community. Mr. James Provan, its chief executive views the main challenge for Scotland's financial services sector to be in providing complementary financial services which add to what the City of London provides, without appearing to focus upon the low margin leftover work the City considers to be too small to be bothered with.

TABLE 7.3:
FINANCIAL SERVICE COMPANIES AMONGST THE TOP 300 SCOTTISH COMPANIES IN 1991

Rank	COMPANY	Pre-tax profit £m	Turnover £m	Total employ- ment	Emp. in Scotland	Sales/ employee £'000	Profits/ employee £'000	ROCE%
1	Standard life	2,212.1	4,215.0	5,438	4,369	775	412.9	53.1
2	Scottish Widows	1,014.8	1,903.2	2,836	2,200	671	0.4	53.3
3	Scottish Amicable	520.0	1,398.0	2,069	1,640	676	251.4	37.2
5	Scottish Equitable	411.6	843.1	1,731	1,134	487	0.3	48.8
8	Scottish Life	216.6	461.7	1,233	1,071	374	175.7	46.9
10	Bank of Scotland	134.1	2,781.4	11,905	10,759	234	8.3	7.4
11	Scottish Provident	136.6	395.9	1,011	850	392	135.1	35.5
13	Royal Bank of Scotland	57.7	3,876.0	24,620	10,300	157	2.3	2.8
15	Scottish Mutual	117.9	380.0	1,012	711	375	116.5	31.0
37	Clydesdale Bank	64.0	663.9	7,522	7,231	88	8.5	14.1
49	Life Association of Scotland	4.7	170.5	658	429	259	7.2	4.7
60	Britannia Life	24.1	49.2	350	330	149	73.2	49.1
75	Aberdeen Trust	2.8	101.2	308	65	329	8.9	51.8
97	TSB Group	312.0	3,697.0	40,015	2,500	92	7.7	16.2
116	Murray Management	5.2	16.2	300	243	54	17.4	53.9
137	General Accident	-121.3	4,126.5	15,663	2,450	263	-3.6	-2.0
140	Edinburgh Fund Managers	4.2	7.7	96	98	80	43.3	26.7
159	Ivory & Sime	2.9	12.6	150	128	84	19.4	29.5
202	Dunfermline Building Society	9.3	75.2	277	210	271	33.7	0.0
220	Chart Services	-0.3	39.8	237	--	168	-1.2	11.2
258	Adam & Company	0.9	23.2	133	109	174	0.9	8.9

SOURCE: Survey in "THE SCOTSMAN", 11 December, 1991

7.2 THE SURVEYED FIRMS

There were 46 firms in Glasgow's financial services sector that participated in the postal questionnaire survey. The majority were accountancy practices (46% of firms); 22% of firms were insurance/assurance companies; and the remaining 32% were financial advice type companies. The sampling frame adopted

for the survey aimed to target 135 financial services firms operating in Glasgow's city centre that were in business before 1988. Banks were excluded from the survey due to their corporate nature and the fact that most would not fit the definition of a small to medium enterprise.

Chartered Accountants and financial advice (*or "other financial services"*) companies were well represented in the postal survey, with 44% and 37% respectively of targeted firms in the sampling frame responding. Insurance/assurance companies were comparatively poorly represented, with only 22% of targeted firms in the sampling frame responding. The overall response rate for the survey was 36%, which while generating enough responses to allow the survey to have a valid statistical basis, was disappointing in that it was not higher, particularly amongst insurance/assurance companies. When follow-up attempts were made to improve the yield, most firms flatly refused to reconsider their position. Questionnaires were generally fully completed, except when companies were asked to provide figures on employment change, profitability and turnover, which up to 50% of firms chose not to answer. The problem seems to have been that because 93% of the surveyed companies and partnerships were private concerns, most were reluctant to divulge sensitive commercial information regarding their activities. This created problems in selecting suitable case studies of growth firms for the sector, since the proportion of firms that did not provide the necessary information was 22% in the case of employment data; 35% for turnover data; and 52% for profitability data. Insurance/assurance companies were especially reticent about divulging information with the result that the postal survey seemed to be suggesting that most growth firms in the financial services sector were Chartered Accountants when the aggregated data surveys commented upon in the previous section, pointed to insurance/assurance companies and fund managers to be the star performers.

Four of the case study companies were accountancy practices (*under the aliases of Alpha; Howard; Carlton Scott and Nova Omega*); one was a financial services brokerage business (*under the alias of Beta Investment Services*); and the other a life assurance company (*under the alias of Eternal Life*). In terms of growth performance, however, none displayed what might be considered to be spectacular growth performance, although Alpha, Carlton Scott and Nova Omega all performed strongly, expanding in employment by at least one third during the period 1988-1991. The other three case studies also increased in employment but not enough to be considered noteworthy. They were selected for intensive study because they claimed

to have expanded in sales by at least 25% during the period 1988-1991 and because they were representative of other facets of the financial services sector and they agreed to cooperate more fully than other "growth" companies contacted in the postal survey. Compared to the other two sectors examined, the financial services case study firms were much less generous with their time, making it difficult to explore issues in any great depth.

Table 7.4 indicates the range of financial services provided by the firms that participated in the postal survey. The three main services provided (*usually by accountancy practices*) were: tax advice (47.8% of firms); accountancy services (45.7% of firms) and audits (43.5% of firms). General portfolio management (*including savings plans*), pension plans, investment management (*e.g. stock broking, unit trusts, equity investments*) and business start-up advice and development, were provided by between a quarter and a third of the surveyed firms. Life assurance was provided by 22% of companies. General management and company insolvency services were provided by 17% of firms, either by accountancy practices or financial advice businesses. Insurance broking, insurance underwriting and claims handling were provided by 15% of firms that acted as middlemen between large insurance companies and recipients of such services. A small proportion of firms (11%) dealt with mortgage arrangement and provision. Miscellaneous functions such as actuarial services, risk and credit control management, were provided by 5% of firms.

TABLE 7.4:
SERVICES PROVIDED BY FIRMS IN FINANCIAL SERVICES SECTOR

SERVICE PROVIDED BY COMPANY	PROPORTION OF FIRMS PROVIDING SERVICE 100%=46 firms
1.Tax advice	47.8%
2.Accountancy	45.7%
3.Audit	43.5%
4.General portfolio management (including savings plans)	30.4%
5.Sale of pension plans	28.3%
6.Investment management (stock broking, unit trusts, equity investments)	26.1%
7.Business start-up advice and development	23.9%
8.Sale of life assurance	21.7%
9.General management services (consultancy advice and secretarial)	17.4%
10.Company insolvency	17.4%
11.Insurance broking/insurance underwriting & claims handling	15.2%
12.Mortgage arrangement and provision	10.9%
13.Actuarial services	4.3%
14.Risk management	2.2%
15.Credit control management	2.2%

This section has demonstrated that the postal survey and case studies are a reasonable cross-section of the financial services sector as it pertains to its activities within the City of Glasgow. The aggregated growth performance of the surveyed firms will now be discussed in detail.

7.3 GROWTH PERFORMANCE OF FIRMS

This section discusses the growth performance of firms in Glasgow's financial services sector that participated in the postal survey. Three main areas are discussed: employment change; financial performance; and change in markets. The financial performance of firms was assessed according to change in sales, profits, total assets and annual capital employed during the period 1988-1991. In-depth financial performance analysis using derived ratios such as change in the rate of capital employed, sales per employee and profits per employee were also utilised, but since response rates for questions regarding firms' financial statistics tended to be poor, it would be unwise to stress the results of that component of the analysis too strongly. Generally, firms in this sector were not particularly co-operative when it came to quantifying their financial performance or change in employment. For example, 22% of firms refused to provide full employment figures and 76% of firms would not provide the information needed to estimate the derived financial ratios just mentioned. The larger firms were the most secretive, while the smaller businesses (*usually Accountancy practices or brokers*), were the most open and co-operative. For this reason, the survey data seems to be indicative of a sector whose growth performance is of a more modest nature than media reports and the statistical information discussed in the previous section would suggest. It may be that if those firms which had chosen not to co-operate fully in the postal survey (*many of which happened to be the large insurance/assurance/management consultancy and fund management enterprises that have mainly been responsible for the strong performance of Scotland's financial services sector in the past*) had co-operated, then the survey results would have helped to confirm the financial services sector as one of the most dynamic and prosperous in Scotland's economy. The survey results do, however, accurately reflect the performance of Glasgow's small to medium firms in the financial services sector.

7.3.1 Employment

Growth firms by the measure of employment for the period 1988-1991 (*see table 7.5*), accounted for a third of the firms in the postal survey. A quarter of firms were found to be stable (*with employment increasing by no more than 25%*) and one in five firms either declined or remained unchanged in employment. 20% of the

surveyed firms experienced employment growth exceeding 50% and they increased in size by an average of 12.6 employees. 13% of firms experienced moderate increases in employment (*in the range of 26-50%*) and they increased in size by an average of 11.7 employees. The high employment growth firms in the survey were on average quite small (*with about 17 employees/firm*) as were the moderate growth firms (*with an average firm size of 34 employees*), compared to the stable firms with an average size of 80 employees. This would seem to imply that financial services firms with 80-100 employees are fairly mature businesses without much future potential for growth, whereas small firms (*with less than 20 employees*) have the biggest potential for growth.

TABLE 7.5:
GROWTH IN EMPLOYMENT FROM 1988 TO 1991

Employment Growth	No. of Firms (% of sample)	Change: Total Emp/firm Full-time
High >50%	9 (20%)	12.6 (76.2%)
Moderate 26-50%	6 (13%)	11.7 (34.6%)
Stable 1-25%	12 (26%)	12.7 (15.9%)
Declining 0%<	9 (20%)	-6.3 (-15.5%)

NOTES:

1. Based on 36 observations
2. Employment change measured in absolute terms expressed as an average increase in employees per firm for each respective employment growth category.
3. Percentages in brackets represent the average increases in employment per firm, expressed as a percentage.

Table 7.6 examines the structure of employment growth in each of the categories of growth firms by the measure of employment. The two occupational categories generally most affected by either growth or decline in a firm are skilled technical or clerical/administrative employees. The occupational category of "less skilled manual" employees was found to be largely insignificant in the occupational structure of firms in this sector and therefore hardly affected in absolute terms by a firm's growth or decline.

High growth firms (*i.e. those that increased employment by more than 50%*), benefited the occupational grouping of "clerical/administrative" employees the most in absolute terms (*with an average increase of 5.6 employees/firm*), while "skilled technical" employees experienced the largest proportionate increase per firm (*of 95.4%*).

TABLE 7.6:
GROWTH IN FULL-TIME EMPLOYMENT BY OCCUPATION 1988-1991

Employment Growth Full-time	No. of Firms (% of sample)	Change: Managerial & Executive: Employees per firm; % change/firm	Change: Skilled technical: Employees per firm; % change/firm	Change: Clerical/ Administrat. Employees per firm; % change/firm	Change: Skilled manual: Employees per firm; % change/firm	Change: Less skilled manual: Employees per firm; % change/firm
High >50%	9 (20%)	1.7 (58.3%)	4.2 (95.4%)	5.6 (62.9%)	0.8 (32.2%)	0.1 (0%)
Moderate 26-50%	6 (13%)	1.5 (31.4%)	5.8 (23.8%)	3.5 (71.6%)	1.0 (4.5%)	0 (0%)
Stable 1-25%	12 (26%)	1.8 (-1.1)	0.3 (17.0%)	5.9 (10.7%)	3.6 (10.5%)	0.6 (2.9%)
Declining 0% or less	9 (20%)	-0.9 (-16.6%)	-4.2 (-13.1%)	-0.9 (-12.3%)	-0.3 (-2.6%)	0 (0%)

NOTES:

1. Based on 36 observations
2. Employment change measured in absolute terms expressed as an average increase in employees per firm for each respective employment growth category.
3. Percentages represent the average increases in employment per firm, expressed as a percentage.

Moderate growth firms (*i.e. those that increased in employment from 26-50%*) benefited the occupational grouping of "skilled technical" employees the most in absolute terms (*increasing by an average of 5.8 employees/firm*), while "clerical/administrative" employees experienced the largest proportionate increase per firm of 71.6%.

With "stable" firms (*employment change in the range of 1-25%*), "clerical/administrative" employees experienced the largest absolute increase in employment (*5.9 employees/firm*), while "skilled technical" employees experienced the largest proportionate increase in employment (*at 17.0%*).

Declining firms (*i.e. those with no employment change or contraction in employment*), affected managerial and executive employees the worst in proportionate terms (*contracting by an average of 16.6% per firm*) and the "skilled technical" category in absolute terms (*contracting by an average of 4.2 employees/firm*).

These results would seem to suggest that high growth firms benefit clerical/administrative employees to the greatest extent while contracting firms impact most significantly on the "managerial & executive" and "skilled technical" occupational groupings.

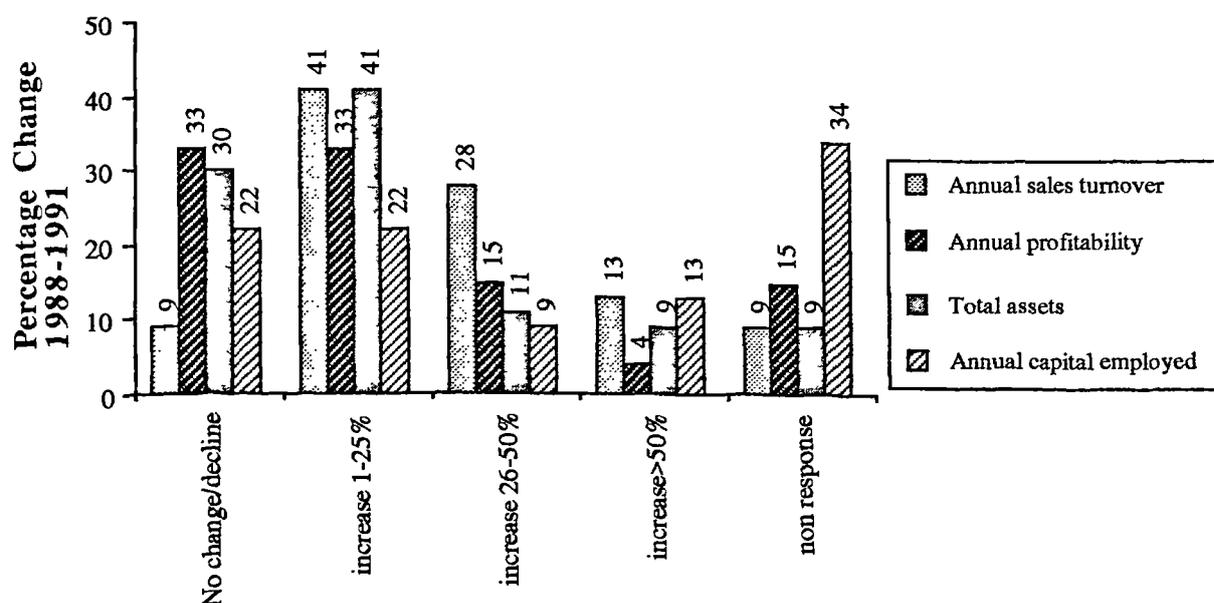
7.3.2 Financial Performance

The growth measures of change in annual sales turnover, annual profitability, total assets and annual capital employed varied considerably as figure 7.1 clearly demonstrates. These growth measures all refer to change in firms' performance during the period 1988-1991. While growth by the measure of employment suggested that 20% of firms were high growth firms (*increasing by more than 50%*), the growth measures of sales and annual capital employed suggested it to be 13% of firms; by growth in total assets it was 9% of firms; and by growth in profitability it was 4% of firms. Similarly, there was also a lack of agreement between the growth measures when it came to determining the proportion of moderate growth firms (*i.e. those that increased in the range of 26-50% according to the respective growth measures*). For example, the growth measure of employment suggested that 13% of the surveyed firms had experienced moderate growth, but the growth measure in sales indicated it to be 28% of firms; that of profitability to be 15% of firms; that of total assets, 11% of firms; and that of annual capital employed, 9% of firms. It is only in the stable category of firms (*an increase in the range of 1-25%*), that the growth measures of sales, profitability and assets were found to be reasonably in agreement with each other (*i.e. in the range of 33-41% of firms*).

Interestingly, the growth measures are much more in agreement with each other when the results are aggregated to show firms that increased by 26% or more during the period 1988-1991. Using this criterion, the growth measures of profitability, assets and capital indicate that around 20% of the surveyed firms were growth firms by sales and 33% of firms by employment. These results would seem to suggest that compared to the growth measure of employment, change in annual sales turnover is perhaps an overly optimistic growth measure, while the measures of profitability, assets and annual capital employed are somewhat pessimistic.

Table 7.7 examines the growth performance of the surveyed firms according to the percentage change during the period 1988-1991 of the derived financial ratios of the rate of capital employed (*ROCE*), annual sales per employee and annual profits per employee. From the *ROCE* indicator, it would seem that 15.2% of firms are growing (*compared with 10% of firms in the plastics supply sector*) and the average growth experienced by the 13 firms that provided sufficient data to determine this ratio was 20.3% ranging between a minimum of -18.3% and a maximum of 154.3% with a modal value of 0.4%.

**FIGURE 7.1:
GROWTH PERFORMANCE OF GLASGOW'S FINANCIAL SERVICES
BY TURNOVER, PROFITS, ASSETS AND CAPITAL EMPLOYED FOR 1988-91**



For the derived financial ratio of change in annual sales/employee, 32.6% of firms were found to be growing (*compared with 34.0% of plastics supply and 42.9% of oil and gas related firms*). The average change experienced by firms for the 24 firms that provided the necessary data, was growth in sales/employee of 15.3%, ranging from a minima of -43.7% to a maxima of 153.4% and a modal value of 6.8%.

For the derived financial ratio of change in annual profits/employee, 13.0% of firms were found to be growing (*compared with 16.0% and 38.6% of firms respectively in the plastics supply and oil and gas related sectors*). The average change experienced by the 17 firms that provided the necessary data was 17.9% ranging from a minima of -50.0% to a maxima of 161.1% with a modal value of -8.4%.

These results would seem to suggest that although there has been significant growth in the sector, it has certainly not been of an extraordinary nature, particularly when compared with an obvious growth sector such as the oil and gas related sector. The reason for this is most probably due to disclosure problems, which table 7.8 would seem to support. Table 7.8 ranks firms in descending order in terms of the percentage in sales and compares how the best performing firms (*according to*

increase in sales) fared across the derived financial performance ratios of change in ROCE, annual sales/employee and annual profits/employee. Only 3 "high" growth firms (*increasing in sales by more than 50%*) and 2 moderate growth firms (*increasing in sales from 26-50%*), provided sufficient data to estimate the change in sales/employee and profits/employee.

TABLE 7.7:
SUMMARY OF CHANGES IN FINANCIAL PERFORMANCE INDICATORS OF FIRMS DURING 1988-91 PERIOD

Financial Indicator	Average	Standard deviation	Highest value	Lowest value	Modal value	Number of firms	% of firms growing*
ROCE	+20.3%	43.8%	154.3%	-18.3%	+0.4%	13	15.2%
Sales/emp	+15.3%	43.1%	153.4%	-43.7%	+6.8%	24	32.6%
Profit/emp	+17.9%	64.1%	161.1%	-50.0%	-8.4%	17	13.0%

NOTES:

1. Survey sample population of 46 firms.
 2. Change in financial indicator expressed as a proportion of 1988 value.
 *Refers to proportion of sample population and does not take into account the very high non-response rates.
 ROCE: Return on capital employed.
 Sales/emp: Annual total sales per employee.
 Profit/emp: Annual profitability per employee.

As can be ascertained from table 7.8, most of the firms that provided a full range of financial performance related data were quite small businesses in terms of 1991 annual sales ranging from £151,000 up to £26 million. The top two ranked firms in table 7.8 genuinely appear to be growth businesses likely to continue growing, since they have experienced large positive increases in ROCE, sales/employee and profits/employee, which indicates increased efficiency and productivity. The other three growth firms all posted negative changes in sales/employee and profits/employee (*but not ROCE*) ranging between -14% and -39% which would indicate that further growth could be in jeopardy, unless current profits are high. Two of the so-called stable firms in the firm rankings seemed well positioned to become future growth businesses (*ranked 8th and 9th*), since they had experienced increases in ROCE, sales/employee and profits/employee of more than 10%.

7.3.3 Markets

There was negligible change in the location of the surveyed firms' markets between 1988 and 1991. Firms on average perceived their markets in both 1988 and 1991 to be overwhelmingly concentrated in Scotland, with it accounting for on average, 84% of firms' markets, while the rest of the UK averaging 14% and the

TABLE 7.8:
RANKINGS OF FIRMS BY GROWTH IN SALES WITH COMPARATIVE
FINANCIAL PERFORMANCE INDICATORS FOR 1988-91 PERIOD

RANKING	%Change in ROCE	%Change: Sales/Emp	%Change: Profits/Emp	%Change in Sales	Annual Sales 1991 (£m)
1	28.7	103.4	161.1	201-300%	2.700
2	154.3	14.7	129.5	51-100%	1.800
3	22.7	-23	-39.2	51-100%	26.000
4	not available	-10.4	-26.8	26-50%	0.408
5	2.3	-15.1	-14.1	26-50%	0.400
6	-18.3	32.9	33.1	1-25%	1.000
7	-0.7	21	21	1-25%	0.300
8	29.5	12.2	13.6	1-25%	0.220
9	44.8	10.1	144.8	1-25%	2.700
10	not available	-1.5	-12.5	1-25%	0.500
11	0	-6.1	-6.3	1-25%	16.000
12	0.4	-8.6	-8.4	1-25%	0.350
13	0	-43.7	-50	1-25%	0.151

NOTES:

1. Only 13 firms out of the 46 firms surveyed provided full figures on employment, sales, profits, and capital employed to allow comparisons of how firms fared for all the main financial performance indicators.

2. Change in financial indicator expressed as a proportion of 1988 value.

ROCE: Return on capital employed.

Sales/emp: Annual total sales per employee.

Profit/emp: Annual profitability per employee.

rest of the world averaging 2%. Hence, Glasgow's financial services sector would seem to be highly localised in Scotland and primarily intended to serve Scottish customers. Growth in the sector therefore has not come from increasing sales derived from the rest of the UK or other global markets, but from growth in Scottish demand for financial services.

7.3.4 Management's Attitudes to Growth

When the firms in the postal survey were asked to qualitatively rate their growth performance in terms of employment, sales and capacity to provide services during the past three years (*i.e.* 1988-1991) (*see figure 7.2*), their growth performance was much more impressive than the survey results discussed in section 7.3.2 would seem to indicate and considerably more self-assured than the self-judgements of firms in the plastics supply and oil and gas related sectors. This suggests that if the surveyed financial services firms have been honest in their self-appraisal of their growth performance, then many of the "growth" firms had not divulged the figures necessary to quantify their performance in either employment or financial terms.

Figure 7.2 demonstrates that the proportion of surveyed firms that considered themselves to have had "quick controlled growth" during the past three years, was 26% in terms of the capacity to provide services (*compared with 14% and 16% respectively for firms in the plastics supply and oil and gas related sectors*); 17% in terms of employment (*compared with 10% and 21% respectively for firms in the plastics supply and oil and gas related sectors*); and 35% in terms of sales (*compared with 20% and 26% respectively for firms in the plastics supply and oil and gas related sectors*).

Management's expectations of growth for the next three years (*i.e. 1991-1994*) (*see figure 7.3 above*), were also more optimistic for the financial services sector than for the plastics supply and oil and gas related sectors. The proportion of financial services firms that expected quick controlled growth was 26% in terms of capacity to provide services (*compared with 12% and 6% respectively of plastics supply and oil and gas related firms*); 11% in terms of employment (*compared with 7% in both the plastics supply and oil and gas related sectors*); and 30% in terms of sales (*compared with 16% and 14% respectively of plastics supply and oil and gas related firms*). However, the majority of the surveyed financial services firms (57%) expected only slow steady growth in employment, sales and capacity to provide services although generally the financial services sector seemed to be the most optimistic of growth amongst the three sectors examined in this research.

Table 7.9 cross-tabulates the subjective assessment of growth over the past 3 years (*1988-1991*) of managers with their expectation of growth for the next 3 years (*1991-1994*) in terms of their firm's capacity to provide services, employment and sales. The three cross-tabulations were subjected to chi-squared tests for statistical significance to determine whether there was any association between firms that considered themselves to have grown in the past and firms that expected growth in the future. There was found to be a strong, statistically significant association (*with a chi-squared score of 6.8 placing it at the 0.01 level of statistical significance*) between manager's subjective assessment of growth in their past capacity to provide services and their expectation of future growth to increase their capacity to provide services, but no such associations were found for employment and sales.

FIGURE 7.2:
MANAGEMENT'S PERCEPTION OF GROWTH OVER THE PAST 3 YEARS IN
TERMS OF CAPACITY TO PROVIDE SERVICES, EMPLOYMENT AND SALES

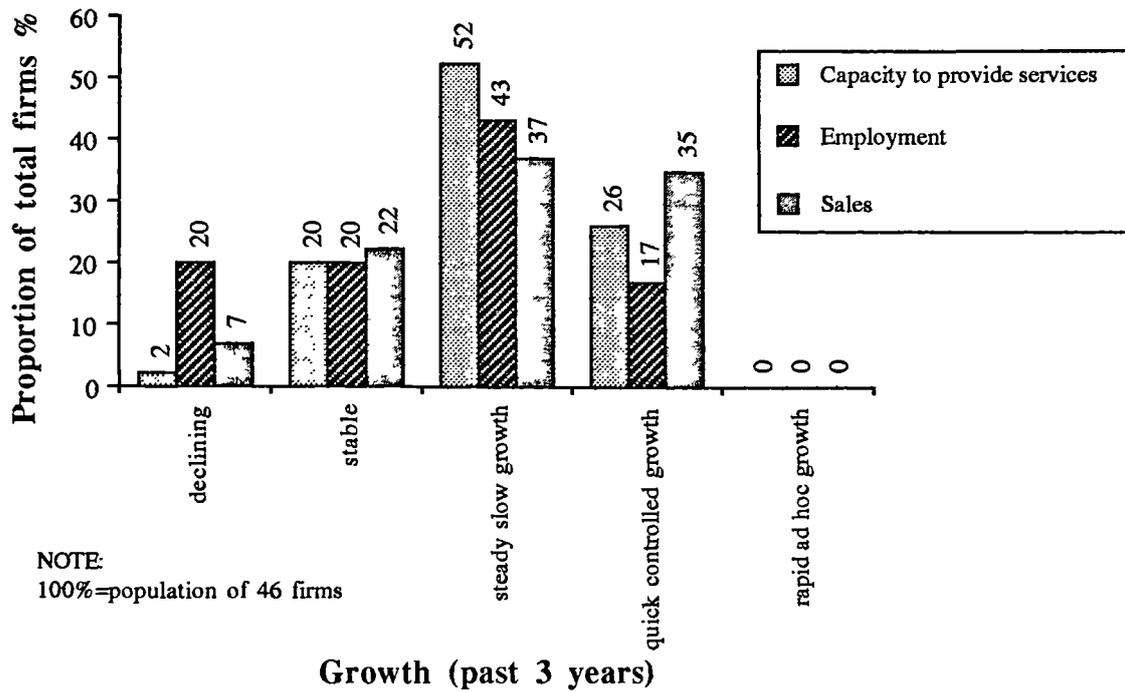
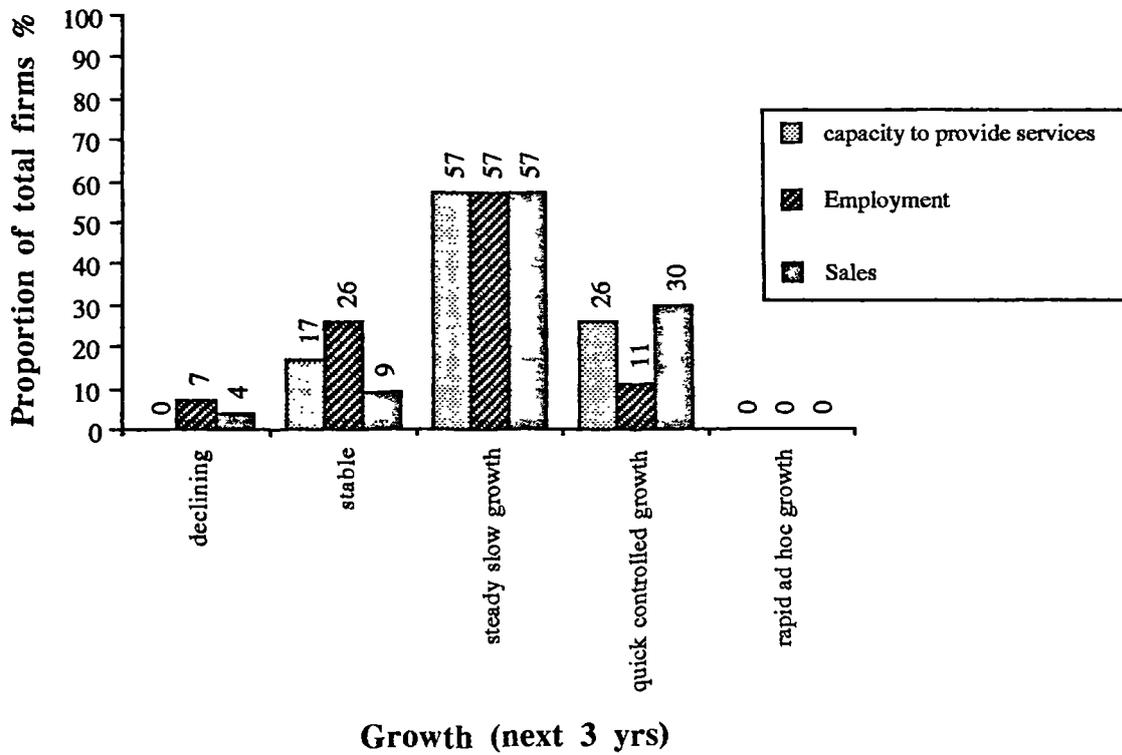


FIGURE 7.3:
MANAGEMENT EXPECTATIONS OF GROWTH FOR THE NEXT 3 YEARS IN
TERMS OF CAPACITY TO PROVIDE SERVICES, EMPLOYMENT AND SALES



**TABLE 7.9:
GROWTH IN PAST 3 YEARS VERSUS GROWTH NEXT 3 YEARS**

FUTURE↓ PRODUCTION CAPACITY	PAST EXPERIENCE→	STAGNANT/ DECLINE(firms)	GROWING (firms)	TOTAL (firms)	CHISQUARE
STAGNANT/DECLINE (firms)		5	3	8	
GROWING (firms)		5	33	38	
TOTAL (firms)		10	36	46	6.779
EMPLOYMENT					
STAGNANT/DECLINE (firms)		6	9	15	
GROWING (firms)		12	19	31	
TOTAL (firms)		18	28	46	0.057
SALES					
STAGNANT/DECLINE (firms)		2	4	6	
GROWING (firms)		11	29	40	
TOTAL (firms)		13	33	46	0.036

NOTE:

Growth in past 3 years refers to 1988-91 and like growth expectations for the next 3 years, is based on management's view

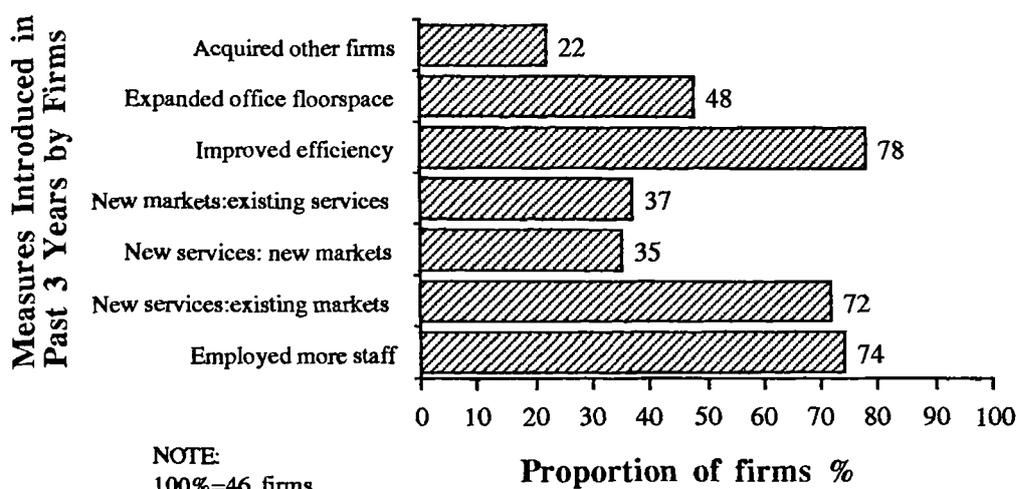
7.3.5 Nature of Growth

The main method of growth adopted by Glasgow's financial services sector firms, was to improve efficiency (*adopted by 78% of firms*). The two other important methods of growth used by firms was to introduce new services into existing markets (*adopted by 72% of firms*) and to employ more staff (*adopted by 74% of firms*). Almost half of the surveyed firms (48%) expanded their office floorspace. Introducing existing services into new markets and new services into new markets were methods of growth adopted by about a third of firms (35-37%). Acquisition of other firms was a comparatively rare approach to growth, with only a fifth of firms pursuing this option. Figure 7.4 illustrates graphically comparisons of methods of growth adopted by financial services firms during the period 1988-1991. The results would seem to underline the dependency of firms in this sector on existing local markets, particularly when compared to the plastics supply and oil and gas related sectors, where up to two thirds of firms explored the possibility of developing new markets.

