University of Strathclyde

Department of Accounting and Finance

Acquirers' Gains: Implications of Information Asymmetry, Value of Cash and Capital Controls

Chanon Chingchayanurak

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Declaration

‘This thesis is the result of the author’s original research. It has been composed by the author and has not been previously submitted for examination which has led to the award of a degree.’

Signed:

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Abstract

Merger and acquisition (M&A) is one of such crucial investment decisions and draws the attention not only of shareholders but also of other stakeholders. Although there are voluminous studies on the wealth creations through corporate acquisitions, the results regarding whether engaging in such activities can enhance the value of the acquirer's shareholders remain inconclusive as the outcome depends on several factors with multi-directional influences. This thesis focuses on three issues that have received relatively little or no attention, namely (i) information asymmetry, (ii) marginal value of cash balance, and (iii) the capital control policy of the acquirers' domicile. The broad research objective of this thesis is to examine whether these three issues can affect the value of acquirers and if so how value can be created.

In the first empirical chapter (Chapter 2), we examine how information asymmetry between acquiring firms' corporate insiders and the market affects the acquirers' gains and takeover premium in the US market. Controlling for the information asymmetry of target firms and other determinants, we find a negative correlation between acquirer's information asymmetry and takeover premium in both stock and cash deals. There is no evidence to support that acquirers can benefit from exchanging their overvalued stocks for target firms' assets in the short- and long-term. Instead, overvalued acquirers suffer greater loss, particularly when they have high levels of information asymmetry. However, our findings suggest that acquirers with high information asymmetry and knowledge of high takeover synergies can enhance their shareholders' value if they engage only in stock-financed acquisitions. Lastly, when the effect of self-revaluation and equity financing are alleviated, we can observe the improvement in the true gain of acquisitions.

The second empirical chapter (Chapter 3) posits that the marginal value of cash to the acquirer should be a better measure, relative to the nominal value of the cash balance, in explaining the acquirer's choice of method of payment and the value implications of corporate cash holdings. The results of US M&A confirm that the payment method choices of bidder managers are related to the marginal value of cash held by acquirers one year prior to the bid announcement. Acquirers engaging in

stock bids have a relatively high marginal value of cash than those who choose to pay with cash. Further, we document that value of cash held by acquirers is not static across time and managers are good at timing the market of value cash. Lastly, we report that with the right payment decision corresponding to the value of cash, bidder managers can create value for their shareholders.

The third empirical chapter (Chapter 4) explores the effect of capital control of acquirers' domicile on their gains from cross-border deals. By following the springboard strategy, we predict that managers can enhance their shareholders' wealth and receive higher announcement period returns. We find evidence to support our prediction that cross-border flows and gains are driven by purchasing target firms resided in relatively low capital control countries. These gains can be further explained with the accessibility of cheaper capital and better risk diversification.

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LIST OF ABBREVIATIONS

ACAR	Acquirer Cumulative Abnormal Return
AMEX	The American Stock Exchange
AR	Abnormal Return
AREAER	Annual Report on Exchange Arrangements and Exchange Restrictions
BHAR	Buy and Hold Abnormal Return
CAR	Cumulative Abnormal Return
CBA	Cross-Border Merger and Acquisition
CEPII	Centre d'Etudes Prospectives et d'Informations Internationales
CPI	Consumer Price Index
CRSP	The Centre for Research in Security Prices
DFI	Direct Foreign Investment
EFW	Economic Freedom of the World
FOI	Financial Openness Index
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
I/B/E/S	Institutional Brokers' Estimate System
IAPM	International Asset Pricing Model
IMF	International Monetary Fund
LBO	Leveraged Buyout
M&A	Merger and Acquisition
MB	Market to Book
ML	Maximum Likelihood
NASDAQ	The National Association of Securities Dealers Automated Quotations
NPV	Net Present Value
NYSE	New York Stock Exchange
OLS	Ordinary Least Square
QML	Quasi-maximum Likelihood
R&D	Research and Development

SIC	Standard Industrial Classification
SDC	Securities Data Corporation
TCAR	Target Cumulative Abnormal Return
UNCTAD	United Nations Conference on Trade and Development
WDI	World Development Indicator
WGI	Worldwide Governance Indicator

Chapter 1 – Introduction

Mergers and Acquisitions[1] (M&As), the mechanisms that allow one company to take control of the assets of another company, is one of the most commonly occurring investment vehicles in the corporate sector and has received increasing attention from academics, corporate executives, and investors alike. This investment strategy enables firms to maintain or adjust their competitive advantages with less worry about the delay or obstacles incurred in setting up a new business entity. From the perspective of the market for corporate control (Jensen and Ruback, 1983), M&As are also beneficial to the performance of firms and the whole economy as they ensure a more efficient allocation of corporate resources. The importance of this strategy can be confirmed through the growing number and value of M&A deals announced each year. Impressively, the media frequently report the record-breaking amounts of worldwide M&A deals, which in 2018 reached $3.3 trillion.

An M&A is considered to be one of the most critical decisions in the corporate lifetime since a large amount of capital expenditure and the strategic direction of firms are at stake. M&A success or failure has wider implications for various stakeholders including investors, managers, employees, lenders, policy makers as well as the wider economy. To understand whether and how this managerial decision creates or destroys firm value is crucial for businesses and society. Therefore, it is not surprising that there is extensive academic and professional literature on this strand of corporate financial decision.

According to neoclassical economics, managerial decisions should maximise the firm value or shareholders' wealth. In other words, an M&A deal should be consummated if the present value of gain (synergy) is higher than the cost incurred (premium). However, the extant empirical evidence suggests that these decisions are not straightforward. Extensive essays have surveyed hundreds of empirical studies on the performance of acquisitions.[2] These studies usually presume that benefits and costs associated with takeover deals are assessed and incorporated into the stock price at the time of announcement. An abnormal increase (decline) in stock price should reflect the value-creation (destruction) of that M&A decision. Following this

[1] Following Golubov et al. (2012), the terms "merger", "acquisitions" and "takeover" are used interchangeably in this thesis. Although there are some differences in the meaning of these terms, our interest lies in the combination of business activities and/or entities and the associated change in control over corporate assets which are common to financial economists, managers and investors.

[2] See e.g. Bruner (2003), Eckbo (2009), Golubov et al. (2013), Jensen and Ruback (1983), Martynova and Renneboog (2008), Sudarsanam (2004), Yaghoubi et al. (2016a) and Yaghoubi et al. (2016b).

approach, there is consensus that shareholders of target firms while acquiring firms' shareholders break even at best. The announcement of a takeover deal leads to a surge in (20-40% on average) target firms' value (see e.g. Song and Walking, 1993; Bauguess et al., 2009). In contrast, studies report a small negative or neutral market reactions to acquiring firms' value on the announcement of the deal involving publicly listed targets (see e.g. Andrade et al., 2001; Bruner, 2003; Fuller et al., 2002). The acquirers suffer the most in stock only deals. However, when stocks payment is used in private company takeovers the acquirers benefit more than in cash deals (Bargeron et al., 2008; Betton et al., 2008; Bradley and Sundaram, 2006).

Since the synergy from takeovers takes time to materialize (Maksimovic et al., 2011) and the market may not correctly assess the value creation at the time of announcement, extending the window of measurement over one to five years after the announcement provides an alternative metric to examine the value gain to the acquirer. On balance, the evidence shows that the long-term abnormal returns (ARs) of acquirers are either negative or insignificant and strongly depend on the estimation method used to calculate the benchmark return (see e.g. Agrawal et al., 1992; Asquith, 1983; Loderer and Martin, 1992; Malatesta, 1983). The results are sensitive to the method of payment. For instance, Loughran and Vijh (1997) show that, over five years of acquisition, acquiring firms outperform the benchmark in cash only deals while they suffer a loss in stock only deals.

To explain these short- and long-term returns to shareholders, many theories relevant to M&A motives have been proposed. Following the neoclassical perspective, one group of theories contends that managers are expected to maximise their shareholders' value by engaging in takeover activity to achieve synergy gains. Synergy is generally defined as the value of the new entity being worth more than the sum of the two stand-alone firms (Jensen and Ruback, 1983). These gains can originate from both operating synergy (e.g. revenue enhancement, cost savings) and financial synergy (e.g. tax savings, available debt capacity). There is evidence that synergy can create value in the short- and long-term (see e.g. Alhenawi and Krishnaswami, 2015; Berkovitch and Naryanan, 1993; Bradley et al., 1988). Among the limited available evidence on the underlying sources of synergy gains, Devos et al. (2009) conduct a detailed analysis and report that mergers can create value to

acquirers mainly from cutbacks on investment expenditures rather than increased market power or tax savings.[3]

In addition, the change in broad fundamental factors, e.g. economic, regulatory or technological shock, can provide the trigger for profit opportunities for firms to capture synergies (Andrade et al., 2001; Harford, 2005; Mitchell and Mulherin, 1996). Consistent with the insignificant profitability post-merger, Mitchell and Mulherin (1996) note that takeovers under industry shock are not the sources of change in firm's value, therefore the post-merger performance should not necessarily be higher than the performance of a pre-shock benchmark.

Conversely, the second group builds on the misalignment of the objectives of managers and shareholders. Several reasons have been advanced to explain this divergence. Examples include the diversification of management's personal portfolio (Amihud and Lev, 1981), use of free cash flow to increase the size of the firm (Jensen, 1986), and acquiring assets that increase the firm's dependence on the management (Shleifer and Vishny, 1989) in which the takeover is inspired by acquirer management's self-interest and enables the extraction of wealth from shareholders.

There is also a large body of literature suggesting that behavioural elements are key determinants of bidding firm performance. Market valuation literature conjectures that managers attempt to use their temporarily overvalued stock to pay for the M&As. There is a positive correlation between market over-valuation (misvaluation) and merger activities (Rhodes-Kropf et al., 2005; Shleifer and Vishny, 2003). The overconfidence or hubris of acquirer management is another factor that inspires managers to maximise value for their shareholders, but irrationally. Differently from rational managers, overconfident managers overestimate their abilities and firm's future cash flows leading to overinvestment decisions (Roll, 1986). In M&As, extant literature confirms that overconfident managers are more acquisitive (see e.g. Ferris et al. (2013); Kolasinski and Li (2013)) and engage in value-destroying mergers (Malmendier and Tate, 2008).

Overall, the understanding of sources and causes of gains (or losses) from takeovers, particularly for acquiring firms' shareholders, remains ambiguous. This

[3] Due to the unavailability of Value Line forecasts of financial statements used to estimate synergy in this study, the sample is limited to only 264 large mergers during 1980 - 2004.

thesis attempts to examine if and how three drivers that have received relatively low attention so far can help explain the observed value creation/destruction through M&A. The three factors that we examine are information asymmetry, marginal value of cash balance, and how the capital control policy of the acquirer's domicile can affect the performance of acquirers' shareholders. While the first two empirical chapters are conducted in the context of the US market, the third empirical chapter covers cross-border acquisitions. The motivations for studying these factors are discussed below.

1.1 Motivation

Acquirer Information Asymmetry and Gains from M&A deals

In the first empirical chapter the impact of information asymmetry between the acquirers and the targets/ markets regarding to the value of acquirers (henceforth acquirer information asymmetry) is analysed. Information asymmetry, the condition that insiders know more about their firm's intrinsic value than the outsiders, is a factor often used in explaining the motives of managerial decisions and their consequences on corporate value (see e.g. Grossman and Hart, 1981; Myers and Majluf, 1984). The valuation of a firm can become more complicated in M&A deals where either the acquirer or the target firms or both possess private information that is unknown to the counterparty and the market. Empirical studies on the effect of information asymmetry on acquirers' performance have developed their testable hypotheses mainly from the adverse selection problems as discussed in Myers and Majluf (1984) and Hansen (1987). Officer et al. (2009) document that stockholders reward acquirers who use stock as a contingency payment when acquiring target firms with high levels of information asymmetry. Conversely, Moeller et al. (2007) report the negative (positive) market reaction to acquirers during the stock (cash) acquisition announcement and the magnitude of the reaction is associated with the level of acquirer's information asymmetry.

In contrast to the adverse selection effect, there are theories suggesting that firms who possess private information can increase their shareholder's value through information sharing and information exploitation. From the information sharing viewpoint, Cheng et al. (2016) contend that target firms with high information

asymmetry receive higher premiums from sharing their private information, which they cannot credibly signal to the market, with acquirers. Chang (1998) also notes that the managers of private target firms have incentives to share their proprietary information with acquirers. Alternatively, many studies report the opportunistic behaviours of acquiring firms' managers in exploiting their proprietary information (see e.g. Dierkens, 1991; Ekkayokkaya et al., 2009). One strand of theory that can explain this behaviour is an attempt to exploit equity overvaluation (Baker and Wurgler, 2002). In acquisitions, acquirers have incentives to use their overvalued stock as a cheap currency to buy the target's assets (Shleifer and Vishny, 2003; Rhodes-Kropf and Viswanathan, 2004). A number of empirical tests have been built on these theories (see e.g. Dong et al., 2006; Rhodes-Kropf et al., 2005). However, both theories have not been rigorously examined in conjunction with acquirers who possess information that is not available to the targets and market.

In addition, as articulated in the theoretical models of Hansen (1987) and Eckbo et al. (1990), M&As' decisions are influenced by information asymmetry on both sides of the deal. Among the existing literature, the empirical studies on double-sided information asymmetry are sparse. In a recent empirical work by Eckbo et al. (2018) both sides of information asymmetry are incorporated in their tests, in the context of payment method, but their focus is not on the takeover performance. The prior single-side information asymmetry studies have left out the possibility that relative information asymmetry between acquirer and target firms can affect the bargaining power and as a result the gains from the deal. This is consistent with the argument that the exchange and transmission of information between deal participants can have an impact on premium paid and return during an announcement (Finnerty et al., 2012).

Finally, our interest is on the metrics of acquisition performance. The value decreasing of acquirers is commonly implied by the negative AR of the acquirer's stock during an announcement period. However, prior studies argue that acquirer ARs are contaminated with the revelation of bidder-stand-alone value (Bhagat et al., 2005) and joint effect of equity issuance (Golubov et al., 2016) leading to underestimate the true value created from acquisitions. Harford et al. (2012) suggest two approaches to mitigate such inferential problems: 1) dropping the first bid of

acquirers in each year and 2) examining post-acquisition performance directly. By minimising these biases, the results should reveal the true acquisition gain (loss) induced by acquirer information asymmetry. In addition to short- and long-run returns to acquirers, if acquirers can benefit from their high level of private information, the losses of target firms may be observable. Takeover premium affects the rate of return on the investment of target firm shareholders and takeover profitability for acquiring firm shareholders. While there are many studies about the determinants of takeover premiums (see e.g. Eckbo, 2009; Simonyan, 2014), none of them relate to acquirer information asymmetry.

Therefore, this chapter examines whether bidders can benefit from the private information they possess by analysing the effects of M&A deals on returns to the shareholders of acquiring and target firms. This chapter also employs the double-sided information asymmetry in the model and investigates the underlying sources of gains, if any. As a complement, to avoid the self-revaluation gain and the misjudgement of value during bid announcements, as well as to allow enough time for the value of synergy to be incorporated in the market value of the merged firm, post deal performance is also analysed.

Marginal Value of Cash and Methods of Payment in M&A deals

The second empirical issue of this thesis is whether the choice of method of payment in M&A deals and firm performance is affected by the true value of cash for acquiring firms. The hoarding of corporate cash during last decade has triggered the demand for understanding whether holding cash can really add value to firms and their shareholders. Studies in this area have mostly built their arguments on two different motives: the precautionary motive (Almeida et al., 2004; Denis and Sibilkov, 2010; Keynes, 1936; Myers and Majluf, 1984) and the agency cost motive (Jensen, 1986; Stulz, 1990). The first motive contends that firms with cash on hand can avoid an underinvestment problem while the second argues that firms with excess cash can face an overinvestment problem.

Due to its largest and most visible type of corporate investment, the M&A offers the best testable platform to examine the value implications of corporate cash holding. Most of the relevant studies on this strand have built on the agency theory of

free cash flow (Jensen, 1986). From this theoretical perspective, managers of bidding firms are predicted to spend excessive free cash flow in their own interest and as a consequence make value-destroying acquisitions. Empirically, Harford (1999), Lang et al. (1991) and Schlingemann (2004) find support for free cash flow being negatively associated with lower announcement period returns of acquirers. Gao and Mohamed's (2018) is the only study that employs financial constraint to disentangle the precautionary from agency cost motive and document the positive cash holding effect on acquirer performance.

While traditional studies on corporate cash holding and M&A infer the value implications from the sign of the coefficient of cash level in the function of acquirer performance, Faulkender and Wang (2006) and Pinkowitz and Williamson (2007) marginal value of cash estimation methods offer an alternative approach. Their pioneering technique helps in estimating the value that the market attributes to additional dollar of cash that firms preserve. The estimation that is higher (lower) than a nominal value of $1 suggests that cash holding is a value creating (destroying) decision in the eyes of their stockholders. Halford et al. (2017) also emphasize this approach as "the marginal value of cash holdings offers an appealing tool to investigate the value consequences of various firm outcomes and environments".

So far no study on the methods of payment in M&As have examined the managerial decision of using or saving cash through the lens of the marginal value of cash. We argue that due to its superior property, which can directly reflect the value perceived by shareholders, managers of bidding firms are likely to consider and place importance on the marginal instead of nominal value of cash balances. More specifically, managers are expected to pay their target firms with cash if the marginal value of cash is low and pay with stock (preserving cash) vice versa. As a consequence, the correct choice of payment that corresponds to the value of cash placed by the bidding firm's shareholders should be awarded and lead to better announcement period returns of acquirers.

Furthermore, while there is ample evidence that supports the market timing behaviour of managers in equity markets (see e.g. Baker and Wurgler, 2002; Rhodes-Kropf and Viswanathan, 2004; Shleifer and Vishny, 2003), our understanding of the timing behaviour of managers to deploy or hold cash according to their effective

value is minimal. If the market timing of cash holding does exist, the dynamic of cash value prior to and after the bid announcement should be observed and the cash should be used as the payment currency in the year where its value falls substantially.

Capital Control and Gains from M&As deals

The third empirical chapter of this thesis examines the consequences of the capital control policy of countries in which merger partners are based on their gains. As a consequence of surging foreign direct investment (FDI) globally, the researches in the area of cross-border mergers and acquisitions (CBAs) have become voluminous. Xie et al. (2017) review over 250 studies that examine the country-specific determinants of CBAs which can be classified into the following groups: macroeconomic and financial market environment, institutional and regulatory environment, political environment and corruption, tax and taxation environment, accounting standards and valuation guidelines, cultural environment, and geographical environment. One popular strand of CBAs research is the study of deal participants conditional on their economic development level (developed and emerging economies) (see e.g. Lebedev et al., 2015).

Compared with other institutional factors, capital control has not received sufficient attention in corporate finance research, though it can be critical to firm value. As suggested by Forbes (2005), capital control creates at least three consequential costs which are: (i) increasing the cost of capital, (ii) tightening the financial constraint, and (iii) weakening the market discipline. However, studies on capital control are mostly focused on the macro-level. To our knowledge, there are only two related works that study the effect of capital control on cross-border M&A performances. Francis et al. (2008) document that US acquirers can create value from providing sources of funds, both internal and external, to target firms domiciled in segmented markets. Barbopoulos et al. (2012) alternatively explain that by gaining access to the restricted market where there is less competition than in the product market (high capital control country), the bidder manager engages in value creating acquisitions.

Differently from the existing literature in which target firms are always domiciled in countries with high capital control, our study is the other way round.

The chapter is motivated by the seminal work of Luo and Tung (2007) from a springboard perspective. They propose that firms in emerging markets use international expansion as a springboard to reduce their institutional and market constraints at home. If this perspective holds, bidding firms should gain from acquiring target firms resided in the lower capital control environment as they can evade the substantial costs raised by the controls. Furthermore, the source of value creation by reducing such costs are still left unexamined.

The accuracy of measurements is another issue considered by capital control related researches (see e.g. Desai et al., 2006; Edison et al., 2004; Eichengreen, 2001). Among various and non-consensus measures, we notice that the choices of capital control used in the CBA literature are limited. In addition to the Economic Freedom of the World (EFW) index used in Barbopoulos et al. (2012), we alternatively choose Schindler's KA as the main measure of capital control in this chapter. Our justification is that this method should provide more intensity and breadth of information than other binary indicators and, as a result, offer precise answers to our research questions.

1.2 Key Research Questions

The evidence regarding whether M&As can add value to their shareholders, particularly to the acquirer are inconclusive. It is astonishing that acquirers still engage in acquisitions despite knowing that such decisions do not add value to their shareholders. The focus of this thesis is on acquirer performances and three determinants that have received growing attention in financial research but are still in the early stages of M&A literature.

The key research questions are whether acquirers can add value to their shareholders by

1) exploiting proprietary knowledge about their true value and takeover synergy,
2) choosing the correct payment method according the marginal value of cash holdings,
3) avoiding the high costs incurred by capital control in the home country.

To answer the first two questions, we employ the data from the US market. For the third question, we extend our sample to international M&A deals.

1.3 Main Findings and Contributions

Firstly, the results of our initial empirical tests on the effect of information asymmetry between acquirers and targets/market on acquirer gains and the takeover premium support the hypothesis that acquirers can benefit from their private information that targets/market do not have to some extent. We also find that private knowledge held by target firms should not be ruled out since the condition of double-sided information asymmetry plays an important role in determining the acquisition performance. In our baseline model, we find a negative effect of acquirer information asymmetry on returns to target firms (premium and Target Cumulative Abnormal Return (TCAR)), suggesting that acquirers may gain a better bargaining position and pay a lower premium. The coefficients are statistically and economically significant. However, the relationship between acquirers' ARs and their private information exhibit no trend in the short run but has a strong negative association in the long run, particularly in stock only and mixed mode payments. We then further examine whether our findings can be explained by the exploitation of private knowledge regarding misvaluation or takeover synergies. The estimations indicate that overvalued acquirers pay a lower premium only in stock-financed bids during announcement. However, this benefit disappears for overvalued acquirers who have high information asymmetry. This loss persists for 12, 24 and 36 months after announcement in both stock only and mixed payments. Regarding deal synergies, the coefficient of the interaction term *Acquirer IA x Hi Synergy* is positively significant at a 5% level of confidence, which can be interpreted as those managers of acquiring firms with proprietary knowledge of synergies being able to create value for their shareholders by engaging in stock acquisitions. In addition, when the self-revaluation bias is alleviated, we find that frequent acquirers with high information asymmetry pay a lower premium in the short run but suffer greater loss in the long run when stock is used as the means of payment. Similarly, acquirers with high information asymmetry, who issue new equity one year prior to the bid announcement, lose more than those who do not, across 12, 24 and 36 months after the announcement period. This pattern is exhibited only in stock acquisitions.

Our first empirical chapter contributes to existing literature regarding to the information asymmetry and M&A performances in several ways. First, our study extends an understanding on how acquirer's information asymmetry affects wealth of both acquiring and target firms. Complementing to Moeller et al. (2007), we document that though acquirers with high information asymmetry may suffer the negative market reactions during announcements, they on the other hand benefits from paying less premium. Second, our study provides additional evidence of how information asymmetry affects the firm value other than studies built on adverse selection costs. We argue that information asymmetry does not necessarily always bad for acquirers. The value can be created with the private knowledge of deal synergies rather than exploiting the overvalued stock price. Third, in line with Luypaert and Van Caneghem (2017) and Eckbo et al. (2018), our results confirm an importance and impact of double-sided information asymmetry on M&A outcomes. We highlight the different result if information asymmetry on the other side of deals has been ignored. Our findings also add that the exchange and transmission of information between deal participants have an impact on bargaining position and subsequently the premium paid and return to acquirers to the literature.

The second key research question of this thesis is whether the marginal value of cash can affect the choice of payment method and enhance the value of bidding firms. This has been tested and the results are analysed in Chapter 3. To addgress the relevance of the marginal value of cash balance of acquirers on shareholders' wealth of merging firms first we estimated the marginal value of cash following Faulkender and Wang's (2006) methodology. For this we estimate the marginal value of $1 held by acquirers prior to the announcement of the bid. We find that the marginal values of the additional $1 that firms hold are $0.79 in cash only deals, $2.16 in stock only deals and $1.10 in mixed mode payment deals. This suggests that acquirers who have a high (low) marginal value of cash pay for their target firms with stock (cash). This finding confirms that bidding firm managers do consider the marginal value of cash while deciding the method of payment in a takeover deal. The quality of results remains unchanged when the choice of payment method with respect to the marginal value of their cash balance is analysed for cash-rich and non-cash-rich firms. These findings help in explaining why it is not necessary for acquirers with a large cash

balance always to engage in cash-financed deals. When we examined the marginal value of cash three years prior to and three years after the deal announcement, there is evidence of market timing behaviour of managers with respect to the marginal value of cash. The results show a temporary rise in cash value in the stock acquisitions and temporary drop in cash value in the cash acquisitions one year prior to the announcements; the value of cash then reverts afterwards. In our Tobit regression on percentage of cash financing in takeover deals, the coefficients of test variables proxied by investment opportunity, cash flow volatility, financial constraints and the market value of the cash index constructed by principal component analysis, are all significantly negative. In addition, the results of ordinary least square (OLS) regression on acquirer performance confirm that by paying with the right currency (paying cash when the marginal value of cash is low), managers of bidding firms can enhance value for their shareholders.

Our findings in this empirical chapter contribute new and important evidence to the literature of corporate cash holding, payment methods and gains from M&As. Our results underpin the precautionary demand for cash motive instead of the agency cost theory which dominates the explanation how and why managers spend their cash in M&A deals. For the choice of payment studies, we document the superiority of marginal value of cash to the level of cash in explaining why managers choose to pay with stock and save their cash. Our finding also sheds light on the puzzle why cash-rich firms prefer to save cash and pay with their stock (Pinkowitz et al., 2013). We demonstrate that cash-rich firms who choose to pay with stocks are likely to have lower marginal value of cash. Lastly, our findings add to the M&A performance literature that managers can create wealth to their shareholders by choosing to pay with the correct payment method corresponding to their marginal value of cash.