**7.4 EXPLAINING GROWTH IN
GLASGOW'S FINANCIAL SERVICES SECTOR**

The discussion will now turn to explaining growth in Glasgow's financial services. It analyses and interprets the postal questionnaire and case study survey results to determine and explain why some firms appear to have successfully grown. This section is divided into three parts. The first part examines general factors

FIGURE 7.4:
METHOD OF GROWTH FOR FIRMS OVER THE PAST 3 YEARS



and issues associated with growth using the postal survey results; the second part adopts a quantitative approach using the postal survey results within the context of Porter's model (1990); and the third approach adopts a qualitative approach also within the context of Porter's model. The quantitative approach taken in testing Porter's model utilised chi-squared tests for statistical significance of possible associations between firm growth and factors or issues asked in the postal questionnaire survey relevant to Porter's model (*refer to question 19 of the financial services questionnaire in appendix A4*). The qualitative approach selected six case studies of growth firms and analysed them on a firm-by-firm basis.

7.4.1 Factors and Issues Associated with Growth

This section investigates general factors and issues associated with growth in the postal survey. The factors and issues examined here are not within any theoretical or conceptual framework. Growth was examined over the period 1988-1991 according to three growth measures: change in employment; change in annual sales; and change in annual profitability. A growth firm is defined as one that has expanded by more than 25% by one of the three growth measures just mentioned. Firms that grew by only 25% or less were treated as having remained stable or declined. This simple dichotomy of stable/declining and growth firms was then cross-tabulated with as many of the general characteristics of firms and important issues pertaining to firms as possible, for each of the three growth measures, with the objective of discovering a characteristic or factor unique to growth firms.

The factors/issues that were cross-tabulated with growth in employment, sales and profits for the period 1988-1991, can be categorised according to the following subject areas:

1. Company characteristics: age; legal form; management type; and ownership.
2. Personal characteristics of management: age; educational background; and tenure as manager.
3. Motivations of management: business objectives; and attitudes to growth.
4. Method of attaining growth.
5. Sources of development capital.
6. Sources of assistance.
7. Location of competitors.
8. Location of markets.

The approach adopted for analysing the statistical significance of each cross-tabulation is identical to that taken in the other two sectors (*see sections 5.4.1 and 6.4.1*).

Table 7.10 details the cross-tabulations that yielded statistically significant relationships at the 0.3 level of statistical significance or better. Tables 7.11 through to 7.16 inclusive describe the cross-tabulations that reached or exceeded the 0.05 level of significance (*of which there were six factors*), while the other cross-tabulations referred to in table 7.10 are located in appendix A7A. A total of 16 factors were found to have some statistical significance by either growth in employment, sales or profits at the 0.3 level of statistical significance or better.

The strongest association found was for the cross-tabulation of employment growth with the utility of advice/assistance from banks, which produced a chi-squared score of 13.5, placing it at the 0.001 level of statistical significance (*see table 7.11*). This factor also produced a very strong association with growth by sales (*chi-squared score of 4.6, placing it at the 0.025 level of statistical significance*). This finding indicates that useful advice/assistance from banks has probably played an important role in the growth of Glasgow's financial services sector businesses.

The usefulness of advice/assistance from Scottish Enterprise was also found to have a very strong association with growth by profits (*but not by*

TABLE 7.10:
SUMMARY OF CROSS-TABULATIONS WITH GROWTH
WITH SOME STATISTICAL SIGNIFICANCE

NATURE OF RELATIONSHIP IN CROSS-TABULATION: HIGH GROWTH SYNONYMOUS WITH:	Table in Appd.*	Rank of Chisq	Emp. Chisq. Score	Emp. no. of firms	Sales Chisq. Score	Sales no. of firms	Profits Chisq. Score	Profits no. of firms
*Utility of advice/assistance from banks (by employment)	text	1	13.5	36	4.6	42	0.0	39
*Utility of advice/assistance from Scottish Enterprise(profits)	text	2	0.1	36	0.8	42	9.4	39
*Expanded office floorspace	text	3	7.3	36	4.6	42	1.1	39
*Expansion through employment	text	4	5.3	36	2.2	42	2.5	39
*Utility of advice/assistance of universities and colleges	text	5	2.3	36	4.6	42	0.0	39
*Source of development capital: owner's personal finances	text	6	3.9	31	1.5	36	2.3	34
*Manager with >3 years tenure	A7.9	7	3.0	35	0.0	40	0.0	37
*Low reliance on internal financial resources of firm	A7.35	8	1.9	31	0.2	36	2.7	35
*Importance of maximised market share	A7.17	9	0.5	36	2.4	41	0.5	38
*Acquisition of other firms	A7.34	10	0.9	36	0.5	42	1.6	39
*Privately owned company	A7.2	11	1.6	35	0.1	42	0.4	39
*Reorganised the way work is carried out to improve efficiency	A7.33	12	1.6	36	0.0	42	0.3	39
*Owner-managed firms	A7.3	13	1.4	36	0.0	42	0.2	39
*Developing new markets with existing services	A7.32	14	0.1	36	1.3	42	0.0	39
*Importance of most innovative product for market segment	A7.19	15	0.0	41	1.3	41	0.5	38
*Introducing new services into new markets	A7.31	16	0.1	36	1.2	42	0.2	39

*See Appendix A7A for full cross-tabulation

NOTE:

1. Growth firm is defined as one that has changed by more than 25% over the period 1988-1991 according to one of the growth indicators of employment, profitability and sales turnover.

employment or sales), with its chi-squared score placing it at the 0.005 level of statistical significance. These results are somewhat surprising, given the relatively high rate of dissatisfaction with Scottish Enterprise expressed by firms in the plastics supply and oil and gas related sectors and the fact that Scottish Enterprise tends to target manufacturing businesses for assistance and development strategies, rather than an apparently strong service sector such as Glasgow's financial services sector has been portrayed in the media. Although this finding would seem to imply that Scottish Enterprise has been associated with Glasgow's financial services sector becoming more profitable (*it may simply be coincidental*), this has not been the case in terms of employment or sales growth.

The strong associations found between growth by employment (*chi-squared score of 7.3: 0.01 level of statistical significance*) and sales (*chi-squared score of 4.6: 0.05 level of statistical significance*), and expanded office floorspace were to be

**TABLE 7.11:
GROWTH VERSUS USEFULNESS OF BANKS**

GROWTH MEASURE (Employment./Sales/Profits)→ USEFULNESS OF ADVICE/ASSISTANCE: BANKS↓	STAGNANT/ DECLINE (no. firms)	GROWING >25% (no. firms)	TOTAL (no. firms)	CHISQUARE
*USEFUL(no. firms)	Emp:4 Sales:7 Profits:14	Emp:13 Sales:13 Profits:5	Emp:17 Sales:20 Profits:19	
*NO USE(no. firms)	Emp:17 Sales:16 Profits:16	Emp:2 Sales:6 Profits:4	Emp:19 Sales:22 Profits:20	
*TOTAL (no. firms)	Emp:21 Sales:23 Profits:30	Emp:15 Sales:19 Profits:9	Emp:36 Sales:42 Profits:39	E:13.454 S:4.593 P:0.008

**TABLE 7.12:
GROWTH VERSUS USEFULNESS OF SDA/SCOTTISH ENTERPRISE**

GROWTH MEASURE (Employment./Sales/Profits)→ USEFULNESS OF ADVICE/ASSISTANCE: SDA/SCOTTISH ENTERPRISE↓	STAGNANT/ DECLINE (no. firms)	GROWING >25% (no. firms)	TOTAL (no. firms)	CHISQUARE
*USEFUL(no. firms)	Emp:5 Sales:6 Profits:5	Emp:2 Sales:2 Profits:7	Emp:7 Sales:8 Profits:12	
*NO USE(no. firms)	Emp:16 Sales:17 Profits:25	Emp:13 Sales:17 Profits:2	Emp:29 Sales:34 Profits:27	
*TOTAL (no. firms)	Emp:21 Sales:23 Profits:30	Emp:15 Sales:19 Profits:9	Emp:36 Sales:42 Profits:39	E:0.127 S:0.781 P:9.438

**TABLE 7.13:
GROWTH VERSUS EXPANDED OFFICE FLOOR SPACE**

GROWTH MEASURE (Employment./Sales/Profits)→ EXPANDED OFFICE FLOOR SPACE↓	STAGNANT/ DECLINE (no. firms)	GROWING >25% (no. firms)	TOTAL (no. firms)	CHISQUARE
*Yes(no. firms)	Emp:6 Sales:7 Profits:12	Emp:12 Sales:13 Profits:6	Emp:18 Sales:20 Profits:18	
*No(no. firms)	Emp:15 Sales:16 Profits:18	Emp:3 Sales:6 Profits:3	Emp:18 Sales:22 Profits:21	
*TOTAL (no. firms)	Emp:21 Sales:23 Profits:30	Emp:15 Sales:19 Profits:9	Emp:36 Sales:42 Profits:39	E:7.314 S:4.593 P:1.053

**TABLE 7.14:
GROWTH VERSUS EXPANSION THROUGH EMPLOYMENT**

GROWTH MEASURE (Employment./Sales/Profits)→ EXPANSION THROUGH EMPLOYMENT↓	STAGNANT/ DECLINE (no. firms)	GROWING >25% (no. firms)	TOTAL (no. firms)	CHISQUARE
*Yes(no. firms)	Emp:13 Sales:15 Profits:20	Emp:15 Sales:17 Profits:9	Emp:28 Sales:32 Profits:29	
*No(no. firms)	Emp:8 Sales:8 Profits:10	Emp:0 Sales:2 Profits:0	Emp:8 Sales:10 Profits:10	
*TOTAL (no. firms)	Emp:21 Sales:23 Profits:30	Emp:15 Sales:19 Profits:9	Emp:36 Sales:42 Profits:39	E:5.308 S:2.170 P:2.476

TABLE 7.15:
GROWTH VERSUS USEFULNESS OF UNIVERSITIES & COLLEGES

GROWTH MEASURE (Employment./Sales/Profits)→ USEFULNESS OF ADVICE/ASSISTANCE: UNIVERSITIES & COLLEGES↓	STAGNANT/ DECLINE (no. firms)	GROWING >25% (no. firms)	TOTAL (no. firms)	CHISQUARE
*USEFUL(no. firms)	Emp:0 Sales:0 Profits:1	Emp:3 Sales:5 Profits:1	Emp:3 Sales:5 Profits:2	
*NO USE(no. firms)	Emp:21 Sales:23 Profits:29	Emp:12 Sales:14 Profits:8	Emp:33 Sales:37 Profits:37	
*TOTAL (no. firms)	Emp:21 Sales:23 Profits:30	Emp:15 Sales:19 Profits:9	Emp:36 Sales:42 Profits:39	E:2.338 S:4.590 P:0.004

TABLE 7.16:
**GROWTH VERSUS SOURCE OF DEVELOPMENT CAPITAL:
OWNER'S PERSONAL FINANCES**

GROWTH MEASURE (Employment./Sales/Profits)→ SOURCE OF DEVELOPMENT CAPITAL: OWNER'S PERSONAL FINANCES↓	STAGNANT/ DECLINE (no. firms)	GROWING >25% (no. firms)	TOTAL (no. firms)	CHISQUARE
*34-100%(no. firms)	Emp:0 Sales:1 Profits:2	Emp:4 Sales:4 Profits:3	Emp:4 Sales:5 Profits:5	
*0-33%(no. firms)	Emp:18 Sales:19 Profits:24	Emp:9 Sales:12 Profits:5	Emp:27 Sales:31 Profits:29	
*TOTAL (no. firms)	Emp:18 Sales:20 Profits:26	Emp:13 Sales:16 Profits:8	Emp:31 Sales:36 Profits:34	E:3.916 S:1.536 P:2.283

expected (*see table 7.13*). A weak association was found between growth by profits (*chi-squared score of 1.1: 0.3 level of statistical significance*) and expanded office floorspace. This finding demonstrates that there is a strong parallel between employment and sales growth, but not such a clear parallel with growth in profits. Hence, the implication here would seem to be that growth in profits does not necessarily result in a firm's expansion in employment, nor increased office space being taken up, since greater profitability can come from greater efficiency of utilisation of a firm's existing resources.

The strong association found between "expansion through employment" and growth by employment (*chi-squared score of 5.3: 0.025 level of statistical significance*), was to be expected (*see table 7.14*). Moderate associations were found between "expansion through employment" and growth by sales (*chi-squared score of 2.2:0.2 level of statistical significance*) and growth by profits (*chi-squared score of 2.5:0.2 level of statistical significance*). The relatively low chi-squared scores obtained for this factor with growth by sales and profits, suggests that growth in sales and profits are not necessarily synonymous with growth in

employment, although logically, growth in sales and profits must be a prerequisite for long term growth in employment.

The strong association found between the utility of advice/assistance from universities/colleges and growth by sales (*chi-squared score of 4.6: 0.05 level of statistical significance*) is an interesting finding (*see table 7.15*). A weak association was found between this factor and growth by employment (*chi-squared score of 2.3: 0.2 level of statistical significance*). This finding would seem to suggest that higher education establishments have an important role to play in contributing to growth in the financial services sector. It is not clear from this finding whether the firms actually sought out assistance from this source, or whether persons from universities/colleges contacted these growth firms in the first instance, perhaps for the purposes of research.

The owner/s personal finances as a source of development capital produced a strong association with growth by employment (*chi-squared score of 3.9: 0.05 level of statistical significance*) and weak associations with growth by sales (*chi-squared score of 1.5: 0.3 level of statistical significance*) and growth by profits (*chi-squared score of 2.3: 0.2 level of statistical significance*) (*see table 7.16*). This finding implies that growth firms in this sector tend to be financially self-reliant and that growth is more likely to take place if the owner has plentiful personal financial resources to fund growth. This is probably due to the partnership form of owner-management in many of the surveyed firms and because most of the surveyed firms were private business concerns.

Factors that had a moderately weak association with growth (*at the 0.1 level of significance*) were firms with managers that had more than 3 years tenure (*by employment growth*) and firms that had a low reliance on their internal financial resources (*by employment growth*).

Factors that had a weak association with growth (*i.e. at the 0.2 level of significance*) were: firms that maximised the importance of market share (*by growth in sales*); firms that engaged in firm acquisitions (*by growth in profits*); firms that were privately owned (*by growth in employment*); and firms that improved their work efficiency (*by growth in employment*).

Factors that had a very weak association with growth (*i.e. at the 0.25 to 0.30 level of significance*) were: owner-managed firms (*by growth in employment*); firms that developed new markets with existing services (*by growth in sales*); firms that valued the importance of having the most innovative product for the market segment (*by growth in sales*); and firms that had introduced new services into new markets (*by growth in sales*).

There were cross-tabulations of growth by employment, sales and profits with 36 factors or issues, that did not produce statistically significant associations (*see table 7.17*). The full cross-tabulations referred to in table 7.17 are located in appendix A7A. These covered various management objectives relating to employment, business efficiency and commercial criteria; competition by source of competitors; locations of markets; sources of business advice and assistance; management/ownership issues; sources of development capital; method of firm growth; and the age of firms.

Management objectives relating to employment that did not produce statistically significant associations with growth were the importance of: creating jobs; a good rapport between management and employees; ensuring high job satisfaction amongst employees; and good working conditions for employees.

Business efficiency management objectives that did not produce statistically significant associations with growth were the importance of: maximised productivity; maximised business efficiency; and improving the quality of services provided.

Management objectives relating to commercial criteria that did not result in statistically significant associations with growth were the importance of: high sales; high profits; large firm size by capital assets; large firm size by employment; and large firm size by turnover.

Management/ownership issues that did not produce statistically significant associations with growth were: firm owner/s involved in the firm's operational management; firm owner/s involved in the firm's strategic management; Scottish ownership of the firm; and the firm's manager being more than 35 years old. There was also found to be no statistically significant association of firm age with growth.

TABLE 7.17:
SUMMARY OF CROSS-TABULATIONS WITH GROWTH THAT ARE
NOT STATISTICALLY SIGNIFICANT

NATURE OF RELATIONSHIP IN CROSS-TABULATION: HIGH GROWTH SYNONYMOUS WITH:	Table in Appd.*	Rank of Chisq	Emp. Chisq. Score	Emp. no. of firms	Sales Chisq. Score	Sales no. of firms	Profits Chisq. Score	Profits no. of firms
*Creation of jobs not important	A7.20	17	0.9	36	0.0	41	0.0	38
*Concentration of competitors in Scotland	A7.24	17	0.0	35	0.9	40	0.1	38
*Non-usefulness of Regional/ District Councils	A7.44	18	0.8	36	0.1	42	0.0	39
*Owner involved in operational management of firm	A7.5	18	0.8	36	0.3	42	0.0	39
*Good rapport between management and employees	A7.22	19	0.0	36	0.0	41	0.5	38
*High job satisfaction amongst employees considered important	A7.23	19	0.0	36	0.0	41	0.5	38
*Low concentration of competitors in rest of UK	A7.25	19	0.0	35	0.5	40	0.0	38
*Low concentration of markets in Scotland	A7.27	19	0.2	35	0.1	40	0.5	38
*Low concentration of markets in rest of world	A7.29	19	NA	35	0.0	40	0.5	38
*Source of development capital from banks >33%	A7.37	19	0.0	31	0.1	36	0.5	34
*Usefulness of Enterprise Initiative	A7.43	19	0.2	36	0.5	42	0.0	39
*Non-tertiary educated managers	A7.8	19	0.1	35	0.5	40	0.2	37
*Importance of high sales	A7.11	19	0.5	36	0.0	41	0.0	39
*Importance of maximised productivity	A7.15	20	0.0	36	0.1	41	0.4	38
*Introducing new services into existing markets	A7.30	20	0.1	36	0.4	42	0.0	39
*Less than 34% development capital from financial institutions other than banks	A7.38	20	NA	31	0.0	36	0.4	34
*Less than 34% of competitors from rest of world	A7.26	20	0.0	35	0.0	40	0.4	38
*Importance of high profits	A7.10	20	0.2	36	0.4	41	0.0	39
*Less than 34% of markets in rest of UK	A7.28	20	0.2	35	0.4	40	0.0	38
*Non-usefulness of Locate in Scotland	A7.41	21	0.2	36	0.3	42	0.0	39
*Usefulness of accountants	A7.45	21	0.3	36	0.0	42	0.0	39
*Importance of good working conditions for employees	A7.21	21	0.0	36	0.0	41	0.3	38
*Owner involved in strategic management of firm	A7.6	21	0.1	36	0.0	42	0.3	39
*Uselessness of Scottish Office	A7.42	21	0.0	36	0.1	42	0.3	39
*Age of company less than 10yrs	A7.1	22	0.2	36	0.0	42	0.1	39
*Non-importance of maximised business efficiency	A7.16	22	0.0	36	0.0	41	0.2	38
*Non-importance of large firm size by capital assets	A7.12	22	0.2	36	0.0	41	0.0	38
*Usefulness of management consultants	A7.46	22	0.0	36	0.0	42	0.2	39
*Importance of improving the quality of services provided	A7.18	23	0.0	36	0.0	41	0.1	38
*Scottish ownership of firm	A7.4	24	0.0	36	0.1	42	0.0	39
*Non-importance of large firm size by turnover	A7.13	24	0.1	36	0.0	41	0.0	38

TABLE 7.17 (CONTINUED)

NATURE OF RELATIONSHIP IN CROSS-TABULATION: HIGH GROWTH SYNONYMOUS WITH:	Table in Appd.*	Rank of Chisq	Emp. Chisq. Score	Emp. no. of firms	Sales Chisq. Score	Sales no. of firms	Profits Chisq. Score	Profits no. of firms
*Managers >35 years old	A7.7	24	0.1	35	0.0	40	0.0	37
*Large firm size by employment not important	A7.14	24	0.0	36	0.0	40	0.1	38
*Development capital : equity	A7.36	25	NA	31	NA	36	NA	34
*Development capital: grants	A7.39	25	NA	31	NA	36	NA	34
*Development capital: other external financial resources	A7.40	25	NA	31	NA	36	NA	34

*See Appendix A7A for full cross-tabulation; NA: Not available due to poor response

NOTE:

1. Growth firm is defined as one that has changed by more than 25% over the period 1988-1991 according to one of the growth indicators of employment, profitability and sales turnover.

All of the cross-tabulations of competitors' locations with growth failed to yield statistically significant associations. They were: competitors concentrated in Scotland; a high concentration of competitors from the rest of the UK (*i.e. outwith Scotland*); and a high concentration of competitors from outwith the UK.

All of the cross-tabulations of markets by their dominant location with growth failed to produce statistically significant associations. They were: markets concentrated in Scotland; markets concentrated in the rest of the UK (*i.e. outwith Scotland*); and markets concentrated overseas.

Sources of advice or assistance that did not result in statistically significant associations with growth were the utility of advice/assistance from: regional/district councils; the Enterprise Initiative; Locate in Scotland; the Scottish Office; accountants; and management consultants.

Finally, sources of development capital that failed to produce statistically significant associations with growth were deriving a large proportion of development capital from: banks; financial institutions other than banks; equity; government grants; and other external financial resources.

This section has illustrated the difficulty in producing an "identikit" picture of a Glasgow financial services sector growth firm. However, it has shown what some of the most probable features a growth firm in Glasgow's financial services sector was likely to have during the period 1988-1991. They were: that it was privately owned and owner-managed; that its manager was well experienced in the position with more than 3 years tenure; that management aim for maximised market

share and producing the most innovative product for the market segment; that the main source of development capital was from the owner's personal financial resources; that they usually derived useful advice/assistance from banks, Scottish Enterprise and universities and colleges; and that the methods of achieving growth included expanding floorspace, employing extra staff, acquiring other firms, improving efficiency, developing new markets with existing services and introducing new services into new markets. Surprisingly, the perceived nature of competition or markets did not vary between growth firms and non-growth firms. This was probably due to the fact that both competitors and markets for Glasgow's financial services sector tend to be highly localised in Scotland, with the result that there is nothing particularly distinctive regarding the markets or competition of growth firms over their non-growth counterparts.

While the analysis discussed in this section is useful in attempting to characterise growth firms in Glasgow's financial services sector, and in underlining the most important factors/issues pertaining to it, it does little to conceptualise growth. The next section aims to redress this shortcoming of this analysis by explaining growth in Glasgow's financial services sector within the context of Porter's model.

7.4.2 Growth in the Context of Porter's Model: Statistical Tests for Significance of Growth Factors

This section applies the same methodological approach that was taken in the preceding section, but within the context of Porter's (1990) model. A simple statistical quantitative approach was adopted to test the validity of Porter's model and better explain growth in Glasgow's financial services sector. The previous section seemed to suggest that the characteristics of growth firms are not unique. Therefore, perhaps Porter's model may be more helpful in determining what are the key factors and issues that distinguish growth firms from stable or declining firms in this sector.

As in the plastics supply and oil and gas related sectors, respondents had been asked to rate a range of issues, in this instance a total of 50 issues (*some external to the firm, others internal to it, categorised according to the five main components of Porter's model*), concerning their perception of difficulties experienced during the period 1988-1991, according to whether they judged it to be negligible, minor, moderate or major. The dichotomy of stable/declining and growth firms by the growth measures of change in annual sales turnover, annual profitability and employment during the period 1988-1991 (*a growth firm being one that has grown by*

25% or more), were cross-tabulated with a simple dichotomy of whether or not firms had experienced difficulties with these issues over the same period. The hypothesis taken in investigating each issue was to determine whether there was any association between a firm having no difficulty with a particular issue or factor and a firm having grown during the period 1988-1991.

Chi-squared tests for statistical significance were conducted on these cross-tabulations to determine which factors or issues appeared to be the most strongly associated with growth firms. All cross-tabulations with chi-squared scores of 1.0 or more (*0.3 level of statistical significance*), have been selected as having some association with growth, although many are of admittedly weak statistical significance.

The factors/issues that were cross-tabulated with growth in employment, sales and profits, were subdivided according to four components of Porter's model: factor conditions; demand conditions; firm strategy, structure and rivalry; and government. The "related and supporting industries" component of Porter's model was not included here because the financial services sector is not dependent on other sectors of the economy in the same way that a manufacturing sector is dependent on its subcontractors or the manufacturers of related products in order to produce a final product or service.

Table 7.18 details the cross-tabulations that produced statistically significant associations with a chi-squared score of 1.0 or better. Out of the total of 50 issues investigated, 22 produced chi-squared scores of 1.0 or better for one or more of the three growth measures of employment, sales or profits. In absolute terms, this result was the worst of the three sectors examined (*24 out of 60 for the plastics supply sector and 31 out of 59 for the oil and gas related sector*), although in proportionate terms, it was slightly better than that achieved for the plastics supply sector. In terms of the number of issues associated with growth that were statistically significant at the 0.05 level, Glasgow's financial services sector fared comparatively well, with 5 such associations compared with 3 for the plastics supply sector and 5 for the oil and gas related sector.

Table 7.19 summarises the remaining 28 cross-tabulations that failed to produce statistically significant associations with chi-squared scores of 1.0 or better. Details of the cross-tabulations referred to in tables 7.18 and 7.19 are described in full in appendix A7A.

**TABLE 7.18:
SUMMARY OF ASSOCIATIONS WITH GROWTH WITH STATISTICAL
SIGNIFICANCE WITHIN THE CONTEXT OF PORTER'S MODEL**

NATURE OF RELATIONSHIP IN CROSS-TABULATION: HIGH GROWTH SYNONYMOUS WITH:	Table in Appd.*	Rank of Chisq	Emp. Chisq. Score	Emp. no. of firms	Sales Chisq. Score	Sales no. of firms	Profits Chisq. Score	Profits no. of firms
FACTOR CONDITION ISSUES								
*Difficulty with adequate supply of skilled labour	A7.47 (1)	1	4.2	32	0.3	37	1.2	37
*Difficulty with suitability of service infrastructure and services	A7.51 (4)	2	0.1	27	0.0	33	3.1	37
*No difficulty with finance through bank loans	A7.50 (1)	3	0.2	20	0.2	23	1.8	37
*Difficulty with main road network serving Glasgow	A7.51 (3)	4	0.1	30	0.0	36	1.3	38
*Difficulty with suitability of service infrastructure and services	A7.51 (1)	5	0.1	27	0.0	32	1.2	38
*No difficulty securing government grants	A7.50 (5)	6	1.0	6	0.4	10	0.1	37
DEMAND CONDITION ISSUES								
*No difficulty securing suitable market niche for service/s	A7.52 (2)	1	0.2	31	1.1	36	0.1	37
FIRM STRATEGY, STRUCTURE AND RIVALRY ISSUES								
*No difficulty in having surplus management time to plan growth	A7.53 (1)	1	0.0	33	0.3	40	12.1	37
*Difficulty with having sufficient training capability for staff needs	A7.54 (5)	2	2.5	33	5.6	39	0.0	37
*No difficulty with sufficient management skills to plan, organize and manage growth	A7.53 (2)	3	0.1	31	0.0	39	4.3	35
*Difficulty with a high level of efficiency amongst employees	A7.54 (6)	4	3.6	35	0.4	40	0.5	37
*Difficulty with good labour relations between employees and management	A7.56 (2)	5	1.6	35	1.1	39	1.3	38
*Difficulty with good work ethic amongst employees	A7.56 (1)	6	1.0	35	1.5	40	1.3	38
*Difficulty with premises of sufficient size	A7.54 (1)	7	1.2	33	0.1	39	0.0	36
*No difficulty with strong competition from foreign firms	A7.57 (3)	8	0.4	17	1.0	22	0.9	38
*No difficulty with strong competition from other Scottish firms	A7.57 (1)	9	0.1	35	0.0	40	1.0	35
RELATED AND SUPPORTING INDUSTRIES								
<i>NOT APPLICABLE</i>								
GOVERNMENT RELATED ISSUES								
*Usefulness of SDA/Scottish Enterprise	A7.60 (2)	1	0.1	36	0.8	42	9.4	39
*Difficulty with depressed local economic conditions in Glasgow	A7.59 (1)	2	2.4	33	0.1	37	0.5	38
*Difficulty with rate of company taxation	A7.58 (1)	3	2.3	21	0.8	26	0.3	37
*No difficulty with lack of tax exemptions for company expenses	A7.58 (2)	4	0.0	24	1.6	27	0.0	38

TABLE 7.18 (CONTINUED)

NATURE OF RELATIONSHIP IN CROSS-TABULATION: HIGH GROWTH SYNONYMOUS WITH:	Table in Appd.*	Rank of Chisq	Emp. Chisq. Score	Emp. no. of firms	Sales Chisq. Score	Sales no. of firms	Profits Chisq. Score	Profits no. of firms
<i>GOVERNMENT RELATED ISSUES (CONTINUED)</i>								
*No difficulty with high interest rates	A7.59 (3)	5	0.0	36	0.0	41	1.3	38
*Difficulty with general business advice on conducting business in Glasgow	A7.60 (1)	6	0.0	17	0.0	20	1.3	38

*See Appendix A7A for full cross-tabulation

NOTE:

1. Growth firm is defined as one that has changed by more than 25% over the period 1988-1991 according to one of the growth indicators of employment, profitability and sales turnover.

The 5 cross-tabulations that produced statistically significant associations with growth at the 0.05 level of statistical significance were: the firm strategy/structure/rivalry issues of "no difficulty in having surplus management time to plan growth" (*chi-squared score of 12.1: at the 0.001 level of significance*); "no difficulty with having sufficient management skills to plan, organize and manage growth" (*chi-squared score of 4.3: at the 0.05 level of significance*); "difficulty with having sufficient training capability for staff needs" (*chi-squared score of 5.6: at the 0.02 level of significance*); the government related issue of "the usefulness of advice/assistance from Scottish Enterprise" (*chi-squared score of 9.4: at the 0.005 level of significance*); and the factor condition issue of "having difficulty with obtaining an adequate supply of skilled labour" (*chi-squared score of 4.2 at the 0.05 level of significance*). These findings strongly suggest that good management (*in sufficient quantity and of a high enough quality to effectively plan, implement and manage a growth strategy*) and useful advice/assistance from Scottish Enterprise as being important contributing factors to firm growth, while labour related issues, such as insufficient training of staff and a shortage of skilled labour were the most significant constraints to firm growth.

The finding that good management in Glasgow's financial services sector is probably facilitative of firm growth is not really explored in any depth by Porter, in terms of how it might contribute towards improving a company's competitive advantage. Porter acknowledges the importance good leadership as being crucial to a company's success, but it tends to be in terms of management constantly striving for improvement, innovation and change and management that "energize their organisations to meet competitive challenges to serve demanding needs" (*Porter 1990, p615*). Unlike Penrose's (1959) view that growth is critically dependent on

TABLE 7.19:
SUMMARY OF CROSS-TABULATIONS WITHOUT STATISTICAL SIGNIFICANCE WITHIN CONTEXT OF PORTER'S MODEL

NATURE OF RELATIONSHIP IN CROSS-TABULATION: HIGH GROWTH SYNONYMOUS WITH:	Table in Appd.*	Rank of Chisq	Emp. Chisq. Score	Emp. no. of firms	Sales Chisq. Score	Sales no. of firms	Profits Chisq. Score	Profits no. of firms
FACTOR CONDITION ISSUES								
*Difficulty with adequacy of community services and facilities for employees	A7.51 (6)	7	0.9	26	0.4	30	NA	38
*Difficulty with poor training of local population	A7.47 (3)	8	0.0	21	0.0	26	0.7	38
*Difficulty with adequacy of local road infrastructure serving City of Glasgow	A7.51 (2)	8	0.0	30	0.1	36	0.7	38
*Difficulty with affordable unskilled and semi-skilled labour	A7.47 (2)	9	0.5	13	0.0	18	0.0	38
*No difficulty in obtaining external finance through venture capitalists	A7.50 (3)	10	0.4	4	0.1	5	0.4	37
*Difficulty with adequacy of primary and secondary education facilities	A7.49 (1)	10	0.1	25	0.0	29	0.4	38
*No difficulty with adequacy of recreational amenities for employees	A7.51 (7)	10	0.3	27	0.4	31	0.4	38
*No difficulty with raising equity finance	A7.50 (4)	10	NA	3	0.2	3	0.4	37
*Difficulty with attractiveness of local residential areas for current and prospective employees	A7.48 (2)	11	0.2	26	0.0	30	0.0	38
*Difficulty with suitability of premises	A7.48 (1)	11	0.2	26	0.0	34	0.1	33
*No difficulty with adequacy of telecommunications infrastructure	A7.51 (5)	12	0.1	35	0.1	41	0.1	38
*Obtaining external finance through building societies/ insur. companies/merchant banks	A7.50 (2)	13	NA	4	0.0	4	0.0	37
*Adequacy of higher education facilities	A7.49 (2)	14	NA	25	NA	29	NA	38
*Adequacy of cultural facilities	A7.51 (8)	14	NA	27	NA	31	NA	37
DEMAND CONDITION ISSUES								
*No difficulty with finding sufficient market demand	A7.52 (1)	2	0.2	34	0.1	38	0.7	37
*No difficulty with finding new geographic markets	A7.52 (3)	3	0.2	17	0.1	19	0.6	37
*No difficulty with strong demand from the Scottish market	A7.52 (4)	4	0.1	28	0.3	33	0.5	35
*No difficulty with strong demand from export markets	A7.52 (6)	5	0.0	7	0.1	11	0.4	37
*No difficulty with strong demand from UK market excluding Scotland	A7.52 (5)	6	0.0	17	0.1	23	0.0	37

TABLE 7.19 (CONTINUED)

NATURE OF RELATIONSHIP IN CROSS-TABULATION: HIGH GROWTH SYNONYMOUS WITH:	Table in Appd.*	Rank of Chisq	Emp. Chisq. Score	Emp. no. of firms	Sales Chisq. Score	Sales no. of firms	Profits Chisq. Score	Profits no. of firms
FIRM STRATEGY, STRUCTURE AND RIVALRY ISSUES								
*No difficulty with producing innovative, market leading services	A7.54 (2)	10	0.9	28	0.4	34	0.4	36
*No difficulty with attaining satisfactory overall profitability	A7.55 (3)	11	0.3	33	0.0	40	0.8	37
*No difficulty with achieving a high sales turnover	A7.55 (2)	12	0.0	35	0.6	39	0.2	37
*No difficulty with obtaining suitable information technology	A7.54 (3)	13	0.3	33	0.5	39	0.3	37
*Difficulty with high quality of services relative to similar services of competitors	A7.54 (4)	14	0.3	33	0.1	39	0.0	36
*No difficulty with raising finance from firm's internal resources	A7.55 (4)	15	0.1	26	0.2	30	0.0	37
*No difficulty with strong competition from other UK firms	A7.57 (2)	16	0.0	27	0.2	32	0.0	38
*Difficulty with maintaining sufficient cash flow	A7.55 (1)	17	0.0	30	0.0	37	0.0	37
*Influence of trade unions in company business	A7.56 (3)	18	NA	5	NA	6	NA	37
RELATED AND SUPPORTING INDUSTRIES								
NOT APPLICABLE								
GOVERNMENT RELATED ISSUES								
*Non-usefulness of Regional/District Council/s	A7.60 (6)	7	0.8	36	0.1	42	0.0	39
*Usefulness of Enterprise Initiative	A7.60 (5)	8	0.2	36	0.5	42	0.0	39
*Non-usefulness of Locate in Scotland	A7.60 (3)	9	0.2	36	0.3	42	0.0	39
*Non-usefulness of Scottish Office	A7.60 (4)	9	0.0	36	0.1	42	0.3	39
*No difficulty with depresses national economic conditions	A7.59 (2)	10	0.0	35	0.2	39	0.1	38

*See Appendix A7A for full cross-tabulation; NA: not available due to poor response

NOTE:

1. Growth firm is defined as one that has changed by more than 25% over the period 1988-1991 according to one of the growth indicators of employment, profitability and sales turnover.

management, Porter seems to take it for granted that a firm will have management skills of sufficient quality and quantity to cope with most operational management decisions, so that growth becomes dependent on how dynamic and innovative management happens to be.

The finding that Scottish Enterprise (*a government body*) was a useful source of advice and/or assistance to growth firms in Glasgow's financial services sector, conflicts with Porter's (1990, p615) view that firms should not solicit government assistance to attain competitive advantage. Porter (1990, pp626-636)

views government policy as playing an important role in creating the right factor conditions for an industry to succeed (*i.e. such as good education and training facilities*), but does not believe that governments' should take a proactive role in assisting or advising firms on how to manage their affairs, nor indeed in conducting research and development activities for the various sectors of the economy that the government believes that it can achieve competitive advantage in. Porter (1990, pp631-637) implies that a dynamic sector of the economy will create its own institutions to further research and development in the sector necessary to ensure that it retains its competitive edge.

The finding that insufficient training of staff and a shortage of skilled labour were constraints to growth firms underlines the significance of Porter's (1990, pp627-630) viewpoint that the quality and suitability of labour force skills is perhaps one of the most critical factor conditions necessary for a sector of the economy in achieving competitive advantage. Clearly, the survey results point to staff training and the pool of skilled labour available to firms in Glasgow's financial services sector to be a major area of concern for firms striving for growth.

The six cross-tabulations of growth (*employment, sales and profits*) versus factor condition issues that produced statistically significant associations with chi-squared scores of 1.0 or better (*i.e. at the 0.3 level of significance*), were: (1) difficulty with obtaining an adequate supply of skilled labour (*by employment growth*); (2) difficulty with the suitability of service infrastructure and services (*by growth in profits*); (3) no difficulty obtaining finance through bank loans (*by growth in profits*); (4) difficulty with the inadequacy of the main road network serving Glasgow (*by growth in profits*); (5) difficulty with the suitability of service infrastructure and services (*by growth in profits*); and (6) no difficulty in securing government grants (*by growth in employment*). These findings indicate that the only factor condition issues that are facilitative of growth are: obtaining finance through bank loans and the ease in securing government grants.

Only one cross-tabulation of growth (*by the measure of sales*) versus the demand condition of "ease of securing a suitable market niche for service/s" was found to produce a statistically significant association (*with a chi-squared score of 1.1*) that was facilitative of growth.

The 9 cross-tabulations of growth (*by employment, sales and profits*) versus firm strategy, structure and rivalry issues that produced statistically significant associations with chi-squared scores of 1.0 or better were: (1) no difficulty in having surplus management time to plan growth; (2) difficulty with having sufficient training capabilities for staff needs; (3) no difficulty with having sufficient management skills to plan, organize and manage growth; (4) difficulty in achieving a high level of work efficiency amongst employees; (5) difficulty in achieving good labour relations between employees and management; (6) difficulty in having a good work ethic amongst employees; (7) difficulty with premises not being of sufficient size; (8) no difficulty with strong competition from foreign firms; and (9) no difficulty with strong competition from other Scottish firms. The most interesting aspect of these findings is the focus of growth firms on employee related issues as being constraints to growth and a lack of strong competition either locally or from foreign firms and management skills in sufficient quantity and quality as being facilitative of growth.

The 6 cross-tabulations of growth (*by employment, sales and profits*) versus government related issues that produced statistically significant associations with chi-squared scores of 1.0 or better were: (1) usefulness of advice/assistance from Scottish Enterprise; (2) difficulty with depressed economic conditions in Glasgow; (3) difficulty with the rate of company taxation; (4) no difficulty with a lack of tax exemptions for company expenses; (5) no difficulty with high interest rates; and (6) difficulty with general business advice on conducting business in Glasgow. These findings show that the government related issues facilitative of high growth were advice/assistance from Scottish Enterprise; a satisfactory level of tax exemptions for company expenses; and interest rates at an acceptable level.

The role of "chance" in Porter's model in the context of Glasgow's financial services sector achieving competitive advantage, has had few significant tangible "chance" events or "inventions" that can be said to have been critical events that resulted in exceptional growth in the sector, in the same way that for example the invention of the jet engine revolutionized the civilian aviation industry. It could perhaps be argued that central government's deregulation of London's financial services markets in October 1986 was such a "chance" event (*referred to as the so-called 'Big Bang' in which minimum commissions in the trading of shares and government bonds in The Stock Exchange were abolished*). The objective of the "Big Bang" was to make the UK as competitive as New York (*which does not have stamp duty*) in the international equity market (*Coggan, 1989, pp17-28*). This resulted in the

trade association, Scottish Financial Enterprise being established in the same year, for the purposes of promoting Scotland as a money centre (*The Economist, December 19, 1987*). However, there is very little evidence to show whether during the past six years of its existence, Scottish Financial Enterprise has had a significant effect on increasing the output of Glasgow's financial services sector. In areas such as accountancy related and general business services, it would have had very little tangible impact.

In a technological context, the innovation of moving towards "screen-based" trading has considerably reduced the disadvantages of Scottish brokers and fund managers not being close to the London stock exchange. Scottish brokers and fund managers are now privy to the same information as their London based counterparts regarding company announcements, dealers' prices and the movement in share prices (*Coggan, 1989, pp106-107*).

The discussion will now turn to the cross-tabulations of factors/issues with the growth measures of employment, sales and profits that did not produce statistically significant associations (*see table 7.19*) within the context of Porter's model.

There were 14 factor condition issues that appeared to have no association with growth, covering finance, infrastructure, labour and location. Finance issues that growth did not appear to be uniquely associated with included: (1) obtaining finance through venture capitalists; (2) raising equity finance; and (3) obtaining external finance through financial institutions such as building societies, insurance companies or merchant banks. The lack of association of finance availability with growth (*with the exception of banks*) was not surprising given the private legal form of most of the surveyed firms and the fact that in partnerships, the owners tended to rely on their own or the company's financial resources. Infrastructure issues that growth did not appear to be uniquely associated with included: (1) the adequacy of the local road infrastructure serving the City of Glasgow; and (2) the adequacy of telecommunications infrastructure. The lack of an association with growth in these two cases was because both stable/declining growth firms did not regard these issues as having been constraints to their development. Labour issues that growth did not appear to be uniquely associated with included: (1) poor training of the local population; and (2) affordable unskilled and semi-skilled labour. Both stable/declining and growth firms appeared to be divided on whether these two issues were an issue of

significance in their development. Location issues that growth did not appear to be uniquely associated with were: (1) the adequacy of community services and facilities; (2) the adequacy of primary, secondary and higher education facilities; (3) the adequacy of recreational amenities for employees; (4) the adequacy of cultural facilities; (5) the attractiveness of local residential areas; and (6) the suitability of premises. In most cases, location issues were not viewed as being significant constraints to growth or facilitators of growth.

The demand issues that appeared to have no association with growth were: (1) finding sufficient market demand; (2) finding new geographic markets; and (3) catering to strong demand from either the Scottish market, other UK markets or export markets. The main reason for an apparent lack of association with growth for these demand condition issues is that there was no appreciable difference between stable/declining and growth firms in terms of whether firms viewed these issues as being either constraints or opportunities for growth.

There were 9 firm strategy, structure and rivalry issues that appeared to have no association with growth. The firm strategy issues not associated with growth were: (1) producing innovative, market leading services; (2) having a high quality of services relative to similar services of competitors; and (3) the influence of trade unions in company business. Operational management issues (*relating to firm structure*) not associated with growth were: (1) attaining satisfactory overall profitability; (2) achieving a high sales turnover; (3) obtaining suitable information technology; (4) raising finance from the firm's internal resources; and (5) maintaining sufficient cash flow. The rivalry issue not associated with growth was strong competition from other UK firms. In most cases, the reason that a statistically significant association with growth could not be found was because there was little appreciable difference between non-growth and growth firms in their attitudes to these issues. The exception was the issue relating to trade unions, which failed to produce an association because for most firms, this issue was not applicable.

There were 5 government related issues that appeared to have no association with growth. They were the usefulness of advice/assistance from: (1) regional and/or district councils; (2) the Enterprise Initiative; (3) Locate in Scotland; and (4) the Scottish Office. The issue of depressed national economic conditions was also found to have no association with growth or a lack of growth. The main reason

that these issues did not have an association with growth was because there was little difference in the attitudes between non-growth and growth firms to these issues.

The analysis in this section has demonstrated that the quantitative approach within the analytical context of Porter's model has suggested that growth in Glasgow's financial services sector during the period 1988-1991 was associated with: the factor condition issue of "difficulty in securing an adequate supply of skilled labour"; the firm strategy, structure and rivalry issues of "having surplus management time to plan growth", "insufficient training capability for staff needs", and "having sufficient management skills to plan, organize and manage growth"; and the government related issue of "useful advice/assistance from Scottish Enterprise". The "demand" condition and "related and supporting industries" components of Porter's model were not perceived by the surveyed firms to have had much bearing on their circumstances or development during the period 1988-1991. "Chance" events in the context of Porter's model, such as the deregulation of London's Stock Exchange in 1986 (*i.e. the "Big Bang"*) and the move to screen-based trading, have influenced the Scottish financial services sector, but only in the area of brokerage activities and fund management. However, this has tended to be a double-edged sword because while trading in stocks is now much more international, it is also subject to greater competition which poses a threat for weaker companies, many of which fell by the wayside in the 2 year period following the "Big Bang", particularly those based mainly in the City of London (*Coggan, 1989, pp27-28*).

Of the 50 possible associations tested against 3 measures of firm growth (*employment, sales and profits*) over the period 1988-1991, resulting in 150 cross-tabulations, 9 produced statistically significant associations with chi-squared scores better than 2.0, comparing favourably with the other 2 sectors examined (*this compared with 6 for the plastics supply and 11 for the oil and gas related sectors*). As with the other 2 sectors studied, the generally weak statistical validity for Porter's model from the results obtained for Glasgow's financial services sector was perhaps even more attributable to the difficulty that the postal questionnaire had in identifying the complexities and nuances in the sector within the context of Porter's model. The small sample size, necessitating the simplest form of cross-tabulations and attempting to cross-tabulate quantitative measures of growth against qualitative judgements of management towards various issues echoed the practical problems found in the other 2 sectors of trying to use Porter's model to explain growth in these sectors. It is interesting to note that Porter's work (*1990, pp239-277*) explains the development of

competitive advantage in services in a sketchy manner and then only in terms of its relationship to an economy's major industries (*the idea of clustering of related and supporting industries*). Porter does not use any empirical evidence to demonstrate how his model might be applied to a service sector.

The next section will try to balance the shortcomings of the postal survey by applying Porter's model to six case studies of successful firms that participated in the postal survey.

7.4.3 Growth in the Context of Porter's Model:

Case Studies of Growth Firms

Six companies were selected for intensive survey research to determine the reasons for growth amongst actual firms. Appendix A7C provides a detailed account of each firm's growth record. This section focuses on the main findings to come out of the case studies as to why and how growth apparently occurred within these firms.

An important criterion in selecting the case study companies for intensive survey research was to reflect the range of financial services provided by firms in the sector. In practice, this was a difficult criterion to meet because accountancy practices tended to be the only firms that cooperated sufficiently in the postal survey to be allow growth firms to be differentiated from non-growth firms. Therefore, the sample of case study firms was structured to consist of 4 accountancy practices (*Alpha, Howard, Carlton Scott and Nova Omega*), a financial services brokerage company (*Beta Investment Services*) and a life assurance company (*Eternal Life*), even though in the strictest sense, the non-accountancy practices did not really produce notable growth. Aliases have been used to maintain the confidentiality of the firms that have agreed to be analysed in depth.

Table 7.20 summarises the key characteristics of the case study firms. The main types of services provided by the accountancy practices were: audits, accountancy services and tax advice. Howard specialised in computer accountancy while Nova Omega produced a range of financial services, handled company insolvencies and corporate recovery, and provided management consultancy services. The financial services brokerage company, Beta Investment Services, provided brokerage services in life assurance and pensions, and provided investment advice on

unit trusts. Eternal Life, an assurance company, provided life assurance and pension plans, investment management services and brokerage services on unit trusts.

With the exception of Howard Chartered Accountants, all of the case study firms were well established businesses, ranging in age from 93 years down to 13 years in 1992. Howard by comparison, was the infant in the group with an age of 6 years. The accountancy practices were all private partnerships which seems to be the norm for this type of business, while the brokerage firm of Beta Investment Services was a subsidiary of a Scottish public company and the life assurance company, Eternal Life, was a private limited company that until 1988 operated as a non-profit organisation. The brokerage firm of Beta Investment Services and the practices of Howard, Carlton Scott and Nova Omega were all indigenous Scottish businesses, with the latter two firms indigenous to Glasgow. Alpha's operations in Glasgow are part of a UK-wide accountancy practice. Eternal Life is based in England but has a substantial presence in Glasgow. Indeed, with its 1991 full-time employment of 370 employees, it was more than three times larger than any of the other 5 case study firms. More so than the previous two sectors studied, ownership and management were found to be inextricably intertwined, which would seem to be due to the partnership form of business registration amongst accountancy practices. Only Eternal Life indicated that the company's owners, while concerned with strategic management decisions, largely left the Glasgow branch's management to be substantially in control of its operational management.

With the exception of Eternal Life, all of the case study firms were heavily dependent on the Scottish market for customers with 80% of sales being generated from local sources. By contrast, Eternal Life derived most of its sales (90%) from markets in the rest of the UK, outwith Scotland. Alpha was the only accountancy practice of the case study accountancy firms to have significant business outside Scotland, with 15% of its sales in the rest of the UK and 5% of sales to locations outside the UK. Competition was also viewed to be largely of a local nature with more than 80% of the competition seen by the case study firms to be based in Scotland. Eternal Life was the exception, since it considered only 20% of its competitors to be Scottish based while the remaining 80% of its competitors were based in other parts of the UK outside Scotland.

The growth performance of the case study firms during the period 1988-1991 ranged from a minor increase in employment of 14% (*Beta Investment*

Services) to an increase of 78% (*Howard*), both of which increased to 16 employees in 1991. The largest absolute increase in employment was Alpha, which increased from 44 to 105 employees (*an increase of 72%*). Change in annual sales ranged from moderate in the case of Eternal Life and Beta Investment Services (*increasing in the range of 1-25%*) to £35million and £500,000 respectively in 1991, to exceptional in the case of Howard, which increased its sales by more than 300% to £500,000 in 1991. Profits ranged from a relative decline of 1-25% by Beta Investment Services to £25,000 in 1991 to an increase of between 201-300% for Howard, although the magnitude of its profits were not divulged. Change in annual assets ranged from negligible for Beta Investment Services with 1991 assets of £200,000 to exceptional in the case of Alpha, which increased by more than 300% to £1.5million. Change in annual capital employed was greatest in the case of Eternal Life, which increased from almost nothing in 1988 to £15million in 1991. This was perhaps due to the fact that Eternal Life was a non-profit organisation in 1988 and therefore employed different methods of accounting, rather than being indicative of outstanding financial performance.

The accountancy practices and brokerage firm had a similar order of magnitude of output per employee, with annual sales typically in the range of £26,000-£31,000 per employee; annual profits in the range of £1,500-£5,700 per employee; assets in the range of £6,000-£14,000 per employee; and annual capital employed in the range of £6,000-£22,000 per employee. The life assurance company reflected the very high sales generated per employee that seems to be so characteristic of firms in this insurance/assurance component of this sector, as table 7.3 demonstrated earlier in this chapter, with annual sales of around £95,000/employee, although its profitability of £5,400/employee (*from the postal survey data*) is quite poor when set against rival companies as Standard Life, Scottish Amicable and Scottish Life, with their profits/employee typically in the magnitude of six figure sums.

The forms of growth that the case study firms adopted during the period 1988-1991 were quite varied. All of the case study firms claimed to have taken on more staff and to have introduced measures to improve efficiency in the workplace. All but one of the firms claimed to have acquired other firm/s in order to fulfil their growth ambitions. Less common forms of growth were: introducing new services into existing markets; entering new markets with existing services; and expanding floorspace. Most of the case study firms reflected their cautious nature in that only two had introduced new services into completely new markets. Interestingly, the two

firms that had utilised all the methods of growth discussed here, had also registered the largest absolute increases in employment amongst the case study firms, thereby implying that the greater the range of growth strategies pursued, the more likely a firm is to grow.

Reasons given for growth varied considerably amongst the case study firms, however, there were some common themes, which in four or more of the case study firms were: high profitability; maximised productivity (*i.e. output per employee*); maximised business efficiency; and striving to improve the quality of services provided. Employee related factors such as providing good working conditions; having a good rapport between management and employees; and aiming for a high level of job satisfaction amongst employees, were cited by 3 of the case study firms as having been important reasons for their growth. Alpha was the only case study to cite strong local demand as having contributed to its success, although Eternal Life did mention demand to have been important but in the UK context. Alpha also indicated that its parent organisation's financial resources played an important part in its growth. Other isolated reasons for growth, all suggested by Eternal Life were: useful business advice from Scottish Enterprise; maintaining good cash flow; non-punitive levels of taxation; buoyant local economic conditions; and a strong competitive advantage over foreign assurance firms operating in the UK market.

Few common themes emerged as the main constraints to growth amongst the case study firms. None of the case study firms considered that the constraints to growth that they perceived had been anything more than of a moderate nature. The most cited constraints to growth were: lack of management time to plan growth; an inadequate supply of skilled labour; high interest rates (*in the period 1988-1991*); and an inadequate local road infrastructure in the City of Glasgow. The other constraints to growth referred to amongst the accountancy practices were: strong local competition; restricted office space; poor work ethic amongst employees; difficulty in maintaining a sufficient cash flow; and a lack of financial resources. The other constraint to growth mentioned by the brokerage firm was depressed national economic conditions. And the other constraint to growth of a moderate nature, pointed to by Eternal Life, was the difficulty in achieving a high sales turnover at the level expected amongst insurance and assurance companies.

Common themes that emerged as a growth strategy amongst the case study firms were: to employ more staff; improve their work efficiency and acquire

other firms if the appropriate opportunity arose. Other growth strategies mentioned by accountancy practices and the assurance company were: to introduce new services into new and existing markets; to develop new markets with existing services; and to expand office floorspace.

The growth objectives for the case study firms were: slow steady growth for 2 firms, while keeping employment stable; slow, steady growth for the brokerage business by sales as well as employment; and quick controlled growth by sales, but with only moderate expansion in employment for the remaining 3 case studies (2 *accountancy practices and the assurance company*). From these growth objectives, it would seem that all of the case study firms were optimistic of increasing sales into the mid 1990s, but are much more cautious about allowing a commensurate increase in employment. Managers of the case study firms appear to be expecting even greater gains in employee productivity and efficiency in the years to come. As was commented on earlier in this chapter, the UK recession of 1990-1992 has taken its toll on firms in the financial services sector (*Scottish Business Insider, January 1993*), which may help to explain why the case study firms have not made any ambitious objectives for future growth.

The previous discussion of the case studies has helped to highlight the main reasons for growth amongst the case study firms and the type of constraints that they appear to be subjected to. However, as with the plastics supply and oil and gas related sectors, this approach lacks a conceptualisation that explains the dynamics of the growth process in these firms. The discussion will now turn to the application of Porter's model as a conceptualisation of growth within Glasgow's financial services sector, through qualitative analysis of the case study material.

The local environment is stressed in Porter's model as being important in determining a firm or the financial services sector's chances of success. In the case of Glasgow's financial services sector, the spatial context of the term 'local' has been taken to mean the Scottish market (*revolving around the Glasgow-Edinburgh axis*), while the term 'export' refers to any market outside Scotland. The ratings of importance of each factor to the firm's success detailed in table 7.21 (*ranging from 1=no importance to 5=very important*), are based on the views of managers obtained through face-to-face interviews and general observations about each firm's facilities. Although the ratings were intended to be as impartial as possible, there may have been

some unintended subjective judgements in these assessments in interpreting managers' responses to various questions.

TABLE 7.20:
CHARACTERISTICS OF GROWTH IN FIRM CASE STUDIES

Company	Alpha	Beta Investment	Howard	Carlton Scott	Nova Omega	Eternal Life
Est.date Scot.operat.	1979	1978	1986	1971	1927	1899
Services provided	Chartered Accountants (audits, accountancy, tax advice)	Broking:Life insurance; pensions. Investment advice on unit trusts	Audits, Accountancy Tax advice, computer accountancy	Accountancy Audits, tax advice	Chartered accountants (audits, tax, accountancy, financial services, insolvency, corporate recovery); Management consultants.	Life assurance, pension plans, unit trusts, investment management
Form of Registration	Private partnership	Subsidiary of a public limited co.	Private partnership	Private partnership	Private partnership	Private limited company
Ownership	England	Scotland	Scotland	Scotland	Scotland	England
Background	Glasgow office part of UK-wide practice. Has considerable autonomy since it is managed by partners who also own it, although head office can influence strategic and operational management decisions.	Small independent company. A professional management team is employed by the owner to run the firm. The owner has some influence in strategic and operational management decisions.	Glasgow office of a Scottish co. based elsewhere in Scotland. Managed & owned by the partners of its Glasgow office who have some influence in strategic and operational management decisions	A company indigenous to Glasgow. The partners own and manage the practice and are involved in the operational and strategic management decisions of the firm.	The firm is indigenous to Glasgow and has one office there. It is a private partnership owned and managed by its partners. Its owners are involved in both strategic and operational management decisions.	English based company that was a non-profit organisation until 1988. It is now managed according to normal commercial criteria. A professional management team runs its Glasgow subsidiary. The owners of the firm are not particularly concerned with operational management decisions but do involve themselves in its strategic management decisions.