The final key research question of this thesis is whether purchasing firms domiciled in relatively lower capital control environments can create value to bidders' shareholders. Out of the 13,053 deals in our CBA sample in Chapter 4, we find that 5,159 deals can be classified as acquisitions that flow into target countries that have a relatively low capital control level. We find that higher capital control levels in acquiring countries increase the likelihood of firms in that country to acquire firms from another country with a relatively lower control level. In addition,

we find that higher acquirer capital control can add value to their shareholders but only when acquirer has a relatively higher capital control level than the target firm and not the other way around. These findings are consistent with the springboard theory in our main hypothesis. Further, the coefficients of both cost of equity and cost of debt as well as a decrease in exposure to systematic risk are positively related to the acquirer announcement period returns. The results support our hypotheses that the value creation can be explained by accessibility to the lower cost of capital and better risk sharing. However, we find no evidence of value enhancing through an improvement of market discipline. Instead of our main KA index, when we use other capital control measures, including Lane and Milesi-Ferretti's (2007) Total index, EFW's index and Chinn and Ito's (2008) KAOPEN index, the results are robust to our main analysis.

Our final empirical chapter contributes to the literature on the discipline of cross-border acquisition, capital control and international business literature. First, our study provides new evidence on the sources of value creation in cross-border acquisitions. Complementing with other institutional factors, we document that acquirers can create wealth by purchasing target firms domiciled in relatively lower capital control countries as they can access lower cost of capital and/or better diversify their risk. Second, following Schulz's methodology, we construct and use the detailed measurements which can capture the degree of capital control imposed by each country compared with other methods employed in financial literature. Third, by using the relative capital control between countries of acquirer and target firms allow us to understand the effect of change in capital control without the real change in country's capital control which is rarely happen nowadays. Lastly, we contribute to the international business studies that the understanding whether institutional characteristics can alter the cost of engaging the business activity in one nation as compared to another is in great demand (Henisz and Swaminathan, 2008).

1.4 Thesis Structure

This thesis contains five stand-alone chapters. Chapter 1 introduces the motivations, key research questions and main findings of the subsequent three empirical chapters (Chapters 2 – 4). Each empirical chapter is constructed with the

similar structure of introduction, motivation, literature review, gaps in the literature, sample construction and methodologies, results and conclusion. Finally, Chapter 5 offers the conclusions and business implications drawn from our three empirical chapters' findings. For Chapter 2 "Acquirer Information Asymmetry and Gains from Mergers and Acquisitions", the literature review includes the topics of information asymmetry and corporate decisions as well as information asymmetry, choice of payment and gains of M&A. The chapter discusses how we estimate the information asymmetry, stock misvaluation, future takeover synergy and gains from M&As. The results of univariate and OLS regression analysis are summarised in the final section.

The literature review in Chapter 3 "Value of Cash and Methods of Payment in Mergers and Acquisitions " starts with the topic of corporate financing, investment and cash reserves before moving on to a discussion of the two contrasting motives of precautional motive of cash holding and agency cost motive of cash spending. The determinants of payment methods in acquisitions are discussed in the last part of the section. In the methodology section, the methods for estimating the marginal value of cash, excess cash holding, and announcement period returns are explained.

In Chapter 4 "Capital Control and Gains from Mergers and Acquisitions", we present literature relevant to the effect of capital control on the cost of capital, risk sharing and market discipline as well as the determinants of flow and wealth creation in CBAs. Different methods using to gauge the degree of a country's capital control are discussed in the methodology section.

Chapter 2 – Acquirer Information Asymmetry and Gains from Mergers and Acquisitions

2.1 Introduction

Academic studies on M&As have extensively analysed the determinants of successful deals and gains from acquisitions. One of the stylised facts is that the bidders' returns in both the short- and long-run are likely to be neutral or negative in public target takeovers and stock-financed deals. From a neoclassical perspective, managers should acquire other firms only if this will enhance the value of their shareholders. This raises an important question why bidding firm managers still engage in stock acquisitions even though managers, shareholders and the market are aware of the likelihood of value destruction.

Among the numerous deal and merger partner-specific characteristics that relate to gains from M&As, information asymmetry has received limited attention in empirical studies. Information asymmetry plays an important role in financial decisions as under this condition the flow of knowledge about a firm's strategies and actions can be restricted leading to difficulties in valuation (Borochin et al., 2019). From a conventional view, information asymmetry can hurt firms by creating adverse selection costs that trigger investors' demand for stock price discounts (Grossman and Hart, 1981; Leland and Pyle, 1977). The seminal work of Myers and Majluf (1984) further laid the foundation for information asymmetry and the consequences of corporate actions, including M&As. According to their model, the market infers the private knowledge about a firm's overvalued stock from the signalling of new equity issuance. A number of studies on the strand of corporate acquisitions reason their findings for negative returns in stock-financed acquisitions with this explanation.

If the predictions of Myers and Majluf (1984) hold, rational managers of bidding firms, particularly those with high information asymmetry, should not engage in stock-financed acquisitions. However, our preliminary analysis provided in Table 2.3 reports that 52% of acquirers ranked in the highest information asymmetry quintile have preferences for stock bids. Such potentially contradictory views motivate our study covered in this chapter. As an alternative explanation of motives behind the decisions, we propose an information advantage hypothesis. Under this hypothesis, managers of acquiring firms with high levels of information asymmetry can create value for their shareholders by exploiting and/or sharing their private

knowledge with target firms. Prior studies on M&As suggest that managers of acquiring firms are opportunistic and have the incentive to exploit their inflated stocks as the currency to exchange for the hard assets of target firms (see e.g. Rhodes-Kropf and Viswanathan, 2004; Shleifer and Vishny, 2003). On the other hand, one strand of studies documents that firms with high information asymmetry can create value through information sharing (Chang, 1998; Chen et al., 2016; Raman et al., 2013). Collectively, these discussions help in formulating our key research questions in this chapter: (1) whether bidding firms can benefit from high information asymmetry, particularly in stock deals, and (2) and if so, can private knowledge regarding misvaluation and takeover synergy be the sources of value creation.

This chapter is distinct from existing literature in several aspects. First, although our focus is on the information asymmetry between acquirer and target firms/market regarding to the value of acquirer (henceforth acquirer information asymmetry), we do not rule out the value of private knowledge possessed by the target firm about the acquiring firm. Most of the prior studies conduct their empirical analysis using only one side of information asymmetry, which can have left out the impact of bargaining power and negotiation between the deal partners. Second, we comprehensively analyse the value creation from M&As using both gains to acquirers and target firms during announcement. We also estimate the post-acquisition performance of acquirers that allows the synergy valuation and price corrections to take place. Third, to the best of our knowledge, this is the first study that attempts to explain the effect of information asymmetry on takeover gains through the motives of using overvalued stocks and takeover synergies. Fourth, built on Giuli (2013), we propose a new measure of takeover synergy that can capture both potential investment opportunities and capital expenditure reductions of newly merged entities. Finally, we obtain the true gains derived from acquisitions by minimising the self-revaluation bias. Therefore, we further examine the effect of information asymmetry on less frequent and without equity issued acquirers.

Overall, we find support for our information advantage hypothesis that acquirers can benefit from their information asymmetry to some extent. From the baseline model, there is the negative correlation between the level of acquirer

information asymmetry and takeover premium. The statistical and economic significance is substantial. A one-standard deviation increase in acquirer information asymmetry (proxied by acquirers' share price volatility) corresponds to a decrease in the takeover payment of 5.03%. However, we find that overvalued acquirers with high levels of private knowledge suffer from paying higher premiums and earn negative buy-and-hold AR in the long-run. When considering the private knowledge regarding synergy, although it exhibits no relationship with premium, we can observe the higher ARs to acquirers who have high levels of information asymmetry and takeover synergy. In addition, after alleviating the acquirer's revaluation bias, less frequent and without equity issued acquirers with high levels of information asymmetry gain more in both the short- and long-run.

The findings in this chapter contribute to the literature on the discipline of information asymmetry and M&A performances by adding that information asymmetry may not necessarily be bad for acquirers in stock deals. Furthermore, it is the private knowledge of synergies, not the overvalued stock prices, that helps create value for bidder shareholders. In addition, we argue that overvalued acquirers with low levels of information asymmetry can benefit by paying lower takeover premiums.

The remainder of the chapter proceeds as follows. Section 2.2 discusses the literature review and identifies the gap in the literature relevant to information asymmetry and implications for gains from acquisitions. Sections 2.3 and 2.4 present the hypotheses setting and methodology, respectively. Section 2.5 reports the univariate and multivariate results before the robustness tests in Section 2.6. Finally, the conclusions are drawn in Section 2.7.

2.2 Literature Review

This section provides a review of the relevant literature both on the theoretical and empirical aspects of the issue in order to understand the current state of researches in the strands of corporate finance and information asymmetry. The review starts with a fundamental information asymmetry model in microeconomics, especially in the context of corporate financial decisions, before moving on to the effect of information asymmetry on deal characteristics and wealth creation in

corporate acquisitions. The final part of this section identifies gaps in the literature and provides the key research questions.

2.2.1 Information asymmetry and corporate decision

Information asymmetry, the fact that agents possess different information on the market, has long been acknowledged but was excluded from early economic models until the early 1970s when Akerlof (1970), Spence (1973) and Rothschild and Stiglitz (1976) introduced new insights to explain how the markets function under information asymmetry. By offering the new dimensions of analysis that classical and neo-classical literature failed to do, their models of adverse selection, signalling and screening have shaped the analysis of information asymmetry in modern financial economics.

Akerlof (1970) uses the example of the automobile market to develop his information asymmetry model. In his explanations, sellers who know more can be tempted to mislead buyers who can only deduce the value of sellers from market statistics. As a consequence of misvaluation, the lower-quality products drive out the higher-quality, finally leading to the reduction in average quality and the size of the market, coined as adverse selection. Spence (1973) uses the job markets, in which the hiring process is equivalent to investment under uncertainty, to explain his equilibrium signalling model. While employers use both signals and indices to shape the conditional probability distributions of their beliefs, applicants have to choose their signals weighed on his suggested wages schedule and signalling cost. Rothschild and Stiglitz (1976) highlight the screening through a self-selection process in the insurance market. The uninformed insurance companies can improve their outcome by allowing informed customers to choose their preferred premium which is deducible from various combinations.

Later on, there are studies that attempt to explain how different information held by firm insiders and other stakeholders has a significant effect on firm's financing and investment decisions (see e.g. Dierkens, 1991; Grossman and Hart, 1981; Leland and Pyle, 1977; Myers and Majluf, 1984). These theoretical models help in setting the stage for information asymmetry in the corporate finance literature. Focusing on the assumption that managers know more about firm values

than investors, Myers and Majluf (1984) propose a model to explain the financing preference of firms' managers. Since adverse selection and transaction cost can make external financing more costly than internal financing, their model predicts that managers will not finance their investment by issuing new equity and may reject the positive net present value (NPV) project in order to maximise existing shareholders' wealth. One important implication of Myers and Majluf (1984) is that an announcement of new equity issue can be interpreted as a signal of stock overvaluation by the market, causing the firm's stock price to fall. Dierkens (1991) extends the perspective of information asymmetry between managers and investors further. In her dynamic framework, managers and market are equally knowledgeable about market-wide information. However, managers know more about firm-specific information before the market does. Information asymmetry persists until time or information-releasing events transfer the private information to the market.

2.2.2 Information asymmetry, choice of payment and gains of mergers and acquisitions

Among the fruitful literature on finance and information asymmetry, M&As are in short supply. This statement is confirmed by Draper and Paudyal (2008, p.377) who say "There is an extensive literature on the importance of information asymmetry in valuing risky assets, little of it relates to takeover." The original works that introduced information asymmetry into the takeover activity date back to the theoretical papers of Hansen (1987), Fishman (1989) and Eckbo et al. (1990). These models mainly set out to explain how the choice of payment is driven by the private information held by the acquirer and/or the target firm about their own value. Hansen (1987) presents the bargaining model under single-side and both-side information asymmetry. In his setting, when the target firm knows more about its value, the acquirer prefers to offer stock, which has desirable contingency characteristics. With asymmetry on both sides of the transaction, the bargaining will lead to equilibrium when the target firm uses the fraction of stock offer as the signal of the acquiring firm's value. Fishman (1989) highlights a cash offer from initial acquirer as the signal of high-value target firms and hence deters a bid contest. His model explains the higher AR on cash offer resulting from a lower probability of rejection and

deterrence. Eckbo et al. (1990) explain the relationship between the proportion of cash payment and the acquirer's private information about its own and the synergy value. In their assumption, bidders prefer to pay with stock because of target adverse selection; however, the more undervaluation of their stocks by target firms push them to pay with cash. The market thus uses the proportion of cash payment to differentiate and reward the high-value acquirers.

Following these intuitions, a number of empirical studies have documented the impact of managers who held private information about their firm's value on the deal attributes (choice of payment and deal completion) as well as the wealth creation by both parties.

When target managers know more about their firm value

Officer et al. (2009) report significantly higher acquirer returns in the stock-swap acquisitions of difficult to value target firms (target firms with a low level of sales, or research and development (R&D) expenses exceed sales, or high idiosyncratic return volatility). Consistent with the notion of the theoretical model in Hansen (1987), using stock as the medium of exchange can mitigate the information asymmetries with regard to the value of the target and create value to acquirers by sharing the risk of overpayment with the target's owners. However, Chemmanur et al. (2009) argue that an acquirer who faces greater difficulty in evaluating the target value is likely to use cash instead of a stock payment. Instead of the adverse selection cost of target firms, they explain their findings with the high-value signalling motive of a cash payment.

In contrast to adverse selection and signalling theory, a few studies explain the value creation on opaque target firms through information uncoverage. Cheng et al. (2016) and Li and Tong (2018) alternatively develop their hypotheses on the grounds of information exchange and value creating. Since the target firms with high information asymmetry are priced at a discount by market investors, an acquirer who obtains more and better information from a due diligence process view this discount as an opportunity for a bargain. Acquirers can benefit from the deal as the target firms are likely to accept the offered premium as they find it is difficult to credibly convey signals of the true value to the market. In addition, they pay less than the true value of target firms, let alone the gain from synergy. Raman et al. (2013) also

explain the higher bid premium in the deal where the target has a poor information environment as a result of information uncoverage through negotiations.

When bidder managers know more about their firm value

The stylised facts about the negative market reaction to all-stock offers for public targets are well documented.[4] Literature generally associates its results with Myers and Majluf (1984) and the rational expectations model. The market infers the payment with equity announcement as the firm's common stock being overvalued, which is bad news and leads to lower ARs.[5] Differently from prior studies that infer the existence of information asymmetry from the all-stock payment method, Moeller et al. (2007) directly test the level of the acquirer's information asymmetry and the gain from acquisitions. Consistent with Myers and Majluf (1984), they find that acquiring firms with greater information asymmetry face a more negative announcement period return in a stock deal; this result is the opposite of a cash deal.

Instead of focusing on overvalued acquirers, Draper and Paudyal (2008) test the information dissemination hypothesis benefited from by undervalued acquirers. Their study documents higher gains for undervalued acquirers who have higher information asymmetry levels. The lower announcement period return of frequent acquirers can be explained by the lower effect of information dissemination. This evidence is consistent with their hypothesis. Ekkayokkaya et al. (2009) explain the high gain at the takeover announcement of unlisted acquirers with the exploitation of relaxed disclosure requirements. The assumption that managers of unlisted firms tend to easily hide the bad news and then review it when they have the opportunity to do so, is convinced by the high level of acquirer's loss in the long-term.

Double-sided information asymmetry

Extant empirical studies mostly build up their testable implications from one-sided information asymmetry, ignoring the possibility that managers on the other side of the deal also know more about their firm's value. Since the exchange and transmission of information between deal participants has an impact on premium

[4] See e.g. Brown and Ryngaert (1991), Emery and Switzer (1999), Martin (1996), Schlingemann (2004), Servaes (1991), Smith and Kim (1994), Travlos (1987).

[5] Bidder announcement period returns are non-negative in all-stock offers for private targets (Bradley and Sundaram, 2006; Chang, 1998; Fuller et al., 2002; Moeller et al., 2004; Officer et al., 2009). With equity acquisition of private firms, the seller can obtain confidential information directly from the acquirer, so the acquirer would not expect to benefit by using overpriced equity as a means of payment for such acquisitions.

paid and return during an announcement (Finnerty et al., 2012), understanding the effect of double-sided information asymmetry is necessary.

Following this intuition, Luypaert and Van Canegham (2017) reexamine prior studies regarding to the effect of information asymmetry in M&As by incorporating the information asymmetry on the other side of the deals in their analysis. When target firms are characterised by higher information asymmetry, the authors contend that acquirers can strategically exploit the information advantage during the negotiation process. Therefore, acquirers are opt for the cash payment and receiver higher announcement return. Their study also confirms that acquirers are more inclined to pay with their stocks if they have greater information asymmetry whilst they will suffer the loss during the announcement. Further, they distinguish the difference between the term of information asymmetry and uncertainty in their study.

Eckbo et al. (2018) develop the rational payment design as an alternative hypothesis of bidder opportunism. They conjecture that bidders choose to pay with stock because of the adverse selection on the target side rather than exploit their overvalued stock. The fraction of stock in payment is then scaled back if the target firm does not have confidence in the value of the acquirer and pricing it at a discount. In other words, the greater the skill of the target firm in valuing their acquirer, the higher the fraction of stock that will be used in payment.

Croci et al. (2011) recently departed from traditional studies on the information asymmetry of stand-alone value in an announcement period by looking at future synergy gain instead. By defining favourable (low firm-specific risk regarding future synergies) and unfavourable information asymmetry (high firm-specific risk regarding future synergies), their model predicts that if acquirers possess highly favourable information asymmetry, they are likely to offer a high premium to target firms.

2.2.3 Gaps in the literature

A number of empirical studies have examined the effect of information asymmetry on motives and gains of M&As. However, they generally build up their testable implications on either bidders or targets who held private information (one-sided information asymmetry). For the target firm with information asymmetry, the

acquirer who uses stock as the means of payment can avoid Hansen's (1987) lemon problem and thus be rewarded by their shareholder (see e.g. Officer et al., 2009). On the other hand, acquirers who possess private information experience a more negative return during an announcement if they are believed to be overvalued (see e.g. Moeller et al., 2007) and receive higher gains vice versa (see Draper and Paudyal, 2008).

Focusing on the effect of private information possessed by acquirers, this section identifies a few gaps in the literature that lead to our key research question. First, existing studies are dominated by the test of Myers and Majluf's (1984) proposition on the acquirer returns. None of the literature has investigated the effect of private information held by bidder's managers on the return to target firms or premium. Complementary to the bidder returns, examining the returns to targets should provide a more comprehensive understanding about the association of acquirer information asymmetry and the value generation in M&A deals rather than the negative effect of using bidder overvalued stock as a means of payment.[6]

Second, most studies on acquirer information asymmetry tend to ignore the fact that target managers may also possess private information about their own firm's value. Under double-sided information asymmetry, the exchange and transmission of private information held by deal participants can influence the negotiation position and the premium and returns during announcement (see e.g. Finnerty et al., 2012). The exclusion of target information asymmetry from the analysis can lead to invalid conclusions. Our understanding of the wealth effect of acquirer information asymmetry relative to target firm's is minimal.

Finally, the extant literature usually makes a simple inference on stock deals being the exploitation of overvalued stock by bidders who know more about their own firm's value. However, none of the literature directly examines the joint effect of acquirer's information asymmetry and misvaluation on the acquisition gains. In addition, the literature suggest that acquirers do not hold private information only about their stock value but also the investment opportunities and/or synergy created from M&As. To the best of our knowledge, this is the first study that directly

[6] The announcement period returns to bidder may not be a clean measure since the market assessment can not only incorporate more than just the value of acquisitions but also the revelation of bidder stand-alone value (Bhagat et al., 2005; Harford et al., 2012).

incorporates the interaction of information asymmetry with misvaluation and synergy into the empirical models.

Our key research question in this chapter is to examine whether the bidder managers can benefit from their proprietary knowledge about their firm's true value and/or deal synergy in negotiation with target firms and pay the lower target returns or premium as well as benefit from the announcement period returns and post-performance.

2.3 Hypotheses Setting

This chapter develops and examines testable hypotheses from two conflicting arguments. First, we consider an argument based on Hansen's (1987) augmented model that suggests target firms recognise the private information (leading to adverse selection) possessed by acquirers who offer stock in payment. The use of stock payment can be viewed as a trade-off between reducing the downside risk of bidding companies caused by overvaluation of targets and increasing the extent of information asymmetry for targets in assessing the offered price (McSweeney, 2012). Thus, in stock deals, managers of target firms have a greater incentive to assess the acquiring firms' prospects carefully because they will end up holding the acquiring firm's stocks after the takeover is completed. The deal will turn sour if the target manager or market discover later that the premium they received is lower than the true value of bidder stocks, let alone their share of gains from synergy. The greater the private information acquirers hold the more difficulties the target firms face in identifying their true stand-alone and combined value created through synergy. Hence, to compensate for the risk of adverse selection, the managers of target firms will discount the value of the acquirer's stock and negotiate for a higher premium.

Alternatively, we propose an argument based on the ability of acquirers to take advantage of target firms by exploiting private information about their own value in a stock-related deal and/or expected synergy. Information plays a crucial role in shaping the takeover transactions and their outcome. Firms who hold information advantage tend to have a relatively more superior bargaining strength than their potential merging partners (Cheng et al., 2016). Therefore, it is plausible that opportunistic acquirers have an incentive to exploit their information advantage

that targets do not know about and negotiate a better deal resulting in wealth transfer from target to acquiring firm.[7]

If target managers or their shareholders suspect potential adverse information, the acquirer may possibly uncover and share some private information to convince its counterparty to accept the offer (overvalued and undervalued). Extant studies document that information exchange during the negotiation process can create value to the opaque party (Chang, 1998; Cheng et al., 2016; Raman et al., 2013). Therefore, we expect that information sharing can lead to the same empirical prediction as information exploitation and explain why target firms accept a lower premium than it should be from the acquirers who hold high levels of private information.[8] This leads to our first set of hypotheses that:

$H_{1.1}$: There is a negative relationship between the level of acquirers' private information and the return to target firms in share deals.

On the other hand, acquirers' gains are likely to be positively associated with the level of private information they hold. Hence:

$H_{1.2}$: There is a positive relationship between the level of acquirer's private information and the return to bidding firms in share deals.

Further we explore whether such a relationship uncovered in our first set of hypotheses is driven by the information advantage regarding the knowledge of acquirer's misvaluation or the synergy of merged entity.

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[7] Relevant literature shows the opportunistic behaviour of acquiring firms' managers when they have proprietary information that other participants do not. e.g. Dierkens (1991) points out that managers can substantially gain at the expense of the market by hiding information. Ekkayokkaya et al. (2009) empirically confirm the prediction proposed by Kothari et al. (2009) that managers delay the disclosure of bad news relative to good news in takeover events. In addition, there is some evidence of earnings management and price inflating before stock-related takeover announcements.

[8] It is possible for target managers to know more about the bidders from sources like information shared by the acquirers during the negotiation process, investigation by analysts, and from their own due diligence. Alternatively, acquirers may be opportunistic and guard 'adverse' information tightly and targets would not know what remains unknown. This is consistent with the view that corporate insiders know more about the firm than the outsiders which is also a basis of the pecking order theory of capital structure in which issuing shares signals that the shares are overvalued.
If acquirers do not hold any private information i.e. full information is shared with the target managers, target managers can be assured of the true value of acquirer (and consequently that of the merged firm) then it is possible for target managers to accept lower premium (i.e. risk premium component of the deal is reduced). It is also possible that target firm managers overestimate the value of synergistic benefits (Rhodes-Kropf and Viswanathan, 2004) and demand lower premium. Alternatively, as predicted by the agency theory, regardless of their shareholders' wealth, target managers may accept lower premium since they can cash out quickly after the deal completion (Shleifer and Vishny, 2003) or have be paid for their consent (Hartzell et al., 2004).

The theoretical papers of Shleifer and Vishny (2003) and Rhodes-Kropf and Viswanathan (2004) suggest that acquiring firms have incentives in exploiting their overvalued stock as a cheap currency to pay for the less overvalued target firms. Lending support to this intuition, recent studies empirically confirm the likelihood of stock-swap deals when the acquirer stocks are relatively overvalued (Ang and Cheng, 2006; Dong et al., 2006; Fu et al., 2013; Rhodes-Kropf et al., 2005). However, it is not clear whether acquiring firms can benefit from overvaluation-driven stock acquisitions in the short- and long-run.[9]

Differently from Shleifer and Vishny (2003) and Rhodes-Kropf and Viswanathan (2004), we alternatively posit that managers of target firms accept the offer of overvalued stocks because they cannot easily differentiate between the high-value and low-value stock of the acquirer who holds greater private information. Given that acquirers have the motive to benefit from paying with their overvalued stocks, it should be more difficult for managers of target firms to evaluate the true value of acquirers who possess higher levels of private information than lower ones. This rationale should lead to the prediction of less return received by target firms when the overvalued acquirers have more private knowledge about their true value.

$H_{2.1}$: *There is a negative relationship between the level of acquirer's private information regarding their overvalued stocks and the return to target firms in share deals.*

On the other hand, acquirers' gains are likely to be positively associated with the level of private information regarding the overvalued stocks they hold. Hence:

$H_{2.2}$: *There is a positive relationship between the level of acquirer's private information regarding their overvalued stocks and the return to bidding firms in share deals.*

[9] Ang and Cheng (2006), Ma et al. (2011) and Savor and Lu (2009) find that managers can benefit their shareholders by converting overvalued equity into real assets through stock acquisition. Akbulut (2013), Fu et al. (2013) and Song (2007) argue that overvaluation-driven stock acquisition destroys the value of acquirer's shareholders.

While the investigations of overvalued acquirers are voluminous, the information asymmetry about takeover synergy and growth opportunities is minimal. The literature confirms that acquirers have more advantages than their target firms not only on their intrinsic value but on the synergy created by the takeover. In the model of Rhodes-Kropf and Viswanathan (2004), the acquirer has private information on future synergy which a target firm does not and the target managers overestimate the synergies due to incomplete information. Edmans et al. (2012) suggest that the undervalued firms are targeted and taken over by acquirers who have additional information on the prospect firm's potential value under their management. In addition, Drobetz et al. (2010) documents that outsiders face more difficulty in distinguishing between value-destroying and value-enhancing investment in firms with a high degree of information asymmetry.

Based on Lamont's (2000) finding that firm's actual investments have a high correlation with planned investments, Giuli (2013) proposes that actual investments can be used as a reasonable proxy for investment opportunities of the new merged entity.[10] We contend that if the manager of the bidding firm knows more about the future synergy of the new merged entity, he or she should benefit from this private information by paying a lower premium and receiving a higher gain at announcement in stock-financed acquisitions.