TABLE 7.20 (CONTINUED)

Company	Alpha	Beta Investment	Howard	Carlton Scott	Nova Omega	Eternal Life
1991 F/T Employment	105	16	16	61	118	370
1988-1991 Employment change (F/T)	44	2	7	21	39	—
1991 P/T Employment	0	0	1	2	0	10
1988-1991 Employment change (P/T)	0	0	1	0	0	—
1991 Sales/ employee	£25,714	£31,250	£31,250	£29,508	—	£94,595
1991 Profit/ employee	£3,810	£1,563	—	£5,738	—	£5,405
Reasons for growth	<ul style="list-style-type: none"> *Strong local demand *Partners' own finances *High profit *Maximised productivity *Maximised business efficiency 	<ul style="list-style-type: none"> *High profit *Maximised productivity *Maximised business efficiency *Improving quality of service provided 	<ul style="list-style-type: none"> *High profit *Maximised productivity *Maximised business efficiency *Improving quality of service provided 	<ul style="list-style-type: none"> *Maximised productivity *Maximised business efficiency *Improving quality of service provided *Employee related factor such as: good working conditions; good rapport between management and employees; high job satisfaction for employees 	<ul style="list-style-type: none"> *High profit *Maximised productivity *Maximised business efficiency *Improving quality of service provided *Creating most innovative services for market. *Employee related factor such as: good working conditions; good rapport between management and employees; high job satisfaction for employees 	<ul style="list-style-type: none"> *Strong UK demand *Useful business advice from Scottish Enterprise *Labour factors: <ul style="list-style-type: none"> -competitive labour cost -good work ethic from employees -good labour management relations *Good cash flow *Low taxes *Buoyant local economic conditions. *Able to compete well against foreign firms
Constraints to growth	<ul style="list-style-type: none"> *Strong competition from other Scottish firms 	<ul style="list-style-type: none"> *Inadequate supply of skilled labour. *Depressed national economic conditions and high interest rates 	<ul style="list-style-type: none"> *Restricted office space *Lack of time to plan growth *Poor work ethic amongst employees *Inadequate local road infrastructure serving City of Glasgow 	<ul style="list-style-type: none"> *Lack of time to plan growth. *Difficulty in maintaining sufficient cash flow. *Lack of financial resources. *High interest rates 	<ul style="list-style-type: none"> Only moderate: *Lack of time to plan growth. *Inadequate supply of skilled labour. *Inadequate local road infrastructure serving City of Glasgow. 	<ul style="list-style-type: none"> *Difficulty in achieving a high sales turnover.

TABLE 7.20 (CONTINUED)

Company	Alpha	Beta Investment	Howard	Carlton Scott	Nova Omega	Eternal Life
Growth Strategy	*Introduce new services into new and existing markets. *Develop new markets with existing services. *Expansion of office area *Firm acquisition	*Employ more staff *Improve work efficiency *Firm acquisition	*Employ more staff *Improve work efficiency *Introduce new services into existing markets. *Develop new markets with existing services.	*Improve work efficiency *Expansion of floorspace *Firm acquisition	*Employ more staff *Introduce new services into new and existing markets. *Develop new markets with existing services. *Expansion of office area *Firm acquisition *Improve work efficiency	*Employ more staff *Introduce new services into existing markets. *Improve work efficiency *Expand office floor-space *Acquire other firms
Growth Objectives	Slow, steady growth, but keep employment stable.	Slow, steady growth	Quick, controlled growth by sales. Moderate growth by employment	Slow, steady growth, but keep employment stable.	Quick, controlled growth by sales. Moderate growth by employment	Quick, controlled growth by sales. Moderate growth by employment

7.4.3.1 Factor conditions

For each of the six case studies detailed in table 7.21, the importance of factor conditions was assessed according to the criteria of infrastructure provision, capital resources, physical resources, knowledge resources and human resources available to each firm during the period 1988-1991, within the spatial context of Glasgow's metropolitan area.

All six of the case study firms, while recognising the importance of having good local factor conditions, tended to take them for granted. Their main reason for locating in Glasgow was to serve the market created by the Strathclyde conurbation. By virtue of the fact that Glasgow is the major urban area in Scotland, it has the critical mass to ensure that it is well provided for with infrastructure, since its relatively large population of 700,000 people (*in the Scottish context*) provides Strathclyde Regional Council with a large tax base with which to provide a comprehensive range of services and facilities to the community. To understand why Glasgow became a centre of services, it is necessary to briefly look at why Glasgow started out as an industrial city. Glasgow started out as a centre of shipbuilding in the 19th century because of its geographical and physical resource attributes: the Firth of Clyde provided easy access to the open sea, while at the same time providing a sheltered location in which to build and moor ocean going vessels; it was part of a

broad, shallow valley that permitted easy urban development; and it had cheap, plentiful supplies of coal and iron. Demographic change resulting from a massive influx of impoverished people from the Highlands and Islands and Ireland during the potato famine of the 1840s provided the cheap and plentiful labour necessary to run Glasgow's burgeoning heavy industries, transforming the city from a large town of 80,000 people in 1801 to a city of over 700,000 in 1901, peaking at almost a million in the early mid-20th century before declining steadily during the postwar years to its current population of 700,000 in 1992. Intense industrial activity and Glasgow's pre-eminence as a centre of shipping and to a lesser extent of trade in the late 19th century brought considerable wealth to Glasgow. This in turn generated demand for higher order services such as financial and business related services. Scotland's tradition for independent institutions, when combined with the wealth conferred on Glasgow through its industrial strength, contributed to Glasgow developing a strong independent identity with its financial services institutions from its English counterparts from before the turn of the century.

Glasgow is at the centre of a transport hub with road, rail and air links to other important towns and cities in Scotland and England. There is for example, direct motorway access from Glasgow's city centre to Edinburgh (*70 km east of Glasgow*), Stirling/Perth/Dundee and Carlisle/Manchester/London. London is $6\frac{1}{4}$ hours travel time by road from Glasgow; Manchester $3\frac{1}{4}$ hours; Aberdeen $2\frac{1}{2}$ hours and Edinburgh $\frac{3}{4}$ hour. Glasgow' city centre is a mere 20 minutes from the city centre by road and besides providing air links to other Scottish airports, it has direct air links to all the major airports in the UK and is also a gateway for direct flights to North America and Europe. London is only a 50 minute flight from Glasgow, making it as accessible to London businessmen in terms of travel time as most English cities. The city has a commuter rail link to Edinburgh ($\frac{3}{4}$ hour away), a high speed rail service to London (*5 hours away and 17 times/day*) and links to other major Scottish cities such as Aberdeen and Dundee. Being at the centre of a UK transport hub was not crucial to the local Glasgow accountancy practices, but it was very important for the large insurance/assurance companies and fund management companies who have considerable dealings with the English market and some contact with the North American market.

What most concerned the case study firms regarding infrastructure, was the adequacy of the local road system serving the city centre. By this they meant traffic congestion and a lack of parking facilities. Other aspects of infrastructure, such

**TABLE 7.21:
GROWTH IN SELECTED CASE STUDY FIRMS WITHIN THE
ANALYTICAL FRAMEWORK OF PORTER'S MODEL**

Company	Alpha	Beta Investm.	Howard	Carlton Scott	Nova Omega	Eternal Life
LOCAL FACTOR CONDITIONS						
*infrastructure	3	3	3	3	3	3
*capital resources	3	1	1	5	1	1
*physical resources	1	1	1	1	1	1
*knowledge resources	2	2	3	2	2	2
*human resources:						
-quantity	2	4	3	3	2	2
-skills	1	1	1	1	1	1
-cost	2	1	1	1	1	2
LOCAL DEMAND CONDITIONS						
*Primary market served	Scotland	Scotland	Scotland	Scotland	Scotland	England
*Market niche	no	no	no	no	no	no
*Sophisticated & demanding buyers	yes	yes	yes	yes	yes	yes
*Home market buyers anticipate buyer needs in other markets	no	no	no	no	no	no
*Strong demand in Scottish market	5	5	5	5	5	2
*Strong demand in UK market	2	1	1	1	1	4
*Large number of independent local customers	yes	yes	yes	yes	yes	yes
*Rapidly growing local market	moderate	moderate	moderate	moderate	moderate	moderate
*Early saturation of demand in local market	no	no	no	no	no	no
*Export markets	no	no	no	no	no	no
*Local market with multinational customers provide export business	no	no	no	no	no	no
LOCAL FIRM STRATEGY, STRUCTURE & RIVALRY						
*Management goals for growth	slow, steady	slow, steady	quick, controll.	slow, steady	slow, steady	quick, controll.
*Strategy: compete on cost	3	3	3	4	4	3
*Strategy: compete on product differentiation	4	3	4	3	4	4
*Owner management structure	5	1	5	5	5	1
*Professional management	1	4	1	1	1	5
*Sustained management commitment to firm	5	5	5	5	5	5
*Strong rivalry in Scotland	4	4	4	4	4	3
*Strong UK rivalry	4	1	1	1	1	5
LOCAL RELATED & SUPPORTING INDUSTRIES						
*Cluster of related industries	3	3	3	3	3	3
*Cluster of supporting industries	1	3	1	1	1	2
*Strongly competitive local supplier firms	1	2	1	1	1	1
*Strongly competitive local related firms	2	2	2	2	2	2
INFLUENCE OF CHANCE EVENTS						
*Innovation	2	2	2	1	2	1
*Entrepreneurship	1	2	2	2	2	1
INFLUENCE OF GOVERNMENT						
*Business advice	4	1	3	1	2	4
*Government grants	1	1	1	1	1	1

NOTE: Importance of issue to firm growth rated in the range from 5 (=extremely important) down to 1 (=not important at all)

as the telecommunications network; the suitability of service infrastructure and services; the adequacy of community services and facilities, recreational amenities and cultural facilities, were considered acceptable by all of the case study firms, but Glasgow was not judged to have any particular advantage over any other British cities with regard to these factor conditions, and in any respect, none of these issues were thought by managers to have been of primary concern in their firms' success.

The major infrastructure concern mentioned by the case study firms was that of office space. During the past 5 years (1987-1992), Glasgow's city centre has experienced a boom in the development of modern quality office space, usually of a very high standard (*with air-conditioning, undercover off-street parking and all necessary ancillaries for the modern electronic office*). This has made Glasgow a much more attractive place to locate offices. While it may not be in the same league as what is available in London, the quality and value for money of office accommodation in Glasgow was considered by most of the case study firms to be the equal or better of anything on offer in other Scottish cities (*i.e. Aberdeen, Dundee and Edinburgh*). However, the general opinion was that in spite of the attractiveness of the office space to be had in Glasgow, it was not an instigator of growth in the sector, since it had probably developed in response to growth in the sector.

Local capital resources were only important in the case of Alpha and Carlton Scott, which derived a significant proportion of their development capital from bank loans. Most accountancy practices and the assurance company used their own resources or that of the owner/s financial resources to finance their development. Therefore, although the major clearing banks and lending institutions all have a significant presence in Glasgow, it does not appear to have had much bearing on growth in the majority of the case study firms.

The factor condition of physical resources is not particularly relevant to a service sector of the economy, except in terms of understanding why urban development originally occurred in an area, and none of the case studies thought it to be significant. However, it is interesting to note that tourist brochures and Glasgow's Business Location Service in proclaiming the virtues of Glasgow, refer to Glasgow's physical attributes such as its stunning unspoilt natural scenery of the city's hinterland, especially Loch Lomond and the Highlands, as giving it the edge in the quality of life

stakes over other British cities, apparently a location consideration perceived by marketing boffins to be important to business people and other professionals.

The local factor condition of knowledge resources has not had a determining impact on growth in the industry. The city has two universities, the University of Glasgow and the University of Strathclyde, which both produce professionals for the financial services sector of a high calibre, on par with educational institutions elsewhere in the UK. However, it would be difficult to argue that Glasgow has a competitive advantage in the area of knowledge resources as they pertain to the Glasgow area compared to other cities in Scotland and the UK generally. Local companies may have local marketing knowledge which would give them competitive advantage over competitors from outside Glasgow, but any determined competitor with sufficient financial and marketing resources could probably overcome that barrier to entry in a reasonable period of time.

The factor condition of human resources was only considered important as a moderate determinant of growth in terms of its availability. In terms of the general skills and cost of labour, the case studies did not consider Glasgow to have any particular advantages over other cities. Indeed, the difficulty in securing people with the right skills was mentioned by almost all of the case study firms as having been a constraint to growth.

7.4.3.2 Demand conditions

Strong local demand conditions are perhaps the most important determinant of growth of all the components in Porter's model for this sector amongst the case study firms. A service sector will develop wherever there are significant population clusters engaged in economic activity and Glasgow is no exception. All of the case study firms, with the exception of Eternal Life, had Scotland as their primary market. Eternal Life primarily served the English market although 94% of its staff were located in its Glasgow office.

The major insurance/assurance companies are able to advertise by virtue of their high sales and large financial resources in order to lure customers, but for most accountancy practices and brokers, customers are attracted in a low key manner through telephone book listings, word of mouth from previously satisfied customers and canvassing of potential customers. However, with accountancy practices and brokers, it tends to be more a case of the customer seeking out the

provider of services rather than through aggressive advertising effectively marketing their services. The aspects of demand conditions stressed in Porter's model as being important in contributing to a sector's competitive advantage that were evident amongst the case study firms were: sophisticated and demanding buyers; a large number of independent local customers (*which encourages competition and prevents unhealthy dependency on a limited pool of customers*); and a growing local market, particularly during the latter half of the 1980s. Accountancy practices experienced a boom in business as a result of the growth in the number of businesses during the Thatcher years of UK government. Figures are not available for Glasgow's experience regarding this phenomenon, but a study by Daly and McCann (*Employment Gazette, February 1992*) found that over the whole of the UK, the number of firms increased by 67% from 1.8million to 3.0million during the period 1979 to 1989. Other aspects of demand conditions stressed in Porter's model as being important in contributing to a sector's competitive advantage that were not much in evidence amongst the case study firms were: having a market niche; local buyers that anticipate demands in other markets; early saturation of demand in the local market resulting in an export drive; significant export markets; and a local market with multinational customers that provide export business.

An important concept in Porter's model is that the local market, while crucial in the developing stages of a sector's development, will not be enough to guarantee long term growth. Long term growth requires that companies expand beyond the confines of their local market into export markets. There was little evidence of this happening amongst the case study firms, particularly with the accountancy practices which consider it unfeasible to enter foreign markets without having strong local knowledge of commercial law and tax practices. However, amongst Scottish fund managers, assurance and insurance companies, there has been in the past a concerted and effective drive to establish a presence in foreign markets such as North America, Australia and South Africa, although this was not the case for any of the case studies.

7.4.3.3 Firm strategy, structure and rivalry

Although from table 7.21, it would appear that the firm strategy, structure and rivalry component of Porter's model has possibly played the most significant part in contributing to growth in the case study firms, this is somewhat deceptive. Managers of the case study firms pointed more towards local demand conditions as being the key determinant in their success.

The types of firm strategy issues raised by Porter refer to management goals for growth; management's commitment to the firm; and the basis of management's product competition strategy.

Most of the growth goals of the case study firms were cautious and restrained. Alpha, Beta Investment Services, Carlton Scott and Nova Omega talked of only growing slowly and steadily over the period 1991-1994. Only Howard (*a small firm with 16 employees*) and Eternal Life (*the largest firms amongst the case studies with 370 employees*) had managements' that pined for rapid growth. As was to be expected, all of the managers of the case study firms demonstrated long term commitment to their firms that seemed to be unwavering. They were optimistic that their firms' growth would succeed in the long term and if the enthusiasm, drive and determination that they appeared to have was any indication, these firms have a promising future ahead of them. Porter (1990, pp37-40) emphasizes the need for a company to be absolutely clear about what its product competition strategy is to be if it is to succeed in the marketplace (*i.e. whether to focus on cost competition or product differentiation*). In the case studies, competing on cost was of moderate importance to firm growth to all firms except the accountancy practices of Carlton Scott and Nova Omega which considered competing on cost to have been of significant importance to their growth. With the exception of Beta Investment Services and Carlton Scott, all of the firms considered competing on differentiated products (*usually tailor-made to their customers' needs*), to have been important to their growth.

The accountancy practices that were the subject of the case studies all had an owner-management structure which appears to be the norm for these types of firms. It is difficult to say whether this form of company structure was a contributing factor in the success of these firms. Certainly, the managers of these practices by also being owners, demonstrated a high level of commitment to the business, which may be because being owner-managers, their personal fortunes are inextricably linked to the fortunes of their business, thereby motivating them to perform at their optimum. However, in the case of the managers of the brokerage company and the life assurance company, their commitment to the firm seemed to be no less than that of their counterparts in the accountancy practices. Therefore, a common feature of all the case study firms, seems to be the quality and effectiveness of their managements, which appeared to be the main driving force in the growth of each of the case study firms, apart from the strength of local demand.

The strength of local competition was difficult to assess amongst the case study firms. Managers of all the case study firms indicated it to be healthy. The large number of competitors in the field of accountancy services in Glasgow and the fact that no single competitor appeared to dominate the sector, seemed to confirm this perspective of managers. Notwithstanding this point, managers of the case study firms did not consider local competition to have helped their growth, since it was difficult to know whether their competitors' services were better than their own. It was pointed out by one manager that Chartered Accountants are responsible to a professional body (*the Institute of Chartered Accountants of Scotland*) requiring all its members to be professionally competent, making it difficult for a particular firm to claim that the standard of its services were far in excess of its competitors. Competition was much more of an issue amongst insurance/assurance and brokerage firms, and managers of the relevant case study firms considered it to be a contributing factor to growth in the sector, but not a determining factor.

7.4.3.4 Related and supporting industries

Glasgow's financial services sector provides only weak support for the "local related and supporting industries" component of Porter's model. For example, Porter's hypothesis (1990, pp100-107) that a cluster of supporting industries, strongly competitive local supplier firms and strongly competitive local related firms is crucial to the attainment of competitive advantage, had little bearing on all but one of the case study firms (*the brokerage firm*). This is because each of the case study firms (*particularly the accountancy practices*) operate as independent business entities that do not rely on subcontractors or related businesses in order to compete effectively. The brokerage firm, by contrast, functions effectively by using other financial services companies to provide life assurance/insurance policies, pension plans and unit trusts. The life assurance company looks to long term investments likely to provide a reliable and reasonable return on its outlays, which means it is dependent on a whole range of companies in the business world and public sector, covering investment projects in property, industry, technology, health care, tourism, agriculture, transport and government bonds. Notwithstanding this point, however, life assurance companies have a global perspective when searching for worthwhile investments and so strongly competitive local "supplier" and "related" firms would not play a very important role in making a Scottish based life assurance/insurance firm competitive.

7.4.3.5 The influence of chance or random events

Amongst the case study firms, the contribution of "chance" events in the form of innovation and entrepreneurship to each firm's development were negligible during the period 1988-1991. An entrepreneurial approach is rarely applied in the commercial activities in accountancy practices or large insurance/assurance companies. Even with the brokerage case study, entrepreneurship was not an influencing factor in that company's growth. None of the managers of the accountancy practices identified "innovation" that revolutionized their activities or facilitated further growth.

The deregulation of London's Stock Exchange in 1986 and the move to screen-based trading did have some impact on the brokerage firm of Beta Investment Services and Eternal Life's investment activities, but management did not consider it to have been significant in influencing their growth. These events had very little relevance to the accountancy practices examined.

7.4.3.6 The influence of government policy

None of the case study firms received any financial assistance in the form of grants from the government. However, Alpha and Eternal Life considered advice that they received from Scottish Enterprise, the Scottish Office and the Enterprise Initiative to have been very useful in helping their businesses to develop. Although the advice received was considered useful by the managers of these firms, it was stressed that it was an influencing condition of growth rather than a determining factor, which lends support to Porter's model.

7.4.3.7 The interaction of the determinants of competitive advantage

During the 19th and early part of the 20th century, there seemed to have been some interaction between the determinants of competitive advantage to establish Glasgow as a major industrial city and centre of financial services in Scotland, but in the development of all the case study firms, this had little relevance to their growth. What interaction there was could not be detected in tangible terms. For example, strong local demand seemed to be upgrading local factor conditions by making Glasgow's office market more attractive with high quality office developments and by upgrading university education courses at both Glasgow and Strathclyde universities in business related studies to make them better suited to the demands of the local business world. Local rivalries, either real or imagined seemed to be benefiting

consumers who in turn demanded increasingly sophisticated products from financial services firms. The clustering of financial services firms in Glasgow's city centre, seemed to generate an atmosphere of competitiveness in which firms are physically aware of each other's presence. The desire to impress customers and derive status from one's premises, has in turn influenced Glasgow's office market, resulting in a stream of high quality modern office space being developed in Glasgow during the past five years (1987-1992). The case study firms could see how these interactions might occur, but could not definitively apply them to their own circumstances.

7.5 CONCLUSIONS

The first section of this chapter established Scotland's financial services sector to be an important component of the Scottish economy, based on general evidence in the printed media and aggregate statistics for the Scottish economy. The real strength in the sector seems to lie with the large indigenous insurance/assurance companies and the fund management companies. The interesting feature of Scotland's financial and business services sector, is that it has retained its separate institutions (*such as independent banks*), allowing it to maintain an independent character from its English counterparts. This independent character has resulted in Edinburgh and to a lesser extent, Glasgow, being treated seriously in world financial markets as financial centres in their own rights and not just auxiliary to what the City of London provides.

The section on the growth performance of the surveyed firms showed that growth is an uneven phenomenon even in a high growth sector such as financial services. Many of the surveyed firms were found to be more coy about divulging financial and employment data than firms in the other sectors examined, and this may have distorted the results to give the impression that the sector's growth performance was nothing exceptional. Unfortunately, the big assurance/insurance and fund management companies that are largely responsible for the strong performance of this sector were not very cooperative either in consenting to participate in the survey or in answering questions pertaining to their financial performance.

As with the other two sectors studied, difficulties arose in accurately quantifying growth in the financial services sector, with the different growth measures yielding a variety of answers regarding the extent of growth during the period 1988-1991. For example, the proportion of surveyed firms found to have expanded more than 25% ranged from around 20% of firms by the growth measures of profitability, assets and capital, to a third of firms by the growth measure of employment, to a

maximum of 40% of firms by the growth measure of sales. Amongst the growth firms, the occupational groupings to benefit most from growth were "clerical/administrative" and "skilled technical" employees. Compared with firms in the other two sectors, firms in Glasgow's financial services sector were optimistic of achieving growth during the next three years (1991-1994) in terms of employment and sales, despite the impact of the 1990-1992 recession.

The section that investigated general issues associated with growth suggested that growth firms were likely to have the following characteristics: be privately owned and owner-managed; have a manager with at least three years tenure; that management aim for maximised market share and producing the most innovative product for the market segment; that the main source of development capital was from the owner; that useful advice/assistance was most likely to be provided by banks, Scottish Enterprise, universities and colleges; and that the methods of achieving growth included expanding floorspace, employing extra staff, acquiring other firms, improving efficiency, developing new markets with existing services and introducing new services into new markets. However, these results need to be qualified in that only six issues were found to be statistically significant with growth at the 0.05 level. of which three referred to the usefulness of advice/assistance received and the other being the owner's financial resources. Generally, it seemed that growth firms in this sector were not fundamentally different from their non-growth counterparts.

Tests for statistical significance of an association between various factors/issues subdivided according to four components of Porter's model (*factor conditions; demand conditions; firm strategy, structure and rivalry; and government related issues*) and firm growth, at the basic level of analysis employed, provided only weak statistical validity for Porter's model. What findings there were, did point to growth being positively associated with (*at the 0.05 level of significance or better*): the firm strategy, structure and rivalry issues of "having surplus management time to plan growth" and "having sufficient management skills to plan, organise and manage growth"; and the government related issue of "the usefulness of advice/assistance from Scottish Enterprise". Growth was found to be negatively associated with labour related issues such as insufficient training of staff and a shortage of skilled labour. If these are taken at face value, it suggests that in the financial services sector, growth is heavily dependent on management, useful business advice or assistance from a quasi-independent government authority (*i.e. Scottish Enterprise*) and well trained labour in sufficient quantities. In the context of Porter's model, the finding that Scottish

Enterprise has had a positive impact on the sector is surprising, since Porter is a firm adherent of non-interventionism by the public sector, even a semi-autonomous organisation such as Scottish Enterprise (*Porter, 1990, pp617-682*). It is interesting that Scottish Enterprise has been viewed positively by firms in Glasgow's financial services sector, since firms in the other two sectors discussed were critical of the help they received. Reasons why this is so are speculative, but it may have something to do with Scottish Enterprise 's head office being based in Glasgow and therefore having a higher profile amongst Glasgow's financial services firms compared with most of the firms studied in the other two sectors which were largely located outside Glasgow and to whom Scottish Enterprise may have seemed somewhat remote, in spite of the establishment of local enterprise companies to serve Scotland's regions.

The qualitative approach to investigating growth within the conceptual framework of Porter's model, based on six in-depth company case studies, attempted to address the limitations of the quantitative methodology of explaining growth that was adopted in the previous two sections. As in the previous two sectors studied, this approach was more successful in applying Porter's analytical framework, but still encountered difficulties in generalising phenomena, mainly in terms of equating the experience of the accountancy practices with that of the brokerage and assurance companies examined.

Factor conditions appeared to have been taken for granted by all six of the case study companies. These firms talked of factor conditions as having been important in creating Glasgow as an urban conurbation that has produced a large market for their services, but because the activities of firms in the sector are demand driven, none of the case studies talked of factor conditions unique to Glasgow as having been particularly responsible for their growth.

All of the case study firms, with the possible exception of the assurance company, Eternal Life, considered demand conditions in Glasgow to be the most important contributing factor to growth in their businesses. The three aspects of demand conditions in Porter's model that appeared to be much in evidence amongst the case study firms were: sophisticated and demanding buyers; a large number of independent local customers; and a growing local market.

The firm strategy, structure and rivalry component of Porter's model was important in all of the case study firms. There was some difference between the

accountancy practices and the brokerage and assurance companies with regard to the structure of ownership and management, in that all of the former were managed as partnerships whereas the latter had ownership separated from management, with a professional management team to run the company. All of the managers of the case study firms believed that a sustained management commitment to the firm was important to their growth; and they all demonstrated a desire for growth in the future. They perceived competing on cost and a differentiated product to be of some importance to their growth and all except the assurance company (*whose main sales were in England*), considered strong local competition to have had some influence in making them more competitive and therefore more likely to grow.

The local related and supporting industries component of Porter's model was not particularly significant in the growth of any of the case studies. There appears to be a cluster of related service industries surrounding segments of the financial services sector in Glasgow of banks, insurance/assurance firms, accountancy practices, fund managements, brokers and other financial institutions, but the case study firms did not consider this "clustering" of financial services to be a major factor in their growth compared to the demand conditions evident in Glasgow. The accountancy practices were found to be highly self-sufficient operations that derive little direct benefit from a "clustering" of financial service activities. However, the brokerage/investment firm and the life assurance company subcontracted some of their services and did seem to have derived some commercial benefit from a clustering of a range of financial services in Glasgow.

Treating "chance" or "random" events as an influencing condition on the four main determinants of competitive advantage in Porter's model seems appropriate amongst the case studies examined in this chapter. The deregulation of London's stock exchange and the move to screen-based trading has not had a significant influence on the growth experience of the case study firms.

The role of government in this sector is appropriately treated as being an influencing condition on the growth experience of the case study firms. Government financial assistance was not a relevant issue, but business advice through Scottish Enterprise, the Scottish Office and the Enterprise Initiative was considered to be a significant influence in the growth of half of the case study firms.

Porter's model has never been seriously applied in studying growth or competitive advantage in a service sector of an economy. At the quantitative level of analysis employed in this chapter, it would seem that Porter's model is not relevant to firms in Glasgow's financial services sector. However, argued qualitatively, the case study findings would appear to imply that the demand determinants of demand conditions and local firm strategy, structure and rivalry, and the influencing condition of government policy may be active in Porter's model.

The next chapter discusses conclusions for the validity of Porter's model as a conceptual framework of growth in firms, discusses its implications for policy and presents policy recommendations for facilitating growth through growth firms in general and more specifically, how it might be done in the three sectors studied here.

RIGHT

**CONCLUSIONS AND POLICY RECOMMENDATIONS
FOR FACILITATING GROWTH IN SMALL-MEDIUM FIRMS**

CHAPTER EIGHT CONTENTS:

SECTION	CONTENT:	PAGE
8.0	INTRODUCTION	393
8.1	ANSWERS TO THE RESEARCH QUESTIONS INVESTIGATED	393
8.1.1	General Research Questions	394
8.1.1.1	The company founder	394
8.1.1.2	Management style	395
8.1.1.3	Finance availability	395
8.1.1.4	Networking and advice-seeking behaviour	395
8.1.1.5	Management strategy and motivation	396
8.1.1.6	Markets	396
8.1.1.7	Competition	396
8.1.1.8	Product development	397
8.1.1.9	Availability of skilled labour	397
8.1.1.10	Neoclassical Economics	398
8.1.1.11	Entrepreneurial Theory	398
8.1.1.12	Downie's "Transfer Mechanism"	398
8.1.1.13	Marris' Economic Theory of Managerial Capitalism	398
8.1.1.14	Penrose's "Managerial Potential" Approach	399
8.1.1.15	The "Value-Driven" Corporate Culture Model	399
8.1.1.16	The Stage Models	400
8.1.1.17	Product/Market Development Model	400
8.1.1.18	Production-Oriented approach	401
8.1.1.19	Social Networking	401
8.1.1.20	PA Consulting Group's Model of Competitive Manufacturing Strategy	403
8.1.2	Porter's Model a Suitable Conceptual Framework for Explaining Growth in Small-Medium Firms?	405
8.1.2.1	Factor conditions	408
8.1.2.2	Demand conditions	409
8.1.2.3	Firm strategy, structure and rivalry	411
8.1.2.4	Related and supporting industries	412
8.1.2.5	The role of "chance" or "random" events	413
8.1.2.6	The role of government policy	414
8.2	ALTERNATIVE MODELS FOR EXPLAINING GROWTH IN THE SURVEYED SECTORS	414
8.2.1	A Model for Firm Growth	416
8.2.2	A Model for Industry Sectoral Growth	420
8.2.3	A Model of Growth in the Scottish Plastics Supply Sector	422
8.2.4	A Model of Growth in Aberdeen's Oil and Gas Related Sector	425
8.2.5	A Model of Growth in Glasgow's Financial Services Sector	428
8.3	PUBLIC POLICY TOWARDS SMALL-MEDIUM FIRMS	431
8.3.1	Policy Approaches	431
8.3.2	UK Policy Instruments for Facilitating Growth in Small-Medium Firms	435

<u>SECTION</u>	<u>CONTENT:</u>	<u>PAGE</u>
8.4	IMPLICATIONS OF SURVEY RESEARCH AND POLICY RECOMMENDATIONS	437
8.4.1	The Scottish Plastics Supply Sector	438
8.4.2	Aberdeen's Oil and Gas Related Sector	442
8.4.3	Glasgow's Financial Services Sector	444
8.4.4	General Policy Recommendations for Small-Medium Firms	445
8.5	CONCLUSIONS	449

CHAPTER EIGHT: CONCLUSIONS AND POLICY RECOMMENDATIONS FOR FACILITATING GROWTH IN SMALL-MEDIUM FIRMS
--

8.0 INTRODUCTION

The main objectives for this chapter are: first, to arrive at conclusions regarding the efficacy and suitability of Porter's (1990) model of competitive advantage as a conceptual framework for explaining and understanding growth in three growing sectors of the Scottish economy; second, to produce an alternative model of growth for each of the sectors examined that addresses the shortcomings of Porter's model; and third, to produce policy recommendations out of the conclusions from the survey results that would help more small-medium firms achieve growth than would otherwise be the case if they were left to the vagaries of the marketplace, which often fails to behave according to the ideals of perfect competition propounded in the neoclassical economics approach.

Section 8.1 discusses the extent to which the survey results answered the general questions and issues for research outlined in chapter 4 that had been generated out of the literature review. Section 8.2 suggests alternative models for explaining growth in the Scottish plastics supply sector, Aberdeen's oil and gas related sector, and Glasgow's financial services sector. The suggested models are adaptations of Porter's model that take into account the nuances of each sector and the different pressures that appear to have shaped each sector's development over time. Section 8.3 discusses policy options and current UK government practice towards facilitating the development of small-medium firms. Section 8.4 draws together the findings of the survey results and the implications of the alternative models detailed in section 8.2 to produce policy recommendations for facilitating growth in small-medium firms of the Scottish economy. Finally, section 8.5 contains the concluding remarks on the main issues and findings to have been generated out of this research.

8.1 ANSWERS TO THE RESEARCH QUESTIONS INVESTIGATED

In chapter 4, a number of important research questions were posed as a result of the issues raised in chapters 1 to 3 inclusive of the literature review. This section will address those issues in light of the research findings detailed in the previous three chapters and discuss whether Porter's (1990) model is an adequate conceptualisation of growth processes in small-medium firms.

8.1.1 General Research Questions

The fieldwork analysis has clearly demonstrated that in researching small-medium firms, it is inappropriate to typecast them as a single sector. The analysis in the preceding three chapters has shown there to be different factors responsible for growth in each of the sectors researched. In the plastics supply sector, growth has largely been driven by the need to meet previously unfulfilled local Scottish demand for plastics components required in the manufacture of local electronics products and plastics packaging materials. In Aberdeen's oil and gas related industry, growth has been mainly resource driven and determined by the factor condition of Aberdeen's port facility which provides an excellent base from which to service the oil companies operating in the UK sector of the North Sea. And in Glasgow's financial services sector, growth was originally precipitated by Glasgow's wealth from ship-building and its large urban population and latterly in the 1980s by the growth in demand for accountancy services that occurred as a result of large increases in the number of small-medium firms.

Chapter one's review of contemporary UK empirically based research into small-medium growth firms referred to a total of eight main issues deserving of further research. These concerned the importance of: (1) the company's founder to growth; (2) management style; (3) finance availability; (4) networking or advice seeking behaviour; (5) management strategy and motivation; (6) strong markets and competition from beyond the firm's local environment; (7) product development; and (8) the availability of skilled labour.

8.1.1.1 The company founder

The postal survey did not establish the extent to which firm founders both owned and managed their businesses in any of the three sectors researched. However, from the case studies carried out in both the plastics supply and oil and gas related sectors, it was clear that dynamic, entrepreneurial founders were a contributing factor to their firms' development during its start-up phase. Once firms' progress to a size requiring a professional approach to management (*which seemed to be around 20 or more employees from the survey results*) or where there are more tasks than can be usefully handled by the founder alone, the importance of the founder to the company's growth prospects is no longer so important. None of the managers of firms in any of the three sectors researched demonstrated personal characteristics that could be attributed as being unique to growth firms. This may be because the people that go

into business for themselves all have similar personality traits, regardless of whether they succeed or fail in their business venture.

8.1.1.2 Management style

Research into the importance of management style in terms of skills and experience suggested both from the postal surveys and the case studies that skilled and experienced management were vital components to a *firm's success in all three sectors*. Evidence from the cross-tabulation analysis showed that growth firms in the plastics supply and oil and gas related sectors were likely to employ a professional management, whereas in the financial services sector, partnerships were comprised of professionally trained people with many years of experience behind them. The case studies underlined the importance of a dynamic, capable management to a firm's growth prospects.

8.1.1.3 Finance availability

Financial issues seemed to be a significant constraint to firm growth amongst the case studies in the plastics supply and oil and gas related sectors but not in the financial services sector. This would seem to support the findings of the "State of British Enterprise" report (*SBRC, 1992*) and refute the findings of the Aston Business School (1991) and Cousins et al (1991). The case studies amongst the manufacturing firms indicated that the only option open to most indigenous firms wanting to embark on a programme of expansion was to sell their company to larger companies or holding companies in order to procure the necessary finance.

8.1.1.4 Networking and advice-seeking behaviour

Networking in the form of collaborative partnerships was a feature in one of the plastics supply case studies and three of the oil and gas related case studies. Polbeth Packaging (*the plastics supply firm*), had yet to realise the fruits of its partnership, but was optimistic that it would benefit from them in the long run through better production technology and product ideas. With the oil and gas related companies, partnerships provided a useful mechanism to expand their product range, improve their production technology and produce better products and services. The financial services case studies were not involved in partnerships, mainly because they did not see them as likely to result in any intrinsic competitive advantage, either in terms of marketing or in improving their range of services. Amongst the manufacturing case study firms, external advice was only seen as having made a significant contribution to a firm's growth prospects during its start-up phase. None

of the oil and gas related case study firms considered external business advice that they received to have played a role in their growth performance. Only one financial services case study firm (*Eternal Life*), considered advice that they received from Scottish Enterprise to have been a contributory factor to their growth. From the postal survey results, only advice received from banks was found to have been associated with growth across all three sectors. The acquisition of other firms and expansion of production capacity were strategies associated with growth common to the financial services and plastics supply sectors. Strategies associated with growth unique to firms in the oil and gas related sector were: introducing new products and services into existing markets; and an emphasis on product quality improvement. Strategies associated with growth unique to firms in the financial services sector were: developing new markets with existing services; and producing the most innovative product for the market segment.

8.1.1.5 Management strategy and motivation

Firms across the three sectors with management strongly motivated to achieving growth appeared to be more likely to grow than firms with weakly motivated managements. Managements' motivation to grow appeared to be associated with past growth in all sectors.

8.1.1.6 Markets

Strong markets from beyond the firm's local environment, were not found to be a cause of growth in any of the surveyed sectors. Most of the surveyed firms were catering to their local market which ranged from the city or town the firm was located in to the whole UK market for some very specialised manufacturing activities. Some of the oil and gas related firms were beginning to expand into overseas markets with offshore oil provinces, notably the Wood Group, but this tended to be the exception rather than the rule and was also limited compared to the main markets of these companies. In the financial services sector, accountancy practices and brokers were found to be highly localised within Glasgow but Scottish life assurance/insurance companies had a much broader market base extending throughout the UK and into some overseas markets.

8.1.1.7 Competition

Strong foreign competition was not associated with growth in Glasgow's financial services sector and was virtually nonexistent. It was significant, however, in the oil and gas related sector (*where 25% of competitors were seen as*

being overseas based) and to a lesser extent, in the plastics supply sector, (*with 14% of competitors overseas based*).

8.1.1.8 Product development

The importance of product development to a firm's growth prospects was not especially associated with growth in any of the sectors examined from the postal survey results. Management that stressed the importance of product development did have a weak association with growth in the financial services sector. Amongst the case study firms, product development was most highly stressed by firms in the oil and gas related sector, which were always aiming to improve their products to solve increasingly difficult technical problems as oil and gas reserves become scarcer and physically more difficult to extract economically using conventional methods.

8.1.1.9 Availability of skilled labour

From the postal survey, a lack of skilled labour appeared to cause greater concern in the plastics supply and oil & gas related sectors than the financial services sector (*with 74-78% of firms mentioning it as a source of difficulties compared to 59% of firms in the financial services sector*). However, firms may have had different perceptions of what is implied by the term "skilled-labour", since in the plastics supply sector, the majority of the work-force was made up of manual jobs (73%), whereas in the oil & gas related industry, more than 50% of the work-force consisted of professional and skilled technical employees. The case studies of growth firms in all three sectors did not indicate this to be a significant constraint to growth, although in the oil & gas related and financial services sectors, it was acknowledged that had there been a lack of skilled labour, it would probably have had a detrimental impact on their growth prospects.

Table 8.1 summarises the significance of the issues or research questions raised in the literature review referred to in chapter 4, for growth firms in each of the sectors surveyed. The ratings ranging from 1 (*very important*) down to 5 (*of no importance*) are subjective judgements based on the quantitative analysis of the postal survey results and the case studies. Issues rated '3' indicate firms in that sector are generally indifferent to the issue concerned.

8.1.1.10 Neoclassical Economics

The two main tenets of neoclassical economic theory, the importance of profit maximisation and maximised production efficiency to a firm's management, appeared to be rated by most of the surveyed firms as being of crucial importance. However, it was only in the oil and gas related sector that these business objectives were found to be weakly associated with growth.

8.1.1.11 Entrepreneurial Theory

Entrepreneurial theory which focuses on the motivations of the person managing the firm, be it an owner-manager, entrepreneur or employed professional manager, suggests that if the management is sufficiently motivated towards achieving growth, then growth will follow as a matter of course (*Sexton and Bowman-Upton, 1991*). The majority of surveyed firms appeared to have managers who desired growth, and the analysis seemed to support the theory that firms with managers displaying entrepreneurial flair are more likely to achieve growth than firms with managers that do not.

8.1.1.12 Downie's "Transfer Mechanism"

Competition from new entrants and other rivals, as elaborated upon by Downie's (1958) "transfer mechanism" in which successful firms come to dominate an industry through increased production efficiency and acquisition of weaker rivals, had some support in the survey results. In the plastics supply sector, Silleck Mouldings achieved growth through this mechanism and it seemed to be especially relevant in the oil and gas related sector. With the financial services sector, it was less in evidence because being a service sector in which marketing was generally a low key affair (*mainly with the accountancy practices and brokerages*), firms found it difficult to ascertain what their rivals were up to and customers had little basis for discriminating between the quality of services offered by the various firms in the sector. With all of the firms surveyed, there was a weak association between growth and the strength of competition faced, although with the financial services firms, it was perceived as being highly localised within Glasgow.

8.1.1.13 Marris' Economic Theory of Managerial Capitalism

Marris' (1966) view that growth objectives of management will depend on the form of ownership a company (*i.e. employed managements are more highly motivated to pursue growth than are entrepreneurs and owner-managers who tend to pursue profit maximisation*), appeared to be supported by the postal survey results,

albeit weakly, with growth apparently more likely to be associated with firms employing managers than those that were owner-managed. The survey results suggested that Marris (1966) overlooks the fact that many professionally managed firms got to where they are because of the initial success they achieved during the early phase of their development as owner-managed businesses. With many of the case studies examined in the plastics supply and oil and gas related sectors of successful growth firms, company histories indicated owner-managers and entrepreneurs to be just as highly motivated towards achieving growth as their professional managerial counterparts. The reasons that the enthusiasm of owner-managers did not translate into long term growth with them at the 'managerial helm' of their companies, had more to do with constraints of finance and administrative difficulties than the 'growth' ethos being fundamentally different between owner-managers and professional managers as Marris would maintain.

8.1.1.14 Penrose's "Managerial Potential" Approach

Penrose's (1959) theory that firm growth will be dependent on the availability of managerial services for strategic and operational planning had a weak association with growth in the plastics supply and oil and gas related sectors. All firms in the oil and gas related sector considered good management to be important to their growth prospects and each firm believed themselves to be well-managed. Professional management seemed to be much more crucial to a firm's success amongst the technologically sophisticated firms of the oil and gas related sector and the accountancy practices, insurance/assurance firms and brokerages of the financial services sector, than with the relatively low technology firms of the plastics supply sector.

8.1.1.15 The "Value-Driven" Corporate Culture Model

Peters' and Waterman Jnr.'s (1982) "value-driven" corporate culture model which describes successful companies to be those where there is a clear set of guiding principles underlying all of the firm's activities, was only strongly evident amongst the case studies examined in the oil and gas related sector. All of the case study firms examined in the oil and gas related sector gave the impression that they had a distinct corporate culture and one company, Rockwater had gone so far as to write down its "mission statement" and distribute it amongst all its employees. However, in the oil and gas related industry, there was a sentiment expressed by many of the growth firms that the products and services that they produced were the equal of anything that their rivals produced in the world, and so employees tended to be very

loyal to the company because of pride in their work. By contrast, "value-driven" corporate cultures amongst plastics supply companies was rare because of the menial nature of much of the employment, resulting in relatively high rates of staff turnover amongst low manual skilled employees. Amongst the financial services sector case studies, a "value-driven" corporate culture only seemed to be evident amongst the larger accountancy practices and the assurance company, but it was considerably weaker than in the large oil and gas related companies. The case studies did seem to suggest that a "value-driven" corporate model needs a critical mass of employees (*usually 100 as a minimum*), and significant, visible market penetration (*at least a 10% market share*), before it can be thought of as a driving force in company growth.

8.1.1.16 The Stage Models

The stage model approaches to company growth, most usefully typified in Flamholtz's (1990) work, stresses that the main barrier to growth that many firms face comes from successfully making the transition from a small owner-managed business to a professionally managed firm (*i.e. where ownership is separated from management decision making and professional managers are employed to run the business*). More than half of the firms in the postal survey (*ranging from 56% to 61% for each sector*), were owner-managed and the analysis indicated that for the plastics supply and oil and gas related sectors, growth was associated with a firm being professionally managed. The case studies would seem to support Flamholtz's view that a firm needs to have a professional management team if it is to successfully pursue a growth strategy. Of the 11 manufacturing case study firms, only Forbes Plastics remained owner-managed and it was the smallest of the case study firms in this category with only 53 full-time employees. Eight of the 11 manufacturing based case study firms behaved according to Flamholtz's stage model, in that they achieved long term growth by making a successful transition from being an owner-managed business to a professionally managed business. In the financial services sector, only the brokerage firm and assurance company conformed to Flamholtz's stage model. The accountancy practices were all run on a professional partnership basis whereby a team of professional managers share ownership of the practice, no matter how large it happens to be.

8.1.1.17 Product/Market Development Model

The model of Gibb and Davies (1989) and Resnik's (1988) work, emphasized the importance of management's problem solving capability as being the key to a firm achieving growth. The importance of the issue varied somewhat

amongst the plastics supply case study firms, but was crucial in the oil and gas related and financial services case studies, where management time was largely occupied with solving highly technical problems associated with the uniqueness of each business contract. In the plastics supply sector, the mass produced nature of product runs and the relatively low skill input required in manufacturing the products, tended to be much less demanding on management skills, when compared with the other two sectors.

8.1.1.18 Production-Oriented Approach

O'Farrell and Hitchens' (1988a and 1988b) conceptualisation of growth in small manufacturing firms as being purely about overcoming production related difficulties (*i.e. ensuring that the quality of the product is acceptable and delivered on time to the customer*), was weakly supported amongst the case studies in the plastics supply sector and strongly supported by the case studies in the oil and gas related sector. In the plastics supply sector, since firms tended to use imported "off-the-shelf" production equipment, already tried and proven in foreign markets, they experienced little difficulty in producing products of competitive quality. Product quality was much more of an issue amongst firms in the oil and gas related sector, mainly because their products had to be sufficiently robust to perform reliably while meeting stringent safety standards, in some of the harshest environments ever likely to be encountered on earth. The oil and gas related case studies were able to make the transition from small to larger firms, largely because of their success in having competitive advantage in product quality, while being able to deliver on schedule and on budget.

8.1.1.19 Social Networking

The survey results indicated that most firms had engaged in networking activities with persons external to the firm at one time or another during the past three years (1988-1991). Internal networking behaviour only seemed to contribute positively to a firm's growth prospects amongst the case studies in the oil and gas related and financial services sectors, where there was a high level of interaction amongst the professional and skilled employees necessary to deliver their products/services effectively. Only one of the plastics supply case studies, Forbes Plastics talked of networking within the firm between management and employees as being significant in the production process. With the other case studies in the plastics supply sector, management interaction with employees was of a very limited nature.

The research question regarding which elements in an entrepreneur's social and business networks are most important to a firm's growth prospects could not be effectively researched in the oil and gas related and financial services sectors because the current management of the case study firms were too far removed from the founders of the firms to be able to effectively relate about how they may have utilised such networks. However, two of the case studies in the plastics supply sector, Polbeth and Forbes, were still managed by their original founders. In the case of Polbeth, the founders made significant use of their business and social networks developed out of their extensive industry related experience in order to procure the necessary financial and knowledge resources to start-up their business. With Forbes, business networking with suppliers and customers was seen as having been one of the most positive contributions to their firm's growth.

The survey results suggested that strong social networking (*i.e. links with family, friends and colleagues*) could not be equated with growth firms.

The issue of whether the characteristics (*e.g. age, education and sex*) of the owner-manager/entrepreneur have a bearing on the extent to which social and business networks were used, could not be proven because data from the postal surveys and case studies were insufficient to be subjected to detailed analysis. Nevertheless, the case study firms of Forbes and Polbeth did suggest that owner-managers/entrepreneurs of growing businesses are dynamic, outgoing individuals, with considerable experience in their field of business, who make the best possible use of the business networks available to them.

Professionally managed, medium-sized firms (*with 50 or more employees*), were not found to make much use of social networking. Business networking, in the form of links with customers, suppliers, banks accountants, management consultants, financial institutions and various government agencies, was apparent amongst all the surveyed firms. In both the plastics supply and oil and gas related sectors, the main sources of advice/assistance were: Scottish Enterprise, banks and accountants. Only advice/assistance from banks was found to have been associated with firm growth in the plastics supply sector. In the oil and gas related sector, useful advice/assistance from banks, management consultants and the Enterprise Initiative were found to be weakly associated with firm growth. The case studies in this sector, did however stress the need to liaise very carefully with their customers, particularly the oil and gas operators engaged in exploration and production

activities in the North Sea. In the financial services sector, business networking was mainly with banks and their customers. About a third of firms had, however, sought advice/assistance from accountants (*financial services firms other than accountancy practices*) and Scottish Enterprise. Surprisingly, the usefulness of advice/assistance from banks, Scottish Enterprise and universities and colleges all had strong associations with growth in the financial services sector, suggesting that networking did have a positive effect in this sector.

8.1.1.20 PA Consulting Group's Model of Competitive Manufacturing Strategy

The PA Consulting Group model (1990) did have some applicability to firms in the plastics supply and oil and gas related sectors, but limited applicability to firms in the financial services sector. The main "drivers" in the oil and gas related sector were found to be economic, the environment, market forces and technology. With the plastics supply sector, there was less emphasis on the environment and technology "drivers" and stronger emphasis on the economic and marketing "drivers".

The strategies that competitive firms pursued in the two manufacturing sectors examined did not approach the complexity suggested as necessary in the PA Consulting Group's model for a competitive manufacturing firm, which assumes that a typical firm would have its own research and development capability and a technically sophisticated final product/s requiring complex sub-assembly production lines as might be expected in car manufacture for example. Three of the oil and gas related case studies may have fitted that pattern, but the respective managers of these firms did not view their business strategies as being as convoluted as those suggested in the PA Consulting Group's model. For example, the main strategies amongst the oil and gas related case studies were: to diversify into other markets and into related products; to strengthen their market share of North Sea oil and gas industry; and to work closely with customers, tailoring products/services exactly to their needs. In the plastics supply sector, the main concerns of the case study growth firms were to have good operational management and to maximise production efficiency.

The research into Scotland's plastics supply, Aberdeen's oil and gas related and Glasgow's financial services sectors was primarily designed to investigate the applicability of Porter's model of competitive advantage (1990) for explaining growth in these sectors. However, it has helped to cast some light on the research questions and issues raised in the literature review, despite the fact that the survey

TABLE 8.1:
RESEARCH QUESTIONS IN LITERATURE REVIEW (POSTAL SURVEY)

ISSUE OR RESEARCH QUESTION RAISED IN CHAPTER 4	Plastics	Oil&Gas	Finance
1.Importance of profits maximisation to firm's management (Neoclassical economic theory)	2	1	1
2.Importance of maximised production efficiency (Neoclassical economic theory)	1	1	2
3.Motivations of the owner-management/entrepreneur and management (Entrepreneurial theory)	2	2	2
4.The importance of competition from new entrants and other rivals (Downie)	3	2	3 (local)
5.The importance of professional management, independent of the firm's owner/s to a firm's growth prospects. (Marris)	2	2	4
6.The importance of good management to a firm's growth prospects. (Penrose)	2	1	1
7.The importance of a strong 'value-driven' company culture in achieving growth. (Peters & Waterman Jnr.)	3	2	2
8.The significance of the problem for small owner-managed or entrepreneurially-run firms in making the transition to a professionally managed firm as a constraint to growth. (Flamholtz)	3	2	2
9.The importance of management's problem solving capability to a firm's growth prospects. (Gibb & Scott; Resnik)	3	1	1
10.The importance of production related issues for small firms in trying to remain competitive. (O'Farrell & Hitchens)	3	2	3
11.The elements in an entrepreneur's social and business networks that are most important to a firm's growth prospects. (Networking theory)	2	2	3
12.Equating a social network with a successful growing business.	4	5	3
13.Whether the characteristics of the owner-manager/entrepreneur have a bearing on the extent to which social and business networks are used.	3	3	4
14.The importance of social/business networking to firms with a growth strategy that are professionally managed and/or in the medium size category	3	3	4
15.The importance of economic factors, demography and lifestyles, the environment, market factors and technology in producing external threats that influence a company's competitive strategy through the creation of market, product and service opportunities.	2	2	4
16.The importance of the strategies outlined in PA Consulting Group's model to growth: the new product process; the rational factory; integrated logistics; integrated organisation; and integrated information (PA Consulting Group: refer to chapter 3 for elaboration of strategies)	3	2	5

KEY: Subjective rating based on survey results ranging from 1=very important down to 5=not important

design was not specifically designed to answer these general questions relating to firm growth. The survey results would seem to indicate that almost all of the concepts of firm growth reviewed in the literature review have valid points to make about the growth process in firms, but that no theory/model/approach in isolation is sufficient to account for why some firms achieve growth and others do not. The difficulty in refuting any particular theory would seem to reaffirm the appropriateness of the holistic approach taken by Porter in his model. The next section will now discuss how

successful Porter's model has been in explaining growth for firms in the three sectors surveyed.

8.1.2 Porter's Model: a Suitable Conceptual Framework for Explaining Growth in Small-Medium Firms?

Chapter 4 concluded that Porter's (1990) model was potentially the most suitable conceptual and analytical framework for explaining and understanding growth in small-medium firms when compared with all the theories/models/approaches discussed in the literature review. The holistic approach that is the hallmark of Porter's model appeared to confer on it useful explanatory powers and allowed it to be capable of taking into account a wide range of possible growth determinants, in contrast to many of the other theories/models/approaches assessed, which tended to confine themselves to only a few aspects of a firm's attributes.

The fieldwork results on the three sectors researched and discussed at length in chapters 5, 6 and 7, did not seem to support Porter's model at the level of quantitative analysis employed. The holistic nature of Porter's model means that it contains many interacting variables. Part of the problem with the level of analysis employed is that chi-squared scores of cross-tabulated data do not demonstrate causality with growth, but rather examine the probability that an association may exist between a single variable and growth. Clearly, it would seem that a more sophisticated and more appropriate level of statistical analysis is required, as was pointed out in section 4.4.2, if Porter's model is to be thoroughly assessed using statistical techniques. This would involve factor analysis to reduce the large number of variables examined in the postal surveys within the context of Porter's model and then the application of multiple regression analysis of the key variables obtained using factor analysis.

There are two main limitations that the would-be analyst must take into account in applying Porter's model as a conceptual framework of firm growth. The first limitation regards the survey methodology adopted in using Porter's model and the second limitation is that the model has to be adapted to take into account the peculiarities of each sector.

The survey findings demonstrated that qualitative survey material gleaned through in-depth company case studies and historical analysis of an industry sector's development, are much more suited to explaining growth than the simple

quantitative analysis drawn from tests for statistical significance of associations obtained by crosstabulating the growth performance of the surveyed firms with various factors that may be associated with firm growth. For example, in the plastics supply sector, only three out of 60 factors had an association with growth at the 0.05 level of significance or better; with the oil and gas related sector, it was 5 out of 59 factors; and with the financial services sector, it was 6 out of 55 factors. Unfortunately, the efficacy of the case study approach cannot be assessed in such a manner, because it depends on the subjective assessments of the analyst. However, from the simple statistical analysis of the survey results, it seems that Porter's model comes across as more convincing when company case study material is combined with historical data for the industry sector concerned. This is not to say that the quantitative analysis pursued in this research was fruitless. The quantitative analysis did draw attention to what appeared to be the main issues of importance to growth firms in each of the surveyed sectors. The major difficulty with the quantitative approach in this research has stemmed from attempting to quantify the subjective assessments of managers' responses to the importance of various factors to their firms' development. Another problem that may have arisen from the postal survey is that managers may have interpreted particular questions differently. This could occur if a question in the postal questionnaire was unclear or unambiguous. On the plus side, the postal surveys were very helpful in determining the overall dynamics of firms in each sector in a way that would be impractical with the case study approach, where a sector has a large population of firms. The postal surveys were valuable in drawing attention to the major concerns in each sector and in identifying suitable growth firms worthy of in-depth analysis.

In using Porter's model to understand firm growth in each of the three sectors, the research findings demonstrated the other limitation to Porter's model, which is that it needs to be adapted to take into account each sector's peculiarities. For example, from the qualitative analysis, the main components of Porter's model that seem applicable to the plastics supply sector appear to be: factor conditions, particularly during the start-up phase of firms; Scottish demand conditions; and strong rivalry on the basis of competing on cost. The role of entrepreneurship and government assistance were greatly underrated by Porter's model in this sector. On an a priori basis, Aberdeen's oil and gas related sector seemed to provide the best support for Porter's model of the three sectors researched, mainly because of industry clustering and a competitive environment of related and supporting industries around the port of Aberdeen for the North Sea oil and gas operators. With this sector, the

case study material seemed to suggest that all of the components of Porter's model were active. The model appeared capable of explaining how growth and competitive advantage might have occurred in this sector, although factor conditions and demand conditions stand out as being the main driving forces of growth.

In applying Porter's model to Glasgow's financial services sector, the analysis was somewhat hampered by the lack of full cooperation from firms. The qualitative findings seemed to indicate that demand conditions were the key driving force in the sector's growth. General observation seemed to imply that factor conditions were important in attracting firms to Glasgow, but many firms considered Glasgow's city centre to be the most logical business location from which to serve the large population in the Glasgow conurbation and therefore had comparatively little to do with favourable factor conditions. Intuitively, clustering of financial services would seem to have been important to growth in the sector, but the case studies did not view the clustering of financial service activities in Glasgow to have been a determinant in their growth because in the case of accountancy practices, most of their activities were self-contained (*i.e. they were not sub-contracted out*).

The discussion will now examine in detail the applicability of each component of Porter's model to the sectors researched. Table 8.2 assesses the applicability of Porter's model as an explanatory framework for growth for each of the three sectors surveyed. It details the relative importance of each of the components of Porter's model in contributing to growth in each sector based on subjective assessments of the case study material, postal survey results and published media reports.

TABLE 8.2:
ASSESSMENT OF PORTER'S MODEL AS AN EXPLANATORY FRAMEWORK FOR GROWTH

ISSUE OR RESEARCH QUESTION RAISED IN CHAPTER 4 WITH REGARD TO PORTER'S MODEL	Plastics	Oil&Gas	Finance
1.Relative importance of determinants in Porter's model			
A.Factor conditions	2	1	3
B.Demand conditions	1	1	1
C.Firm strategy	3	1	2
C.Firm structure	2	2	3
C.Firm rivalry	3	2	3
D.Local related industries	2	1	3
D.Local supplier industries	5	3	5
2.Importance of "chance" events to firm growth	3	2	5
3.Importance of government in firm growth	2	3	4
4.The importance of industry clustering to firm growth.	4	1	1

KEY: Subjective rating based on survey results (case study material and media reports), ranging from 1=very important down to 5=not important

8.1.2.1 Factor conditions

From the case study material, factor conditions appeared to be a determinant of growth in each of the surveyed sectors. However, the quantitative analysis of the postal surveys did not demonstrate support for this component of Porter's model. Nevertheless, there were some interesting associations with growth. For example, the factor condition of "securing government grants" had the strongest association with firm growth in both the plastics supply and oil and gas related sectors, both of which were principally manufacturing based sectors. Being close to markets in both manufacturing sectors appeared to also be associated with firm growth. The other factor conditions associated with growth in the oil and gas related sector were adequate secondary and higher education facilities in Aberdeen, adequate telecommunications and securing suitable premises. In Glasgow's financial services sector, growth firms appeared to focus on Glasgow's factor conditions as constraining their growth, particularly with regard to the difficulty in securing an adequate supply of skilled labour and problems with the suitability of the service infrastructure (*mainly the local road system*) and services.

From the case studies, the factor conditions that stood out as being critical to a firm's early development and subsequent growth, was that of capital resources. In the plastics supply sector, low cost, plentiful supplies of labour were viewed as the other important factor condition that can influence a firm's growth prospects. In the oil and gas related sector, the availability of skilled labour, Aberdeen's port facility and its convenient location to the UK's oil and gas fields in the North Sea, and Aberdeen's education and training facilities, were factor conditions that contributed strongly to the success of firms. In the financial services sector, the case studies took favourable factor conditions of Glasgow's city centre for granted. There was some scepticism expressed by managers of the case study firms that factor conditions were an important determinant of their growth, mainly because they really had little choice of locations in deciding where to locate to best serve Glasgow's market. In this respect, Glasgow was not considered to have any superiority over similarly sized cities, and besides, no matter how poor Glasgow's factor conditions happened to be, only Glasgow's city centre would have been in the right location to adequately serve Glasgow's market. However, it was suggested by some of the case studies that factor conditions would have had an important role to play in a firm's development during its start-up phase, but since none of these case studies had their

company' founder/s available for comment, it was not possible to investigate this point more thoroughly.