$H_{3.1}$: *There is a negative relationship between the level of acquirer's private information regarding the new merged entity's synergy and returns to target firms in share deals.*

On the other hand, acquirers' gains are likely to be positively associated with the level of private information regarding the new merged entity's synergy that they hold. Hence:

$H_{3.2}$: *There is a positive relationship between the level of acquirer's private information regarding the new merged entity's synergy and returns to bidding firms in share deals.*

[10] Prior literature widely uses sales growth and R&D expense to proxy the investment opportunities. Giuli (2013) argues that both measures take place prior to an announcement and are likely to be backward-looking. Dong et al. (2006) note that R&D expense is more related to mispricing than capital expenditure.

In addition to target firm returns, this chapter examines acquirer returns to gain more understanding about whether acquirers can create value from private information about their own value and potential synergy in share deals. Our prediction contrasts that of Moeller et al. (2007) who explain the finding of greater loss in acquirers who post high levels of information asymmetry with the signal hypothesis of Myers and Majluf (1984). According to this hypothesis, the market interprets stock payment as a signal of overvaluation, which in turn leads to a fall in stock price to correct the misvaluation.

However, studying the effect of acquirer information asymmetry on the returns to acquirers is not straightforward. We argue that if managers of acquirer firms realise this fact, why do most of them risk paying by stock and consequently fall into this trap.[11] One possible explanation is that the extant literature does not capture the true gain from the takeover. Golubov et al. (2016) argue that the acquirer's return in a stock-related takeover is a joint announcement between takeover and new equity issue. Also, the announcement period returns can be contaminated with the market's reassessment of stand-alone acquirer value (Hietala et al., 2011; Fuller et al., 2002).

To mitigate such inferential problems, we employ three different approaches. First, as suggested by Harford et al. (2012), we examine the acquirer gain directly from post-acquisitions. The real effect of private information exploited by acquirers should be clearly visible in the long run, particularly where the revaluation gain is minimal and synergy gain is taking effect. Second, we examine the announcement period returns of frequent acquirers whose announcement gain should be less affected by self-revaluation (see e.g. Draper and Paudyal, 2008). Third, we investigate the acquirers who do not issue new equity prior to the bid announcement to disentangle the value effect of acquisitions from new equity issuance. Free from self-revaluation and new equity financing biases, the empirical results should provide clear evidence of true takeover gain and, if possible, can highlight the higher gain of acquirers who know more about their true value and/or future synergy.

[11]Bharath et al. (2008) and Autore and Kovacs (2010) document that firms prefer to access financial markets and issue equity when the level of information asymmetry is low.

H_4: In the absence of self-revaluation and signalling bias, there is a positive relationship between the level of acquirers' information and return to bidding firms in share deals.

2.4 Sample and Methodology

This section describes the sample, explain how information asymmetry, misvaluation and potential synergy are measured. The last part of this section presents the methods used to estimate the short- and long-run acquisition performances before discussing the multivariate framework.

2.4.1 Sample construction

The deal characteristics, such as the announcement date, identity of acquirers and targets, payment methods and transaction-specific information, are obtained from the Securities Data Corporation (SDC) database. The share price and financial data of the acquirer and target firms come from CRSP/Compustat database. The analysts' information comes from the I/B/E/S database.

The sample in this study is firstly obtained from SDC by using the following criteria:

(1) The deal is announced between 1 January 1990 and 31 December 2010.[12]

(2) Acquirer and target firms are US public firms listed in AMEX, NASDAQ, or NYSE.[13]

(3) The transaction is reported as a completed deal and categorised by SDC as a majority takeover transaction, i.e., a merger, acquisition of majority interest, or acquisition of all assets.

(4) The transaction value is $10 million or more and the target size is more than one percentage of the acquirer size. Any transaction without reported value is excluded.

(5) The acquirer owns less than 10% of the target's share prior to the announcement of the deal and owns more than 50% as a result of the deal.[14]

[12]Netter et al. (2011) suggest that SDC has better coverage compared to Grimm database after 1990s and the range of 1990 to 2010 covers several takeover waves.

[13]There is a slight difference in the definition of public firms provided by SDC and CRSP. To be more concise, US public firms in this study means US firms who are listed in AMEX, NASDAQ, or NYSE.

(6) Firms in all industry categories, including financials and regulated utilities, are included in the deal.

The sample firms are identified by their CUSIP and the database in combination with the share price and other financial information obtained from CRSP/Compustat. The 6-digit CUSIP number from SDC is matched with the CRSP 8-digit NCUSIP number where digits 7 and 8 from CRSP have the shares codes of 10 or 11. If the samples cannot be matched in the first place, we re-match them by using CRSP 8-digit CUSIP and TICKER, respectively. These criteria bring the sample down to 2,890 deals with 1,692 acquirers and 2,800 target firms. Lastly, we match the remaining observations with the analyst data from the I/B/E/S database using 8-digit CUSIP. We retain the final samples of 2,890 deals regardless of the availability of analyst data.

2.4.2 Measures of information asymmetry

As pointed out by Officer et al. (2009) a proxy for information asymmetry is hard to construct and imprecise, to date, and there has been no conclusion for the best proxy for measuring a firm's information asymmetry. Varieties of proxies are used in the information asymmetry-related literature.[15] For the purpose of this study, measures of information asymmetry are constructed based on data that are available for both acquirer and target firms. As a result, for this study it was decided to use a firm's idiosyncratic volatility as the main indicator. In the robustness test section, we use other proxies to capture firms' information asymmetry, which are the trading turnover, market capitalisation 10 days prior to an announcement date and the number of analyst's coverage.

Firm's idiosyncratic volatility is used by several authors in the literature (e.g. Dierkens, 1991; Officer et al., 2009; Moeller et al., 2007). Following Moeller et al.

[14]Criteria (4) and (5) ensure the control of asset change. (see Netter et al., 2011)

[15]Scholars use different approaches to measure the information asymmetry in their literature. Draper and Paudyal (2008) use four proxies, which are analyst coverage, firm size, volume of trade and number of trade, to capture information asymmetry between managers and outside investors. Officer et al. (2009) use two measures to proxy for the asymmetric information about the target firm at the time of the acquisition. The first measure is the ratio of firm's R&D expenditures and sales, second is the amount of intangibles the target reports on its balance sheet. Moeller et al. (2007) and Dierkens (1991) use firms' idiosyncratic volatility and standard deviation of the earnings announcement AR. As an alternative to using an individual proxy, Drobetz et al. (2008) construct the information asymmetry index based on quintile rankings of firm size, RD expenditure, Tobin's q and the number of analysts following the firm in a given year. Bharath et al. (2008) take another approach to constructing information asymmetry in their capital structure analysis by running a principal component analysis of market microstructure information.

(2007), this chapter defines a firm's idiosyncratic volatility as the standard deviation of the market-adjusted residuals of the daily stock returns measured during the period starting from 205 to six days prior to the acquisition announcement. However, Krishnaswami and Subramanian (1999) state that daily volatility may be volatile with risk in the broader sense rather than information asymmetry.

In addition to our main information asymmetry proxy which is idiosyncratic volatility, we employ three alternative proxies used in Draper and Paudyal (2008) which are firm size, analyst coverage, and trading volume in out. To avoid the drop in our sample size, these three variables are fit with our robustness test (Table 2.26 to 2.28) as the data are likely to be available for both acquirers and target firms.

For the firm size, prior research suggest that there is the relation between the information available about the firm and its size (e.g., Grant, 1980; Atiase, 1985; Collins et al., 1987; Freeman, 1987; Bhushan, 1989). The dissemination of information in large firms are partly due to an effective monitor by institutional investors as their owners. Also, large firm can allocate a handsome budget for doing an effective investment relations activities and credible signal information to the market. Thus, the information asymmetry has a negative relationship with the firm size. Analysts also play an important role in mitigating information asymmetry (Hong et al., 2000; Barth and Hutton, 2000; Bowen et al., 2004). This can be explained by their role that include collecting the information that is unknown to the market (e.g. via company visit) and present them in the format that is easily understand by less complexed investors. The number of analysts following the firm represents the number of channels that can disseminate information to the market and make firm more visible. Finally, the works of Kyle (1985), Admati and Pfleiderer (1988) and Foster and Viswanathan (1990) confirm that trading activities can bring information to the market. According to Chae (2005), abnormal trading volume is positively correlated with the level of information asymmetry.

In addition, to ensure that the double-sided information asymmetry which can influence our results are incorporated in the univariate analysis section, we further propose the measurement of relative acquirer information asymmetry. The relative acquirer information asymmetry is defined as the idiosyncratic volatility of the acquirer divided by the idiosyncratic volatility of the target firm.

2.4.3 Measures of misvaluation

Extant literature has proposed various measures to capture misvaluation.[16] All of these methods have their pros and cons. In addition to misvaluation, market to book (MB) ratio may also capture risk, growth opportunity, information asymmetry and market discipline. Fu et al. (2013) note that the residual income model used in estimating intrinsic value relies on restrictive assumptions and requires the analyst forecast information.

Relaxing from the residual income model, we follow the method used in Rhodes-Kropf et al. (2005) which assumes that a firm's intrinsic value (V) is a linear function of book value of equity, net income and leverage, as presented in equation (2.1).

$$Ln(M_{it}) = \alpha_{ojt} + \alpha_{1jt}Ln(B_{it}) + \alpha_{2jt}Ln(|N_{it}|) + \alpha_{3jt}I^{-}Ln(|NI_{it}|) + \alpha_{4jt}(\frac{D}{V})_{it} + \varepsilon_{it} \quad (2.1)$$

$|N_{it}|$ is the absolute value of net income of firm i at time t. I^{-} stands for the dummy variable that equals one for firm-years with negative net income and zero otherwise. $\frac{D}{V}$ stands for the market leverage ratio. j is industry. ε_{it} is the proxy for firm-level misvaluation at a given time. We run regressions of Eq. (2.1) for each industry and each year to estimate the parameters α_{jt}.[17] Since the industry-specific component of misvaluation and the magnitude of industry-level misvaluation varies over time, Rhodes-Kropf et al. (2005) take the time series average of $\hat{\alpha}_{jt}$to compute the long-run parameter $\bar{\alpha}_j = 1/T \sum_t \hat{\alpha}_{jt}$. The final measure of misvaluation then incorporates these two components, as shown in equation (2.2).

$$Ln\left(\frac{M}{V}\right)_{it} = Ln(M_{it}) - [\bar{\alpha}_{ojt} + \bar{\alpha}_{1jt}Ln(B_{it}) + \bar{\alpha}_{2jt}Ln(|N_{it}|) + \bar{\alpha}_{3jt}I^{-}Ln(|NI_{it}|) + \bar{\alpha}_{4jt}\left(\frac{D}{V}\right)_{it}] \quad (2.2)$$

[16]Loughran and Vijh (1997) use the long-run stock AR as ex post overvaluation measures. Dong et al. (2006) use the ratio of price to book value of equity (PB) and the ratio of price to residual income model value (PV). Akbulut (2013) uses the manager's inside trade. Ben-David et al. (2015) use the short interest in a stock. Ang and Cheng (2006), Dong et al. (2006) and Lee et al. (1999) use the residual income model to estimate the intrinsic value of equity.

[16]We use the 12- industry classification of Fama and French (1997).

2.4.4 Measures of future synergy

In this section, we propose a novel measure to capture the takeover synergy possessed by managers of acquiring firms. Prior literature suggests that one fundamental motive that managers pursuing an M&A strategy have is takeover synergy. We define the synergy as potential growth opportunities (the Q-theory of mergers; see Rousseau, 2009 and Servaes, 1991) and capital expenditure saving (Davos et al., 2008) of new merged entities.[18]

Built on Lamont's (2000) finding that actual investments have a high correlation with planned investments, Giuli (2013) suggests the actual capital expenditure should be a reasonable proxy for investment opportunities which take into account the possible investment in the merged entity.[19] As with investment opportunities, we contend that the actual capital expenditure cutback should be a reasonable proxy for planned capital expenditure reduction. We measure the synergy as the change of average capital expenditures over asset ratio, measured over the three years following the acquisition (Capex/Asset (t+1, t+3)), to the capital expenditures over asset ratio prior to the announcement.

2.4.5 Announcement period return

To estimate announcement period excess returns, the market-adjusted model suggested by Brown and Warner (1985), is used.[20] Daily AR is calculated by deducting the NYSE/AMEX and NASDAQ value weight index return from the firm's return. Then, CARs are calculated by summing the ARs over the five-day window.

---

[18]Since there are numbers of sources that can create synergistic value, in this study we choose to focus on two measures which has been extensively documented in the literature, the potential growth opportunities (the Q-theory of mergers; see Rousseau, 2009 and Servaes, 1991) and the cutback in investment expenditure of new merged entities (Davos et al., 2008). Compared with other proxies, we argue that the change in actual CAPEX of new merged entity is likely to a suitable proxy of M&A synergy because it can capture the synergy from both source (top increasing quintile for capturing growth opportunities and top decreasing quintile for the cutback), require less assumptions than calculate PV of incremental cashflow, and overcome the traditional proxy as Tobin's Q.

[19]Prior literature widely uses sales growth and R&D expense to proxy for investment opportunities. Giuli (2013) argues that both measures take place prior to an announcement are likely to be backward-looking. Dong et al. (2006) note that R&D expense is more related to mispricing than capital expenditure.

[20]Instead of using a market model, as suggested in the literature, where the event study method is used, this study is aware of the bias that can arise from acquirers who announce another takeover within the estimation period. In addition, Brown and Warner (1980, 1985) confirm that this simple market-adjusted method yields the same result as other sophisticated models in the short run.

$$AR_{it} = R_{it} - R_{Mt}, \quad (2.3)$$

where R_{it} is firm i's daily stock return on date t and R_{Mt} is the return for the NYSE/AMEX and NASDAQ value weight index on date t.[21]

To overcome the potential limitations of a single measure, this study also uses the premium ((Final offer price - target stock price of four weeks prior to announcement) / target stock price of four weeks prior to announcement x 100)) together with the 5-day TCAR to proxy for the target firm's return. Although premium and TCAR are interchangeably used to capture the takeover premium, Cheng et al. (2008) points out their difference. The authors argue that the premium reflects more decision from the managerial level (as it is calculated from the offer price determined by both firm managers) while TCAR reflects more on the response of the market to the deal and perhaps the offer price. Simultaneously, the 5-day cumulative abnormal return of the acquirer (ACAR) is estimated to gain additional insights into whether acquirers can exploit their private information and pay fewer premiums.

2.4.6 Post-merger performance

While the estimation of AR in the short-run has been accepted as the "cleanest evidence we have on efficiency" (Fama, 1991, p.1602), there are several critics of the reliability and accuracy of a long-run study (see e.g. Barber and Lyon, 1997; Kothari and Warner, 1997; Lyon et al.,1999).

Buy and hold abnormal returns (BHARs)

Lyon et al. (1999) highlight three causes for misspecification in the methods used for assessing the post-merger performance of a firm with respect to an event: new-listing bias, rebalancing bias and skewness bias. To control for new-listing and rebalancing bias, this study follows the methodology introduced by Lyon et al. (1999) to estimate buy and hold abnormal returns (BHARs).[22]

$$BHAR_i(t,T) = \prod_{t=1\ to\ T}(1 + R_{it}) - \prod_{t=1\ to\ T}(1 + R_{Bt}), \quad (2.4)$$

[21]Antoniou et al. (2008), Dong et al. (2006) and Fuller et al. (2002) use Rm as the value-weighted market index returns.

[22]Many studies on post-merger performance have employed BHAR methods, e.g. Barbopoulos and Sudarsanam (2012), Bouwman et al. (2009), Megginson et al. (2004), Sudarsanam and Mahate (2003).

where R_{it} is firm i's daily stock return on date t and R_{Bt} is the return on either a non-event firm that is matched to event firm i, or the return on a benchmark portfolio on date t.

To alleviate the problem of skewness, we follow Lyon et al. (1999) to estimate the skewness-adjusted *t*-statistic.

$$t_{skewness-adjusted} = \sqrt{N}(S) + \frac{1}{3}\hat{\gamma}S^2 + \frac{1}{6N}\hat{\gamma} \qquad (2.5)$$

where

$$S = \frac{\overline{AR}}{\sigma(AR_i)}, \text{ and } \hat{\gamma} = \frac{\sum_{i=1}^{N}(AR_i - \overline{AR})^3}{N\sigma(AR_i)^3} \qquad (2.6)$$

Calendar-time portfolio return

One potential problem in the event-time return estimation discussed in the previous section is the cross-sectional correlation of ARs (Brav, 2000). This problem is even more profound in M&As where the events are industrial clustering and are repeated by the same bidders. To improve the methodological issue, Mitchell and Stafford (2000) propose the calendar-time portfolio (factor approach), which tests whether there is an AR in a multifactor regression. Although Loughran and Ritter (2000) argue that the factor model is the least powerful test for long-run returns, the calendar-time approach is generally used as a robust check for long-run estimation. A calendar-time portfolio AR is defined as in equation (2.7).

$$R_{pt-}R_{ft} = \alpha_p + \beta_p\left(R_{m_t} - R_{ft}\right) + s_p SMB_t + h_p HML_t + e_{pt} \quad (2.7)$$

where R_{pt} is the equal or value-weighted return for calendar month t for the portfolio of event firms that experienced the event within the previous t months. R_f and R_m are the risk-free return and the market return, respectively. SMB and HML are return differentials between small and large firms, and between high-BM and low-BM firms respectively, and e_{pt} is the error term. The intercept (α_p) thus provides the average monthly AR (Jensen alpha) on the portfolio of event firms over the t-month post-event period.

In each calendar month, a portfolio is formed consisting of all acquirers that have completed a merger in the past 36 months. We rebalance our calendar portfolios monthly to include acquirers that have just completed an event and to drop those acquirers that have fulfilled 36 months in the calendar portfolio.

2.4.7 Multivariate analysis

To examine the causal effect of information asymmetry on the short-run and long-run AR after controlling for the effects of other factors, the baseline regression analysis as in equation (2.8) is used.[23]

$$
\begin{aligned}
AR_i = {} & \alpha_0 + \alpha_1 Acquirer\ Informaiton\ Asymmetry + \alpha_2 Target\ Informaiton\ Asymmetry + \\
& \alpha_3 Relative\ Size + \alpha_4 Tender + \alpha_5 Hostile + \alpha_6 Focus + \alpha_7 Target\ Run-up + \\
& \alpha_8 Target\ \frac{B}{M} + \alpha_9 TargetLevrerage + \alpha_{10} Target\ Cash\ Hold + \\
& \alpha_{11} Target\ Op.Perform + \alpha_{12}\ Acquirer\ Size + \alpha_{13} Acquirer\ \frac{B}{M} + \\
& \alpha_{14}\ Acquirer\ Levrerage + \alpha_{15} Acquirer\ Cash\ Hold + \alpha_{16} Acquirer\ Op.Perform + \\
& Acquirer\ Industry\ Fixed\ Effect + Target\ Industry\ Fixed\ Effect + \\
& Year\ Fixed\ Effect
\end{aligned}
\tag{2.8}
$$

where AR_i is the five-day CAR of target or acquirer i and the 12-, 24- 36-months BHAR of acquirer i (i = 1 to N). The explanatory variables in the model can be grouped into test and control variables. The test variable is the level of acquirer information asymmetry. For control variables, we include deal and firm characteristics that have been reported by the extant literature to have significant effects on the returns to target or bidding firms. Fuller et al. (2002) suggest that the larger the target relative to the bidder, the greater the effect of the acquisition and market reaction on the bidder. We also control for the deal attitude (Hostile) as motivated by Servaes (1991) and an acquisition technique (Tender) as in Jensen and Ruback (1983). Moeller et al. (2004) show that size does matter, smaller acquirers gain more than larger acquirers. Investment opportunities proxied by MB ratio are widely acknowledged to determine the acquisition performance (Dong et al., 2006; Rau and Vermaelen, 1998; Servaes, 1991). Schwert (1996) documents the

[23]We have conducted the multicollinearity test for all regressions in our thesis. In this empirical chapter, the mean VIF statistics are all below the cut-off point of 10 (between 3 and 7) as suggested in Wooldridge (2014). The correlations between all independent variables are generally small and are less than 0.8 as advised in Allison (1999). Our test results suggest that we do not face the multicollinearity problems.

relationship between the premiums of takeover bids and the pre-announcement stock price run-ups. Maloney et al. (1993) find that there is a positive relationship between acquirer returns and acquirer leverage ratio. In the spirit of Harford (1999), we control for cash holding since the acquisitions by cash-rich firms are value destroying. Morck and Yeung. (1991) suggest that poorly performing managers also reduce a bidding firm's value. Finally, we also control for industry fixed effects (Matsusaka, 1993) and year fixed effects in all regression models.

2.5 Results

2.5.1 Acquirer information asymmetry and gains from acquisitions

Gains at announcement

Table 2.3 (Panel A) reports the takeover gains of target firms (Premium and 5-day announcement TCAR) and acquiring firms (5-day announcement ACAR) during the announcement period. We examine overall gains by using our full sample as well as subsamples partitioned by the payment methods. Then, we sort these results into quintiles by the extent of the acquirer's information asymmetry level. To highlight the effect of information asymmetry, we analyse the return differentials between the top (Q5 - the highest level of acquirer information asymmetry) and bottom (Q1 - the lowest level of acquirer information asymmetry) quintile.

For target firm returns, Premium and TCAR reported in the table are all positive and statistically significant. Our findings are consistent with prior literature which documents acquisitions as value creating activities for target firms. Conditional on the means of payment, deals that are paid in cash only exhibit the highest return among others.[24] Overall Premium (TCAR) in cash only deals is 48.31% (31.27%) compared with 40.61% (18.38%) and 37.66% (19.41%) in stock only and mixed payment deals, respectively. Extant studies lend two explanations to this finding. One is the differences in the tax liabilities of target firms' shareholders. To compensate for the liability of taxation on their profit, shareholders who receive cash are likely to ask for a higher premium (Harris et al., 1987; Huang and Walking,

[24]Cash payment transactions are associated with higher premiums than transactions using other methods of payment (Cai and Vijh, 2007; Moeller and Schlingemann, 2005; Officer, 2003). Because acquisition premiums are positively associated with the target firm's announcement period returns (Chen et al., 2011; Cotter and Zenner, 1994; Officer, 2003, 2009), target shareholders earn higher returns when the acquisition is financed with cash rather than stock or a combination of both.

1987; Wansley et al., 1983). The other is the high valuation of target firms signalled by the cash offering (Fishman, 1989).

When sorting all deals into the quintile of the acquirer's idiosyncratic volatility (proxied for information asymmetry), our results are inconsistent with $H_{1.1}$ "*There is a negative relationship between the level of acquirers' private information available to the target managers and the return to target firms in share deals"* The Premium (TCAR) received from acquirers with high information asymmetry (Q5) is significantly higher than those with low information asymmetry (Q1) by 17.00% (3.16%) and 17.93% (2.07%) in stock and mixed payment deals, respectively. The statistical insignificance of Premium and TCAR between Q5 and Q1 in cash deals is caused by the sharp fall of returns in the top quintile (Q5).

The positive correlation between the level of acquirer's information and target firm returns in Table 2.3 (Panel A) can be interpreted as being that the target firm managers who will receive the acquirer's stock as the currency of payment are likely to negotiate for a higher premium to compensate for the higher cost of adverse selection held by their acquirers. This situation will happen only if the premium paid by acquirers also reflects the value of information they held. The fall of TCAR in only the top quintile where the acquirer possesses the highest level of information asymmetry may reflect the caution of target firm shareholders towards acquirers with very high information asymmetry, regardless of the higher premium received. This result suggests a non-linear relationship between TCAR and the information asymmetry of acquirers, particularly in the top quintile where the effect of adverse selection risk is severe.

In addition, according to our hypothesis that builds on the lemon problem of acquirer's value, we should witness the relationship between target firm returns and acquirer's information asymmetry level only in stock-related deals where the valuation of acquirers is relevant. However, we also observe a positive trend in cash deals where the target firms can receive the amount of cash that satisfies them and walk away from the deals. This remains a puzzle in our study.

For the announcement period return of acquirers in public deals, the overall negative ACARs are mainly influenced by the return of stock-related deals. According to Myers and Majluf's (1984) information asymmetry and financing

model, the market interprets the use of stock payment as bad news of overvalued stock. As a consequence, the stock of the acquirer will fall to correct such mispricing. Our finding is consistent with this prediction. All ACARs in only stock deals are negative and become larger for acquirers who hold a higher level of information asymmetry. The Hi-Lo differential return in only stock deals is -2.10% and statistically significant. In contrast to stock-related payment, cash payment may signal the confidence of the acquirer in the high value of target firms. Instead, we observe the acquirers who hold high levels of private information gain more in cash deals (3.85%).

Since the univariate analysis conducted in Panel A of Table 2.3 ignores the information asymmetry held by target firms, this may influence our results. To mitigate this problem, we further introduce the relative acquirer information asymmetry into our univariate analysis. The relative acquirer information asymmetry is defined as the idiosyncratic volatility of the acquirer divided by the idiosyncratic volatility of the target firm. To the best of our knowledge, this study is the first to apply such a measure of information asymmetry into a takeover study. As presented in Table 2.3 (Panel B), after including the information asymmetry of target firms, the correlation of overall results between the level of relative acquirer information asymmetry and return to target firms reverts to having a negative sign which is consistent with our information advantage hypothesis ($H_{1.1}$: *"There is a negative relationship between the level of acquirer's information available to the target managers and return to target firms in share deals"*) rather than adverse selection hypothesis.

From Table 2.3 (Panel B), target firms whose relative acquirer information asymmetry is ranked in Q5 (highest relative information asymmetry) receive significantly less return than acquirers in the bottom quintile (lowest relative information asymmetry) by 17.30%, and 12.57% measured by Premium and TCAR, respectively. While conditional on our full sample of the payment methods, the difference between the top and bottom quintile in only cash bids presents the highest loss followed by only stock and mixed payments. The negative relationship between the returns of target firms and relative information asymmetry remains unchanged regardless of the payment currency used.

In line with our information advantage hypothesis, acquirers who have relatively high information asymmetry over their target firms may have better private information and can exploit this advantage to gain a better bargaining position and pay less (or gain more) from the deal. However, the interpretation has to be cautious since the relative information asymmetry can be affected not only by its numerator (information asymmetry of the acquirer) but also the denominator (information asymmetry of target firms). The descriptive statistics of relative acquirer information asymmetry in panel A of Table 2.2 reveal that the target information asymmetry has the lowest mean in Q5 (2.77%) and highest mean in Q1 (5.08%). The deals in which target firms have larger information asymmetry relative to their acquirer will result in the lower value of relative acquirer information asymmetry and are ranked in the lower quintile. Thus, we cannot rule out the possibility that higher Premium and TCAR received in lower quintile can gain more influence from the target firm's information asymmetry rather than the acquirer's. In other words, the lower target firm's return in the top quintile may not explained by the higher opportunity of acquirers to exploit their private information but may instead benefit from the reduction of adverse selection risk of target firms who hold low level of information asymmetry.[25] This concern will be clarified further in our multivariate analysis which allows us to include the target firm information asymmetry as the control variable (Table 2.5).

In addition, according to our hypothesis that builds on the lemon problem of acquirer's value, we should witness the relationship between target firm returns and acquirer's information asymmetry level only in stock-related deals where the valuation of acquirers is relevant. However, we also observe a positive trend in cash deals where the target firms can receive the amount of cash that satisfies them and walk away from the deals. We suspect that these contradictory results may possibly arise from the high level of target information asymmetry instead of private knowledge about the acquirer's value, as we discussed in a previous paragraph.

As an alternative approach to our former univariate analysis, we classify each deal into four groups according to the information asymmetry level of both sides of

[25]A number of literatures confirm the positive relationship between the target firm's return and their level of information asymmetry. Malmendier et al. (2016) explain this gain with revaluation while Hansen (1987) and Officer et al. (2009) suggest the higher return can come from the adverse selection.

the deal. Acquirers and target firms are labelled Hi (Lo) if their level of information asymmetry is ranked in Q4 and Q5 (Q1 and Q2). The results in Table 2.4 suggest that deals are unlikely to be consummated if acquirers hold high levels of private information (Hi A), while target firms have low levels of information asymmetry (Lo A). Furthermore, we observe the large difference of Premium (TCAR) between Lo A + Lo T which is 29.60% (14.96%) and Lo A + Hi T which is 47.80% (22.72%) in stock-only financed acquisitions. This pattern is similar in all payment methods. However, we cannot detect a large difference between the return to target firms between LO A + Hi T and HI A + Hi T deals. To obtain a sense of magnitude, in only stock payment, the acquirer in LO A + Hi T pays the premium of 47.80% compared to 48.16% in Hi A + Hi T. The results in this table also support our previous remark that the target firm information asymmetry may have a stronger effect on the return to target firms than the private knowledge held by the acquirer side. For ACAR, acquirers who pay by only stock (only cash) experience the highest loss (gain) of -3.41% (3.68%) in Hi A + Hi T followed by -1.97% (0.99%) in Lo A + Lo T and -1.28% (0.24%) in Lo A + Hi T acquisitions.

Table 2.5 presents the OLS regression analysis of various announcement gains from takeover and level of information asymmetry. Dependent variables are Premium received by target (Model 1 – Model 6), 5-day announcement TCAR (Model 7 – Model 9) and 5-day announcement ACAR (Model 10 – Model 12). Test variable is the acquirer level of information asymmetry proxied by a firm's idiosyncratic volatility (*Acquirer IA*). The regression is controlled for several variables that are suggested to have a causal relationship with gains from the takeover.

According to our information advantage hypothesis ($H_{1.1}$), if acquirers can benefit from their private information, we expect to see a negative relationship between the acquirer's information asymmetry level (*Acquirer IA*) and return received by target firms (Premium and TCAR) in stock-related deals. In addition, we should observe a positive relationship between the acquirer's information asymmetry and ACAR. When the information asymmetry of the target firm is not included in the specification of Models 1, 3 and 5, there is no evidence of an association between the information asymmetry of the acquirer and Premium. However, the coefficient of test

variable in Models 2, 4 and 6 shows a different result when the information asymmetry of target firm (*Target IA*) is introduced into the regression. These results confirm our finding in univariate analysis and prior literature, that private information on both sides of the deals does matter in determining the premium and M&A performance (see e.g. Eckbo et al., 1990; Finnerty et al., 2012; Hansen, 1987).

The coefficient of *Acquirer IA* in Model 2 (paying with only cash) and Model 4 (paying with only stock) is statistically significant at 5%. The negative sign indicates that target firms receive less gain when their acquirers possess higher levels of private information, consistent with our information advantage hypothesis ($H_{1.1}$). The economic significance is substantial. Since the regression coefficient in Model 2 (4) is -3.36 (-3.53), A one-standard deviation increase in acquirer information asymmetry (proxied by acquirers' share price volatility) corresponds to a decrease in the takeover Premium (TCAR) by 5.03% (5.30%).[26] The significance of the *Acquirer IA* coefficient at the 1% level of Models 7 and 8 also confirms our analysis. We find no evidence of the association of *Acquirer IA* and Premium (or TCAR) in mixed payment deals.

In addition to the gains of target firms, Models 10 to 12 examine ACAR conditional on their own information asymmetry level. We find the coefficient of the tested variable in only stock and mixed deals is statistically insignificant, suggesting that information asymmetry has no relationship with acquirer's announcement AR during an announcement period. However, the coefficient of acquirer information asymmetry in cash deals is significantly positive at the confidence level of 1%. This can possibly be explained by the revaluation gain received by undervalued acquirers who use the deal announcement as the means to disseminate their private information (Draper and Paudyal, 2008).

Considering the deal and firm characteristic variables, the results of Table 2.5 further show that tender offer is significantly positive for Premium and TCAR in mixed payment and ACAR in only cash transactions (Jensen and Ruback, 1983). Hostile positively affected Premium while negatively affected ACAR in cash deals (Servaes, 1991). Consistent with Fuller et al. (2002), the larger the target relative to the bidder, the greater the effect of the acquisition and market reaction on the bidder.

[26]The standard deviation of acquirer volatility is 1.50%

Relative size has a negative effect on return to target firms in stock and mixed payment deals but positively affects target firms in cash deals.

Target run-up positively affects Premium in all types of payment and negatively affects TCAR in all types of payment (Schwert, 1996). As suggested by Morck et al. (1991), poorly performing managers reduce the firm's value. The target operating performance positively affects Premium in cash and TCAR in stock and negatively affects ACAR in stock deals. Acquirer Run-up negatively affects Premium in cash deals, positively affects Premium in stock and mixed deals and TCARs in stock and mixed deals. Overall, the coefficient sign of our control variables are in line with the predictions of prior literature.

The extremely high coefficient of hostile variables that occurs only in Model 1 and 2 of Table 2.5 can possibly explained by their dependent variable (takeover premium) which generally has high value compared with TCAR and ACAR (mean = 48.31%). In addition, our univariate analysis of this variable confirms that the premium of deals, which are hostile and paid by cash (Model 1 and 2) is 65% compared while in friendly deals paid by cash it is 48%.

Post-merger performance

From the perspective of acquiring firms, the success of acquisition must be measured over a specific time frame with the benefits from merging (i.e. synergies, increase in productivity, incremental cash flows, margins, reductions in cost of capital). If potential gains from merging are real and acquisitions do not overpay, acquisition should yield a positive NPV and therefore we should observe the value creation on behalf of bidder shareholders in the long run.

Table 2.6 presents the 12-, 24- and 36-months BHARs partitioned into quintiles of acquirer information asymmetry level and the method of payment. Consistent with other long-run performance researches, we find that acquiring firms earn statistically significant negative ARs up to three years following mergers in stock-related transactions (see e.g. Loughran and Vijh, 1997; Mitchell and Stafford, 2000; Rau and Vermaelen, 1998). The loss ranges from 0.00% to -1.80%. In addition, there is a negative correlation between post-merger performance and the level of acquirer information asymmetry. The Hi-Lo differential of BHARs is statistically significant at the 1% level in only stock deals, which are 1.25%, 1.06%

and -0.62% for 12-, 24- and 36-months, respectively. The results in this table find no support for the argument that acquirers can create value for their shareholders by exploiting their high levels of private information using long-run takeover performance as a value metric.

In the multivariate analysis, Table 2.7 estimates the OLS regression of long-run acquirers' performance conditional on their own information asymmetry level. As predicted in $H_{1.2}$, if acquirers can take advantage of their private information, to some extent we expect to observe a positive sign in the coefficient of acquirer information asymmetry in stock-related deals. The coefficient of *Acquirer IA* is insignificant in only cash deals (Models 1, 4 and 6) but significantly negative in only stock (Models 2, 5 and 8) and mixed payment transactions (Models 3, 6 and 9). Our empirical results suggest that using all or partial stocks as the means of payment can destroy the firm value and is therefore inconsistent with our prediction in $H_{1.2}$ *"There is a positive relationship between the level of acquirer's private information regarding their overvalued stocks available to the target managers and the return to bidding firms in share deals."*

2.5.2 Acquirer information asymmetry, misvaluation and gains from acquisitions

Gains at announcement

This section examines the joint effect of information asymmetry of acquirer and misvaluation on the takeover gain. Following the method used in Rhodes-Kropf et al. (2005), we decompose the firm's log market-to-book equity ratio (ln(M/B)) into ln(M/V) + ln(V/B). The first component (ln(M/V)) is the proxy for misvaluation where V is the intrinsic value which is unobservable but can be estimated from a linear function of the firm's book value of equity, net income, and leverage.

The stock misvaluations (ln(M/V)) of acquirers and target firms 42 days prior to the takeover announcement are presented in Table 2.8. The positive ln(M/V) indicates the stock is overvalued while the negative ln(M/V) indicates that the stock is undervalued. For all types of payment, on average, acquirers are relatively more overvalued than target firms prior to the acquisition announcements. Acquirers in only stock and mixed payment deals are more overvalued than those who choose to

pay with only cash. Our estimations of ln(M/V) are in line with the findings in Fu et al. (2013).[27] We further examine the ln(M/V) of acquirers and target firms in each quintile, sorted by the level of acquirer information asymmetry (Panel A) and relative acquirer information asymmetry (Panel B). The results in Panel A review the positive correlation between the level of private information held by the acquirer and their stock overvaluation in only stock deals. ln(M/V) of the acquirers rises from 0.49 in the bottom quintile (Q1) to 1.19 in Q4 before slightly dropping to 0.79 in Q5, suggesting that acquirers with high information asymmetry levels are generally more overvalued. In Panel B, we still observe the highest level of ln(M/V) in only stock payment. However, there is no established trend between misvaluation and relative acquirer information asymmetry.

Table 2.9 reports Premium, TCAR and ACAR conditioning on absolute and relative acquirer information asymmetry. To directly examine whether managers of bidding firms with high information asymmetry can exploit their private knowledge regarding their overvalued stock prices, we partition our samples into Hi ln(M/V) (overvalued) and Lo ln(M/V) (non-overvalued) columns. By sorting acquirers ln(M/V) into quintiles, those estimations in Q4 and Q5 are labelled as Hi ln(M/V) while those in Q1 and Q2 are labelled as Lo ln(M/V). Consistent with Fu et al. (2013), our results confirm that overvalued acquirers pay higher premiums than non-overvalued acquirers on average. At the top quintile (Q5) in Panel A, the target firms receive lower Premium (TCAR) from overvalued, rather than non-overvalued, acquirers by 9.42% (2.69%) in only stock-financed acquisitions as well as 10.86% (2.27%) in mixed payment deals. However, the difference is statistically insignificant. For ACAR, there is a significant difference between Lo ln(M/V) and Hi ln(M/V), particularly when the acquirer information asymmetry level is high. For instance, in the top quintile (Q5), ACAR of overvalued acquirers is -4.60% and statistically significant at 1%, while non-overvalued acquirers incur an insignificant loss of -1.66%. This trend is reversed when the payment currency is only cash. Lo ln(M/V) acquirers gain a significant 6.55%, in contrast to Hi ln(M/V) acquirers who gain 1.58%, and is statistically insignificant.

[27]Fu et al. (2013) present empirical results that contradict the theories proposed by Shleifer and Vishny (2003) and Rhodes-Kropf et al. (2005). Theories suggest that overvalued acquirers can create value to their shareholders by using the overvalued stock as currency to purchase targets that are less overvalued.

In contrast to the findings in Panel A, when we focus on the information asymmetry level between acquirers and targets, the results in Panel B generally suggest that target firms receive higher Premium and TCAR when the acquirer is highly overvalued in only stock deals. More strikingly, for the deals that overvalued acquirers pay for with only cash, there is a negative trend between ACAR and the level of relative information asymmetry level from Q1 to Q4 (ranging from -1.57% to -4.12%) before returning to -1.48% and becoming statistical insignificant in Q5. Conversely, the ACAR of Lo ln(M/V) acquirers is insignificant and exhibits no trend from Q1 to Q4 but sharply drops to -4.76% and becomes statistically significant at the 1% level in Q5.

Overall, our univariate evidence in Panel A suggests that there is a negative (negative) relationship between overvalued acquirers who have high information asymmetry and the return to target firms (acquirers) in share deals. Conversely, when considering the acquirer relative information asymmetry, Panel B finds that there is a positive (negative) relationship between overvalued acquirers who have high information asymmetry and the return to target firms (acquirers) in share deals.

To clarify whether the lower return to target firms reported in Table 2.5 can be explained by the exploitation of acquirer's overvalued stock, the specifications in Table 2.10 add the test variables of acquirer's misvaluation *(Acquirer ln(M/V))*, its interaction with acquirer information asymmetry *(Acquirer IA x Acquirer ln(M/V))* and the target firm's misvaluation *(Target ln(M/V)* to our base line model. The results of the negative effect of *Acquirer IA* on the return to target firms (Premium and TCAR) in only stock and cash payments remain unchanged. The *Target ln(M/V)* has a strongly negative effect on the return to target across all payment methods (Models 1 to 6), indicating that the misvaluation of the target's stock price is realised and corrected by their deal counterpart and the market. The coefficient of interaction term is significantly positive in Model 2 at 1% and Model 5 at 5%. Our interpretation of this evidence is that the target firms can gain more from acquirers who possess high levels of private information and are overvalued. In other words, acquirers who possess high levels of private knowledge about their overvalued stock cannot fool their deal's counterpart and hence have to pay a higher premium, particularly in the stock deals. We cannot observe the statistical significance of this term coefficient in

other payment methods. For the results of ACARs in Models 7, 8 and 9, only the coefficient of *Acquirer IA* and *Acquirer IA x Acquirer ln(M/V)* in only cash-financed acquisitions (Model 7) is statistically significant. Acquirers with high levels of information asymmetry can gain more if using only cash payment; however, those with high levels of information asymmetry who are highly overvalued are punished by the market. In line with Draper and Paudyal (2008), our findings confirm that only undervalued acquirers who have high information asymmetry levels can benefit from deal announcements.

Overall, our results in this section are inconsistent with the prediction in $H_{2.1}$ *"There is a negative relationship between the level of acquirer's private information regarding their overvalued stocks available to the target managers and the return to target firms in share deals."* We do not find evidence that overvalued acquirers with high information asymmetry can take advantage of their target firm by paying less and gaining more in stock deals.

Post-merger performance

The univariate analysis of post-merger gain from takeover (BHARs) conditioning on the payment method and level of misvaluation are documented in Table 2.11. Using acquirer information asymmetry levels to classify our sample, Panel A reports the difference between the top quintile (Q5) and bottom quintile (Q1). The results of only stock and mixed payments establish the same pattern. The statistical difference of gain between Q5 and Q1 is observed only in the deal where the acquirer is overvalued (Hi ln(M/V)) but not in the other (Lo ln(M/V)). In only stock deals where acquirers are overvalued, acquirers in Q5 (the highest level information asymmetry) suffer higher losses than those in Q1 (the lowest level of information asymmetry) by 4.31%, 2.79% and 2.33% in 12-, 24- and 36-months after the deal has been announced, respectively. In addition, holding the level of information asymmetry constant, there is a statistical difference in Q5 in both only stock and mixed payments. Hi ln(M/V) acquirers in only stock payments lose more than Lo ln(M/V) acquirers by 3.35%. 1.74% and 1.32% in 12-, 24- and 36-months after deal announcements. However, in Q1 the trend is reversed. Hi ln(M/V) acquirers significantly gain more than Lo ln(M/V) acquirers by 1.20%, 0.94%, 1.32% over 12-, 24- and 36-months starting at bid announcement.

When we sort our sample by using the relative acquirer information asymmetry instead, the quality of results in Panel B remains unchanged. For only stock finance deals in quintile (Q5), Hi ln(M/V) acquirers significantly underperform Lo ln(M/V) ones by 2.50%. 1.74% and 1.32% during 12-, 24- and 36-months after deal announcements.

Table 2.12 reports the OLS regression of BHAR on acquirer information asymmetry after introducing the proxy of misvaluation and its interaction term with acquirer information asymmetry. The coefficient of *Acquirer IA* of stock in Models 2 (-0.584) and 5 (-0.424) remains significantly negative but not in only cash and mixed payments. The coefficient of *Acquirer IA x Acquirer ln (M/V)* is significantly negative in all models of only stock and mixed payments. Our univariate and multivariate analysis in this section find support for overvalued stock prices of acquirers with high information asymmetry being corrected in the long run (Jensen, 2005) which is inconsistent with our $H_{2.2}$: *"There is a positive relationship between the level of acquirer's private information regarding their overvalued stocks available to the target managers and the return to bidding firms in share deals."*

2.5.3 Acquirer information asymmetry, synergy and gains from acquisitions

Gains at announcement

Prior literature suggests that acquirers may gain by exploiting their private information from two sources: overvaluation and synergy. In the settings of $H_{3.1}$ *and* $H_{3.2}$ hypotheses, acquirers who possess high levels of private information regarding the synergy of new merged entities should benefit from exploiting this private information, therefore leading to paying a lower premium and creating value to their shareholders.

Classified by the quintile of acquirer information asymmetry and payment method, Panels A and B of Table 2.13 demonstrate the positive and negative change in capital expenditure to asset ratio (our proxy for takeover synergy), respectively. There is an association between the information asymmetry level and the magnitude of change in capital expenditure to asset ratio in both directions. In only stock deals, while the decrease in capital expenditure to asset ratio ranges from -0.80% in the bottom quintile (Q1) to -3.6% in the top quintile (Q5), the same ratio rises from

1.30% in Q1 to 6.70% in Q5. The trend is identical when sorting the deals with the relative information asymmetry in Panels C and D. Our interpretation of the empirical results is that acquirers with high levels of information asymmetry know more about the synergy that arises from growing investment opportunities or capital expenditure savings of new merged entities. One of the possible explanations why the increase in capital expenditure is much higher in only stock deals is that acquirers with high investment opportunities may want to keep their cash for future investment.

To directly examine whether managers of bidding firms can exploit private knowledge regarding the takeover synergy, we partition our samples into Hi Synergy and Lo Synergy columns. Hi Synergy is defined as the deal where the positive (negative) change of capital expenditure to asset ratio of acquirers are ranked in Q4 and Q5 (Q1 and Q2). Table 2.14 (Panel A) shows that the Premium and ACAR differential between Hi and Lo Synergy acquirers are statistically significant only if the deal is ranked in the top quintile (Q5 - highest acquirer information asymmetry) and paid by only stock. Conditional on Q5, Hi Synergy acquirers pay a lower Premium than Lo Synergy by 13.58% and receive greater AR by 5.84%. Panel B of Table 2.14 documents no significant difference of Premium between Hi and Lo Synergy acquirers. However, we find a significance in the TCAR of mixed payment. When acquirers' information asymmetry is much higher than their target's, we can observe that the Hi Synergy acquirers significantly gain more than Lo Synergy ones by 2.92% in Q4 and 4.28% in Q5.

To further examine our predictions in $H_{3.1}$ and $H_{3.2}$, we add the dummy variables of *Hi Synergy* and *Acquirer IA x Hi Synergy* into the previous regression model. Table 2.15 demonstrates that while the coefficient of *Acquirer IA* changes to be insignificant, the misvaluation and its interaction with acquirer information asymmetry still affect the Premium in the same direction as reviewed in Table 2.12. The coefficients of *Hi Synergy* and *Acquirer IA x Hi Synergy* are found to be significantly negative in Models 1 and 4. The results can be interpreted as acquirers who hold high levels of private information regarding the high takeover synergy paying a lower premium, particularly in cash deals. More strikingly, the coefficient

of *Acquirer IA x Hi Synergy* is statistically positive at 1.400, at the 5% level of confidence.

Collectively, our univariate and multivariate analysis in this section support our hypotheses $H_{3.1}$: *"There is a negative relationship between the level of acquirer's private information regarding the new merged entity's synergy available to the target managers and returns to target firm in share deals."* and $H_{3.2}$: *"There is a positive relationship between the level of acquirer's private information regarding the new merged entity's synergy available to the target managers and returns to bidding firms in share deals."* suggesting that acquirers who know more about their takeover synergy pay a lower Premium and receive greater ACAR.

Post-merger performance

Table 2.16 presents the BHARs conditional on the information asymmetry level, payment method and takeover synergy. The difference in BHAR between Hi and Lo Synergy acquirers is detected only in the top quintile of acquirer information asymmetry (Panel A) and relative acquirer information asymmetry (Panel B). Although the BHARs of Hi Synergy acquirers are still negative, the loss is smaller than Lo Synergy acquirers by 1.89%, 1.59% and 0.97% over 12-, 24- and 36-months. Our regression analysis in Table 2.17 finds no association between *Acquirer IA x Hi Synergy* and post-merger acquisition performance.

2.5.4 Acquirer information asymmetry and their true gain from takeovers

If acquirers can gain from exploiting their private information, a superior gain should be observed at announcement and/or in the long run. Overwhelming evidence documents that stock bids cannot add or even destroy the value of the acquirer in public deals. We argue that using conventional ACAR as the value metric in M&A studies is less clear-cut and subject to revaluation bias, particularly when acquirers hold high levels of private information. Prior literature has pointed out that ACAR can be determined not only by the gain from acquisitions, but also by the reassessment of the stand-alone value of bidders (see e.g. Bhagat et al., 2005; Golubov et al., 2016; Harford et al., 2012). In this section, to mitigate this inferential problem, we examine the gain of acquirers whose characteristics should be less

contaminated by the revaluation gain, namely (1) frequent acquirers and (2) acquirers who do not issue new equity one year prior to their deal announcements.

Frequent and less frequent acquirers and gains at announcement

To mitigate the effect of the revaluation gain of acquirers, Table 2.18 examines the univariate analysis of gains at announcement conditional on whether acquirers are active in the market of corporate control. Since frequent acquirers should better disseminate their private information to the market, the effect of self-revaluation should be less. In the spirit of Draper and Paudyal (2008) and Netter et al. (2011), we define the less frequent acquirers as those acquirers who have not announced the acquisition in the previous three years. From our univariate analysis in Panels A and B, we do not observe the difference between frequent and less frequent acquirers on Premium, TCAR and ACAR in only stock deals during announcement. However, in both Panels, we find that only less frequent acquirers with high levels of asymmetry can enjoy higher ACAR in cash-financed acquisitions. This finding can be explained with the information dissemination hypothesis motivated by Draper and Paudyal (2008).

In our regression analysis, we add *Freq* and *Acquirer IA x Freq* into our model. Table 2.19 indicates the statistically significant negative effect of *Acquirer IA x Freq* on Premium and TCAR across only stock deals (Models 2 and 5). This can be interpreted as target managers being less concerned about the adverse selection problems for the frequent acquirers and agree to accept a lower premium. However, we do not witness a positive relationship between frequent acquirers with high information asymmetry levels and ACAR in only stock bids, as predicted. Instead, these acquirers reduce their shareholders' value by using mixed payment. *Acquirer IA x Freq* in Model 9 is significantly negative at the 5% level of confidence.

Frequent and less frequent acquirers and post-merger performance

Despite finding no support for our hypotheses H_4 *"Without the effect of self-revaluation of acquirers, there is a positive relationship between the level of acquirers' information available to the target during deal announcements and return to target firms."*, our long-run univariate results presented in Table 2.20 offer interesting findings. Less frequent acquirers outperform frequent acquirers during 12-, 24- and 36-months after deal announcements in all levels of information

asymmetry (Panel A) and relative information asymmetry (Panel B). Conditional on relative acquirer information asymmetry in Q4, active acquirers strongly outperform less frequent ones by 1.44%, 1.11% and 0.95% in 12-, 24- and 36-month time frames.

When we control for other variables that may affect the BHARs, the OLS regression in Table 2.21 suggests that frequent acquirers with high information asymmetry gain lower returns by 0.64% and 0.33% in 12- and 24-months after the deal announcement (Models 2 and 4) compared to less frequent acquirers. The loss worsens in only stock deals where acquirers have higher levels of information asymmetry.

With and without equity issued acquirers and gains at announcement

Table 2.22 presents the univariate analysis of the acquirer's announcement conditional on whether the acquirer has issued new equity in the year prior to a takeover announcement or not. We define Equity Issued = 1 as being when acquirers have issued new equity in the year prior to a takeover announcement (SSTK from Compustat > 0) and 0 otherwise. We expect that the results of non-equity issued acquirers should offer uncontaminated results from the acquirer's self-revaluation. From Panel A, acquirers who hold high levels of private information and do not issue new equities pay a lower premium and gain more during the announcement period than those who have issued new equities. Acquirers with highest information asymmetry level (Q5) and Equity Issued = 1 receive a significant abnormal return of -3.58% while acquirers with Equity Issued = 0 earn an insignificant return of -1.85%. Interestingly, the number of deal activities is likely to rise along the quintile of acquirer information asymmetry. This trend is the opposite in acquirers who do not issue new equity. When we use the relative acquirer information asymmetry to partition our samples instead, the figures in Panel B exhibit a similar pattern. However, the differences are not statistically significant. When considering the mixed payments in both Panels A and B, ACARs have the negative signs in all quintiles when Equity Issued = 1 but not for Equity Issued = 0.

The regression analysis presented in Table 2.23 includes *W/O Equity Issued* and *Acquirer IA x W/O Equity Issued* in our models. The coefficients of our test variables are statistically insignificant across all tested models, implying that there is

no effect from acquirers' information asymmetry level on the acquisition gains, given that they do not issue new equity prior to the bid announcement. In other words, the greater losses of acquirers who have high information asymmetry are caused by the signalling of overvalued stock from the equity issuing process, not from the acquisitions *per se*.