It is easy to infer that in the absence of favourable factor conditions, growth in the plastics supply and oil and gas related sectors may never have occurred, whereas in the financial services sector, favourable factor conditions are of secondary importance to there being a large, economically active urban population in Glasgow to provide the necessary business. Paradoxically, factor conditions would have been crucial in the urban growth of Glasgow during the 19th century, but this would probably seem to be a remote determinant of growth for firms in the financial services sector that has been established since then.

8.1.2.2 Demand conditions

The quantitative analysis of the postal survey results did not support the "demand conditions" component of Porter's model. However, the quantitative analysis did produce some interesting associations with growth. In the oil and gas related sector, the two factors that were found to be most strongly associated with growth were: "demanding customers who settle for nothing less than top quality products"; and "finding suitable market niche/s for products". In the plastics supply sector, the only factor found to be strongly associated with growth was "strong demand from export markets". There were no demand condition factors found to be strongly associated with growth in the financial services sector, even though the case study firms indicated this to be the most relevant determinant of growth to their circumstances.

The case studies in the plastics supply sector were heavily dependent on demand, principally in the Scottish market, but also in the UK market to a limited extent. None of the case studies in this sector saw any potential for growth through export markets. This lack of thrust into international markets would be indicative of an industry that has little competitive advantage internationally and therefore limited scope for long-term growth. Indeed, the concern with the Scottish plastics supply sector is that although local demand conditions are strong, they have induced an unhealthy state of dependency on a very small market with little long-term potential for growth.

The case studies in Aberdeen's oil and gas related sector were responding to demand condition themes idealised in Porter's model as being necessary for an industry to achieve long-term international competitiveness and growth. These

demand condition themes were that: sophisticated and demanding customers (*i.e. the offshore oil and gas operators*) were forcing subcontractors (*i.e. the case studies*) to develop state-of-the-art subsea technology; and that home market buyers (*i.e. the offshore oil and gas operators operating in Aberdeen*) were anticipating buyer needs in other global markets. Although the case study firms still had their dominant markets in the UK, all except one had global ambitions and were actively pursuing markets in other offshore oil and gas provinces around the world.

The case studies in Glasgow's financial services sector, with the exception of Eternal Life, considered demand conditions to have been crucial to their firms' growth. They pointed to three themes emphasized in Porter's model regarding demand conditions as having contributed towards them achieving competitive advantage in a local context (*i.e. Glasgow*) which were: sophisticated and demanding buyers; a large number of independent local customers; and a growing local market. Unfortunately, like the plastics supply sector, dependency on the local market (*i.e. Scotland*) was even more extreme, particularly amongst the accountancy practices. None of the case studies had any ambitions to expand into overseas markets because of the practical difficulties in securing the necessary capital and the necessity to have strong local knowledge of commercial law and tax practices. It would therefore seem that further long-term growth in this sector can only be achieved if demand in the Scottish market increases or firms within the sector increase their market share.

Although the quantitative analysis of the postal survey results did not provide support for this component of Porter's model, the case studies did seem to indicate demand conditions as being important to firm growth in all three sectors. However, it was only in Aberdeen's oil and gas related sector that demand conditions were likely to lead to international competitive advantage being achieved. This is largely because of the need for subcontractors serving the oil and gas operators in the North Sea to come up with innovative technical solutions to cope with the difficult oil and gas exploration and production conditions encountered there, whilst ensuring that costs are kept internationally competitive. By comparison, the demand characteristics of the Scottish plastics supply and Glasgow's financial services sectors, are of a relatively parochial nature and seem unlikely to graduate into export markets no matter how saturated demand or intense local firm rivalries become.

8.1.2.3 Firm strategy, structure and rivalry

The quantitative analysis of the postal survey data did not provide support for the "firm strategy, structure and rivalry" component of Porter's model.

This component of Porter's model focuses on the internal dynamics and structure of the firms being studied in an industry sector but raises problems because it lumps together disparate components of firm characteristics, namely strategy, structure and rivalry. The survey results pointed to this being one of the more awkward features of Porter's model. Considering that the bulk of the literature reviewed focuses on firm behaviour and organisation, compressing all the literature in this area into a single determinant of firm and industry sector growth in Porter's four determinant model, somehow seems to understate the importance of this crucial area. It would perhaps have been more useful to understanding firm growth if Porter's model had treated firm strategy, structure and rivalry each as separate determinants of firm/industry sector growth, because as it stands it seems to be an oversimplification of a complex area that economists, management and business experts have grappled with since Adam Smith's time in trying to satisfactorily resolve.

Although the quantitative analysis of the postal survey results did not support this component of Porter's model, it did produce some interesting associations with growth. The postal survey indicated that the most important firm strategy/structure/rivalry issues associated with growth in the plastics supply sector were: having sufficient plant capacity; being able to maintain sufficient cash flow; and having sufficient management skills to plan, organize and manage growth. In the oil and gas related sector, the most important firm strategy/structure/rivalry issues focused on staff training, competition from imports and having sufficient production capability. In the financial services sector, the most important firm strategy/structure/rivalry issues that facilitated growth seemed to be due to superior management capability while poor staff training and a difficulty in attaining a high level of efficiency amongst employees constrained growth.

The case studies in all three sectors demonstrated the importance to growth of strong management with sustained commitment to their firms. Strong local rivalry in the plastics supply sector had forced companies to compete on cost, which had been somewhat destructive to the growth prospects of many firms, since demand is now static. In the oil and gas related sector, companies seemed to be competing on product differentiation, but were also being forced by the North Sea oil and gas

operators to compete on cost. With stagnant demand of late (*in 1992*), this has forced companies to introduce technical innovations in a bid to reduce costs, whilst maintaining production efficiency. Most of the case study firms considered themselves to be in their own market niche and therefore not subject to strong competition. The pressure to cut costs while increasing productivity was mainly from the offshore oil and gas operators, which behaved almost as a cartel for the purposes of reducing total subcontracting costs in the industry.

In the financial services sector, the case studies pointed to sustained management commitment and being motivated towards achieving growth, to have been the most important firm strategy/structure/rivalry factors contributing to their growth. Firms in this sector competed on cost as well as by offering differentiated products. Local competition was perceived to be important but difficult to quantify because of the difficulty in assessing the products of rivals (*except in the case of insurance/assurance companies and fund managements*).

The case study analysis would seem to indicate that the ease of applying Porter's model might have been improved if this determinant had been treated as three separate determinants because of the disparate nature of firm strategy, structure and rivalry issues.

8.1.2.4 Related and supporting industries

The quantitative analysis of the postal survey results did not provide support for the "related and supporting industries" component of Porter's model. The presence of a local concentration of related and supporting industries, or what Porter terms to be "clustering", as being a determinant of firm and sector growth, was only noticeably evident in Aberdeen's oil and gas related sector from the case study material. It was not found to be a significant determinant of industry or firm growth in the plastics supply sector because it was not important for firms to be physically close to their suppliers and being close to their customers was not critically important as long as they remained located within the Central Belt of Scotland and easily accessible to the motorway network. Nevertheless, the postal survey did indicate that growth in the plastics supply sector may have been associated with the importance of "companies that are involved in the production of products that are complementary to your company's products". In Glasgow's financial services sector, it was not a determinant of firm growth because of the self-sufficient nature of many financial services businesses which seemed to have little need for subcontracting out any of their

activities. Only investment brokers and fund managers engaged in subcontracting work and they tended to search the whole of the UK for opportunities rather than being dependent on the clustering of financial service activities in Glasgow for their subcontracting needs.

Argued from qualitative evidence, Porter's concept that a clustering of related and supporting industries can confer competitive advantage on an industry does appear to be appropriate and logical in explaining growth in Aberdeen's oil and gas related sector, but largely irrelevant in the other two sectors examined. From the survey results derived from the plastics supply and financial services sectors, it would seem inappropriate to treat a clustering of industries as being a determinant of firm or sectoral growth where subcontracting is limited and the final product does not involve complex sub-assemblies of products produced by different companies.

8.1.2.5 The role of "chance" or "random" events

Quantitative analysis of the postal survey results failed to provide support for the "chance" component of Porter's model. From the case study analysis, "chance" or "random" events did not have a significant impact on firm growth in the plastics supply or financial services sectors, unless one takes into account the phenomenon of entrepreneurial activity. The survey results strongly suggested that Porter's model is wrong to treat entrepreneurial activity as being a "chance" event, because in the case studies examined in all three sectors, entrepreneurs appeared to be the primary driving force in firm growth during the early development phase of firms. Entrepreneurs are probably more appropriately taken account of in the firm structure component of Porter's model. Important "chance" events in the oil and gas related sector that appeared to have an impact on firm growth prospects were invention and the discovery of the North Sea's oil and gas resources. In the financial services sector, few "chance" events had any impact on growth in the sector, except possibly in the case of technical innovations in information technology resulting in improvements in the efficiency of firms.

Apart from the misclassification of entrepreneurial actions as a "chance" event, the case study analysis seemed to indicate that this component of Porter's model is usefully represented by Porter as being an influencing condition on the other determinants of competitive advantage in an industry, and not a determinant in its own right.

8.1.2.6 The role of government policy

The quantitative analysis of the postal survey results did not provide support for this component of Porter's model. Government is considered to be an influencing condition on a firm's or an industry's competitive advantage, within the context of Porter's model. From the case study analysis, this seems to be an appropriate conceptualisation once an industry or a firm is established and its operational day-to-day management assumes a routine nature, but it greatly underestimates how crucial government advice and assistance can be to new firm start-ups. In the plastics supply sector, half of the case studies had considered government financial assistance to be critically important during the start-up phase of development. The case studies in the oil and gas related sector would not go so far as to say that government financial assistance had been useful in helping them to grow, but the fact that most had to turn to inward investors in order to finance their growth, suggests that government should perhaps play more of a role in improving Scotland's financial resources base, particularly if it wishes promising new local firms to remain as indigenous businesses. Government assistance through Scottish Enterprise only seemed to have made a positive influence on growth firms in the financial services sector, a surprising result given that Scottish Enterprise normally directs its assistance to manufacturing firms.

Although there did not appear to be much need for government assistance amongst the oil and gas related firms, it did seem that firms in the plastics supply sector could do with more assistance, particularly in starting-up and in trying to successfully make the transition from a small owner-managed business to a professionally managed firm. However, many of the case study firms across the three sectors researched, were of the opinion that government's main function should be to handle macro-economic matters in the economy, such as taxation, the cost of borrowing money, inflation and in controlling the supply of money.

8.2 ALTERNATIVE MODELS FOR EXPLAINING GROWTH IN THE SURVEYED SECTORS

The preceding section indicated that at the simple level the quantitative analysis was conducted (*i.e. chi-squared analysis of cross-tabulated data*), Porter's model (1990) does not appear to be relevant to the firms in the sectors studied. However, argued within the context of the qualitative research content gleaned from the case studies, Porter's model does appear to be a useful conceptualisation of firm growth in the three sectors researched, although it does suffer from some limitations,

namely that it is better employed using a qualitative survey methodology; that the history of the industry and its member firms needs to be known; and that the relative importance of each determinant will vary over time as firms in the industry are subjected to different external pressures and change internally to cope with those pressures. Another limitation with Porter's model, is that it has been designed as a conceptualisation of growth in an industry sector and not how a firm responds to the environment in which it finds itself.

This section will discuss how Porter's model can be improved to take into account some of the limitations alluded to in the previous section. It suggests a general model for explaining growth in a sector; a general model for explaining growth in a firm; and a model explaining growth in each of the surveyed sectors. These models are all conceptualisations of growth based on Porter's model, but attempt to improve upon them to better reflect the importance of government policy in an industry's development and separate out competition as a determinant distinct from other firm related issues in Porter's "diamond of competitive advantage".

The loose conceptual nature of Porter's model lends itself considerable flexibility in explaining growth in an industry or firm because it is capable of taking into account a wide range of possible growth determinants. This is in direct contrast to many of the other theories/models/approaches critically reviewed in chapters 2 and 3 that tended to concentrate on only one or a few key determinants of firm growth. The holistic approach of Porter's model is what makes it such a powerful explanatory tool of growth, because it integrates all of the possible factors that could conceivably impact on a firm's or industry's potential to achieve growth, without necessarily negating the value of other theories/models/approaches on firm growth discussed in the literature review. Unfortunately, critics might conclude that although the loose conceptual nature of Porter's model makes it very flexible in explaining growth in any firm and in any sector, it is also the source of its most significant weakness, which is that it lacks a clear focus as to what is the key driving force in an industry's attainment of competitive advantage. The research findings and analysis earlier have shown that in testing the validity of Porter's model, it comes across too much like a "shopping-list" of factors and that usually only a few of Porter's "determinants of competitive advantage" are active at any particular time. Porter (1990, pp173-174) insists however, that there is a clear driving force in his "diamond of competitive advantage" which is that fierce local competition within a geographical clustering of an industry,

leads to further investment and this in turn leads to innovation and upgrading of the industry's whole "diamond of competitive advantage".

The broad remit of Porter's model allowing it to be applied to any firm in any sector of the economy accounts for its apparent lack of focus. It is left up to the analyst to do the research into a firm's or an industry sector's background in order to determine exactly what determinants are operating and facilitating growth in the industry or firm concerned. Therefore Porter's model should be seen as a starting point in the research process into why an industry or firm is successful, not a specific explanation of growth for a particular firm or industry. The model provides a useful 'checklist' of factors to be considered in any analysis into why a firm or industry sector is successful. At the end of the day, it is up to the analyst to adapt Porter's model to the peculiarities of the firm or industry sector being investigated, and not to accept it as an end in itself. With this point in mind, three models have been developed, one for each sector researched, to conceptualise how each sector has developed over time within the context of the determinants of competitive advantage in Porter's model (*see figures 8.3, 8.4 and 8.5*).

8.2.1 A Model for Firm Growth

Porter's model is a sectoral based analytical approach. Although it can be easily substituted as a model for firm growth (*assuming that the aggregate experience of firms in a sector will be similar to that experienced by an individual firm in the sector*), this may not always be the case. For example, factor conditions could vary considerably for firms depending on the region that they are located in; demand conditions will vary according to the type of product a firm produces and the types of products that it believes it is competing against; and government assistance will vary by region. Competition and industry clustering are probably the only factors that can be assumed to be uniform across the whole of an industry sector and even these may vary if the spatial unit being analysed is large, such as over the whole of the UK.

Figure 8.1 is a model of firm growth adapted from Porter's model of competitive advantage which focuses on an industry sector. This model of firm growth also attempts to address some of the problems encountered in the survey research's testing of Porter's model by stressing government policy to have a much more proactive role in influencing a firm's propensity for growth and placing greater emphasis on the role of competition as being a determinant of growth in its own right.

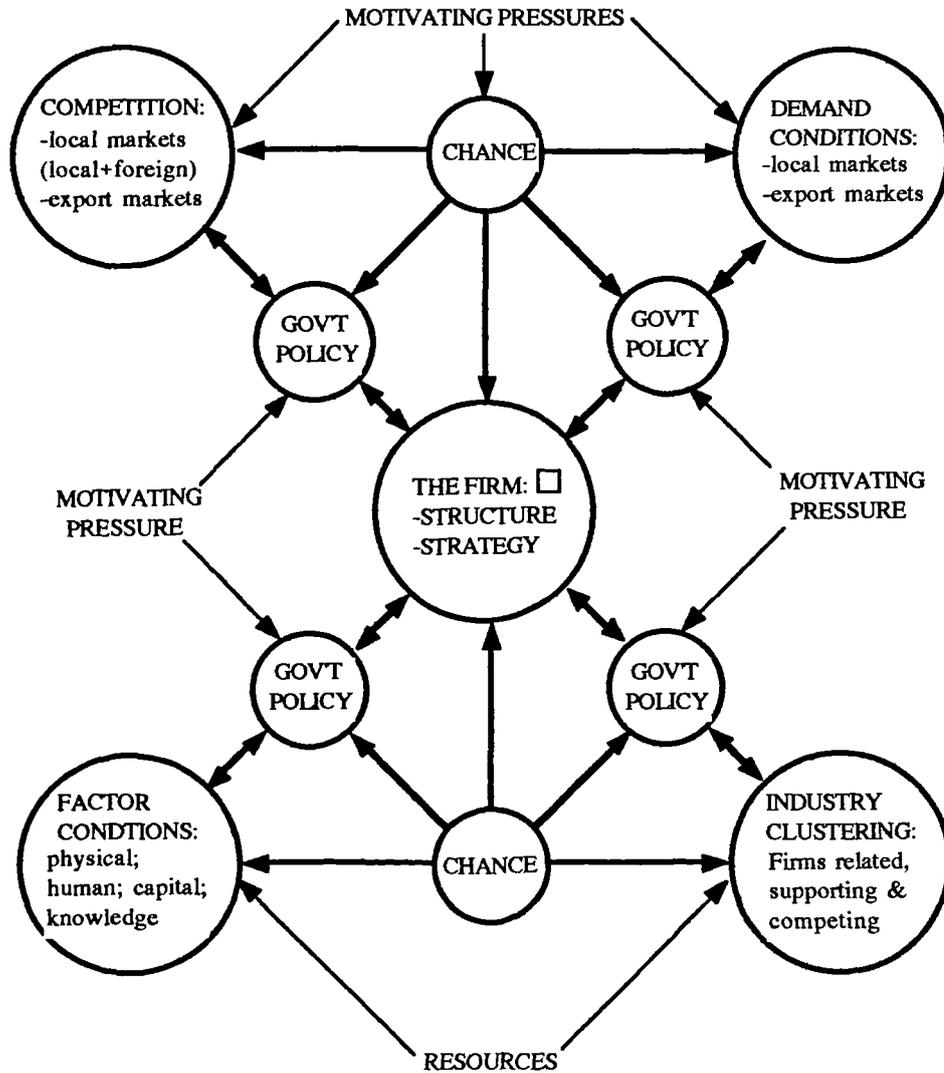
The model in figure 8.1 is a schematic representation of a firm in its external environment. The firm's environment is treated as being a source of motivating pressures and resources that the firm responds to in order to attain competitive advantage. These motivating pressures and resources produce a range of constraints and opportunities which help to determine a firm's growth potential. How well the firm performs will depend on whether the firm adopts a strategy that will make the best use of the resources it has access to and whether it responds appropriately to the motivating pressures of competition and demand.

There are five main determinants of firm growth external to the firm, and an influencing condition. The characteristics of the firm and how it behaves, is treated as being a determinant of growth internal to the firm. Two of the external determinants of growth, competition and demand conditions, are motivating pressures acting on the firm's management which can either constrain or promote a firm's development. Another two of these determinants of growth, factor conditions and industry clustering, are resources that the firm's management can either choose to exploit or ignore in facilitating its development. "Chance" or "random" events, a motivating pressure, is carried over from Porter's model as being an influencing condition on all the other determinants of growth and the firm itself, that can occur at any time. Government policy is treated as a determinant of firm growth, but one which as well as impacting on the firm directly, can modify and govern how the other external determinants of firm growth affect the firm. Depending on how active government policy is, this determinant can either amplify or diminish a firm's competitive advantage. This is why the determinant of government policy has been placed symbolically between the firm and each of the other main external determinants of firm growth. Two-way arrows are shown between government policy, the firm and the firm's external growth determinants to show that if government is doing its job properly, then it will monitor how each determinant is performing and how the firm responds to the determinant concerned to produce policies where feasible that improve that determinant. Section 8.4 will discuss in detail the types of policies that government should pursue to maximise a firm's potential to grow.

The factors pertaining to the firm that help to determine whether a firm acquires competitive advantage are: its internal resources (*i.e capital, labour skills and management*); the motivations of its management (*i.e. whether they desire growth or are content to be satisficers*); organisation structure (*i.e professional versus owner-management; a flat, team-based structure or a management hierarchy*); its product

design capabilities (*i.e. research and development*); its production capacities (*which depends on how under-utilised it happens to be*); and its profitability. A firm will be well-placed to achieve growth if it has abundant internal resources; its management desires growth; it is professionally managed; it has a flat, team-based management

FIGURE 8.1:
MODEL OF FIRM GROWTH ADAPTED FROM PORTER'S MODEL



-
- INTERNAL CHARACTERISTICS AND BEHAVIOUR OF FIRM:
 - *INTERNAL RESOURCES
 - *MANAGEMENT MOTIVATIONS
 - *ORGANISATION
 - *PRODUCT DESIGN CAPABILITIES
 - *PRODUCTION CAPACITIES
 - *PROFITABILITY

structure; it has product design capabilities that are able to create the products demanded in the market; it has sufficient production capacity to meet any likely increase in demand; and it is profitable.

Demand conditions are motivating pressures of growth if the firm's markets are expanding or its share of its markets is expanding. Motivating pressures of growth into export markets occurs if local consumers have pressured the firm to produce sophisticated products that are in demand world-wide; local consumers have anticipated consumer needs in export markets; a large home market has already created economies of scale; there has been rapid growth in the local market which has driven innovation; and the local market has become saturated at an early stage, thereby encouraging expansion into export markets. If there have been a number of international buyers in the local market, then this too may develop into demand from export markets as has happened in Aberdeen's oil and gas related sector.

Competition can be a motivating pressure for growth when there is strong local rivalry in a growing market. However, it can also be a destructive force for firms if demand is stagnant or declining, because it usually results in a weakening of profitability unless a firm has strong competitive advantage that allows it to expand its market share.

Industry clustering of related and supporting industries is a growth resource for firms. In the case of supporting industries, their proximity allows lower input costs, more potential for innovative ideas and an upgrading of products to occur. A clustering of related and supporting industries would result in competition amongst these industries to produce the best possible products for the purposes of securing the most sales, the benefits of which would flow through to all the contracting firms. The main value in a clustering of related firms would be from innovation into new ways of approaching problems. For example, in the oil and gas related industry, innovations in underwater remote controlled robot vehicles has meant that "Christmas-tree" valve manufacturers have now developed wellheads that can be placed directly on the seabed, thereby reducing the need for as many oil rig servicing platforms, on which the wellheads were traditionally located.

Factor conditions are a collection of growth resources for firms which include a locality's physical attributes (*e.g. the harbour in the case of Aberdeen*), available labour skills, capital and educational facilities. This part of the model is

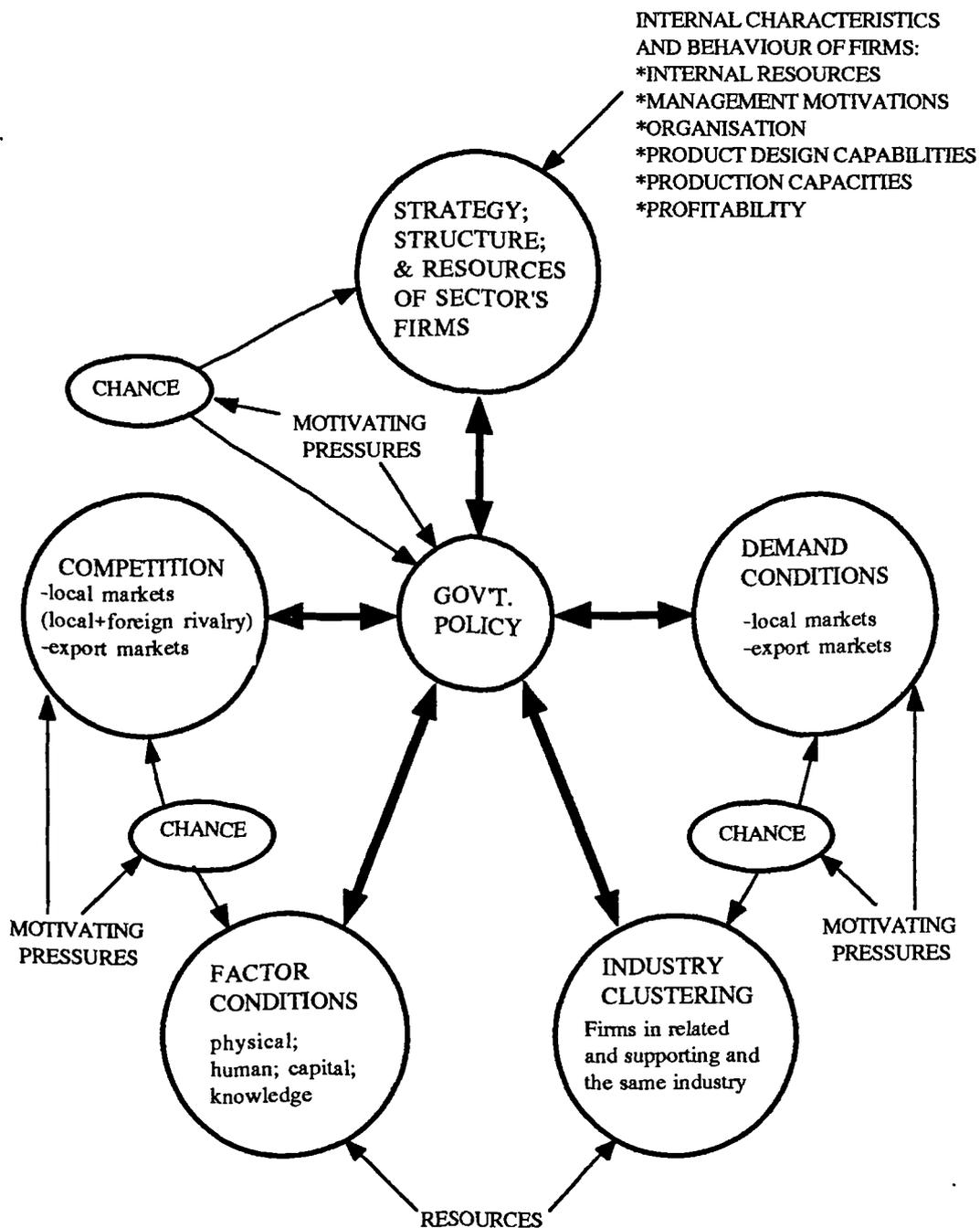
exactly the same as the "factor conditions" component of Porter's model (*see chapter 3*).

This model does not show the relative importance of each of the growth determinants to firm's growth prospects. These will change depending on the stage of development that the firm is at. For example, if the firm is just starting up, favourable factor conditions, demand conditions, government assistance and a highly motivated entrepreneurial style of management will be crucial to the firm's success. Once the firm is sufficiently established for its production regimes to become routine, strong competition and demand, industry clustering, a professional style of management, and government policy measures that stimulate demand, encourage competition and minimise factor input costs, become important to the firm's growth prospects. When the firm becomes mature and faces the prospects of decline, favourable factor conditions, demand conditions, industry clustering, and possibly government assistance, are crucial to the firm's survival if that requires diversification into other product areas in order to survive and possibly grow.

8.2.2 A Model for Industry Sectoral Growth

Figure 8.2 details a sectoral model of industry growth, adapted from Porter's model. It applies the same principles of the model developed in the preceding section to explain firm growth. The model incorporates the growth determinants of demand conditions, factor conditions, industry clustering (*of related and supporting industries*) and the influencing condition of "chance" or "random" events unadulterated from Porter's model, but stresses competition and the strategy, structure resources of the sector's firms as worthy of being treated as determinants in their own right. Government policy is designated as being the main determinant of growth in this model through regulation of competition, the behaviour of firms in the sector and demand conditions. Government policy also acts as a facilitator of favourable factor conditions and tries to create industry clusters. The motivating pressures for growth in an industry will come from the determinants of government policy, competition, demand conditions and the influencing condition of "chance" events. The resources for growth in the sector will depend on there being factor conditions in sufficient quantity and quality and a well functioning cluster of related and supporting industries. The characteristics and behaviour of firms in the sector will also be an important determinant of the sector's growth. This model is useful for determining the leverage points in a region's economy that government policy must act on if it wants to effectively promote growth in an industry.

**FIGURE 8.2:
MODEL OF FIRM SECTOR GROWTH**



Like Porter's model, this sectoral model (*and the firm model discussed in the previous section*), is best seen as a schematic arrangement for explaining and conceptualising growth in an industry. It provides a check-list of the possible growth factors likely to contribute to the sector's propensity to grow and is a useful starting point in developing customized models for specific industries faced with a unique set of circumstances, based on the main themes and principles laid down in this model.

The next section attempts to develop such models to explain the driving determinants of growth over three phases in each of the surveyed sectors: the start-up phase of the industry; its most recent growth phase; and the present phase (*or mature phase where growth is no longer evident*).

8.2.3 A Model of Growth in the Scottish Plastics Supply Sector

Figure 8.3 models growth in the Scottish plastics supply sector, using information gleaned from the survey fieldwork results and the conceptual framework developed in the last two sections.