With and without equity issued acquirers and post-merger performance

Table 2.24 examines the univariate analysis of post-merger performance conditional on whether acquirers have issued new equity in the year prior to a takeover announcement. Given Equity Issued = 1, we find almost all of the returns are statistically negative and exhibit a negative association with information asymmetry across all payment methods in both Panels A and B. This finding is different from the column Equity Issued = 0 where we rarely find any statistical significance of BHAR in only cash and mixed payments. In the only stock transactions of Panel A, BHAR12, 24 and 36 are all significantly negative in Q1 and Q2; however, BHAR24 and 36 turn to positive in Q4 and Q5 although most of them are not statistically significant.

In Table 2.25, we regress the acquirer information asymmetry on post-merger performance by including *W/O Equity Issued* and *Acquirer IA x W/O Equity Issued* to our models. Our results indicate that this interaction term is significantly positive in all cash and all stock payment at 24 months (Models 4 and 5) and 36 months (Models 7 and 8) after deal announcements. More strikingly, in only stock deals (Model 8), acquirers with high information asymmetry and that do not issue new stocks prior to bid announcement can enjoy the highest gain in the long run. Our results from the regression model indicate that acquirers with high information asymmetry will gain more if they do not issue new equity.

2.6 Robustness Test

Since there is no consensus on the measurement of information asymmetry and the idiosyncratic volatility that we used as our main proxy is subject to some limitations, in this section we employ other proxies that are frequently used in the literature as a robustness check for our main results. In Table 2.26, we use average monthly trades during 12 months prior to deal announcement to proxy for

information asymmetry of both acquirers and target firms. The coefficient of target information symmetry is significantly negative, indicating that target firms with higher information asymmetry gain less. Consistent with our expectation, the sign of acquirer information asymmetry is also positive; however, it is not statistically significant. When we change our information asymmetry by using market capitalisation 10 days prior to the deal announcement, the coefficient of acquirer information asymmetry in Table 2.27 is significantly positive, consistent with our results from the baseline regression. We interpret that the larger firms (low information asymmetry) have to pay higher premiums. Finally, we use the number of analysts forecasts as our test variable. The results in Table 2.28 confirm our main hypothesis that acquirers can benefit from high information asymmetry in stock bids by paying a lower premium and earning higher acquirer returns in both the short and long run.

2.7 Conclusions

The key research questions of this chapter are: (1) can bidding firms benefit from their high information asymmetry level, particularly in stock deals, and if so, (2) can private knowledge regarding misvaluation and takeover synergy be the source of value creation? From our overall results, this chapter finds support for the conjecture that information asymmetry does not necessarily means an unpleasant condition for acquirers in stock acquisitions, as predicted by the conventional adverse selection cost perspective of Myers and Majluf (1984).

From our baseline model, after including the target firm information asymmetry into the analysis (double-sided information asymmetry condition), our univariate and multivariate results confirm the negative relationship between acquirer private information and return for target firms in stock deals. The lower premium and TCAR can possibly be explained by the acquirer's information exploitation and/or information sharing motives. In the spirit of Cheng et al. (2016), the price of bidding firms with private information that they cannot credibly signal to the market are discounted heavily by the investors. By sharing such information with their deal counterpart, target managers learn that the intrinsic value of acquirers is greater than the current market price leading to a better bargaining power for acquirers and lower

premium paid in stock deals. However, with the same method of payment, we cannot find support for the benefit of acquirer information asymmetry on their own abnormal returns (ACAR and BHARs). The greater amount of private information acquirers hold, the greater the loss of their own abnormal return in both short and long run. The trend is reversed for cash acquisitions.

From the findings of the joint effect of acquirer private information and misvaluation on acquisition gains, our univariate analysis reports that overvalued acquirers who are ranked in the top quintile, sorted by the relative information asymmetry, earn an insignificant loss of -1.48% compared to non-overvalued acquirers who suffer a significant loss of -4.76%. This result suggests that acquirers who have high information asymmetry and are overvalued can take advantage from exchanging their overvalued stocks for target firm's assets. However, our results from the regression analysis are different. The strongly negative correlation between target firm returns and their overvaluation (Target ln(M/V)) suggests that bidding firm managers are aware of this fact and bargain hard to pay a lower premium. Interestingly, we find that overvalued acquirers actually pay a lower premium than non-overvalued in stock acquisitions. Our results further suggest that it is not the misvaluation but the misvaluation together with information asymmetry that triggers the alarm of adverse selection cost and leads to the demand for a higher premium. For the return to acquirers, we find that overvalued acquirers with high levels of information asymmetry experience a significantly negative BHAR across 12-, 24- and 36-months after the deal announcements. Our findings are consistent with Akbulut (2013), Fu et al. (2013) and Song (2007), who document that overvaluation-driven stock acquisition destroys the value for acquirers' shareholders.

When considering the private knowledge regarding future synergy, we cannot find support for the joint effect of acquirer information asymmetry and knowledge of future synergy on the returns to target firms. However, our findings in both univariate and multivariate analysis consistently support that high information asymmetry acquirers can benefit from the knowledge of takeover synergy. Conditional on the quintile of highest acquirer information asymmetry in stock deals, acquirers with knowledge of high synergy earn -2.00% compared to those with knowledge of low synergy who suffer a -7.84% during the deal announcement.

When regressing the interaction term of acquirer information asymmetry and high synergy deals on ACAR, their coefficient is significantly positive at the 5% level of confidence. We also observe lower premiums paid by acquirers who have private knowledge regarding high synergy in cash deals. This makes sense as managers of bidding firms who want to exploit their private knowledge of high synergy should prefer cash not stock payments. By paying with cash, current shareholders do not have to share these high gains from synergy with target firm shareholders.

After the self-revaluation and signalling bias are alleviated, we find that frequent acquirers with high information asymmetry pay a lower premiums in the short run but suffer greater loss in the long run when stock is used as the means of payment. Similarly, acquirers with high information asymmetry who issue new equity one year prior to the bid announcement lose more than those who do not issue new equity across 12-, 24- and 36-months after the announcement period.

Table 2.1
Sample Selection and Description

This table presents the number of takeover bids, mean value per transaction, and percentage of transactions that are tender offers, focus (2-SIC digit), defensive, only cash payment, only stock payment and mixed payment, by calendar year. The sample includes completed, domestic US takeovers announced during 1990-2010. Transactions have a value of at least $10 million and the acquirer owns less than 10% of the target's share prior to the announcement and obtains more than 50% as a result of the transaction. Acquirers and target firms are listed on NYSE, AMEX or NASDAQ and both have price data available on the CRSP database.

Year	*N*	Mean Value per Transaction	Tender Offers (%)	Focus (%)	Defence (%)	Only Cash (%)	Only Stock (%)	Mixed (%)
1990	47	306.40	23.40	38.30	17.02	40.43	42.55	17.02
1991	57	345.29	21.05	47.37	28.07	17.54	36.84	45.61
1992	45	398.57	17.78	46.67	35.56	28.89	46.67	24.44
1993	58	902.28	17.24	36.21	36.21	27.59	34.48	37.93
1994	156	452.36	17.31	30.77	27.56	23.08	58.97	17.95
1995	201	657.08	18.41	34.83	24.38	25.37	64.68	9.95
1996	195	1,009.28	17.44	37.95	13.33	26.15	50.26	23.59
1997	276	987.88	14.86	31.88	33.70	19.57	59.78	20.65
1998	289	2,568.95	15.92	35.99	36.68	24.91	53.63	21.45
1999	271	2,047.32	19.19	34.32	57.27	28.04	45.76	26.20
2000	201	3,161.26	18.91	35.82	11.44	27.86	39.30	32.84
2001	173	953.84	16.18	43.35	10.98	28.32	36.99	34.68
2002	98	1,060.85	20.41	33.67	5.10	43.88	24.49	31.63
2003	126	1,470.16	17.46	46.03	2.38	26.98	19.05	53.97
2004	123	1,852.09	6.50	39.84	2.44	33.33	21.14	45.53
2005	119	3,944.49	5.04	47.06	0.84	36.13	19.33	44.54
2006	102	1,652.80	5.88	25.41	0.00	53.92	16.67	29.41
2007	115	1,339.90	18.26	34.78	0.00	46.09	13.04	40.87
2008	77	1,612.25	29.87	48.05	1.30	46.75	18.18	35.06
2009	79	3,427.91	29.11	37.97	1.27	36.71	22.78	40.51
2010	82	1,303.80	21.95	42.68	1.22	57.32	18.29	24.39
Total	2,890	1,621.13	16.99	37.20	18.55	30.59	40.31	29.10

Table 2.2
Descriptive Statistics of Sample

This table reports the numbers of observations and mean statistics of deal value, acquirer and target firms overall, top quintile (Q 5 – highest information asymmetry) and bottom quintile (Q1 – lowest information asymmetry) conditional on the payment method. Acquirers and target firms are ranked by using acquirer information asymmetry and relative acquirer information asymmetry. Information asymmetry of the acquirer is proxied by *Acquirer Volatility* defined as the standard deviation of the market-adjusted residuals of the daily stock returns measured during the period starting from 205 to six days prior to the acquisition announcement (Moeller et al., 2007). Relative information asymmetry of the acquirer is the *Acquirer Volatility* divided by *Target Volatility*. *Size* is the market capitalisation of the firm 42 days prior to the takeover announcement in US billion. MB is the market to book equity ratio. Tobin's q is the market value of assets divided by the book value of assets. Ln (M/V) is the measure of misvaluation following the decomposition methods of Rhodes-Kropf et al. (2005). *CAPEX* is the mean of the new merged entity's capital expenditure three years after the announcement

	N	All	Acquirer Information Asymmetry					Relative Acquirer Information Asymmetry to Target				
			N	Q5	*N*	Q1	Diff	*N*	Q5	*N*	Q1	Diff
Panel A: All												
Relative Size	2,890	0.439	578	0.675	578	0.243	0.432***	552	0.893	578	0.114	0.779***
Tender	2,890	0.170	578	0.159	578	0.103	0.024	552	0.129	578	0.246	-0.117***
Hostile	2,890	0.013	578	0.010	578	0.010	0.000	552	0.688	578	0.010	0.004
Focus	2,890	0.372	578	0.460	578	0.317	0.143***	552	0.402	578	0.254	0.148***
Target Volatility	2,890	3.672	578	5.860	578	2.253	3.607***	552	2.772	578	5.084	-2.312***
Target Ln(M/V)	2,045	0.178	506	-0.213	302	0.412	-0.625***	411	0.191	423	0.023	0.168***
Target Size	2,890	1.136	578	0.524	578	1.762	-1.238***	552	1.468	578	0.431	1.037***
Target Run-up	2,890	10.136	578	11.607	578	6.478	5.129***	552	6.078	578	16.521	-10.443***
Target B/M	2,890	2.544	578	2.770	578	2.264	0.506***	552	2.461	578	2.329	0.132
Target Leverage	2,890	0.195	578	0.165	578	0.192	-0.026***	552	0.198	578	0.188	0.009
Target Cash Holding	2,890	0.176	578	0.291	578	0.125	0.166***	552	0.165	578	0.212	-0.047***
Target Op. Perform	2,890	0.044	578	-0.045	578	0.056	-0.101***	552	0.072	578	-0.015	0.086***
Acquirer Volatility	2,890	2.514	578	4.955	578	1.089	3.866***	552	3.391	578	5.084	1.599***
Acquirer Ln(M/V)	2,025	0.723	487	0.638	578	1.089	-0.451	397	0.708	578	0.723	-0.014
Acquirer Capex/Asset	1,735	0.096	387	0.107	309	0.046	0.061***	317	0.106	578	0.078	0.028***
Acquirer Size	2,890	13.294	578	2.989	578	23.970	-20.98***	552	5.479	578	27.735	-22.26***
Acquirer Run-up	2,890	3.233	578	7.907	578	0.377	7.529***	552	6.197	578	1.711	4.486***
Acquirer B/M	2,890	3.403	578	4.003	578	2.610	1.393***	552	3.174	578	3.721	-0.546***
Acquirer Leverage	2,890	0.205	578	0.169	578	0.210	-0.041***	552	0.226	578	0.185	0.041***
Acquirer Cash Holding	2,890	0.142	578	0.283	578	0.082	0.201***	552	0.154	578	0.133	0.021**
Acquirer Op. Perform	2,890	0.101	578	0.048	578	0.088	-0.040***	552	0.076	578	0.128	-0.053***

Table 2.2 (Cont'd)
Descriptive Statistics of Sample

	N	All	Acquirer Information Asymmetry					Relative Acquirer Information Asymmetry to Target				
			N	Q5	*N*	Q1	Diff	*N*	Q5	*N*	Q1	Diff
Panel B: Only Cash												
Relative Size	884	0.360	122	0.671	197	0.142	0.529***	105	1.474	281	0.090	1.385***
Tender	884	0.469	122	0.574	197	0.345	0.229***	105	0.448	281	0.459	-0.011
Hostile	884	0.021	122	0.016	197	0.020	-0.004	105	0.019	281	0.011	0.008
Focus	884	0.325	122	0.508	197	0.213	-0.295***	105	0.352	281	0.217	0.135**
Target Volatility	884	3.836	122	6.089	197	2.590	3.498***	105	2.467	281	5.175	-2.708***
Target Ln(M/V)	751	0.060	108	-0.625	168	0.417	-1.043***	87	0.080	245	0.000	0.080
Target Size	884	0.526	122	0.109	197	0.793	-0.684***	105	0.643	281	0.253	0.390***
Target Run-up	884	11.617	122	10.978	197	7.101	3.877	105	7.153	281	17.794	-10.641
Target B/M	884	2.335	122	1.476	197	2.707	-1.232***	105	2.209	281	2.218	-0.009
Target Leverage	884	0.191	122	0.207	197	0.166	0.040	105	0.220	281	0.184	0.036
Target Cash Holding	884	0.207	122	0.238	197	0.213	0.025	105	0.140	281	0.252	-0.112***
Target Op. Perform	884	0.050	122	-0.037	197	0.066	-0.102***	105	0.105	281	-0.013	0.118***
Acquirer Volatility	884	2.243	122	4.686	197	1.088	3.598***	105	3.068	281	1.792	1.277***
Acquirer Ln(M/V)	737	0.561	101	0.280	158	0.594	-0.314***	85	0.304	245	0.699	-0.396
Acquirer Capex/Asset	595	0.069	82	0.071	134	0.046	0.025**	60	0.080	195	0.062	0.018
Acquirer Size	884	19.231	122	3.806	197	36.033	-32.23***	105	5.489	281	32.322	-26.83***
Acquirer Run-up	884	1.160	122	1.949	197	-0.129	2.079	105	-0.096	281	1.548	-1.644
Acquirer B/M	884	3.225	122	2.936	197	3.100	-0.165	105	2.398	281	3.825	-1.427***
Acquirer Leverage	884	0.204	122	0.205	197	0.204	0.001	105	0.224	281	0.187	0.038*
Acquirer Cash Holding	884	0.142	122	0.230	197	0.112	0.118***	105	0.122	281	0.144	-0.022
Acquirer Op. Perform	884	0.140	122	0.105	197	0.132	-0.028**	105	0.120	281	0.156	-0.035***

Table 2.2 (Cont'd)
Descriptive Statistics of Sample

	N	All	Acquirer Information Asymmetry					Relative Acquirer Information Asymmetry to Target				
			N	Q5	*N*	Q1	Diff	*N*	Q5	*N*	Q1	Diff
Panel C: Only Stock												
Relative Size	1,165	0.431	301	0.667	216	0.259	0.408***	248	0.721	185	0.106	0.615***
Tender	1,165	0.016	301	0.020	216	0.014	0.006	248	0.016	185	0.016	-0.001
Hostile	1,165	0.007	301	0.000	216	0.009	-0.009	248	0.004	185	0.016	-0.012
Focus	1,165	0.361	301	0.425	216	0.343	0.082	248	0.371	185	0.276	0.095***
Target Volatility	1,165	3.745	301	5.884	216	2.066	3.817***	248	3.019	185	4.922	-1.903***
Target Ln(M/V)	669	0.231	256	-0.014	70	0.275	-0.289***	168	0.175	99	0.789	0.158
Target Size	1,165	1.242	301	0.680	216	2.099	-1.419***	248	1.457	185	0.232	1.225***
Target Run-up	1,165	10.355	301	11.937	216	1.441	5.992***	248	6.566	185	17.757	-11.192
Target B/M	1,165	2.693	301	3.188	216	1.836	1.352***	248	2.499	185	2.484	0.015
Target Leverage	1,165	0.158	301	0.132	216	0.190	-0.058***	248	0.162	185	0.148	0.013
Target Cash Holding	1,165	0.179	301	0.325	216	0.072	0.253***	248	0.191	185	0.169	0.022
Target Op. Perform	1,165	0.030	301	-0.054	216	0.056	-0.110***	248	0.051	185	-0.011	0.062***
Acquirer Volatility	1,165	2.740	301	5.084	216	1.111	3.973***	248	3.664	185	1.831	1.833***
Acquirer Ln(M/V)	673	0.881	249	0.790	75	0.491	0.298***	160	0.821	99	0.789	0.032
Acquirer Capex/Asset	586	0.116	197	0.112	71	0.059	0.053***	130	0.111	88	0.103	0.008
Acquirer Size	1,165	9.623	301	3.126	216	12.751	-9.625***	248	5.119	185	17.255	-12.14***
Acquirer Run-up	1,165	4.786	301	10.337	216	0.678	9.659***	248	9.059	185	3.197	5.862***
Acquirer B/M	1,165	3.723	301	4.482	216	2.219	2.264***	248	3.648	185	3.851	-0.204
Acquirer Leverage	1,165	0.185	301	0.150	216	0.201	-0.050***	248	0.211	185	0.164	0.047***
Acquirer Cash Holding	1,165	0.156	301	0.319	216	0.066	0.253***	248	0.182	185	0.122	0.060***
Acquirer Op. Perform	1,165	0.078	301	0.026	216	0.061	-0.035***	248	0.046	185	0.105	-0.059***

Table 2.2 (Cont'd)
Descriptive Statistics of Sample

	N	All	Acquirer Information Asymmetry					Relative Acquirer Information Asymmetry to Target				
			N	Q5	*N*	Q1	Diff	*N*	Q5	*N*	Q1	Diff
Panel D: Mixed												
Relative Size	841	0.535	155	0.694	165	0.341	0.353***	199	0.802	112	0.190	0.612***
Tender	841	0.068	155	0.103	165	0.042	0.061**	199	0.101	112	0.089	0.011
Hostile	841	0.012	155	0.026	165	0.000	0.026**	199	0.025	112	0.000	0.025**
Focus	841	0.436	155	0.490	165	0.406	0.084	199	0.467	112	0.3125	0.155***
Target Volatility	841	3.397	155	5.635	165	2.096	3.539***	199	2.624	112	5.122	-2.499***
Target Ln(M/V)	595	0.263	142	-0.256	64	0.548	-0.804***	156	0.269	85	0.711	0.167
Target Size	841	1.635	155	0.549	165	2.486	-1.937***	199	1.914	112	1.215	0.699***
Target Run-up	841	8.275	155	11.461	165	6.432	5.029***	199	4.903	112	11.285	-6.382***
Target B/M	841	2.558	155	2.978	165	2.294	0.683*	199	2.547	112	2.353	0.194
Target Leverage	841	0.251	155	0.197	165	0.224	-0.028	199	0.231	112	0.266	-0.035
Target Cash Holding	841	0.141	155	0.267	165	0.090	0.178***	199	0.144	112	0.179	-0.035
Target Op. Perform	841	0.057	155	-0.032	165	0.046	-0.078***	199	0.081	112	-0.024	0.105***
Acquirer Volatility	841	2.486	155	4.916	165	1.061	3.855***	199	3.221	112	1.727	1.494***
Acquirer Ln(M/V)	615	0.746	137	0.625	85	0.629	-0.003	152	0.816	85	0.711	0.104
Acquirer Capex/Asset	554	0.105	108	0.127	104	0.039	0.088***	127	0.113	80	0.087	0.025
Acquirer Size	841	12.137	155	2.080	165	24.253	-22.17***	199	5.922	112	33.535	-61.63***
Acquirer Run-up	841	3.262	155	7.877	165	0.589	7.288***	199	5.952	112	-0.337	6.288***
Acquirer B/M	841	3.146	155	3.913	165	2.537	1.376***	199	2.994	112	3.245	-0.251
Acquirer Leverage	841	0.233	155	0.176	165	0.229	-0.053***	199	0.245	112	0.213	0.032
Acquirer Cash Holding	841	0.121	155	0.256	165	0.067	0.189***	199	0.138	112	0.124	0.013
Acquirer Op. Perform	841	0.093	155	0.046	165	0.071	-0.025*	199	0.088	112	0.097	-0.009

Table 2.3
Takeover Gain at Announcement and Acquirer Information Asymmetry

This table presents gains from takeover of target and acquirer (Premium, TCAR and ACAR) during an announcement period partitioned into quintiles of acquirer information asymmetry level (Panel A) and relative acquirer information asymmetry (Panel B). The top quintile (5) represents the group with the highest level of information asymmetry. Premium is (final offer price - target stock price of four weeks prior to announcement) / target stock price of four weeks prior to announcement x 100. TCAR and ACAR are respectively the target and acquirer abnormal return calculated for a 5-day (-2, +2) announcement window. Superscripts *, ** and *** indicate significance at the 1, 5 and 10% levels, respectively.

I.A. Level	All		Only Cash		Only Stock		Mixed	
	N	Gain	*N*	Gain	*N*	Gain	*N*	Gain
Panel A: Acquirer information asymmetry								
Premium								
All	2,675	42.169***	838	48.306***	1,064	40.610***	773	37.662***
1 (Lo)	530	35.210***	186	43.680***	197	30.417***	147	30.915***
2	539	41.407***	192	46.602***	189	40.442***	158	36.248***
3	546	40.306***	188	46.706***	206	37.586***	152	36.078***
4	547	46.745***	163	59.715***	206	44.751***	178	37.177***
5 (Hi)	513	47.262***	109	44.899***	266	47.413***	138	48.840***
Hi-Lo		12.053***		1.218		16.996***		17.925***
TCAR								
All	2,890	22.624***	884	31.271***	1,165	18.383***	841	19.411***
1 (Lo)	578	21.939***	197	31.593***	216	15.464***	165	18.888***
2	578	23.359***	204	30.931***	207	17.992***	167	20.763***
3	578	22.454***	194	30.276***	220	17.953***	164	19.241***
4	578	24.060***	167	34.579***	221	21.697***	190	17.563***
5 (Hi)	578	21.309***	122	28.371***	301	18.628***	155	20.958***
Hi-Lo		-0.630		-3.222		3.164*		2.070
ACAR								
All	2,890	-1.199***	884	1.168***	1,165	-2.226***	841	-2.266
1 (Lo)	578	-0.997***	197	0.127	216	-1.295***	165	-1.947
2	578	-1.044***	204	0.593	207	-1.842***	167	-2.053
3	578	-1.106***	194	1.051**	220	-1.574***	164	-3.030
4	578	-1.410***	167	1.182*	221	-2.545***	190	-2.367
5 (Hi)	578	-1.442***	122	3.975***	301	-3.399***	155	-1.904**
Hi-Lo		-0.445		3.848***		-2.104***		0.043

Table 2.3 (Cont'd)
Takeover Gain at Announcement and Acquirer Information Asymmetry

I.A. Level	All		Only Cash		Only Stock		Mixed	
	N	Gain	*N*	Gain	*N*	Gain	*N*	Gain
Panel B: Relative acquirer information asymmetry								
Premium								
All	2,675	42.169***	838	48.306***	1,064	40.610***	773	37.662***
1 (Lo)	517	53.576***	259	60.901***	159	47.721***	99	43.814***
2	538	45.434***	192	49.393***	203	45.548***	143	39.957***
3	544	37.349***	157	40.521***	217	37.158***	170	34.664***
4	560	38.616***	129	39.857***	260	38.774***	171	37.439***
5 (Hi)	516	36.273***	101	36.834***	225	36.580***	190	35.612***
Hi-Lo		-17.302***		-24.067***		-11.141**		-8.202
TCAR								
All	2,890	22.624***	884	31.271***	1,165	18.383***	841	19.411***
1 (Lo)	578	30.609***	281	39.006***	185	22.692***	112	22.617***
2	578	23.929***	200	29.417***	220	21.088***	158	20.940***
3	578	22.031***	162	28.494***	234	18.545***	182	20.761***
4	604	18.491***	136	26.407***	278	15.660***	190	16.966***
5 (Hi)	552	18.042***	105	24.683***	248	15.669***	199	17.495***
Hi-Lo		-12.567***		-14.323***		-7.023***		-5.123*
ACAR								
All	2,890	-1.199***	884	1.168***	1,165	-2.226***	841	-2.266***
1 (Lo)	578	-0.284	281	0.391	185	-1.116**	112	-0.600
2	578	-1.013***	200	0.769*	220	-1.831***	158	-2.130***
3	578	-1.191***	162	0.986*	234	-1.841***	182	-2.166***
4	604	-1.447***	136	2.880***	278	-2.763***	190	-2.603***
5 (Hi)	552	-2.097***	105	2.070**	248	-3.164***	199	-2.965***
Hi-Lo		-1.813***		1.679*		-2.048***		-2.366

Table 2.4
Takeover Gain at Announcement and Information Asymmetry on Both Parties

This table presents gains from the takeover of target and acquirer (Premium, TCAR and ACAR) during an announcement period. The sample is partitioned into four subgroups according to the information asymmetry level of acquirers and targets. Firms that are ranked in Q1 and Q2 according to their level of information asymmetry are labelled Lo and those in Q4 and Q5 are labelled Hi. For example, Lo A + Hi T means the transaction in which the acquirer has a low information asymmetry level while the target firm has a high information asymmetry level. Premium is (final offer price - target stock price of four weeks prior to announcement) / target stock price of four weeks prior to announcement x 100. TCAR and ACAR are respectively the target and acquirer abnormal return calculated for a 5-day (-2, +2) announcement window. Superscripts *, ** and *** indicate significance at the 1, 5 and 10% levels, respectively.