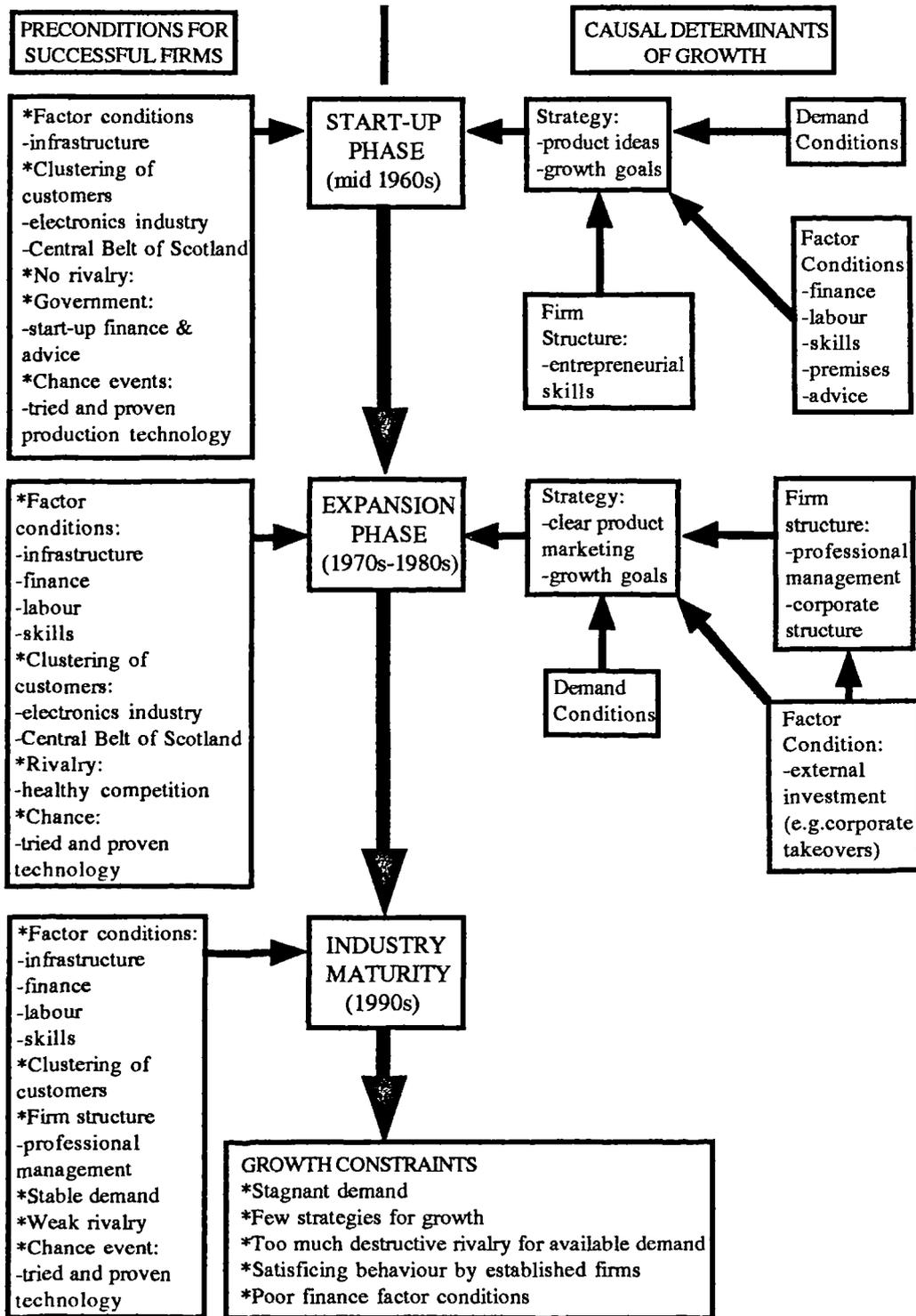
The right half of the diagram highlights the causal determinants of growth while the left half indicates the preconditions for firms to achieve successful growth for each particular phase of the industry's development.

The start-up phase of the industry occurred in the mid 1960s. The three main causal determinants of growth were: demand conditions; factor conditions; and firm structure. These three causal determinants of growth influenced management strategy in terms of generating product ideas (*mainly from demand conditions but also from entrepreneurial initiative*) and encouraged management to adopt ambitious growth goals. Demand conditions were a causal determinant because as plastic products became widely used in packaging material, consumer products, electrical goods and as a furnishing material, it quickly became apparent that the Scottish market was not being adequately served by local manufacturers. The relatively low value and large bulk of many plastic products required manufacturers to be close to their customers in order to minimise transport costs. Factor conditions were a causal determinant of growth because of abundant low cost semi-skilled labour (*due to the impacts of de-industrialisation in Scotland*); attractive start-up finance (*through regional development grants*); easily available premises in well-serviced industrial estates; and helpful business advice from local government agencies and the Scottish Office.

Firm structure was a causal determinant of growth, mainly because of entrepreneurial types willing to take the risks necessary to go into business for themselves.

Preconditions for successful firms, although not necessarily causal determinants of growth during the start-up phase of the industry, were: infrastructure; a clustering of customers with the Scottish electronics industry and in the Central Belt

FIGURE 8.3:
MODEL OF GROWTH IN THE SCOTTISH PLASTICS SUPPLY SECTOR



of Scotland generally; a lack of rivalry to begin with, thereby allowing infant firms to gain a market foothold; government start-up finance and business advice; and tried and proven production technology.

The industry has had a long and steady expansion phase during the late 1970s through to the late 1980s. During that phase of expansion, the causal determinants of growth were: strong demand from the Scottish electronics industry and general consumer demand for plastics products; a financial factor condition in the form of external investment (*either from other parts of the UK or from Japan or the USA*); and a professional form of company management, usually as part of a corporate structure in the case of the industry's larger firms, brought on by the conditions of accepting external investment. The impact of a professional management structure and external investment on firm strategy was generally to crystallize much clearer product marketing strategies and to formulate much more explicit growth goals.

Preconditions for successful firms during the expansion phase of the industry were: infrastructure; finance; low cost, semi-skilled labour; a convenient clustering of customers with the Scottish electronics industry and in the Central Belt of Scotland; healthy competition from numerous competitors; and tried and proven production technology.

The plastics supply sector entered into recession in early 1990 along with the rest of the UK economy. Whether or not this signifies the onset of the industry's mature phase is difficult to speculate, but all of the evidence gleaned from the case studies seemed to suggest that the industry had entered into a mature phase in which demand had levelled off and competition was impeding growth by eroding profitability. In this environment, the preconditions necessary for a firm to be successful include: the factor conditions of infrastructure, finance, labour and skills; a clustering of customers with the Scottish electronics industry and in the Central Belt of Scotland; stable demand; tried and proven technology; and most importantly weak rivalry, thereby allowing market share to be easily increased. Growth constraints for the industry's firms are: stagnant demand; a lack of management strategies for growth; destructive rivalry in the face of limited demand; satisficing behaviour by established firms; and poor local finance factor conditions.

8.2.4 A Model of Growth in Aberdeen's Oil and Gas Related Sector

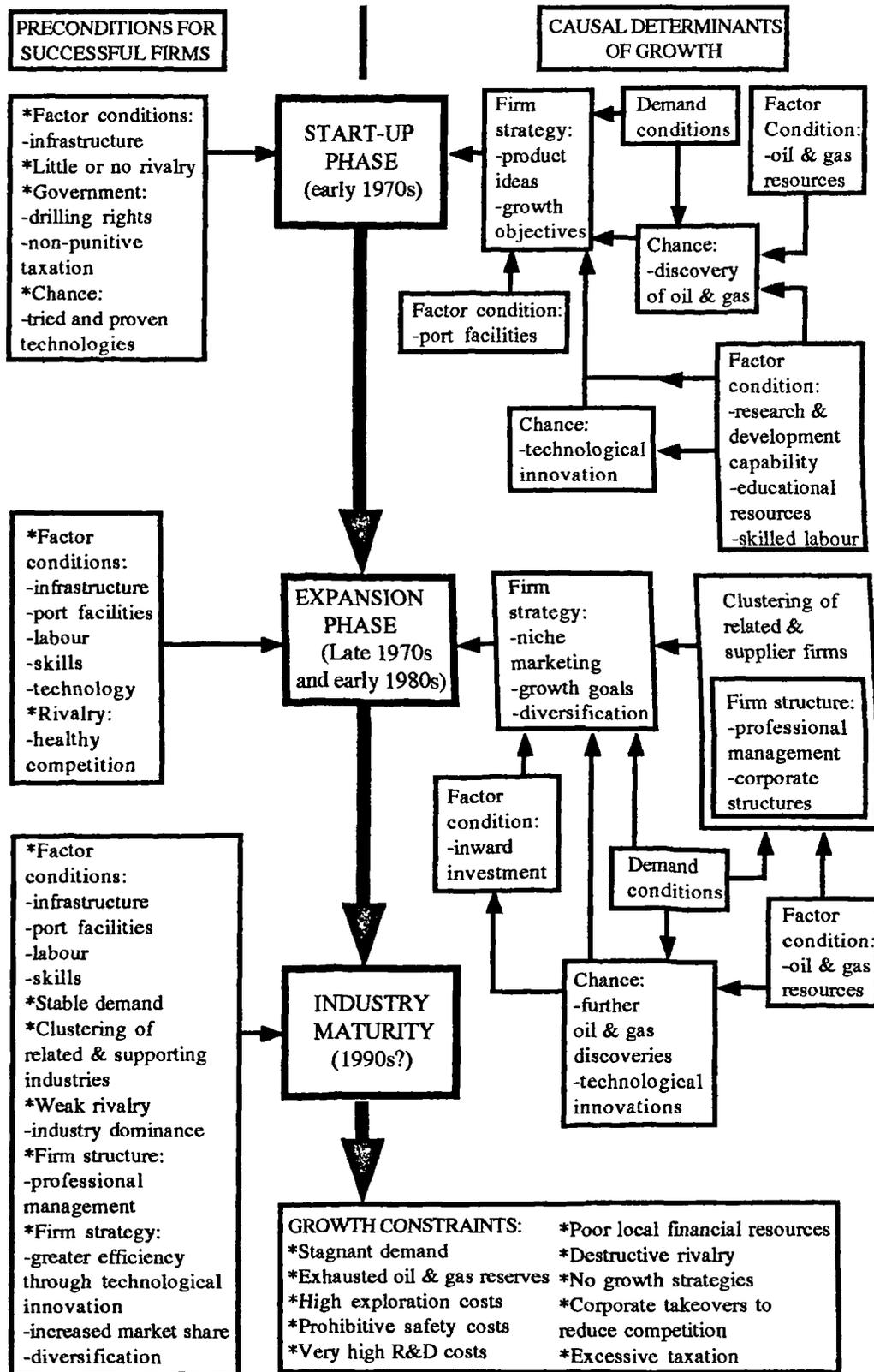
Figure 8.4 models growth in Aberdeen's oil and gas related sector based on the results of the survey work in chapter 6 and the conceptual framework outlined in the sectoral model detailed in figure 8.2.

The start-up phase of the industry occurred during the early 1970s after substantial oil and gas reserves were discovered in the North Sea during the late 1960s. The discovery of oil and gas resources in the North Sea was a "chance" event made possible by several key factor conditions and world demand conditions for petroleum products. The causal determinants of growth in the first instance were the oil and gas resources and to a lesser extent, the factor conditions of Aberdeen's facilities and its skilled labour. Demand conditions for oil and gas motivated the major oil companies to search for cheaper means of meeting the UK's energy requirements and in making the supply of its energy less dependent on potentially unreliable imports. The 1973 oil crisis was the catalyst that really stimulated development of the North Sea's resources. As the price of oil began to soar on world markets, pressure rapidly built up from both the markets and the government to secure a reliable supply of oil at a stable price, independent from OPEC's (*Organisation of Petroleum-Exporting Countries*) machinations.

The strategy of new firms starting up during the early 1970s, with regard to product ideas and growth objectives, was fuelled by the demand conditions precipitated by the 1973 oil crisis; the chance discovery of oil and gas resources in the North Sea; technological innovations made possible by favourable factor conditions; and the factor condition of Aberdeen's port facility for ocean-going vessels. The preconditions necessary for successful firms included Aberdeen's well-developed urban infrastructure; little or no competition to begin with; the use of many tried and proven technologies developed in America's offshore oil and gas provinces; a government will to allow rapid and effective development of the North Sea's resources through liberal drilling rights and non-punitive taxation policies for operators involved in the exploration and production of oil and gas.

The expansion phase of Aberdeen's oil and gas related sector, occurred during the late 1970s and early 1980s. However, it entered into a severe down-turn in 1986/87 but picked up again to reach a new peak in 1990. As with the start-up phase of the industry, the critical causal determinant of growth was the factor condition of the

FIGURE 8.4:
MODEL OF GROWTH IN ABERDEEN'S OIL AND GAS RELATED SECTOR



oil and gas resources. The fact that the offshore operators largely work out of Aberdeen and Peterhead, has resulted in a clustering of related and supplier firms in and around Aberdeen to exploit the business opportunities arising from their presence. As firms expanded, they adopted professional management structures or became part of large corporations by selling out to inward investors. Other causal determinants of growth in the sector, in terms of influencing firm strategy were: the demand condition of the oil and gas operators requiring subcontractors to be close to their main port of operations in Aberdeen; sophisticated and demanding product/service requirements from the oil and gas operators; inward investment; and the chance events of further oil and gas discoveries and technological innovations. The response of firms' strategies to these causal determinants of growth was to concentrate on niche marketing wherever possible; to diversify into as wide a range of products and services both within and outwith the industry as possible; and to set ambitious growth targets. Preconditions for successful firms during the expansion phases of the industry were: healthy competition; and the factor conditions of good infrastructure, port facilities, an abundant skilled workforce, and access to sophisticated technology.

The oil and gas related industry managed to forestall the impact of the UK recession almost until the start of 1992, helped somewhat by the effects of Gulf War in the Middle East in early 1991 which briefly sent oil prices rocketing. Apart from the impact of the recession, new oil and gas resources in the North Sea are becoming more expensive and difficult to extract. Although the Wood Group believes that the industry still has considerable growth potential and that it should be economically active until the middle of the 21st century (*The Scotsman, 16 April 1991*), the industry currently has the hallmarks of one entering maturity in which growth potential is negligible. In contrast to firms in the plastics supply sector, there is a much greater number of preconditions necessary for firms to remain successful and grow, mainly due to the high level of technological expertise, labour and management skills required in the industry. Important factor conditions include infrastructure, Aberdeen's port facilities and a skilled labour force. Stable demand is required so that firms can safely make long-term strategies. A clustering of related and supporting industries is crucial to the success of firms because of the high degree of interdependence between firms required to effectively deliver many of the products and services demanded by the oil and gas operators. With stagnant demand, successful companies require weak rivalry if increasing market share is the only growth option open to them. From the case studies such as the Wood Group and Rockwater, it seemed that these firms were aiming for market dominance. The survey results

showed that a professional management structure was an essential precondition for successful firms, due to the highly complex nature of some of the production/service tasks that they were involved in and also because of the need to ensure the highest standards of safety and quality are maintained. Firm strategy preconditions for successful firms include: greater efficiency through technological innovation; increasing market share; and diversification into related industries not so heavily dependent on the fortunes of the oil and gas related sector.

The growth constraints that the industry seemed to be facing were: stagnant demand; diminishing oil and gas reserves; high costs in exploration, in meeting safety requirements and in research and development; poor local financial resources; destructive rivalry undermining profitability; a lack of viable growth strategies amongst the industry's firms; corporate takeovers that reduce competition; and excessive taxation (*mainly through disallowing tax write-offs of exploration costs*). The key constraint to growth is a tapering off of demand for petroleum products in the UK economy which can be attributed to the UK recession of 1990-1992. However, if further reserves of oil and gas can be discovered in the North Sea, Aberdeen's oil and gas related sector could well enter into another phase of expansion given that it already seems to have a strong functioning clustering of related and supporting industries already serving the North Sea's oil and gas operators.

8.2.5 A Model of Growth in Glasgow's Financial Services Sector

The model in figure 8.5 models growth in Glasgow's financial services sector based on the conceptual framework set out in the sectoral model detailed in figure 8.2 and the survey results detailed in chapter 7.

The financial services sector of Glasgow's economy is well established, having played an important part in the city's economy from the late 19th century. The start-up phase of the sector in the latter half of the 19th century was driven by three main causal determinants: factor conditions; a number of "chance" events; and government policy. The key factor conditions can be thought of as being synonymous with the determinants of Glasgow's industrialisation, because it is the growth of Glasgow as an urban conurbation that provided the wealth and critical mass of population that created the markets necessary for Glasgow's financial services sector to succeed. These factor conditions were: plentiful supplies of coal and iron ore; the sheltered waterways provided by the Firth of Clyde and the Clyde River; the

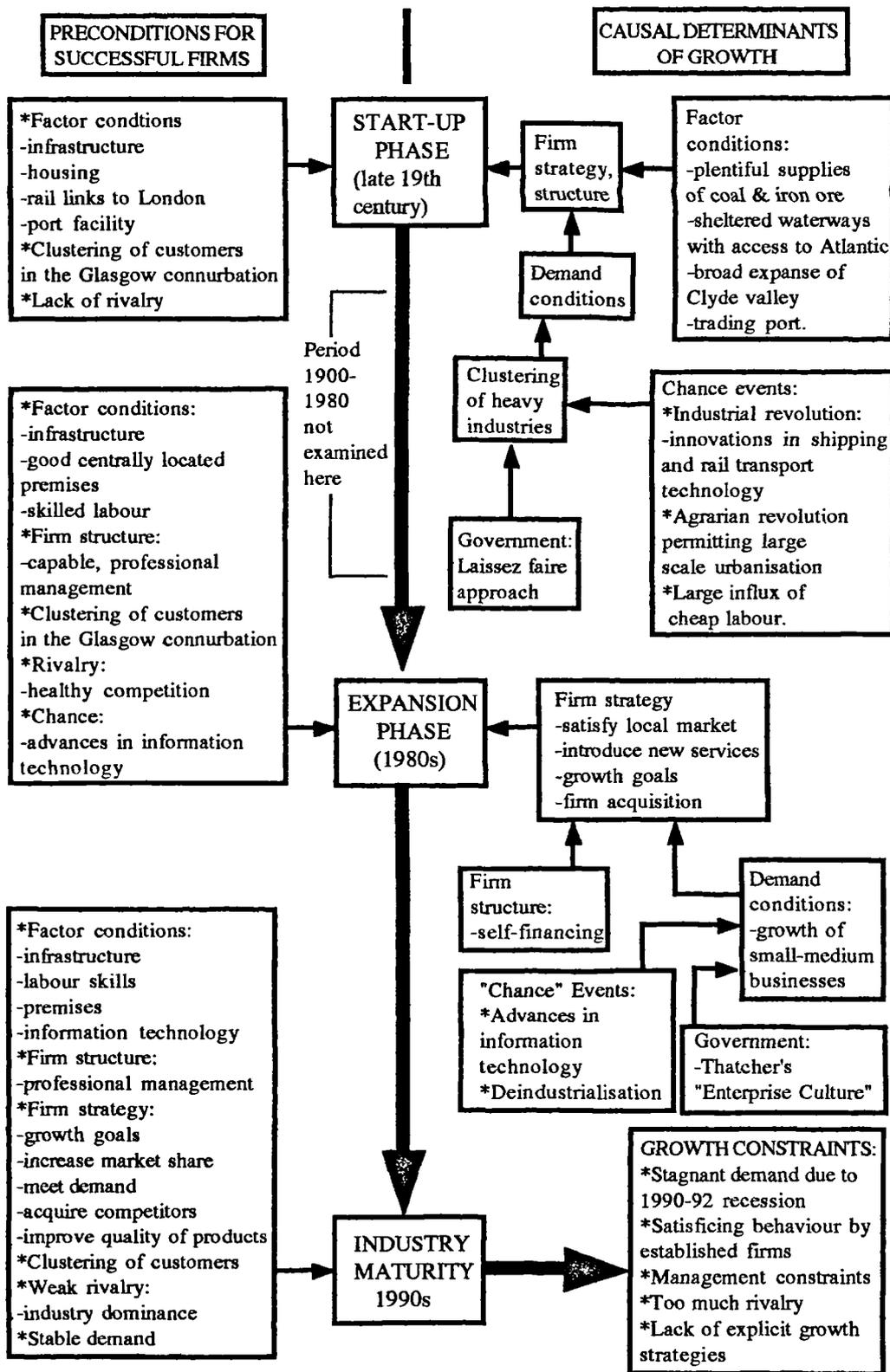
broad and largely level expanse of the Clyde valley which easily facilitated urban development; and Glasgow's success as a trading port. Government's laissez faire approach encouraged innovative financial services to develop and minimised any impediments to the growth of Glasgow's industry which helped to contribute to its wealth and the size of its market for financial services. Chance events, in particular, the industrial revolution with its innovations in shipping and rail transport technology; the agrarian revolution which permitted large scale urbanisation; and a large influx of cheap labour from Northern Ireland and Scotland's Highlands and Islands, all combined to develop a clustering of heavy industries in the Clyde valley, which in turn created the demand conditions for financial services in Glasgow. The strategy and structure of financial services firms was therefore influenced by these demand conditions and the factor conditions that turned Glasgow from being a large town into a teeming metropolis. The types of strategies adopted by firms during the sector's start-up phase is beyond the scope of this model, as is the structure of these firms. Most of the firms that participated in the postal survey could not trace their development back to the start-up phase of their industry, although there were a few firms over 100 years old.

Preconditions for successful firms during this start-up phase were threefold: factor conditions; a clustering of customers in the Glasgow conurbation; and a lack of rivalry. The factor conditions beneficial to firms during this start-up phase were general urban infrastructure, housing, good rail links to London and a port facility.

The main expansion phase in Glasgow's financial services sector focused upon by the survey research covered the decade of the 1980s, since this period was most recent and relevant to the firms researched. The causal determinants of growth were due to government policy (*i.e. the Thatcher Government's "Enterprise Culture"*), advances in information technology (*i.e. the revolution in personal computers*) and structural change in the economy due to de-industrialisation. These causal determinants resulted in a large increase in the number of small-medium businesses, that greatly increased demand for financial services.

The strategy of financial services was also an important causal determinant of growth influenced by the demand conditions just mentioned and the fact that most firms appeared to be self-financing. Elements in the strategy of firms that seemed to be the driving force of growth were found to be: satisfying the needs of the

FIGURE 8.5:
MODEL OF GROWTH IN GLASGOW'S FINANCIAL SERVICES SECTOR



local market; introducing new services; management motivated towards achieving growth; and acquiring smaller rival firms.

Preconditions for successful firms during the sector's expansion phase were: good urban infrastructure; centrally located office premises of a high standard; a skilled workforce; capable, professional management; a clustering of customers in the Glasgow conurbation; healthy competition; and advanced office technology.

With the UK economy in recession during the period 1990-1992, Glasgow's financial services sector had begun to display the symptoms of an industry in its maturity. Growth in the demand for financial services appeared to have levelled off in 1992. Growth constraints impacting on the industry were principally due to stagnant demand as a result of the recession; satisficing behaviour by established firms; management constraints in terms of there being a lack of time for strategic planning; destructive rivalry for the limited amount of demand available; and firms with a lack of explicit growth strategies.

Preconditions for successful firms in the mature phase of Glasgow's financial services sector focus on: factor conditions; firm strategy; a clustering of customers in the Glasgow conurbation; there being weak rivalry; and stable demand. The key factor conditions that are preconditions for successful firms are: urban infrastructure; a high level of labour skills; quality, affordable premises; and access to the most suitable and effective information technology. Aspects of firm strategy that are important preconditions for successful firms are: management having explicit growth goals; increasing market share; meeting demand; acquiring competitors; and improving the quality of products.

8.3 PUBLIC POLICY TOWARDS SMALL-MEDIUM FIRMS

This section examines the broad public policy approaches to small-medium firms. It then briefly discusses the main types of programmes employed by government to assist small-medium firms in the UK and concludes with a brief look at the various public policy instruments available.

8.3.1 Policy Approaches

Public policy pertaining to small to medium firms has four main possible objectives. First, it aims to increase the number of jobs in the economy; second, it may aim to increase the quality of jobs in terms of the skills involved, level

of pay and security of employment; third, it aims to increase the wealth generated in the economy; and fourth, it may have equity objectives which aim to increase the stock of firms in economically depressed regions.

There are seven possible broad ways in which the abovementioned public policy objectives can be realised. Table 8.3 compares these general public policy measures in a subjective manner, assigning relative assessments to each policy approach based on the direct cost to the government's exchequer; the cost and difficulty in public administration; its equity; economic efficiency; job and wealth creation; and innovation.

First, there is the "do-nothing" laissez faire approach, which assumes that the market will generate the maximum number of economically viable firms without any public policy intervention. This neoclassical economics perspective has as its foundation principles a belief that there is perfect knowledge by buyers of sellers, equal access to resources, no barriers to entry, and a large number of sellers in which no single firm has dominance. In reality, few industries match this ideal, which is why a strong case can be made for the need for public policy intervention to correct the flaws inherent in any market that has a spatial dimension to it.

Second, there is the idea of "picking winners" from the economy's existing pool of firms. The rationale here is that firms with the motivation and capability to seriously pursue growth, have the greatest potential to contribute to an economy's job and wealth creation. However, these firms sometimes lack the resources to fulfil their growth ambitions and therefore need assistance. In a market economy functioning correctly, one would expect this assistance to come from investors, but private sector resources can be lacking or too expensive. Storey and Johnson (1987) are strong proponents of this approach and believe that the public sector has an important role to play in identifying potential small-medium growth firms with export potential. The criticisms with this approach are: the difficulty involved in identifying potential growth firms and the fact that a selective policy is complex to administer and unfair.

Third, the survival rate of established firms could be improved. This would involve making assistance available to any firm that was experiencing difficulty. Although this policy would be fair and its administration simple, it could be criticised

for merely forestalling the inevitable collapse through market failure of economically unviable businesses.

Fourth, government could concentrate purely on macro-economic measures and on improving the nation's factor conditions with the expectation that this would create the right business environment for increased business start-ups, more growth firms and better survival prospects for all firms. Macro-economic measures can have rapid short-term impacts on firms, but the upgrading of factor conditions requires a long-term commitment that may require decades before a satisfactory outcome is achieved. The research discussed in chapter one, together with the fact that government has seen the need to actively provide policy that will help the small-medium firm sector, indicates that this approach by itself will not achieve the desired outcomes with respect to employment, innovation and wealth creation.

Fifth, the pool of firms could be increased, through encouraging new business start-ups and in providing sufficient assistance for infant businesses to survive the start-up phase. This approach is fair and easy to administer, but potentially expensive to implement. If growth in demand is negligible, however, competition can have a destructive influence on the growth prospects of firms by undermining profitability.

Sixth, government could create businesses itself and then sell them to the private sector after they have been sufficiently well-developed into viable business concerns. Government has done this with public service activities which are natural monopolies and difficult to deliver on a commercial basis, but there is little evidence (*even in communist China*) to suggest that this policy approach works. Government has difficulty in identifying marketable products, in being innovative with product development that is commercially viable, in engaging in entrepreneurial activities and in responding to the disciplines of the marketplace. In practical terms, the government simply lacks the resources to be seriously involved in enterprise creation at the level needed for macro-economic growth.

Seventh, government could create businesses owned and managed by the public sector, which was the approach taken in totalitarian communist states such as the former Soviet Union. The collapse of the Soviet Union due to its economic bankruptcy suggest that this approach has not worked. Moreover, it would be

TABLE 8.3:
COMPARISONS OF GENERAL POLICY MEASURES TO PROMOTE JOB, WEALTH AND INNOVATION CREATION IN THE ECONOMY

POLICY APPROACH	COST MEASURES		PERFORMANCE MEASURES				
	Direct costs	Admin. Costs	Equity*	Econom. efficien+	Job creation	Wealth creation	Innovation
1."Do-nothing" or laissez faire approach	1	1	5	1	4	3	3
2."Picking winners"	2	3	5	2	2	2	2
3.Improve survival rate of established firms	4	4	2	5	2	3	3
4.Macro-economic measures and improvement of factor conditions	2	3	5	4	3	3	3
5.Increase business start-ups	3	3	2	4	2	3	2
6.Public sector start-ups of new firms which are then sold to the private sector when viable	5	5	5	5	3	4	4
7.All firms started-up by the state, owned and managed by the state	5	5	1	5	1	4	4
KEY	1=min. to 5=max. cost	1=min. to 5=max. cost & difficulty	1=max. to 5=min. equity	1=max. to 5=min. efficien.	1=max. to 5=min. creation of jobs	1=max. to 5=min. wealth creation	1=max. to 5=min. innovation

NOTES:

*Equity refers to the quality of opportunity for existing firms and people wanting to start-up a new business.
+Economic efficiency refers to the return to government on its efforts and costs in administration, grants and subsidies.

impractical to pursue this approach in the UK with its multi-party democracy and given the limited size of its public sector.

The "do-nothing" approach, the public sector start-up approach and the total state control approach are policy extremes that are unlikely to be considered seriously by a UK central government by either of the main political parties. This reduces the realistic policy options down to "picking winners", improving the survival rate of established firms; increasing the number of business start-ups or improving the business environment that firms compete in. Porter's model (1990) emphasizes improving the business environment that firms compete in, believing competition and innovation to be the driving forces in growth. The survey results show that in a resource based industry such as the oil and gas related sector which employs advanced technology, having the right business environment is crucial to the success of growth firms. In the plastics supply sector and financial services sector, the right business environment was important but not critically so. The policy of trying to "pick winners" appeared to be fraught with danger, mainly because growth firms do not

have characteristics that make them consistently unique from non-growth firms, which therefore makes predicting which firms are likely to grow extremely speculative. The case studies in all three sectors stressed that their biggest difficulty stemmed from surviving the start-up phase. Once their business was up and running, they preferred to be independent and believed government's role to be better directed towards developing a business environment that is most conducive to them achieving growth. Generally, the case studies did not relish a policy that aimed to increase the number of new business start-ups in an economy experiencing recession or slow growth, mainly because there was a fear that this would lead to destructive competition that would simply weaken their profitability.

It would seem in conclusion from the case study and postal survey results in all three sectors that government policy should have a two pronged policy approach, that is: to improve the survival rate of newly established firms; and to improve the national business environment that firms have to function in.

The next section will examine the specific policies that have been applied to small and medium firms to help them increase their growth prospects.

8.3.2 UK Policy Instruments for Facilitating Growth in Small-Medium Firms

UK government policy (*Employment Department, 1991*) towards small-medium firms is aimed at removing constraints, and barriers to start-up and growth. This policy acts on small-medium firms in two ways: first, government has a major influence on the general business and regulatory environment in which firms do business in; and second, the government offers direct and specific assistance.

Government influence on the general business and regulatory environment aims to maximise the supply side performance of the economy achieved by such measures as low taxation, fair competition policy (*through privatisation of government activities and legislation to prevent the formation of monopolies*), government purchasing practice that actively considers tenders from small firms, minimum government interference and regulation of small businesses, controlling inflation, and promoting the importance of an "enterprise culture". Government assistance to the small-medium firm sector has the objective of overcoming failures in the supply side of the economy by improving the access of small firms to finance, information, professional advice, training and premises.

Financial assistance is provided through two major programmes: The Employment Department's Loan Guarantee Scheme; and the Business Expansion Scheme. The Scottish Industry Department also offers Regional Enterprise Grants in Assisted Areas that cover 15% of a firm's start-up costs. The Enterprise Allowance, introduced in 1983, allows unemployed people wishing to become self-employed to continue receiving income support. It is administered by the Local Enterprise Companies. The Loan Guarantee Scheme introduced in 1981, helps small firms with viable business proposals to obtain finance where conventional loans are not available because a firm lacks security or a track record. The Scheme provides the commercial lender with a government guarantee of 70% on loans up to £100,000 over two to seven years in return for a premium of 2.5% on the guaranteed portion. The Business Expansion Scheme, introduced in 1983, includes tax relief in investment of up to £40,000 per year in shares of certain unquoted companies.