I.A. Level	All		Only Cash		Only Stock		Mixed	
	N	Gain	*N*	Gain	*N*	Gain	*N*	Gain
Premium								
Lo A + Lo T	653	29.246***	167	28.220***	265	29.603***	221	29.595***
Lo A + Hi T	437	53.538***	211	59.899***	142	47.795***	84	47.268***
Hi A + Lo T	18	31.867***	5	32.343**	6	15.813	7	45.288***
Hi A + Hi T	631	49.673***	135	53.773***	323	48.161***	173	49.295***
TCAR								
Lo A + Lo T	689	17.023***	171	21.062***	282	14.693***	236	16.880***
Lo A + Hi T	479	30.305***	226	37.068***	157	22.714***	96	26.798***
Hi A + Lo T	19	24.312***	5	23.971**	6	24.421	8	24.444***
Hi A + Hi T	704	22.826***	148	32.326***	364	19.860***	192	21.124***
ACAR								
Lo A + Lo T	689	-1.329***	171	0.994**	282	-1.971***	236	-2.244***
Lo A + Hi T	479	-0.619**	226	0.274	157	-1.276***	96	-1.644***
Hi A + Lo T	19	0.999	5	-0.387	6	3.448	8	0.030
Hi A + Hi T	704	-1.736***	148	3.683***	364	-3.407***	192	-2.747***

Table 2.5
Regression Analysis of Gain at Announcement and Information Asymmetry

This table presents OLS regression analysis of gain from the takeover. The dependent variables are Premium, TCAR and ACAR. Premium is (final offer price - target stock price of four weeks prior to announcement) / target stock price of four weeks prior to announcement x 100. TCAR and ACAR are respectively the target and acquirer abnormal return calculated for a 5-day (-2, +2) announcement window. *Tender*, *Hostile*, *Focus* take the value of one if the acquisition is a tender offer, if the deal is hostile or solicited, if the deal is in the same industry, respectively. *Relative size* is the relative size of deal value to the size of the acquiring firm. *Size* is defined as market capitalisation 42 days prior to the takeover announcement. *Run-Up* is the CAR over 200 trading days ending six days prior to the announcement date. *B/M* is the book value of equity divided by the market value of equity. *Leverage* is the total financial debt divided by the book value of total assets. *Cash Holding* is the cash and equivalents divided by the book value of total assets. *Op. Perform* is the operating income before depreciation divided by the book value of total assets. The calculations of *B/M*, *Leverage*, *Cash* and *Op. Perform* use the financial data for the fiscal year-end immediately prior to the announcement. Test variables are acquirers' information asymmetry (*Acquirer IA*). *IA* is the standard deviation of the market-adjusted residuals of the daily stock returns measured during the period starting from 205 to six days prior to the acquisition announcement of acquirer or target. Heteroscedasticity-robust standard errors are shown in parentheses. ***, ** and * indicate significance at the 1, 5 and 10% levels, respectively.

	Premium						TCAR			ACAR		
	Only Cash		Only Stock		Mixed		Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Acquirer IA	-0.186	-3.364**	-2.228	-3.531**	0.163	-0.851	-3.806***	-3.487***	0.010	1.084***	0.030	0.371
	(1.541)	(1.701)	(1.574)	(1.653)	(2.044)	(2.198)	(1.144)	(0.865)	(1.127)	(0.406)	(0.395)	(0.452)
Target IA		4.615***		2.819**		1.795	2.933***	2.893***	0.704	-0.076	0.422*	0.709***
		(1.238)		(1.379)		(1.641)	(0.721)	(0.631)	(0.693)	(0.168)	(0.234)	(0.255)
Relative Size	0.048	0.459	-5.655***	-3.894*	-0.533	0.547	0.550***	-1.468*	-3.396***	-0.169	-0.203	-0.829
	(0.415)	(0.437)	(1.985)	(2.051)	(2.726)	(2.763)	(0.211)	(0.759)	(1.175)	(0.103)	(0.338)	(0.720)
Target Run-up	0.544***	0.480***	0.439***	0.394***	0.332***	0.310***	-0.192***	-0.124***	-0.146***	-0.007	0.002	0.011
	(0.083)	(0.085)	(0.075)	(0.075)	(0.089)	(0.090)	(0.052)	(0.038)	(0.047)	(0.011)	(0.016)	(0.018)
Tender	0.846	2.053	-0.806	0.592	20.17***	20.80***	4.732**	-7.213	9.024**	0.963*	2.946*	0.761
	(3.290)	(3.282)	(16.13)	(15.27)	(6.752)	(6.803)	(2.101)	(4.740)	(3.590)	(0.546)	(1.551)	(1.077)
Hostile	26.74***	26.98***	12.09	12.15	-4.644	-3.517	-0.824	5.373	-4.147	-3.066**	-1.203	2.188
	(10.18)	(9.832)	(11.88)	(11.77)	(7.710)	(7.728)	(6.068)	(7.280)	(5.307)	(1.435)	(1.532)	(2.403)
Focus	0.740	2.367	0.878	1.516	0.360	0.573	0.837	-0.229	0.103	0.352	-0.863	-0.407
	(2.997)	(2.979)	(3.015)	(2.981)	(3.054)	(3.024)	(1.935)	(1.489)	(1.702)	(0.545)	(0.602)	(0.664)

Table 2.5 (Continued)
Regression Analysis of Gain at Announcement and Information Asymmetry

	Premium						TCAR			ACAR		
	Only Cash		Only Stock		Mixed		Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Target B/M	-1.151*	-0.978*	-1.062**	-1.096**	-0.319	-0.349	-0.876**	-1.028***	-0.181	-0.0583	-0.133	0.106
	(0.596)	(0.581)	(0.500)	(0.501)	(0.419)	(0.430)	(0.369)	(0.219)	(0.251)	(0.103)	(0.120)	(0.117)
Target Leverage	-4.189	-5.341	9.160	8.359	-14.15	-16.43*	1.117	-3.356	-1.284	-1.238	-0.444	-0.472
	(9.466)	(9.311)	(8.671)	(8.585)	(8.738)	(8.964)	(5.565)	(4.008)	(5.720)	(1.416)	(1.812)	(1.819)
Target Cash Holding	6.803	11.89	3.688	3.773	-4.163	-4.759	3.438	-4.408	-0.390	-0.541	-4.761**	-0.121
	(10.47)	(10.36)	(10.01)	(9.930)	(10.71)	(10.69)	(5.857)	(4.851)	(4.769)	(1.466)	(2.149)	(2.300)
Target Op. Perform	-26.63**	-9.637	11.92	20.47**	-28.45*	-22.22	-14.08*	14.20***	-5.987	-0.946	-4.521**	-3.837
	(12.20)	(12.47)	(9.940)	(10.01)	(15.49)	(17.21)	(7.793)	(4.983)	(7.162)	(1.492)	(2.152)	(2.555)
Acquirer Size	-0.581	-0.516	-1.734**	-1.250	-1.237	-0.987	0.538	0.578	-0.302	-0.367**	0.295	-0.0735
	(0.882)	(0.873)	(0.874)	(0.876)	(0.917)	(0.971)	(0.590)	(0.437)	(0.516)	(0.183)	(0.183)	(0.201)
Acquirer Run-up	-0.266**	-0.270**	0.372***	0.387***	0.190*	0.206*	-0.0229	0.194***	0.160***	0.0474**	0.0334	0.0478*
	(0.116)	(0.116)	(0.0920)	(0.0936)	(0.115)	(0.117)	(0.0750)	(0.0442)	(0.0582)	(0.0217)	(0.0231)	(0.0244)
Acquirer B/M	-0.276	-0.393	0.840	0.787	0.857	0.853	-0.563	0.256	0.0310	0.0313	-0.0907	-0.119
	(0.602)	(0.626)	(0.532)	(0.537)	(0.521)	(0.520)	(0.431)	(0.258)	(0.267)	(0.128)	(0.132)	(0.105)
Acquirer Leverage	18.57*	19.86**	-5.760	-3.944	-2.809	-1.912	1.728	-7.176	-0.771	1.740	2.539	-0.313
	(10.05)	(9.943)	(9.457)	(9.453)	(10.60)	(10.62)	(6.042)	(4.550)	(5.827)	(1.851)	(2.299)	(1.951)
Acquirer Cash Holding	-13.53	-16.56	29.84***	29.17***	-12.57	-13.58	-2.920	11.39**	-4.088	0.892	-3.902	-2.530
	(12.15)	(12.09)	(10.71)	(10.59)	(12.38)	(12.47)	(6.679)	(5.407)	(6.164)	(1.952)	(2.406)	(2.666)
Acquirer Op. Perform	38.17*	33.32	-17.32	-18.92	23.77	23.35	32.50**	-9.261	17.33*	-0.891	1.611	10.75**
	(21.52)	(21.26)	(18.94)	(18.87)	(18.14)	(18.32)	(12.63)	(8.821)	(9.924)	(3.545)	(3.778)	(4.575)
Constant	36.43**	24.79	50.08***	42.60***	26.14**	21.03*	21.18**	25.95***	18.05**	-0.428	-7.085**	-8.170**
	(15.45)	(15.49)	(14.48)	(14.83)	(12.08)	(12.75)	(9.229)	(9.598)	(8.505)	(2.523)	(3.560)	(3.540)
Observations	838	838	1,064	1,064	773	773	884	1,165	841	884	1,165	841
R-squared	0.177	0.199	0.194	0.201	0.167	0.171	0.191	0.143	0.159	0.127	0.106	0.144

Table 2.6
Post-merger Takeover Gain and Acquirer Information Asymmetry

This table presents 12-, 24- and 36-months post-merger takeover gains (BHAR) partitioned into quintiles of acquirer information asymmetry level (Panel A) and relative acquirer information asymmetry (Panel B). The top quintile (5) represents the group that has the highest level of information asymmetry. Superscripts *, ** and *** indicate significance at the 1, 5 and 10% levels, respectively.

I.A. Level of	All		Only Cash		Only Stock		Mixed	
Acquirer	*N*	Gain	*N*	Gain	*N*	Gain	*N*	Gain
Panel A: Acquirer information asymmetry								
BHAR12								
All	2731	-0.751***	812	-0.324***	1111	-1.078***	808	-0.730***
1 (Lo)	529	-0.397***	166	-0.280**	205	-0.262**	158	-0.697***
2	544	-0.507***	188	-0.460***	198	-0.846***	158	-0.138
3	546	-0.652***	184	-0.489*	208	-0.607***	154	-0.907***
4	562	-0.379**	163	0.204	211	-0.792***	188	-0.420
5 (Hi)	550	-1.811***	111	-0.664	289	-2.362***	150	-1.597***
Hi-Lo		-1.413***		-0.384		-2.049***		-0.900*
BHAR24								
All	2490	-0.792***	743	-0.447***	1010	-1.074***	737	-0.752***
1 (Lo)	502	-0.557***	158	-0.393***	197	-0.406***	147	-0.935***
2	505	-0.555***	175	-0.412***	183	-0.765***	147	-0.462***
3	495	-0.562***	164	-0.643***	191	-0.401**	140	-0.686***
4	505	-0.662***	145	-0.073	189	-1.459***	171	-0.282
5 (Hi)	483	-1.654***	101	-0.810**	250	-2.048***	132	-1.553***
Hi-Lo		-1.097***		-0.417		-1.642***		-0.618*
BHAR36								
All	2253	-0.692***	668	-0.376***	924	-0.864***	661	-0.771***
1 (Lo)	463	-0.604***	146	-0.450***	182	-0.439***	135	-0.993***
2	465	-0.396***	156	-0.263**	176	-0.453***	133	-0.474***
3	448	-0.440***	143	-0.436***	178	-0.283**	127	-0.662***
4	458	-0.726***	131	-0.278	176	-1.360***	151	-0.375*
5 (Hi)	419	-1.352***	92	-0.494*	212	-1.647***	115	-1.495***
Hi-Lo		-0.748***		-0.044		-1.207***		-0.502

Table 2.6 (Cont'd)
Post-merger Takeover Gain and Acquirer Information Asymmetry

I.A. Level of Acquirer	All		Only Cash		Only Stock		Mixed	
	N	Gain	*N*	Gain	*N*	Gain	*N*	Gain
Panel B: Relative acquirer information asymmetry								
BHAR12								
All	2731	-0.751***	812	-0.324***	1111	-1.078***	808	-0.730***
1 (Lo)	536	-0.449***	253	-0.446**	176	-0.528**	107	-0.328
2	558	-0.350**	190	-0.138	214	-0.396*	154	-0.546**
3	549	-0.767***	147	-0.180	228	-0.981***	174	-0.984***
4	568	-1.054***	122	-0.689*	263	-1.471***	183	-0.698***
5 (Hi)	520	-1.144***	100	-0.137	230	-1.778***	190	-0.905***
Hi-Lo		-0.694***		0.308		-1.251***		-0.577
BHAR24								
All	2490	-0.792***	743	-0.447***	1010	-1.074***	737	-0.752***
1 (Lo)	493	-0.545***	232	-0.576***	164	-0.481***	97	-0.578**
2	509	-0.537***	174	-0.197	198	-0.726***	137	-0.696***
3	512	-0.828***	137	-0.283	212	-1.301***	163	-0.672***
4	513	-0.901***	112	-0.531*	233	-1.172***	168	-0.774***
5 (Hi)	463	-1.172***	88	-0.747**	203	-1.543***	172	-0.952***
Hi-Lo		-0.627***		-0.171		-1.062***		-0.374
BHAR36								
All	2253	-0.692***	668	-0.376***	924	-0.864***	661	-0.771***
1 (Lo)	450	-0.643***	210	-0.589***	152	-0.549***	88	-0.935***
2	460	-0.373***	156	-0.068	184	-0.586***	120	-0.443**
3	464	-0.689***	125	-0.276	191	-0.942***	148	-0.713***
4	464	-0.831***	100	-0.482*	215	-0.997***	149	-0.826***
5 (Hi)	415	-0.948***	77	-0.445*	182	-1.172***	156	-0.935***
Hi-Lo		-0.305**		0.144		-0.623**		-0.001

Table 2.7
Regression Analysis of Post-merger Takeover Gain and Information Asymmetry

This table presents OLS regression analysis of gain from takeover. The dependent variables are 12 and 36 months BHAR. *Tender*, *Hostile*, *Focus* take the value of one if the acquisition is a tender offer, if the deal is hostile or solicited, if the deal is in the same industry, respectively. *Relative size* is the relative size of deal value to size of acquiring firm. *Size* is defined as market capitalisation 42 days prior to the takeover announcement. *Run-Up* is the CAR over 200 trading days ending six days prior to the announcement date. *B/M* is the book value of equity divided by the market value of equity. *Leverage* is the total financial debt divided by the book value of total assets. *Cash* is the cash and equivalents divided by the book value of total assets. *Op. Perform* is the operating income before depreciation divided by the book value of total assets. The calculations of *B/M*, *Leverage*, *Cash Holding* and *Op. Perform* use the financial data for the fiscal year-end immediately prior to the announcement. Test variable is *Acquirer IA. IA* is the standard deviation of the market-adjusted residuals of the daily stock returns measured during the period starting from 205 to six days prior to the acquisition announcement of acquirer or target. Heteroscedasticity-robust standard errors are shown in parentheses. ***, ** and * indicate significance at the 1, 5 and 10% levels, respectively.

Explanatory	BHAR12			BHAR24			BHAR36		
Variables	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Acquirer IA	-0.233	-1.022***	-0.545**	-0.220	-0.675***	-0.470***	-0.149	-0.440***	-0.337**
	(0.183)	(0.169)	(0.215)	(0.147)	(0.118)	(0.160)	(0.127)	(0.103)	(0.139)
Target IA	-0.084	0.075	-0.023	-0.098	-0.030	-0.072	-0.061	-0.003	-0.077
	(0.084)	(0.098)	(0.106)	(0.063)	(0.074)	(0.096)	(0.057)	(0.058)	(0.084)
Relative Size	0.050	-0.045	0.093	-0.150***	0.042	0.017	0.074	0.003	-0.139
	(0.039)	(0.103)	(0.228)	(0.027)	(0.057)	(0.205)	(0.274)	(0.0494)	(0.209)
Target Run-up	-0.001	0.004	-0.010	0.007	-0.009	-0.008	0.009**	-0.012***	-0.003
	(0.006)	(0.007)	(0.007)	(0.004)	(0.005)	(0.006)	(0.004)	(0.004)	(0.006)
Tender	-0.075	-1.101	-0.562	-0.095	-0.452	-0.083	-0.041	-0.523	-0.105
	(0.275)	(0.781)	(0.571)	(0.201)	(0.515)	(0.448)	(0.184)	(0.493)	(0.430)
Hostile	0.230	1.201	0.353	1.140**	0.730	0.578	1.285***	0.871	0.597
	(0.983)	(0.981)	(0.765)	(0.569)	(0.811)	(0.746)	(0.398)	(0.668)	(0.711)
Focus	0.097	-0.164	-0.036	0.172	0.117	0.098	0.128	0.164	0.109
	(0.237)	(0.274)	(0.292)	(0.180)	(0.199)	(0.235)	(0.176)	(0.165)	(0.215)
Target B/M	0.028	-0.079	0.013	0.072*	-0.099***	-0.023	0.023	-0.064**	-0.033
	(0.050)	(0.055)	(0.046)	(0.043)	(0.036)	(0.036)	(0.034)	(0.027)	(0.034)
Target Leverage	-0.301	-0.654	-1.395	-0.110	-0.121	-0.008	-0.368	-0.123	-0.990*
	(0.666)	(0.821)	(0.889)	(0.527)	(0.535)	(0.676)	(0.462)	(0.456)	(0.559)
Target Cash Holding	-0.932	-1.873*	0.805	-0.106	-0.452	1.047	-0.0710	-0.312	0.700
	(0.762)	(1.005)	(0.989)	(0.557)	(0.680)	(0.813)	(0.474)	(0.543)	(0.701)
Target Op. Perform	-3.250***	-1.186	-2.070	-2.818***	-0.918	-1.308	-1.936***	-1.369**	-1.332*
	(0.824)	(1.005)	(1.298)	(0.644)	(0.709)	(0.959)	(0.501)	(0.570)	(0.783)
Acquirer Size	-0.066	-0.240***	-0.206**	-0.076	-0.184***	-0.115	-0.054	-0.115**	-0.055
	(0.076)	(0.081)	(0.080)	(0.058)	(0.059)	(0.070)	(0.056)	(0.046)	(0.064)
Acquirer Run-up	0.035***	0.019*	0.029**	0.003	-0.001	0.006	-0.006	-0.009	-0.001
	(0.012)	(0.010)	(0.011)	(0.009)	(0.007)	(0.010)	(0.007)	(0.006)	(0.008)
Acquirer B/M	-0.088	-0.060	-0.103*	-0.104**	-0.106***	-0.059	-0.141***	-0.105***	-0.144***
	(0.060)	(0.052)	(0.059)	(0.051)	(0.041)	(0.054)	(0.043)	(0.037)	(0.051)
Acquirer Leverage	1.489*	-0.553	0.442	0.005	-0.255	-0.213	0.113	-0.422	0.885
	(0.795)	(0.987)	(0.916)	(0.744)	(0.743)	(0.780)	(0.681)	(0.664)	(0.718)

Table 2.7 (Continued)
Regression Analysis of Post-merger Takeover Gain and Information Asymmetry

Explanatory Variables	BHAR12			BHAR24			BHAR36		
	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Acquirer Cash Holding	0.268	1.583	-2.424*	-1.000	1.751**	-0.0429	-0.595	0.666	0.209
	(0.953)	(1.113)	(1.429)	(0.730)	(0.751)	(1.059)	(0.691)	(0.691)	(0.914)
Acquirer Op. Perform	4.331**	3.365**	5.211**	2.962*	4.317***	2.769	3.415***	3.197***	2.775
	(1.956)	(1.659)	(2.140)	(1.545)	(1.154)	(1.788)	(1.321)	(1.043)	(1.742)
Constant	0.622	-0.541	-0.132	0.940	-0.166	-0.177	0.0531	-0.908	0.422
	(0.978)	(1.685)	(1.130)	(0.825)	(1.215)	(1.315)	(0.807)	(1.001)	(1.187)
Observations	812	1,111	808	743	1,010	737	668	924	661
R-squared	0.220	0.198	0.174	0.273	0.277	0.171	0.236	0.319	0.211

Table 2.8
Acquirer Information Asymmetry Level and Misvaluation

This table presents the stock misvaluation for acquirers and target firms 42 days before announcement date partitioned into quintiles of acquirer information asymmetry (Panel A) and relative acquirer information asymmetry (Panel B). Following the method proposed by Rhodes-Kropf et al. (2005), the misvaluation component (Ln(M/V)) is decomposed from the Ln(M/B). The detail is described in Section 2.4.3.

I.A. Level of Acquirer		All		Only Cash		Only Stock		Mixed	
		N	Mean	*N*	Mean	*N*	Mean	*N*	Mean
Panel A:									
1 (Lo)	Acquirer	318	0.579	158	0.594	75	0.491	85	0.629
	Target	302	0.412	168	0.417	70	0.275	64	0.548
2	Acquirer	358	0.662	167	0.566	66	0.861	125	0.684
	Target	357	0.293	171	0.098	66	0.470	117	0.474
3	Acquirer	421	0.826	166	0.681	120	0.904	135	0.934
	Target	414	0.353	163	0.205	131	0.395	120	0.506
4	Acquirer	441	0.875	145	0.577	163	1.191	133	0.811
	Target	466	0.206	141	-0.053	173	0.356	152	0.274
5 (Hi)	Acquirer	487	0.638	101	0.280	249	0.790	137	0.625
	Target	506	-0.212	108	-0.625	256	-0.014	142	-0.256
Panel B:									
1 (Lo)	Acquirer	429	0.723	245	0.700	99	0.790	85	0.711
	Target	423	0.023	245	0.000	103	0.018	75	0.103
2	Acquirer	395	0.707	164	0.579	123	0.939	108	0.636
	Target	401	0.194	168	0.175	128	0.274	105	0.127
3	Acquirer	395	0.766	134	0.591	130	0.960	131	0.754
	Target	392	0.210	138	0.048	130	0.343	124	0.250
4	Acquirer	409	0.714	109	0.386	161	0.890	139	0.768
	Target	418	0.276	113	0.023	170	0.297	135	0.463
5 (Hi)	Acquirer	397	0.708	85	0.304	160	0.821	152	0.816
	Target	411	0.191	87	0.080	168	0.175	156	0.270

Table 2.9
Takeover Gain, Acquirer Information Asymmetry and Misvaluation

This table presents gain from takeover of target and acquirer (Premium, TCAR and ACAR) during an announcement period conditional on acquirer information asymmetry, method of payments and level of misvaluation (ln M/V). Firms that are ranked in Q1 and Q2 according to their ln(M/V) are labelled Lo ln(M/V) and those in Q4 and Q5 are labelled Hi ln(M/V). Superscripts *, ** and *** indicate significance at the 1, 5 and 10% levels, respectively.

IA level of Acquirer	Only Cash					Only Stock					Mixed				
	Lo ln(M/V)		Hi ln(M/V)		Diff	Lo ln(M/V)		Hi ln(M/V)		Diff	Lo ln(M/V)		Hi ln(M/V)		Diff
	N	Gain	*N*	Gain		*N*	Gain	*N*	Gain		*N*	Gain	*N*	Gain	
Panel A: Acquirer information asymmetry															
Premium															
All	293	49.795***	232	47.378***		222	42.037***	308	42.861***		222	41.816***	225	38.763***	
1 (Lo)	54	44.996***	50	39.371***	-5.626	35	33.233***	20	31.776***	-1.456	34	33.477***	27	35.139***	1.662
2	66	45.578***	39	55.832***	10.254	20	30.400***	30	43.202***	12.803	49	40.931***	35	31.174***	-9.758
3	57	44.951***	61	43.517***	-1.433	33	32.924***	62	41.741***	8.816	38	36.512***	65	40.124***	3.612
4	60	66.431***	52	56.260***	-10.170	32	37.579***	99	46.282***	8.703	43	36.294***	54	39.453***	3.159
5 (Hi)	56	46.500***	30	42.191***	-4.310	102	51.688***	97	42.264***	-9.424	58	55.022***	44	44.166***	-10.856
Hi-Lo		1.504		2.820			18.455**		10.487			21.545**		9.027	
TCAR															
All	312	32.300***	240	30.273***		248	18.734***	331	18.972***		250	21.008***	239	18.488***	
1 (Lo)	58	30.956***	52	33.775***	2.820	37	14.692***	20	16.210***	1.518	39	19.246***	28	20.260***	1.014
2	68	32.147***	41	32.813***	0.666	22	20.819***	31	20.134***	-0.685	52	23.769***	39	17.555***	-6.214
3	59	31.754***	64	25.619***	-6.135	36	14.454***	67	20.467***	6.013	41	20.719***	68	19.919***	-0.800
4	64	37.810***	52	31.107***	-6.702	36	22.058***	104	20.034***	-2.023	49	17.826***	56	15.143***	-2.683
5 (Hi)	63	28.619***	31	29.246***	0.627	117	19.914***	109	17.215***	-2.690	69	22.355***	48	20.089***	-2.266
Hi-Lo		-2.337		-4.529			5.222		1.005			3.109		-0.170	
ACAR															
All	312	2.105***	240	0.694*		248	-1.506**	331	-2.651***		250	-2.456***	239	-2.289***	
1 (Lo)	58	0.019	52	-0.124	-0.143	37	-0.041	20	-1.757	-1.716	39	-2.099***	28	-2.469***	-0.370
2	68	1.074	41	-0.469	-1.543	22	-0.344	31	-1.467	-1.123	52	-1.993**	39	-1.855**	0.138
3	59	0.664	64	0.947	-0.283	36	-2.611*	67	-0.899	1.712	41	-4.237***	68	-3.467***	0.769
4	64	2.041*	52	1.591	-0.450	36	-2.130	104	-2.258***	-0.127	49	-1.232	56	-2.382**	-1.150
5 (Hi)	63	6.552***	31	1.576	-4.976**	117	-1.656	109	-4.604***	-2.948*	69	-2.817*	48	-0.757	2.060
Hi-Lo		6.534***		1.700			-1.615		-2.847*			-0.718		1.712	

Table 2.9 (Cont'd)
Takeover Gain, Acquirer Information Asymmetry and Misvaluation

IA level of Acquirer	Only Cash					Only Stock					Mixed				
	Lo ln(M/V)		Hi ln(M/V)		Diff	Lo ln(M/V)		Hi ln(M/V)		Diff	Lo ln(M/V)		Hi ln(M/V)		Diff
	N	Gain	*N*	Gain		*N*	Gain	*N*	Gain		*N*	Gain	*N*	Gain	
Panel B: Relative acquirer information asymmetry															
Premium															
All	293	49.795***	232	47.378***		222	42.037***	308	42.861***		222	41.816***	225	38.763***	
1 (Lo)	68	56.626***	86	59.487***	2.861	30	53.788***	44	54.903***	1.115	28	48.541***	31	47.199***	-1.342
2	72	58.413***	53	43.476***	-14.937*	40	51.329***	59	40.981***	-10.348	42	41.709***	32	40.990***	-0.718
3	56	45.715***	40	40.590***	-5.125	38	32.779***	64	48.175***	15.395*	48	40.739***	50	35.257***	-5.482
4	54	42.005***	33	43.366***	1.361	54	39.981***	75	35.616***	-4.366	50	39.103***	54	41.589***	2.486
5 (Hi)	43	39.659***	20	25.846***	-13.813**	60	37.682***	66	39.591***	1.910	54	41.884***	58	33.417***	-8.467
Hi-Lo		-16.967**		-33.641***			-16.106		-15.312			-6.656		-13.782*	
TCAR															
All	312	32.300***	240	30.273***		248	18.734***	331	18.972***		250	21.008***	239	18.488***	
1 (Lo)	79	38.645***	92	38.085***	-0.560	35	33.635***	48	25.309***	-8.326	34	24.355***	34	22.706***	-1.648
2	75	32.817***	53	27.848***	-4.970	45	26.534***	63	17.034***	-9.500**	48	21.397***	35	18.731***	-2.665
3	56	31.551***	40	23.313***	-8.238*	40	16.530***	70	22.834***	6.304	51	25.574***	54	17.622***	-7.952*
4	56	28.053***	34	29.239***	1.186	60	14.175***	80	13.703***	-0.473	58	17.852***	56	16.313***	-1.538
5 (Hi)	46	26.645***	21	17.098***	-9.547**	68	11.221***	70	18.529***	7.308**	59	17.919***	60	18.766***	0.846
Hi-Lo		-12.000**		-20.987			-22.414***		-6.780			-6.435		-3.940	
ACAR															
All	312	2.105***	240	0.694*		248	-1.506**	331	-2.651***		250	-2.456***	239	-2.289***	
1 (Lo)	79	0.469	92	0.725	0.256	35	-0.856	48	-1.568	-0.712	34	-0.294	34	-1.240	-0.946
2	75	0.578	53	-0.427	-1.005	45	-0.143	63	-2.451**	-2.308	48	-1.237	35	-5.291***	-4.054**
3	56	0.849	40	1.855**	1.006	40	-0.335	70	-3.072***	-2.737	51	-2.719***	54	-1.454	1.265
4	56	6.564***	34	-0.387	-6.952***	60	-0.005	80	-4.119***	-4.114**	58	-2.405*	56	-2.188**	0.217
5 (Hi)	46	3.502**	21	2.924	-0.578	68	-4.757***	70	-1.476	3.281*	59	-4.515***	60	-1.977	2.538
Hi-Lo		3.032*		2.198			-3.901**		0.092			-4.221**		-0.738	

Table 2.10
Regression Analysis of Takeover Gain at Announcement, Acquirer Information Asymmetry and Misvaluation

This table presents OLS regression analysis of gain from takeover. The dependent variables are Premium, 5-day TCAR and 5-day ACAR. *Tender*, *Hostile*, *Focus* take the value of one if the acquisition is a tender offer, if the deal is hostile or solicited, if the deal is in the same industry, respectively. *Relative size* is the relative size of deal value to size of acquiring firm. *Size* is defined as market capitalisation 42 days prior to the takeover announcement. *Run-Up* is the CAR over 200 trading days ending six days prior to the announcement date. *B/M* is the book value of equity divided by the market value of equity. *Leverage* is the total financial debt divided by the book value of total assets. *Op. Perform* is the operating income before depreciation divided by the book value of total assets. The calculations of *B/M*, *Leverage*, *Cash Holding*and *Op. Perform* use the financial data for the fiscal year-end immediately prior to the announcement. Test variable is acquirer information asymmetry (*Acquirer IA*). *IA* is the standard deviation of the market-adjusted residuals of the daily stock returns measured during the period starting from 205 to six days prior to the acquisition announcement of acquirer or target. *Ln(M/V)* is the misvaluation component decomposed from the ln(M/B) following Rhodes-Kropf et al.'s (2005) methodology. Heteroscedasticity-robust standard errors are shown in parentheses. ***, ** and * indicate significance at the 1, 5 and 10% levels, respectively.

Explanatory	Premium			TCAR			ACAR		
Variables	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Acquirer IA	-3.313*	-4.978**	-2.783	-4.187***	-5.007***	-0.205	0.983**	0.538	0.288
	(1.855)	(2.474)	(2.859)	(1.323)	(1.288)	(1.410)	(0.445)	(0.516)	(0.564)
Target IA	4.464***	2.008	2.322	2.819***	2.372***	1.035	-0.114	0.359	0.778**
	(1.252)	(1.820)	(2.012)	(0.829)	(0.828)	(0.878)	(0.200)	(0.292)	(0.329)
Acquirer ln(M/V)	1.171	-10.57**	-3.633	1.392	-2.808	-2.757	1.771*	0.256	0.398
	(4.923)	(5.054)	(5.041)	(3.224)	(2.666)	(2.888)	(0.956)	(1.330)	(1.169)
Target ln(M/V)	-6.596**	-17.45***	-10.99***	-6.494***	-9.803***	-5.976***	0.183	-0.223	0.352
	(2.688)	(3.012)	(3.457)	(1.915)	(1.532)	(1.754)	(0.521)	(0.644)	(0.656)
Acquirer IA x	-1.447	3.219***	1.899	-1.017	1.330**	-0.0333	-0.904***	-0.248	-0.279
Acquirer ln(M/V)	(1.400)	(1.043)	(1.467)	(0.842)	(0.541)	(0.808)	(0.287)	(0.325)	(0.326)
Relative Size	0.393	3.161	3.004	0.559**	-0.177	-1.552	-0.266*	-0.216	-0.553
	(0.377)	(3.028)	(3.046)	(0.280)	(0.466)	(1.494)	(0.149)	(0.359)	(0.893)
Tender	3.706	-7.603	21.57***	4.408*	-7.426	7.902**	1.215*	4.651**	1.023
	(3.525)	(18.57)	(7.402)	(2.278)	(6.164)	(3.840)	(0.619)	(2.078)	(1.237)
Hostile	27.34***	-4.925	-9.753	0.160	3.695	-6.922	-2.787**	-3.749*	2.321
	(9.511)	(14.80)	(8.289)	(5.871)	(6.250)	(6.021)	(1.347)	(2.078)	(2.865)
Focus	4.005	1.126	0.536	2.293	0.033	-0.876	0.411	-0.818	-0.308
	(3.229)	(3.933)	(3.997)	(2.116)	(1.997)	(2.229)	(0.649)	(0.841)	(0.929)
Target Run-up	0.503***	0.385***	0.245**	-0.201***	-0.122**	-0.182***	-0.008	-0.012	-0.005
	(0.097)	(0.099)	(0.111)	(0.060)	(0.051)	(0.055)	(0.014)	(0.021)	(0.021)
Target B/M	-0.450	0.642	0.543	-0.269	0.128	0.374	-0.111	-0.264*	0.120
	(0.748)	(0.757)	(0.645)	(0.530)	(0.321)	(0.366)	(0.135)	(0.160)	(0.144)
Target Leverage	-7.184	3.459	-18.12	0.465	-5.117	-0.981	-1.317	-0.640	-0.826
	(10.22)	(13.83)	(12.09)	(6.870)	(6.153)	(7.129)	(1.708)	(2.531)	(2.647)
Target Cash Holding	12.900	6.751	-1.662	4.819	0.268	2.365	-0.801	-4.924*	-1.245
	(10.310)	(11.520)	(13.630)	(6.298)	(5.721)	(5.665)	(1.728)	(2.594)	(2.938)
Target Op. Perform	-14.83	30.09**	-16.43	-12.74	19.75***	2.578	-0.884	-3.703	-4.571
	(13.170)	(12.610)	(21.550)	(8.752)	(6.191)	(7.695)	(1.835)	(2.446)	(2.875)

Table 2.10 (Cont'd)
Regression Analysis of Takeover Gain at Announcement, Acquirer Information Asymmetry and Misvaluation

Explanatory Variables	Premium			TCAR			ACAR		
	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Acquirer Size	0.375	1.759	0.837	1.296	1.585**	1.715**	-0.596**	0.835***	-0.139
	(1.170)	(1.684)	(1.376)	(0.812)	(0.765)	(0.797)	(0.232)	(0.299)	(0.335)
Acquirer Run-up	-0.344***	0.477***	0.275*	-0.074	0.206***	0.204***	0.059**	0.020	0.072**
	(0.120)	(0.115)	(0.150)	(0.080)	(0.056)	(0.073)	(0.025)	(0.030)	(0.032)
Acquirer B/M	-0.405	1.388*	0.963	-0.515	0.230	0.488	0.176	0.002	-0.093
	(0.796)	(0.709)	(0.645)	(0.577)	(0.319)	(0.409)	(0.192)	(0.180)	(0.156)
Acquirer Leverage	30.300**	-21.950	15.020	2.283	-9.569	9.881	1.226	3.310	-0.141
	(11.870)	(14.100)	(13.150)	(6.992)	(5.900)	(8.074)	(2.359)	(2.899)	(2.732)
Acquirer Cash Holding	-14.71	22.82*	-18.48	-2.602	12.12*	-2.141	1.809	-2.606	-2.660
	(12.530)	(12.490)	(13.830)	(7.082)	(6.353)	(7.501)	(2.166)	(2.837)	(3.235)
Acquirer Op. Perform	46.490**	-21.250	31.040	32.630**	-14.410	22.880**	0.811	1.607	13.780***
	(23.430)	(21.560)	(21.000)	(14.680)	(10.740)	(11.560)	(3.836)	(4.354)	(5.290)
Constant	21.250	44.320*	15.010	22.270**	29.160**	12.870	-1.601	-3.740	-10.320**
	(16.930)	(22.820)	(14.700)	(10.390)	(13.550)	(10.350)	(2.939)	(4.200)	(4.263)
Observations	648	558	490	680	602	528	680	602	528
R-squared	0.263	0.301	0.254	0.225	0.237	0.267	0.184	0.166	0.168

Table 2.11
Post-merger takeover Gain, Acquirer Information Asymmetry and Misvaluation

This table presents 12-, 24- and 36-months Post-merger takeover gain (BHAR) partitioned into quintiles of acquirer information asymmetry, method of payments and level of misvaluation (ln M/V). Firms that are ranked in Q1 and Q2 according to their ln(M/V) are labelled Lo ln(M/V) and those in Q4 and Q5 are labelled Hi ln(M/V). Superscripts *, ** and *** indicate significance at the 1, 5 and 10% levels, respectively.

IA level of Acquirer	Only Cash					Only Stock					Mixed				
	Lo ln(M/V)		Hi ln(M/V)		Diff	Lo ln(M/V)		Hi ln(M/V)		Diff	Lo ln(M/V)		Hi ln(M/V)		Diff
	N	Gain	*N*	Gain		*N*	Gain	*N*	Gain		*N*	Gain	*N*	Gain	
Panel A: Acquirer information asymmetry															
BHAR12															
All	275	-0.225	227	-0.879***		229	-0.708**	310	-1.810***		234	-0.684***	233	-1.313***	
1 (Lo)	43	-0.166	46	-0.640***	-0.474	32	-1.086***	18	0.109	1.195***	37	-1.123***	27	-0.604*	0.519
2	60	-0.473	41	-0.816**	-0.343	19	-1.018	27	-0.894*	0.124	45	0.008	38	-0.177	-0.185
3	54	-0.595	61	-1.138**	-0.544	31	-0.427	62	-0.887**	-0.460	37	-1.129	66	-1.047***	0.082
4	62	0.562	50	-0.084	-0.645	36	-0.832	97	-0.694*	0.138	47	-0.093	56	-0.857	-0.764
5 (Hi)	56	-0.520	29	-2.172*	-1.652	111	-0.583	106	-3.930***	-3.347***	68	-1.071	46	-3.607***	-2.536**
Hi-Lo		-0.354		-1.532			0.503		-4.309***			0.052		-3.003***	
BHAR24															
All	237	-0.442***	215	-0.885***		204	-0.964***	286	-1.816***		208	-0.418**	215	-1.213***	
1 (Lo)	40	-0.116	46	-0.845***	-0.730**	31	-1.153***	18	-0.216	0.937***	35	-1.026***	27	-0.680***	0.346
2	53	-0.486*	40	-0.740**	-0.254	16	-0.628	27	-0.785*	-0.156	42	-0.252	36	-0.440	-0.188
3	41	-0.747*	59	-1.182***	-0.435	30	-0.148	58	-0.950***	-0.802	33	-0.173	61	-1.048***	-0.875
4	54	-0.132	43	-0.412	-0.280	31	-0.792	87	-1.733***	-0.940	41	0.591	52	-0.772*	-1.363***
5 (Hi)	49	-0.750	27	-1.270**	-0.520	96	-1.269***	96	-3.006***	-1.737***	57	-1.036**	39	-3.144***	-2.109***
Hi-Lo		-0.634		-0.425			-0.115		-2.790***			-0.010		-2.464***	
BHAR36															
All	201	-0.220	207	-0.774***		181	-0.955***	260	-1.481***		183	-0.516***	197	-1.307***	
1 (Lo)	35	-0.376**	45	-0.688***	-0.312	29	-1.382***	17	-0.063	1.318***	35	-1.162***	26	-0.617***	0.545
2	43	-0.180	38	-0.284	-0.104	15	-0.860*	26	-0.412	0.448	35	-0.774***	35	-0.455*	0.318
3	34	0.133	55	-1.066***	-1.199***	28	-0.354	56	-0.929***	-0.576	29	-0.180	54	-1.003***	-0.824*
4	47	-0.352	43	-0.778**	-0.426	26	-0.798*	81	-1.603***	-0.805	34	0.594*	48	-1.245***	-1.839***
5 (Hi)	42	-0.269	26	-1.011**	-0.742	83	-1.076***	80	-2.392***	-1.316***	50	-0.833**	34	-3.279***	-2.446***
Hi-Lo		0.107		-0.323			0.306		-2.329***			0.330		-2.662***	

Table 2.11 (Cont'd)
Post-merger takeover Gain, Acquirer Information Asymmetry and Misvaluation

IA level of Acquirer	Only Cash					Only Stock					Only Mixed				
	Lo ln(M/V)		Hi ln(M/V)		Diff	Lo ln(M/V)		Hi ln(M/V)		Diff	Lo ln(M/V)		Hi ln(M/V)		Diff
	N	Gain	*N*	Gain		*N*	Gain	*N*	Gain		*N*	Gain	*N*	Gain	
Panel B: Relative acquirer information asymmetry															
BHAR12															
All	275	-0.225	227	-0.879***		229	-0.708**	310	-1.810***		234	-0.684***	233	-1.313***	
1 (Lo)	68	0.024	87	-0.768**	-0.791	33	-0.380	44	-0.901	-0.521	30	-0.198	33	-0.929*	-0.730
2	71	-0.317	51	-0.432	-0.115	44	0.359	59	-0.621	-0.980	46	-0.785	34	-1.031	-0.246
3	48	-0.119	36	-1.000**	-0.881	38	-1.357*	67	-1.763***	-0.407	47	-1.128*	54	-1.218**	-0.090
4	44	0.122	33	-1.900**	-2.021*	54	-0.879	75	-1.765***	-0.886	54	-0.739	54	-0.444	0.295
5 (Hi)	44	-0.924	20	-0.596	0.328	60	-1.105	65	-3.605***	-2.500***	57	-0.442	58	-2.597***	-2.155**
Hi-Lo		-0.947		0.172			-0.725		-2.704***			-0.244		-1.668**	
BHAR24															
All	237	-0.442***	215	-0.885***		204	-0.964***	286	-1.816***		208	-0.418**	215	-1.213***	
1 (Lo)	59	-0.527	82	-0.863***	-0.335	30	-0.446	41	-0.130	0.316	26	0.456	33	-1.228**	-1.683***
2	60	-0.275	50	-0.562*	-0.288	41	-0.349	55	-1.586***	-1.237*	41	-0.832**	28	-0.668**	0.164
3	41	0.218	36	-1.133***	-0.452***	34	-1.773***	61	-2.153***	-0.380	45	-0.345	50	-0.944**	-0.600
4	40	0.114	30	-1.427**	-1.540**	47	-1.083**	68	-1.801***	-0.718	47	-0.886**	50	-0.703**	0.184
5 (Hi)	37	-1.912***	17	-0.457	1.455*	52	-1.111**	61	-2.839***	-1.729*	49	-0.155	54	-2.211***	-2.056***
Hi-Lo		-1.384**		0.406			-0.665		-2.710***			-0.610		-0.983	
BHAR36															
All	201	-0.220	207	-0.774***		181	-0.955***	260	-1.481***		183	-0.516***	197	-1.307***	
1 (Lo)	52	-0.512*	78	-0.821***	-0.308	25	-0.699**	39	-0.595*	0.104	23	-0.346	32	-1.566***	-1.221**
2	50	0.179	49	-0.462*	-0.641*	34	-0.503	52	-1.071***	-0.568	35	-0.992**	25	-0.371	0.621
3	37	0.137	34	-1.149***	-1.286**	31	-1.232***	54	-1.662***	-0.430	42	-0.195	45	-1.063***	-0.868**
4	33	0.284	30	-1.092**	-1.375**	44	-1.229***	62	-1.484***	-0.255	42	-0.835**	44	-0.994***	-0.159
5 (Hi)	29	-1.414***	16	-0.104	1.309**	47	-0.981***	53	-2.348***	-1.367***	41	-0.206	51	-2.087***	-1.881***
Hi-Lo		-0.901		0.716			-0.283		-1.753***			0.140		-0.521	

Table 2.12
Regression Analysis of Post-merger Takeover Gain, Information Asymmetry and Misvaluation

This table presents OLS regression analysis of gain from takeover. The dependent variables are 12-, 24- and 36-months BHAR. *Tender*, *Hostile*, *Focus* take the value of one if the acquisition is a tender offer, if the deal is hostile or solicited, if the deal is in the same industry, respectively. *Relative size* is the relative size of deal value to size of acquiring firm. *Size* is defined as market capitalisation 42 days prior to the takeover announcement. *Run-Up* is the CAR over 200 trading days ending six days prior to the announcement date. *B/M* is the book value of equity divided by the market value of equity. *Leverage* is the total financial debt divided by the book value of total assets. *Op. Perform* is the operating income before depreciation divided by the book value of total assets. The calculations of *B/M*, *Leverage*, *Cash Holding* and *Op. Perform* use the financial data for the fiscal year-end immediately prior to the announcement. Test variable is acquirer information asymmetry (Acquirer IA). IA is the standard deviation of the market-adjusted residuals of the daily stock returns measured during the period starting from 205 to six days prior to the acquisition announcement of acquirer or target. *Ln(M/V)* is the misvaluation component decomposed from the ln(M/B) following Rhodes-Kropf et al.'s (2005) methodology. Heteroscedasticity-robust standard errors are shown in parentheses. ***, ** and * indicate significance at the 1, 5 and 10% levels, respectively.

Explanatory	BHAR12			BHAR24			BHAR36		
Variables	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Acquirer IA	-0.202	-0.584**	-0.176	-0.063	-0.424**	-0.169	-0.036	-0.209	-0.055
	(0.220)	(0.275)	(0.253)	(0.169)	(0.170)	(0.193)	(0.157)	(0.163)	(0.180)
Target IA	-0.051	0.001	-0.105	-0.067	0.023	-0.138	-0.070	0.008	-0.180
	(0.102)	(0.127)	(0.144)	(0.077)	(0.093)	(0.129)	(0.072)	(0.080)	(0.111)
Acquirer ln(M/V)	0.497	1.427**	0.816	-0.180	-0.150	0.239	-0.295	-0.212	0.176
	(0.473)	(0.564)	(0.511)	(0.409)	(0.407)	(0.369)	(0.351)	(0.349)	(0.359)
Target ln(M/V)	0.098	-0.563*	-0.492*	0.190	0.160	-0.407**	-0.026	0.124	-0.162
	(0.226)	(0.288)	(0.280)	(0.182)	(0.206)	(0.196)	(0.163)	(0.201)	(0.178)
Acquirer IA x	-0.370**	-0.522***	-0.416***	-0.164	-0.255***	-0.239**	-0.0972	-0.194**	-0.236**
Acquirer ln(M/V)	(0.158)	(0.133)	(0.144)	(0.147)	(0.093)	(0.105)	(0.117)	(0.078)	(0.092)
Relative Size	0.011	-0.263**	0.162	-0.168***	-0.114	0.148	-0.104	-0.103*	-0.076
	(0.059)	(0.122)	(0.261)	(0.029)	(0.078)	(0.242)	(0.309)	(0.061)	(0.237)
Tender	-0.025	-0.367	-0.707	0.010	-0.483	-0.129	0.039	-0.396	-0.194
	(0.311)	(1.238)	(0.613)	(0.227)	(0.595)	(0.430)	(0.208)	(0.672)	(0.432)
Hostile	0.370	1.083	-0.300	1.278**	1.064	-0.250	1.356***	0.967	0.013
	(0.939)	(1.608)	(0.871)	(0.510)	(0.672)	(0.732)	(0.368)	(0.853)	(0.545)
Focus	-0.149	-0.515	-0.647*	0.035	-0.272	-0.028	0.157	0.088	0.061
	(0.287)	(0.364)	(0.364)	(0.206)	(0.274)	(0.283)	(0.210)	(0.235)	(0.250)
Target Run-up	0.001	0.003	-0.017*	0.008*	-0.007	-0.009	0.009*	-0.012**	-0.007
	(0.007)	(0.009)	(0.009)	(0.005)	(0.007)	(0.007)	(0.004)	(0.006)	(0.007)
Target B/M	0.019	0.043	0.175***	0.007	-0.092*	0.090**	0.010	-0.088**	0.057
	(0.070)	(0.082)	(0.063)	(0.055)	(0.051)	(0.041)	(0.042)	(0.037)	(0.041)
Target Leverage	-1.159	-0.440	-1.926	-0.186	0.149	-1.083	-0.837	0.283	-1.414*
	(0.824)	(1.238)	(1.231)	(0.699)	(0.844)	(0.939)	(0.583)	(0.746)	(0.745)
Target Cash Holding	-1.422	-0.980	-0.804	-0.155	-0.126	-0.875	0.0306	-0.350	-0.838
	(0.922)	(1.077)	(1.254)	(0.677)	(0.732)	(0.963)	(0.543)	(0.651)	(0.811)
Target Op. Perform	-2.870***	0.045	-1.155	-2.399***	0.020	-0.936	-1.542**	-0.933	-1.742*
	(1.067)	(1.011)	(1.478)	(0.836)	(0.786)	(1.096)	(0.617)	(0.726)	(0.926)

Table 2.12 (Cont'd)
Regression Analysis of Post-merger Takeover Gain, Information Asymmetry and Misvaluation

Explanatory Variables	Premium			TCAR			ACAR		
	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Acquirer Size	-0.031	-0.263*	-0.165	0.010	-0.118	0.005	0.009	0.009	-0.006
	(0.111)	(0.142)	(0.132)	(0.084)	(0.105)	(0.105)	(0.078)	(0.088)	(0.095)
Acquirer Run-up	0.035***	-0.009	0.027**	-0.001	-0.002	0.006	-0.008	-0.008	0.003
	(0.013)	(0.012)	(0.013)	(0.010)	(0.008)	(0.011)	(0.008)	(0.008)	(0.010)
Acquirer B/M	-0.013	-0.010	-0.072	-0.027	0.056	-0.017	-0.069	0.020	-0.077
	(0.077)	(0.069)	(0.074)	(0.064)	(0.053)	(0.073)	(0.055)	(0.046)	(0.067)
Acquirer Leverage	2.200**	-1.023	-0.058	1.012	-0.061	-0.344	1.649**	-0.040	1.348
	(1.008)	(1.264)	(1.151)	(0.876)	(1.054)	(0.976)	(0.807)	(0.889)	(0.853)
Acquirer Cash Holding	0.968	0.853	-2.117	-0.545	1.598*	0.111	-0.360	1.043	0.057
	(1.107)	(1.238)	(1.741)	(0.803)	(0.875)	(1.149)	(0.764)	(0.807)	(0.975)
Acquirer Op. Perform	5.195**	1.094	6.569***	3.451**	4.154***	2.814	3.645**	3.900***	3.651**
	(2.244)	(1.845)	(2.244)	(1.728)	(1.277)	(1.765)	(1.498)	(1.259)	(1.729)
Constant	0.0147	-1.238	-0.677	0.155	-0.666	0.160	-0.606	-1.718	-0.953
	(1.129)	(2.469)	(1.075)	(0.892)	(1.535)	(1.252)	(0.880)	(1.287)	(1.356)
Observations	621	564	509	570	517	460	512	469	417
R-squared	0.215	0.286	0.204	0.272	0.326	0.233	0.236	0.305	0.259

Table 2.13
Acquirer Information Asymmetry Level and Synergy

This table presents the change of average ratio of capital expenditures over assets measured over the three years following the acquisition (Capex/Asset $_{(t+1, t+3)}$) partitioned into quintiles of information asymmetry level of acquirer and method of payments. This measure is used to proxy for possible synergies. The detail of this measure is discussed in Section 2.4.4. Panel A (Panel C) report the positive change of capital expenditure over asset ratio sorting by acquirer information asymmetry (relative acquirer information asymmetry).

I.A. Level of Acquirer	All		Only Cash		Only Stock		Mixed	
	N	Mean	*N*	Mean	*N*	Mean	*N*	Mean
Panel A: Acquirer information asymmetry and negative change in Capex/Asset								
1 (Lo)	120	-0.006	51	-0.007	30	-0.008	39	-0.004
2	121	-0.012	53	-0.013	24	-0.014	44	-0.010
3	138	-0.017	58	-0.014	33	-0.020	47	-0.018
4	138	-0.028	54	-0.028	40	-0.019	44	-0.037
5 (Hi)	219	-0.038	56	-0.031	98	-0.036	65	-0.046
Panel B: Acquirer information asymmetry and positive change in Capex/Asset								
1 (Lo)	160	0.013	79	0.011	32	0.013	49	0.014
2	185	0.023	84	0.018	41	0.025	60	0.030
3	186	0.054	60	0.024	72	0.074	54	0.060
4	239	0.087	62	0.093	98	0.113	79	0.050
5 (Hi)	163	0.062	25	0.043	94	0.067	43	0.061
Panel C: Relative information asymmetry and negative change in Capex/Asset								
1 (Lo)	119	-0.015	74	-0.017	17	-0.013	28	-0.011
2	139	-0.017	60	-0.014	38	-0.015	41	-0.024
3	164	-0.019	53	-0.016	50	-0.024	61	-0.019
4	160	-0.030	51	-0.027	56	-0.030	53	-0.034
5 (Hi)	154	-0.028	34	-0.022	64	-0.028	56	-0.032
Panel D: Relative information asymmetry and positive change in Capex/Asset								
1 (Lo)	233	0.037	118	0.033	67	0.047	48	0.034
2	194	0.042	71	0.019	74	0.059	49	0.049
3	185	0.043	61	0.029	63	0.053	61	0.045
4	171	0.076	35	0.084	74	0.099	62	0.044
5 (Hi)	150	0.064	26	0.030	59	0.101	65	0.043

Table 2.14
Takeover Gain, Acquirer Information Asymmetry and Synergy

This table presents gain from takeover of target and acquirer (Premium, TCAR and ACAR) during an announcement period conditional on acquirer information asymmetry, method of payments and level of misvaluation (ln M/V). Firms in which an average Capex/Asset ratio over three years following the acquisition has changed significantly (Q4 and Q5 for positive change and Q1 and Q2 for negative change) are classified as Hi Synergy. The rest are labelled Lo Synergy. Superscripts *, ** and *** indicate significance at the 1, 5 and 10% levels.