Information and professional advice in Scotland is provided by a network of 22 Local Enterprise Companies (*LECS*), which were set up in April 1991. The LECs work within a policy and strategic framework set up by Scottish Enterprise and Highlands and Islands Enterprise, but have the freedom to act on their own initiative with a minimum of constraint. LECs are responsible for identifying the key needs of businesses of all sizes, labour market mismatches and wider economic problems and opportunities in their areas. They can also provide assistance in procuring suitable premises.

The Department of Trade and Industry's Enterprise Initiative aims to enhance the competitiveness of established firms (*particularly in manufacturing*), by promoting best management practice and by providing practical help and guidance in areas such as strategic management advice, exports, regional development, collaborative research and technology transfer. The Enterprise Initiative includes financial support for consultancy projects which can cover business planning, design, financial and information systems, manufacturing systems, marketing and quality.

Table 8.4 details the main types of programmes provided by government in Britain (*Graham Bannock & Partners, 1991*) which are: special regional assistance; research and development technology; loans, grants and guarantees; business start-up assistance; training and information and consultancy. In 1988/89, the monetary value of this support amounted to £510.8million. Most of this support

was concentrated in start-up assistance (39.0%), and to a lesser extent, special regional assistance (21.2%) and training (21.5%). Loans, grants and guarantees accounted for a mere 0.7% of total support, even though the survey results indicate this to be an area of critical concern for small-medium businesses. Germany, by comparison, which has almost the same proportion of firms as Britain in the 1-199 employee size band, directs 59.3% of its financial support to loans, grants and guarantees (*IBID*). There, the small-medium firm sector contributes 46% of private sector GDP compared with 32% in Britain (*IBID*). The other big difference between German and British public sector financial support for small-medium firms is in research and development and technology which Germany devotes 20.3% compared with 2.0% in Britain (*IBID*). Even in terms of total government financial support for small-medium firms, Germany spends two and a half times the proportion of its gross domestic product compared with Britain (*IBID*). The economic strength of Germany's small-medium firm sector would suggest that this investment by the public sector has paid dividends and that perhaps Britain's small-firm sector could benefit from the German approach.

TABLE 8.4:
SUPPORT FOR SMALL-MEDIUM FIRMS BY
TYPE OF PROGRAMME IN BRITAIN IN 1988/89

TYPE OF PROGRAMME	£ MILLION	%
1.Special Regional Assistance	108.5	21.2
2.Research & Development and technology	10.0	2.0
3.Loans, grants and guarantees	3.8	0.7
4.Start-up assistance	199.0	39.0
5.Training	110.0	21.5
6.Information and consultancy	77.9	15.3
7.Other	1.6	0.3
TOTAL	510.8	100.0

SOURCE: GRAHAM BANNOCK & PARTNERS AND HORST ALBACH, 1991

The survey results in all three sectors indicated that most firms perceived government support to be restricted to the start-up phase of a firm's development and lacking for established firms experiencing difficulties. Part of this may be due to a problem of effective marketing of advice and assistance services, since many firms were simply unaware of what was available from their Local Enterprise Company.

8.4 IMPLICATIONS OF SURVEY RESEARCH AND **POLICY RECOMMENDATIONS**

Public policy has to focus on three types of situation in the small-medium firm sector. There is the case of new business start-ups; then there is the case of newly established firms facing teething difficulties in making the transition to a

professionally managed firm; and then there is the situation where an established business gets into difficulties. This research has not been concerned with business start-ups but has focused instead on growth firms. The research results have indicated the difficulty in differentiating the characteristics of growth firms from non-growth firms. For this reason, for the purposes of policy, growth firms are described as including any business that has survived the start-up stage and whose management has the desire to grow. This definition would therefore include a range of firms from small owner-managed businesses to large professionally managed companies (*with up to 500 employees*).

The policy recommendations have been structured on a sectoral basis because of the widely differing nature of the sectors examined. The key problems that firms in each sector faced, according to the postal survey, are presented and then policy recommendations are suggested that might ameliorate these problems.

Table 8.5 details the most important difficulties experienced for each sector for a range of issues classified according to each of the determinants described in the schematic model of sectoral growth in figure 8.2. The percentages in table 8.5 refer to the proportion of firms that experienced difficulties with each particular issue. A subjective judgement was made that if more than 55% of the surveyed firms experienced difficulty with an issue, then that issue could be considered to be a significant constraint to growth that could benefit from public policy intervention. The column in the far right hand side of table 8.5 briefly suggests the type of policy intervention that might be required to correct the problem.

8.4.1 The Scottish Plastics Supply Sector

Only three factor condition issues seemed to be significant constraints to growth. These were stressed to be: an inadequate supply of skilled labour; poor training of the local population; and less importantly, the difficulty in securing government grants. The survey results would imply that the majority of firms were satisfied with the locational attributes of their premises, local educational resources, private sector capital resources and infrastructure provision. It is interesting that firms were satisfied with the availability of external finance from the private sector but relatively dissatisfied with availability of government grants. This would suggest that either firms do not fully explore the possibility of private sector funding before turning to the public sector or that they accept the conditions associated with accepting finance

**TABLE 8.5:
POLICY RECOMMENDATIONS FOR EACH SECTOR BASED ON MAIN
DIFFICULTIES EXPERIENCED BY THE SURVEYED FIRMS**

DETERMINANT	Plastics Supply Sector	Oil & Gas Related Sector	Glasgow's Financial Services	SUGGESTED POLICY SOLUTION
FACTOR CONDITIONS:				
1. Adequate supply of skilled labour	74%	78%	59%	Training, job recruitment
2. Poor training of local population	85%	69%	38%	Training
3. Securing government grants	62%	61%	17%	More grants; Easier qualifying requirements
DEMAND CONDITIONS:				
1. Finding new geographic markets	67%	83%	59%	Market research
2. Lack of strong demand from Scottish market	67%	34%	43%	Market research; Stimulate demand
3. Lack of strong demand from UK market not including Scotland	61%	43%	35%	Market research; Stimulate demand
4. Finding sufficient market demand	56%	75%	56%	Market research; Stimulate demand
5. Find suitable market niche for product	44%	64%	42%	Market research
COMPETITION ISSUES:				
1. Strong competition from other Grampian firms	--	77%	--	Management & Marketing advice; subsidies
2. Strong competition from other Scottish firms	76%	77%	59%	Management & Marketing advice; subsidies
3. Strong competition from other UK firms	56%	77%	80%	Management & Marketing advice; subsidies
INDUSTRY CLUSTERING:				
1. Component suppliers in the locality	68%	51%	--	Supplier informat. inward investment, grants
2. Proximity to raw material suppliers	56%	60%	--	Supplier informat., inward investment, grants
3. Companies involved in the production of products that are complementary to your company's products	44%	50%	--	Related industry advice, inward investment, grants
FIRM STRATEGY AND STRUCTURE:				
1. Surplus management time to plan growth	78%	83%	82%	Management advice
2. Sufficient management skills to plan, organise and manage growth	67%	67%	58%	Management advice
3. Producing innovative, market leading products	71%	63%	43%	Marketing and technical advice
4. Creating innovative production techniques	56%	82%	36%	Technical advice
5. Sufficient training capability for staff needs	69%	70%	48%	Training
6. High level of production efficiency	77%	75%	51%	Technical advice
7. Maintaining sufficient cash flow	69%	76%	63%	Managemt. advice
8. Achieving a high sales turnover	84%	86%	63%	Managemt. advice
9. Attaining satisfactory overall profitability	82%	77%	70%	Managemt. advice
TAXATION:				
1. Rate of company taxation	76%	79%	38%	Reduce taxes
2. Lack of tax exemptions for company expenses	70%	81%	54%	Increase tax exemptions

TABLE 8.5 (CONTINUED)

DETERMINANT	Plastics Supply Sector	Oil & Gas Related Sector	Glasgow's Financial Services	SUGGESTED POLICY SOLUTION
ECONOMIC CLIMATE				
1. Depressed local economic conditions	57%	30%	70%	Regional assistance: grants, loans, training, advice
2. Depressed national economy	74%	52%	77%	Boost aggregate demand
3. High interest rates	87%	85%	83%	Lower interest rates
Number of firms:	50	70	46	

NOTES:

1. The percentage in each cell refers to the proportion of firms that experienced some degree of difficulty with the issue in question.
2. An issue is only considered to be a significant constraint to firm growth requiring amelioration by policy if more than 55% of firms in a particular sector experience difficulty with it.
3. The percentages refer to all the firms that participated in the postal surveys.

from the private sector, but not do not accept the conditions associated with accepting finance from the public sector.

Public policy can ameliorate these constraining factor conditions by improving the training of the local population; improving the efficiency of the job recruitment process; and by improving the availability of capital resources from both the public sector and private sectors.

Demand conditions that appear to be significantly constraining growth in the sector are: finding new geographic markets; and a lack of demand in Scottish and UK markets. These constraints can be due either to poor communication between buyers and sellers, market failure or an adverse economic climate manifested by costly finance and high unemployment. Market research assistance could help firms to better identify potential customers and help target them accordingly. If the problem is market failure, then market research might help to indicate an alternative product that could succeed. If the problem is due to the economic climate, macro-economic measures at the level of the Central Government may need to be adopted. However, market research assistance could still help firms to increase their market share in such circumstances.

The main competition issues constraining growth was perceived to be other UK firms outside Scotland. Public policy can make local firms more competitive through short-term subsidies or by encouraging weak firms to merge with other firms. Subsidies would be conditional on clear-cut investment being made to improve a firm's production efficiency or to help it be more innovative within a set period of

time. There is limited evidence of clustering in this sector. A lack of components' suppliers in the locality caused the most significant constraint to growth amongst the industry clustering issues. The dispersed nature of the plastics supply industry in Scotland, together with the fact that many suppliers are English based, makes this a difficult area for public policy to address. The simplest approach would be to provide better information on potential suppliers such as where they are located, who they are and details about what they do. However, a more interventionist approach might be to encourage supplier businesses to start-up in the area or to encourage inward investment. It is doubtful that these measures would achieve the advantages of agglomeration economies in terms of better networking, improved economies of scale and a better exchange of information, since the Scottish plastics supply sector itself does not conform to an industry cluster pattern.

Firm strategy and structure issues appeared to be the cause of the greatest difficulties amongst firms, particularly with operational management issues such as: achieving a high sales turnover; attaining satisfactory overall profitability; a high level of production efficiency; and maintaining sufficient cash flow. Strategic management issues that caused difficulties included: surplus management time to plan growth; sufficient management skills to plan, organise and manage growth; producing innovative, market leading products; and sufficient training capability for staff needs. The approach that public policy can take to solve these problems would be to provide access to advice on marketing, management and technical solutions.

Difficulties experienced by firms with taxation ostensibly seem easy to solve with public policy measures such as reducing taxes and increasing tax exemptions, but this is deceptive. The difficulty with policy in this area is how much the central government can afford to reduce taxes while continuing to meet its expenditure commitments. A common argument is that tax cuts will increase aggregate demand which in turn will generate increased tax receipts. However, this approach was unsuccessfully pursued by the Reagan government in the United States during the 1980s, which while successful in spurring on economic growth, greatly increased that country's budget deficit.

A depressed national economy and high interest rates (*at the time of the postal survey in 1991*) were perceived by firms to be strong constraints to growth. Public policy in this area is probably the most difficult to resolve as the inability of the UK's Central government to solve the 1990-1992 recession clearly demonstrates. The

main problems arising for firms from an adverse economic climate are depressed demand and the high cost of investment. Policy can solve these problems if it can increase aggregate demand by either increasing employment and/or increasing disposable incomes in the economy.

8.4.2 Aberdeen's Oil and Gas Related Sector

An interesting general finding was the close similarity of the constraints to growth faced by Aberdeen's oil and gas related sector with the constraints faced by the plastics supply sector. The similarity is all the more conspicuous when these two sectors are compared with the growth constraints faced by the financial services sector (*see table 8.5*). The only areas of strong divergence between the two manufacturing sectors were that only a relatively small proportion of firms in the oil and gas related sector experienced difficulties with: a lack of strong demand from the Scottish and UK markets; component suppliers in the locality; depressed local economic conditions; and a depressed national economy. And a relatively large proportion of firms in the oil and gas related sector experienced difficulties with: finding new geographic markets; finding sufficient market demand; finding a suitable market niche for a product; creating innovative production techniques; and strong competition from other Scottish firms.

The factor conditions which constrained growth in this sector mainly related to an inadequate supply of skilled labour, poor training of the local population (*although not as significant a growth constraint as in the plastics supply sector*) and the difficulty in securing government grants. Factor conditions relating to physical resources, educational resources, private sector capital resources and infrastructure provision did not cause undue difficulties to firms. The suggested policy solutions for these growth constraints would seem to be better training and job recruitment to improve local labour resources; and increased grants with easier qualifying requirements with regard to capital resources. As with the plastics supply sector, it seems puzzling that firms have comparatively little difficulty with private sector capital resources and yet complain about the lack of accessibility to government grants.

Three key demand issues appear to constrain growth in the oil and gas related sector: finding new geographic markets; finding sufficient market demand; and to a lesser extent, finding suitable market niche/s for their products. The issue of new geographic markets reflects the industry's concern about when production and exploration activity in the North Sea comes to an end; finding sufficient market

demand reflects concern about the delayed impact of the 1990-92 recession on the industry; and finding a suitable market niche reflects the difficulty in some services of differentiating products/services from those of their competitors. Policy assistance in this area is restricted to marketing advice at the local level while at the macro-level, government can take measures to stimulate demand by reducing taxes on petroleum products.

Strong competition from other firms, locally in Grampian region, from other parts of Scotland and the UK, appeared to be causing most firms a degree of difficulty. Surprisingly, despite a significant presence of foreign firms in Aberdeen serving the oil and gas industry, local firms did not perceive them to be the main source of competition. If the problem was solely due to destructive rivalry from firms outwith Scotland, short-term subsidies might help to make local firms more competitive, but if the rivalry is all local, public policy should restrict itself to providing advice on management, marketing and strategy (*such as merging with more powerful firms*) approaches in order to become more competitive.

A lack of industry clustering was not an issue of major concern compared to other issues, with the exception of lack of proximity to raw material suppliers. This suggests that despite the large number of oil and gas related companies clustered in Aberdeen, many firms still do not have the benefit of being close to their suppliers. The policy solution for this problem could be to provide better information on suppliers and firms in related industries; encourage business start-ups locally that could develop into supplier firms; or lure investors into the area.

With firm strategy and structure issues, the difficulties experienced by the oil and gas related industry were very similar to those experienced in the plastics supply sector (*see table 8.5*). The main difference between the two sectors was that oil and gas related companies experienced greater difficulties in creating innovative production techniques. The types of policies most appropriate to solving firm strategy and structure issues are management, marketing and technical advice.

Interestingly, very similar proportions of oil and gas related firms experienced difficulties with the rate of company taxation and there being a lack of tax exemptions as in the plastics supply sector. Policy solutions in these areas are in the domain of central government. They would mainly involve reducing taxes and increasing tax exemptions.

Economic climate issues had much less of an impact on oil and gas related firms compared to firms in the other two sectors. For example, depressed local economic conditions and a depressed national economy caused firms much less difficulty in Aberdeen than in the other two sectors. The relative optimism of Aberdonian firms about the economic climate in 1991, would seem to have been supported by economic statistics for Grampian region showing it to have the lowest rate of unemployment in the UK at 4% compared to the national rate of 10% in 1992 (*Central Statistical Office, Regional Trends 27, 1992*).

8.4.3 Glasgow's Financial Services Sector

The only factor condition that caused significant difficulty for firms in this sector was an inadequate supply of skilled labour. Policy can correct this problem by providing better training and perhaps improving job recruitment procedures. The surveyed firms did not seem to have difficulties in procuring adequate capital resources.

The only demand conditions to cause difficulties for firms in this sector were: finding new geographic markets; and to a lesser extent, finding sufficient market demand. Policy can help correct these difficulties mainly by providing market research advice. However, financial service firms such as these probably already have a well developed market research function (*except possibly with smaller firms*), so it may be doubtful whether public policy could achieve a worthwhile result in this area.

Strong competition from other other Scottish firms was the third most important issue causing difficulty for firms in this sector. Strong competition from other UK firms also caused firms significant difficulty. The best that public policy can do to provide assistance where intense local rivalry is the problem, is to improve the quality of information available to firms about contractors and potential customers, and provide firms with management and marketing advice.

Clustering issues are not particularly relevant to this sector because although the surveyed firms are already tightly clustered in Glasgow's central business district, most firms' functions are not subcontracted out. Amongst the surveyed firms, there was little evidence of strong networking within the cluster of financial services in Glasgow. It therefore seems doubtful that public policy could make any worthwhile input into this aspect of Glasgow's financial services sector.

The financial services sector had the greatest similarity with the other two manufacturing sectors in the area of firm strategy and structure issues, although there were a large number of operational management issues that caused a much smaller proportion of firms difficulty (*see table 8.5*). The firm strategy and structure issues that caused firms the most significant difficulty were: surplus management time to plan growth (*most important*); attaining satisfactory overall profitability (*less important*); maintaining sufficient cash flow and a high sales turnover (*less important*). Public policy could best tackle these issues through providing suitable management advice.

Unlike the two manufacturing sectors researched, taxation issues did not seem to cause financial services firms any undue difficulties. It does not therefore seem that public policy could make any significant beneficial impact in this area.

Financial services firms were significantly more pessimistic about difficulties experienced with depressed local economic conditions than the other two sectors. This sector also had the largest proportion of firms experiencing difficulties with a depressed national economy. High interest rates were also causing firms a great deal of difficulty, which was similar to the experience in the other two sectors. Public policy can help depressed local economic conditions with Special Regional Assistance, although in this case it seems to be more a problem related to the national economic climate. Public policy would require a macro-economic approach to solve a depressed national economic climate. This would involve boosting demand through lower interest rates or income tax cuts.

8.4.4 General Policy Recommendations for Small-Medium Firms

This section has indicated the main policy problems that have to be tackled in each of the sectors researched and suggested some very general policy solutions. Detailed policy appraisal is beyond the scope of this research since its prime objective set out to determine a satisfactory conceptual framework for explaining growth in a firm or industry sector, rather than develop clear-cut policies to solve developmental problems in these sectors. At best, the policy recommendations that follow are of a very general nature. However, they are broadly indicative of the types of policy solutions that will need to be pursued in order to overcome the main constraints to growth in each of the three sectors examined.

The general impression gleaned from the survey results was that firms in the plastics supply sector would require the most policy input particularly for firms in their formative stages of development; firms in the oil and gas related sector require assistance in the area of training, technical advice and capital for expansion; and firms in the financial services sector require very little input from public policy except possibly in terms of advice. Firms in all three sectors would benefit from effective macro-economic policy that would boost aggregate demand in the economy.

While it is important to facilitate more growth firms in the small-medium firm sector, this thesis has demonstrated the value of researching the dynamics of each respective sector in detail, particularly if policy is to effectively and efficiently tackle constraints to firm growth. Porter's model suggests that government policy should concentrate on developing those sectors of the economy where international competitive advantage is most likely to be achieved. Where government resources are scarce, it would seem appropriate for government to focus its energies on assisting those sectors with the potential to make the biggest contribution to job and wealth creation in the economy. This would involve: government firstly identifying "growth" sectors in the economy; secondly, identifying particular constraints to growth in those sectors; and thirdly developing policies to overcome the targeted problems. Scottish Enterprise already does this, but it is extremely secretive about its activities which makes objective assessment of its policies in this regard difficult.

It could be argued that the mechanisms for effective capital assistance, training and advice are already in place in Scotland, with the network of Local Enterprise Companies under the aegis of Scottish Enterprise now well established at the end of 1992. In theory, the LECs seem to be a good idea, easily accessible to local firms and able to be specially attuned to local needs. If firms are experiencing difficulties because of poor local resources, then the services and assistance offered through the LECs needs to be reviewed and adjusted accordingly. At the time this research was carried out, the LECs had only just been established and did not have a long enough track record for firms to be able to pass a definitive judgement on them.

There are four areas that policy would have to address: financial resources; advice; training and recruitment; and macro-economic measures. Questions as to the quantity, cost, targeting, period of assistance and qualification criteria for assistance delivered to small-medium firms are not addressed in detail here because the survey research was not designed to determine how assistance could best be delivered.

Financial assistance can take the form of grants, loans, loan guarantees for privately secured loans and subsidies. The delivery of any form of financial assistance has to be carefully monitored and targeted. The case studies examined appreciated financial assistance being available during the start-up phase of their businesses, but were reluctant to accept government financial assistance beyond that for fear that the independence of their decision-making would be compromised. This reluctance of firms to become involved with the public sector could be overcome mainly through loan guarantees of commercial loans. This would be similar to the current loan guarantee scheme, with 70% of the loan underwritten by the government but with greater flexibility as to the maximum limit. General requirements could be that the firm has no more than 50 employees and that there is a commercially viable plan for expansion. The amount underwritten by the government might be dependent on the number of new jobs created by the expansion plan multiplied by the average annual salary for the sector. Identifying a potential growth firm based on a firm's attributes would not be necessary, since the banks that issue the loans would assess the commercial viability of each proposal. Firms requiring a loan guarantee would approach their LEC in the first instance, who would assess the merits of each expansion proposal and if approved, provide assistance on preparing a formal loan proposal to a commercial lending authority. Further research would have to be conducted as to whether commercial lending institutions would cooperate with such a scheme and whether it would be acceptable to the potential recipients. Moreover, the assumption that surviving firms with commercially viable plans are the only firms deserving of financial assistance may have to be investigated. Further research may be needed to determine whether businesses that failed did so due to market failure or because they had a growth strategy that was overly ambitious with the capital resources that were at their disposal.

Business advice would target four areas: management; technical matters; marketing; and supplier information. These services could be delivered through the LECs and tailored to suit the particular features of each region served by the respective LEC. Targeting would not be required except to indicate to the local business community that the services exist. Firms that demonstrate enough initiative to make use of the service and appear to be actively cooperating in a business plan to improve their business performance would be eligible to participate. The service could be funded from a share of the profits generated from the advice up to the value of the services provided (*i.e. these consultancy services would be provided on a non-profit*

basis). Information on suppliers is already provided in the form of business directories by many regional councils throughout Scotland.

Training is currently handled by the LECs in Scotland and recruitment conducted through the general press and local job centres. There seemed to be an implication from the research that either there was a shortage of appropriately skilled labour or that there was a mismatch of labour-force skills to the available jobs. Few of the case studies considered there to be problems with the job recruitment process. If a firm was trying fill a highly skilled job vacancy, then its job recruitment net would be cast nationwide; if it was an unskilled position, then the firm would search locally for a suitable candidate. In the plastics supply sector, most of the jobs are of a low-skilled nature although there were some skilled manual jobs. In most instances, it would seem from the case studies that training for these jobs is best carried out on the job. This therefore implies that training should be the responsibility of the firm concerned. Government policy could encourage firms to provide their own training by charging all firms a training levy based on the number of employees the firm has, which would be refunded if a firm has its own accredited training scheme. Accreditation for private training schemes would be conducted through the education authorities. The LECs could run annual reviews of training needs by local employers and provide courses to suit the needs of firms unable to provide their own training of staff. For more highly skilled jobs, special qualifications may be required, which may have to be provided through the educational authorities. Education authorities can work to ensure that further education colleges meet the needs of local employers.

Macro-economic measures cover areas such as taxation, interest rates and trade barriers. Most firms would probably say that they could benefit greatly from reduced taxes and increased tax exemptions but this has to be balanced against the fact that government requires a certain level of taxes to meet its social responsibilities and investments in the community. A general principle is that taxes should not be punitive and allow strongly performing firms sufficient profit retentions to invest in their own expansion plans. Further research would be required in this area to determine whether the tax system should be changed and how it should be changed. From the research it seemed that it was not so much the level of taxation that small firms objected to but the paper work involved in meeting their tax obligations. All firms objected to the high interest rate policy that the UK underwent in 1991/92. At the time this policy was in place, its purpose was to reduce inflation and to have the value of the pound maintain parity with the German currency. This policy had little reference to small-medium firm

policy. Low interest rates would have boosted aggregate demand and benefited all firms in the economy, but this policy option is rarely available to policy-makers in the small-medium firm sector.

8.5 CONCLUSIONS

A key point that has emerged from this research is that growth firms are not fundamentally different from stable or declining firms. This created difficulties in developing a generalised model or theory of growth in an industry sector or firm that is completely foolproof. Furthermore, a general conceptualisation of firm growth is complicated by the fact that each firm or sector is subjected to different pressures and priorities (*apart from the obvious economic objectives of maximising profitability and efficiency*). The loose explanatory framework of Porter's (1990) model of competitive advantage was sufficiently flexible not to be too constrained by these difficulties, provided that a qualitative research methodology was adopted in preference to a quantitative approach. A further advantage of the holistic approach taken, is that it does not preclude from consideration many of the valid points that the numerous theories discussed in the literature review had to make. The subjective assessment of the applicability of the models/theories/approaches discussed in the literature review, based on the postal survey results (*see table 8.1*), pointed to four key strands in the literature review that should be referred to in any future research into small-medium firm growth processes. They are: Neoclassical economics (*the importance of profit maximisation and maximised production efficiency*); Entrepreneurial theory (*the motivations of the owner-management/entrepreneur and management*); Penrose's 'Managerial Potential' approach (*the importance of sufficient and capable management skills*); and Gibb & Scott's and Resnik's theses which stress the importance of management's problem solving capability and having clear strategies.

Examined on a quantitative basis, admittedly at a very basic level of statistical analysis, none of the three sectors examined seemed to provide conclusive evidence that would validate Porter's model as a definitive explanatory framework of industry sector growth. However, it was noted that Porter's model comes across as more convincing when a case study approach is combined with historical data for the industry concerned. Examined in this way, Porter's model seemed to be most easily applied to Aberdeen's oil and gas related sector, mainly because of the intense clustering of firms in this sector in the Aberdeen area. Even despite the plastics supply sector's strong dependence on local customers (*i.e. Scottish customers*), the clustering effect that Porter considers to be such an important component of his model, was not

very much in evidence. With Glasgow's financial services sector, although there was an obvious geographical clustering of such firms in Glasgow's city centre, the surveyed firms did not seem to be taking much advantage of the agglomeration economies that would result from being in a cluster.

It is apparent from the results of the quantitative research carried out to test Porter's model, that the potential richness of the quantitative data has not been fully explored here. Some avenues of quantitative analysis, such as factor analysis and multiple regression analysis, have yet to be explored. Only when Porter's model has been subjected to this level of sophisticated analysis can a definitive conclusion be made about whether Porter's model is statistically proven or not proven within the context of the three sectors researched in this thesis.

This chapter commented earlier that Porter's model has significant weaknesses. For example, it tends to oversimplify the contributing factors of growth into too few determinants; it underrates the importance of government; and it has too little to say about the importance of entrepreneurship by classifying it as an influencing condition rather than as a determinant of growth. The models detailed in figures 8.1 and 8.2 attempted to rectify these deficiencies by treating competition and government policy as being determinants of growth and reclassifying owner-managed or entrepreneurially-run firms as being a firm structure determinant of growth.

The driving forces of growth in the plastics supply sector varied according to the particular stage of development a firm had reached. At the start-up phase, government assistance was important combined with an owner-manager with entrepreneurial drive. With established firms, professional management seemed to be a crucial factor, together with inward investment into the industry. Strong competition from outwith Scotland seemed to be associated with growth, but in the face of falling demand with the 1990-1992 recession, competition was becoming a destructive force that simply undermined profitability. A strong local market appears to have been one of the main driving forces of growth in the sector. The strength of this market seems to have grown partly in response to growth in the Scottish Electronics industry, since many firms are subcontractors to electronics firms.

Aberdeen's oil and gas related sector is a resource driven industry whose growth is dependent on world oil prices being high and Aberdeen's favourable factor conditions, particularly its harbour facilities and status as a large urban service

centre. Substantial inward investment, strong competition during the industry's expansion phase, technological innovation, clustering of related and supporting industries, professional management and a strong desire to pursue growth, all seem to have made significant contributions to the success of this sector.

The key driving force in the growth of Glasgow's financial services sector during the 1980s, was mainly due to local demand conditions manifested by a large increase in the number of small-medium businesses requiring accountancy services. Contributing factors would seem to be professional management, useful advice from Scottish Enterprise, good local factor conditions, firms well able to finance their own expansion plans and a well trained labour force.

A general impression from firms in the two manufacturing sectors, was that government financial assistance and business advice was appreciated during a firm's start-up phase, but that once a firm was established, they preferred seeking out private sector sources for their expansion plans, rather than risk compromising their managerial independence with the public sector. Firms in the financial services sector appeared to have comparatively few financial problems, even at start-up and believed that public policy assistance should be restricted to offering advice.

The main policy approach recommended was to treat all firms past the start-up phase with a keen desire for growth and a commercially viable plan with which to facilitate expansion, as deserving of consideration for assistance. It was suggested that selectivity could be based on restricting financial assistance to firms with no more than 50 employees and the amount of financial assistance given could be linked to the number of new jobs created by an expansion plan. Moreover, policy-makers could achieve greater selectivity by concentrating their energies on sectors most likely to contribute to job and wealth creation, as Scottish Enterprise already does to some extent. This research has shown that it is difficult to identify growth firms with any statistical certainty. Therefore, it does not seem appropriate for public policy to target growth firms for assistance. Quite aside from the practical difficulties of targeting growth firms, such a policy could be seen as unfair by the community.

The policies recommended were: an extension of the Loan Guarantee Scheme; business consultancy services delivered through the Local Enterprise Companies offering management, technical, marketing and supplier information; placing the onus for training on firms and using a training levy on firms unable to train

their own employees to fund training; and macro-economic measures aimed at boosting demand and minimising input costs for firms.

Research into these three sectors of the Scottish economy has produced some very useful insights into why some firms achieve growth. It suggests that so far it is not possible to produce an "identikit" picture of tomorrow's growth firms. Any policy designed to facilitate growth firms in a sector needs to examine the dynamics of that particular sector. Currently, policy tends to treat all small-medium firms as being a single sector of the economy. If public policy towards the small-medium firm sector is to be more effective in future, it will need to take into account the nuances of the particular industry sector firms are part of.

The mechanisms already seem to be in place to deliver these policies throughout Scotland (*through Scottish Enterprise and the Local Enterprise Companies*). However, considerable further research would be required to determine exactly what advice and assistance is required by firms, how much of it would be required, its delivery, its costing and how these programmes would be tailored to suit each sector. A carefully thought out and effectively delivered policy along the lines just mentioned, should have the potential to improve the growth prospects of firms in the small-medium firm sector.