IA level of Acquirer	Only Cash					Only Stock					Mixed				
	Lo Synergy		Hi Synergy		Diff	Lo Synergy		Hi Synergy		Diff	Lo Synergy		Hi Synergy		Diff
	N	Gain	*N*	Gain		*N*	Gain	*N*	Gain		*N*	Gain	*N*	Gain	
Panel A: Acquirer information asymmetry															
Premium															
All	396	47.592***	156	48.479***		256	44.641***	267	44.514***		290	37.473***	199	38.611***	
1 (Lo)	110	38.079***	13	45.763***	7.684	50	33.461***	10	28.585***	-4.876	72	33.101***	10	46.031***	12.930
2	97	47.312***	32	55.008***	7.696	42	37.749***	22	35.928***	-1.821	69	34.731***	28	34.971***	0.240
3	82	46.816***	32	36.244***	-10.571	39	38.557***	59	43.425***	4.867	49	38.325***	48	31.565***	-6.760
4	70	64.454***	44	59.943***	-4.511	59	44.588***	71	45.827***	1.239	57	38.575***	58	32.826***	-5.749
5 (Hi)	37	46.4292***	35	40.292***	-6.137	66	61.140***	105	47.555***	-13.854*	43	46.764***	55	51.364***	4.600
Hi-Lo		8.350		-5.471			27.678***		18.970**			13.663		5.333	
TCAR															
All	414	30.980***	169	32.179***		278	19.758***	284	19.127***		309	21.806***	215	14.736***	
1 (Lo)	116	27.285***	14	33.540***	6.255	51	15.301***	11	11.458***	-3.843	77	20.865***	11	19.313**	-1.552
2	101	32.413***	36	37.247***	4.834	43	21.545***	22	20.472***	-1.073	75	20.860***	29	13.780***	-7.081
3	85	28.551***	33	27.993***	-0.557	43	23.264***	62	18.224***	-5.040	51	22.841***	50	10.633***	-12.208***
4	71	37.518***	45	35.287***	-2.231	63	22.200***	75	19.335***	-2.865	61	21.451***	62	12.010***	-9.441**
5 (Hi)	41	31.619***	41	27.222***	-4.396	78	17.780***	114	19.962***	2.181	45	24.299***	63	20.315***	-3.985
Hi-Lo		4.334		-6.318			2.479		8.504**			3.434		1.002	
ACAR															
All	414	0.721**	169	2.256		278	-3.457***	284	-1.841***		309	-2.229***	215	-2.647***	
1 (Lo)	116	0.089	14	1.430	1.341	51	-1.300*	11	-1.975*	-0.675	77	-2.426***	11	-0.183	2.243
2	101	0.964*	36	-0.571	0.378	43	-1.702**	22	-0.595	1.107	75	-2.221***	29	-2.130	0.091
3	85	1.057	33	1.746	0.689	43	-2.011*	62	-0.219	1.792	51	-3.384***	50	-4.569***	-1.185
4	71	-0.264	45	4.229***	4.493***	63	-1.964*	75	-3.282***	-1.318	61	-1.161	62	-2.011*	-0.850
5 (Hi)	41	2.924*	41	3.264**	0.339	78	-7.837***	114	-2.002*	5.836***	45	-2.046	63	-2.416	-0.370
Hi-Lo		2.835*		1.834			-6.537***		-0.027			0.381		-2.233	

Table 2.14 (Cont'd)
Takeover Gain, Acquirer Information Asymmetry and Synergy

IA level of Acquirer	Only Cash					Only Stock					Mixed				
	Lo Synergy		Hi Synergy		Diff	Lo Synergy		Hi Synergy		Diff	Lo Synergy		Hi Synergy		Diff
	N	Gain	*N*	Gain		*N*	Gain	*N*	Gain		*N*	Gain	*N*	Gain	
Panel B: Relative acquirer information asymmetry															
Premium															
All	396	47.592***	156	48.479***		256	44.641***	267	44.514***		290	37.473***	199	38.611***	
1 (Lo)	140	57.200	37	55.304	-1.896	42	50.682	35	68.828	18.147	45	38.021	25	46.262	8.240
2	98	50.035***	28	55.612***	5.577	52	51.996***	55	41.702***	-10.294	50	39.124***	32	49.359***	10.235
3	78	36.617***	33	47.415***	10.798	49	38.822***	55	35.791***	-3.032	69	39.151***	47	30.573***	-8.577
4	42	37.148***	38	45.214***	8.066	57	40.752***	63	40.479***	-0.272	63	37.379***	43	42.395***	5.016
5 (Hi)	38	39.966***	20	33.823***	-6.143	56	42.332***	59	45.153***	2.821	63	34.029***	52	32.453***	-1.576
Hi-Lo		-17.234***		-21.481*			-8.350		-23.675**			-3.992		-13.808*	
TCAR															
All	414	30.980***	169	32.179***		278	19.758***	284	19.127***		309	21.806***	215	14.736***	
1 (Lo)	148	37.001***	44	35.533***	-1.468	47	25.561***	37	26.117***	0.556	48	28.060***	28	15.199***	-12.861**
2	102	29.244***	29	38.589***	9.346	55	24.330***	57	18.493***	-5.837	57	22.842***	33	18.453***	-4.389
3	80	27.052***	34	30.398***	3.346	54	21.527***	59	17.523***	-4.004	71	23.221***	51	16.731***	-6.490*
4	45	25.609***	41	28.478***	2.870	60	14.051***	70	17.355***	3.304	69	18.531***	46	10.775***	-7.756**
5 (Hi)	39	26.925***	21	26.409***	-0.516	62	15.284***	61	19.065***	3.781	64	18.154***	57	13.767***	-4.387
Hi-Lo		-10.077**		-9.124			-10.278**		-7.052			-9.906**		-1.432	
ACAR															
All	414	0.721**	169	2.256***		278	-3.457***	284	-1.840***		309	-2.229***	215	-2.647***	
1 (Lo)	148	0.328	44	0.644	0.316	47	-1.027	37	0.468	1.496	48	-1.118	28	0.398	1.516
2	102	-0.037	29	1.978*	2.014*	55	-2.419**	57	-2.134*	0.285	57	-2.282**	33	-0.261	2.021
3	80	0.778	34	2.450**	1.672	54	-1.753**	59	-2.813**	-1.060	71	-2.824***	51	-2.129*	0.695
4	45	1.326	41	2.025	0.699	60	-4.006***	70	-1.083	2.922*	69	-2.417***	46	-3.575**	-1.157
5 (Hi)	39	3.382**	21	6.150***	2.768	62	-7.171***	61	-2.895*	4.276**	64	-2.154*	57	-5.240***	-3.085*
Hi-Lo		3.054*		5.506**			-6.144***		-3.363*			-1.037		-5.637**	

Table 2.15
Regression Analysis of Takeover Gain at Announcement, Acquirer Information Asymmetry and Synergy

This table presents OLS regression analysis of gain from takeover. The dependent variables are Premium, 5-day TCAR and 5-day ACAR. *Tender*, *Hostile*, *Focus* take the value of one if the acquisition is a tender offer, if the deal is hostile or solicited, if the deal is in the same industry, respectively. *Relative size* is the relative size of deal value to size of acquiring firm. *Size* is defined as market capitalisation 42 days prior to the takeover announcement. *Run-Up* is the CAR over 200 trading days ending six days prior to the announcement date. *B/M* is the book value of equity divided by the market value of equity. *Leverage* is the total financial debt divided by the book value of total assets. *Cash Hold* is the cash and equivalents divided by the book value of total assets. *Op. Perform* is the operating income before depreciation divided by the book value of total assets. The calculations of *B/M*, *Leverage*, *CF/EQ*, *Cash* and *Op. Perform* use the financial data for the fiscal year-end immediately prior to the announcement. Test variable is acquirer information asymmetry (*Acquirer IA*). *IA* is the standard deviation of the market-adjusted residuals of the daily stock returns measured during the period starting from 205 to six days prior to the acquisition announcement of acquirer or target. *Ln(M/V)* is the misvaluation component decomposed from the ln(M/B) following Rhodes-Kropf et al.'s (2005) methodology. *Hi Synergy* takes the value of one if the change of average CAPEX/Asset ratio three years following the announcement changes significantly (Q4 and Q5 for positive change and Q1 and Q2 for negative change). Heteroscedasticity-robust standard errors are shown in parentheses. ***, ** and * indicate significance at the 1, 5 and 10% levels, respectively.

Explanatory	Premium			TCAR			ACAR		
Variables	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Acquirer IA	-1.051	-2.034	-4.465	-1.500	-4.874**	0.300	1.148*	-1.245	0.010
	(2.783)	(3.309)	(3.827)	(1.884)	(2.096)	(1.932)	(0.631)	(0.756)	(0.928)
Target IA	4.026**	7.717***	1.124	1.958*	2.919**	0.984	-0.121	0.498	0.855**
	(1.632)	(1.840)	(2.035)	(1.030)	(1.155)	(1.067)	(0.245)	(0.368)	(0.396)
Acquirer ln(M/V)	3.580	-10.810*	-8.313	2.794	-1.878	-2.073	1.017	-1.673	1.082
	(6.398)	(5.604)	(5.087)	(4.036)	(3.471)	(3.023)	(1.088)	(1.623)	(1.172)
Target ln(M/V)	-5.668	-20.710***	-12.970***	-5.271**	-10.370***	-6.556***	0.846	-0.752	-0.228
	(3.640)	(3.588)	(4.267)	(2.543)	(1.998)	(2.079)	(0.528)	(0.789)	(0.712)
Acquirer IA x	-2.619	3.055**	3.510**	-2.141*	0.993	-0.128	-0.586	0.317	-0.485
Acquirer ln(M/V)	(1.985)	(1.279)	(1.476)	(1.181)	(0.713)	(0.758)	(0.363)	(0.427)	(0.334)
Hi Synergy	15.000	3.186	11.980	16.760**	-4.295	0.117	0.646	-2.422	-1.612
	(9.345)	(7.381)	(9.651)	(6.893)	(4.524)	(5.443)	(1.752)	(2.006)	(2.489)
Acquirer IA x	-6.336*	-2.654	-2.172	-6.019**	1.127	-1.475	0.220	1.400**	0.392
Hi Synergy	(3.545)	(2.415)	(3.566)	(2.579)	(1.495)	(1.919)	(0.688)	(0.668)	(0.873)
Relative Size	-0.631	13.010***	2.648	-2.460	-0.285	-2.709	2.440**	0.004	-1.002
	(4.569)	(4.803)	(3.476)	(2.775)	(0.532)	(1.971)	(1.232)	(0.383)	(0.933)
Tender	0.268	-3.347	18.37**	2.219	-7.156	7.145	0.329	3.714	-0.192
	(4.291)	(15.45)	(7.171)	(2.897)	(8.014)	(4.457)	(0.717)	(2.604)	(1.280)
Hostile	38.750***	-1.070	-10.490	2.997	1.168	-4.985	-3.646**	-4.736*	3.991
	(10.160)	(12.940)	(8.490)	(5.759)	(7.961)	(7.859)	(1.721)	(2.500)	(3.829)
Focus	5.710	1.526	3.409	2.872	-0.431	1.726	-0.149	-1.292	-0.297
	(4.218)	(4.205)	(4.694)	(2.746)	(2.378)	(2.591)	(0.687)	(0.967)	(1.043)
Target Run-up	0.405***	0.232**	0.174	-0.201***	-0.175***	-0.173**	0.004	-0.006	0.034
	(0.116)	(0.108)	(0.132)	(0.071)	(0.063)	(0.070)	(0.016)	(0.023)	(0.027)
Target B/M	-0.306	0.459	0.506	-0.349	0.511	0.418	-0.249*	-0.207	0.147
	(0.975)	(0.781)	(0.644)	(0.650)	(0.410)	(0.409)	(0.127)	(0.168)	(0.158)
Target Leverage	-16.120	3.354	-0.958	-6.788	-13.740*	11.130	-4.487**	-1.188	-3.995
	(12.590)	(14.660)	(14.910)	(8.474)	(7.820)	(8.070)	(1.798)	(2.829)	(3.067)

Table 2.15 (Cont'd)
Regression Analysis of Takeover Gain at Announcement, Acquirer Information Asymmetry and Synergy

Explanatory Variables	Premium			TCAR			ACAR		
	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Target Cash Hold	8.656	4.515	4.215	4.335	-10.320	4.233	-3.190*	8.656	4.515
	(13.31)	(13.58)	(15.38)	(7.880)	(6.603)	(7.146)	(1.768)	(13.31)	(13.58)
Target Op. Perform	-20.520	52.620***	-3.991	-24.22**	25.79***	6.676	-2.808	-20.52	52.62***
	(17.470)	(13.190)	(16.110)	(11.370)	(7.985)	(8.798)	(2.084)	(17.47)	(13.19)
Acquirer Size	0.0410	3.689**	0.572	1.256	2.027**	1.377	0.152	0.0410	3.689**
	(1.670)	(1.772)	(1.615)	(1.099)	(0.936)	(0.953)	(0.262)	(1.670)	(1.772)
Acquirer Run-up	-0.272*	0.629***	0.291*	-0.131	0.273***	0.145	0.090***	-0.272*	0.629***
	(0.152)	(0.132)	(0.164)	(0.101)	(0.068)	(0.089)	(0.027)	(0.152)	(0.132)
Acquirer B/M	0.168	1.404*	1.580*	-0.458	0.169	0.708	-0.172	0.168	1.404*
	(0.891)	(0.840)	(0.908)	(0.637)	(0.362)	(0.502)	(0.199)	(0.891)	(0.840)
Acquirer Leverage	35.590**	-27.570*	0.661	15.660*	-7.952	-2.549	3.043	35.590**	-27.570*
	(15.190)	(15.240)	(14.980)	(9.483)	(7.434)	(8.188)	(2.501)	(15.190)	(15.240)
Acquirer Cash Hold	-8.118	15.880	-19.710	1.679	15.170*	2.423	2.713	-8.118	15.880
	(16.110)	(15.410)	(15.340)	(9.274)	(8.448)	(8.955)	(2.402)	(16.11)	(15.410)
Acquirer Op. Perform	8.071	-9.410	-10.130	21.000	-14.190	16.980	4.895	8.071	-9.410
	(28.460)	(26.130)	(27.790)	(18.000)	(13.190)	(14.510)	(4.085)	(28.460)	(26.130)
Constant	24.540	9.040	22.190	22.05*	31.93**	14.30	-1.782	24.54	9.040
	(19.810)	(27.390)	(16.650)	(12.720)	(15.830)	(10.960)	(2.729)	(19.810)	(27.390)
Observations	463	412	377	488	441	406	488	463	412
R-squared	0.263	0.395	0.247	0.253	0.277	0.286	0.227	0.263	0.395

Table 2.16
Post-merger Takeover Gain, Acquirer Information Asymmetry and Synergy

This table presents 12-, 24- and 36-months Post-merger takeover gain (BHAR) partitioned into quintiles of acquirer information asymmetry, method of payments and synergy. Firms in which an average Capex/Asset ratio over three years following the acquisition has changed significantly (Q4 and Q5 for positive change and Q1 and Q2 for negative change) are classified as Hi Synergy. The rest are labelled Lo Synergy. Superscripts *, ** and *** indicate significance at the 1, 5 and 10% levels,

IA level of Acquirer	Only Cash					Only Stock					Mixed				
	Lo Synergy		Hi Synergy		Diff	Lo Synergy		Hi Synergy		Diff	Lo Synergy		Hi Synergy		Diff
	N	Gain	*N*	Gain		*N*	Gain	*N*	Gain		*N*	Gain	*N*	Gain	
Panel A: Acquirer information asymmetry															
BHAR12															
All	413	-0.192	169	-0.466		278	-1.447***	284	-1.032***		309	-0.582***	215	-0.882***	
1 (Lo)	116	-0.379**	14	-0.810**	-0.431	51	-0.622**	11	-0.482	0.140	77	-1.029***	11	-0.760	0.269
2	101	-0.557**	36	-0.179	-0.209	43	-0.849**	22	-1.246**	-0.397	75	-0.320	29	-0.196	0.124
3	84	-0.244	33	-0.279	-0.035	43	-0.488	62	-0.630	-0.143	51	-0.500	50	-0.992**	-0.492
4	71	0.194	45	0.296	0.103	63	-1.174**	75	-1.159**	0.015	61	0.085	62	0.084	-0.001
5 (Hi)	41	0.680	41	-1.589*	-2.269**	78	-3.064***	114	-1.179**	1.885**	45	-1.249	63	-2.083***	-0.834
Hi-Lo		1.058		-0.780			-2.442***		-0.696			-0.220		-1.323	
BHAR24															
All	413	-0.329***	169	-0.677***		278	-1.589***	284	-1.190***		309	-0.625***	215	-1.104***	
1 (Lo)	116	-0.569***	14	-0.517	0.052	51	-0.831***	11	-0.347	0.485	77	-1.024***	11	-0.575	0.449
2	101	-0.376**	36	-0.585	-0.209	43	-0.911**	22	-1.129**	-0.218	75	-0.490**	29	-0.743**	-0.254
3	84	-0.387*	33	-0.855*	-0.468	43	-0.784**	62	-0.698**	0.085	51	-0.086	50	-1.152***	-1.066**
4	71	-0.067	45	-0.228	-0.161	63	-1.921***	75	-1.961***	-0.040	61	0.030	62	-0.483	-0.513
5 (Hi)	41	0.133	41	-1.164**	-1.296*	78	-2.634***	114	-1.043***	1.592***	45	-1.668***	63	-1.935***	-0.267
Hi-Lo		0.702		-0.646			-1.803***		-0.696			-0.644		-1.360**	
BHAR36															
All	413	-0.387***	169	-0.638***		278	-1.414***	284	-1.225***		309	-0.746***	215	-1.148***	
1 (Lo)	116	-0.418***	14	-0.894*	-0.476	51	-0.854***	11	-0.243	0.610*	77	-1.309***	11	-0.830*	0.479
2	101	-0.327*	36	-0.435	-0.108	43	-0.762***	22	-0.868**	-0.107	75	-0.577***	29	-0.609**	-0.032
3	84	-0.456**	33	-0.973**	-0.517	43	-0.563**	62	-0.863***	-0.300	51	-0.157	50	-1.316***	-1.159***
4	71	-0.434	45	-0.385	0.049	63	-1.821***	75	-1.647***	0.175	61	-0.319	62	-0.674**	-0.355
5 (Hi)	41	-0.222	41	-0.739*	-0.517	78	-2.280***	114	-1.309***	0.972**	45	-1.310***	63	-1.785***	-0.476
Hi-Lo		0.196		0.154			-1.427***		-1.065***			-0.001		-0.955	

Table 2.16 (Cont'd)
Post-merger Takeover Gain, Acquirer Information Asymmetry and Synergy

IA level of Acquirer	Only Cash					Only Stock					Mixed				
	Lo Synergy		Hi Synergy		Diff	Lo Synergy		Hi Synergy		Diff	Lo Synergy		Hi Synergy		Diff
	N	Gain	*N*	Gain		*N*	Gain	*N*	Gain		*N*	Gain	*N*	Gain	
Panel B: Relative acquirer information asymmetry															
BHAR12															
All	413	-0.192	169	-0.466		278	-1.447***	284	-1.032***		309	-0.582***	215	-0.882***	
1 (Lo)	148	-0.376*	44	0.053	0.429	47	-0.395	37	-0.538	-0.143	48	-0.216	28	-0.768	-0.553
2	102	-0.080	29	0.150	0.230	55	-0.569	57	0.290	0.860	57	-0.538*	33	0.288	0.826
3	79	-0.394	34	-0.320	0.074	54	-1.121**	59	-1.799***	-0.679	71	-0.752*	51	-0.762	-0.317
4	45	0.087	41	-1.519*	-1.606	60	-1.150**	70	-1.378***	-0.228	69	-0.202	46	-1.282**	-0.010
5 (Hi)	39	0.305	21	-0.587	-0.893	62	-3.594***	61	-1.428**	2.165**	64	-1.115**	57	-1.400**	-1.080
Hi-Lo		0.681		-0.640			-3.199***		-0.890			-0.900		-0.632	
BHAR24															
All	413	-0.329***	169	-0.677***		278	-1.589***	284	-1.190***		309	-0.625***	215	-1.104***	
1 (Lo)	148	-0.544***	44	-0.589	-0.045	47	-0.805**	37	-0.877*	-0.072	48	-0.680**	28	-0.690	-0.010
2	102	-0.068	29	-0.177	-0.109	55	-1.066**	57	-0.755*	0.311	57	-0.328	33	-0.784	-0.456
3	79	-0.340	34	-0.739*	-0.399	54	-1.877***	59	-1.550***	0.326	71	-0.535**	51	-0.852**	-0.317
4	45	-0.078	41	-1.112*	-1.034	60	-1.456***	70	-1.547***	-0.090	69	-0.633**	46	-1.187**	-0.555
5 (Hi)	39	-0.462	21	-0.607	-0.145	62	-2.524***	61	-1.026**	1.498**	64	-0.941**	57	-1.650***	-0.709
Hi-Lo		0.082		-0.018			-1.719***		-0.149			-0.621		-0.960	
BHAR36															
All	413	-0.387***	169	-0.638***		278	-1.414***	284	-1.225***		309	-0.746***	215	-1.148***	
1 (Lo)	148	-0.504***	44	-1.008***	-0.505	47	-0.814***	37	-1.094***	-0.280	48	-0.853***	28	-1.399***	-0.546
2	102	-0.169	29	-0.036	0.133	55	-1.172***	57	-0.655**	0.517	57	-0.357	33	-0.861*	-0.505
3	79	-0.363*	34	-0.628	-0.265	54	-1.587***	59	-1.173***	0.413	71	-0.862***	51	-0.759**	0.103
4	45	-0.473	41	-0.709	-0.236	60	-1.308***	70	-1.601***	-0.293	69	-0.801***	46	-1.097***	-0.297
5 (Hi)	39	-0.461	21	-0.576	-0.114	62	-2.036***	61	-1.457***	0.579	64	-0.824***	57	-1.580***	-0.756
Hi-Lo		0.042		0.433			-1.222***		-0.363			0.029		-0.181	

Table 2.17
Regression Analysis of Post-merger Takeover Gain, Information Asymmetry and Synergy

This table presents OLS regression analysis of gain from takeover. The dependent variables are 12-, 24- and 36-months BHAR. *Tender*, *Hostile*, *Focus* take the value of one if the acquisition is a tender offer, if the deal is hostile or solicited, if the deal is in the same industry, respectively. *Relative size* is the relative size of deal value to size of acquiring firm. *Size is* defined as market capitalisation 42 days prior to the takeover announcement. *Run-Up* is the CAR over 200 trading days ending six days prior to the announcement date. *B/M* is the book value of equity divided by the market value of equity. *Leverage* is the total financial debt divided by the book value of total assets. *Cash Holding* is the cash and equivalents divided by the book value of total assets. *Op. Perform* is the operating income before depreciation divided by the book value of total assets. The calculations of *B/M*, *Leverage*, *CF/EQ*, *Cash* and *Op. Perform* use the financial data for the fiscal year-end immediately prior to the announcement. Test variable is acquirer information asymmetry (*Acquirer IA*). *IA* is the standard deviation of the market-adjusted residuals of the daily stock returns measured during the period starting from 205 to six days prior to the acquisition announcement of acquirer or target. *Ln(M/V)* is the misvaluation component decomposed from the ln(M/B) following Rhodes-Kropf et al.'s (2005) methodology. *Hi Synergy* takes the value of one if the change of average CAPEX/Asset ratio three years following the announcement changes significantly (Q4 and Q5 for positive change and Q1 and Q2 for negative change). Heteroscedasticity-robust standard errors are shown in parentheses. ***, ** and * indicate significance at the 1, 5 and 10% levels, respectively.

Explanatory	BHAR12			BHAR24			BHAR36		
Variables	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Acquirer IA	0.119	-0.500	-0.327	0.065	-0.274	-0.501*	0.024	-0.331*	-0.130
	(0.266)	(0.337)	(0.419)	(0.227)	(0.200)	(0.274)	(0.222)	(0.181)	(0.242)
Target IA	-0.040	0.083	0.062	-0.043	-0.028	-0.066	-0.095	0.023	-0.141
	(0.118)	(0.148)	(0.160)	(0.085)	(0.106)	(0.133)	(0.076)	(0.083)	(0.111)
Acquirer ln(M/V)	0.237	0.783	0.617	-0.220	-0.339	0.053	-0.360	-0.285	0.278
	(0.511)	(0.589)	(0.532)	(0.436)	(0.428)	(0.396)	(0.366)	(0.360)	(0.359)
Target ln(M/V)	-0.056	-0.386	-0.523*	0.065	0.159	-0.415**	-0.021	0.095	-0.125
	(0.247)	(0.317)	(0.297)	(0.190)	(0.224)	(0.207)	(0.166)	(0.208)	(0.171)
Acquirer IA x	-0.421**	-0.512***	-0.319*	-0.205	-0.241**	-0.160	-0.106	-0.161**	-0.231**
Acquirer ln(M/V)	(0.186)	(0.135)	(0.164)	(0.153)	(0.095)	(0.107)	(0.127)	(0.078)	(0.092)
Hi Synergy	1.596*	0.721	0.228	0.684	0.752	-0.488	0.206	0.455	-0.790*
	(0.819)	(0.802)	(0.849)	(0.651)	(0.567)	(0.533)	(0.591)	(0.447)	(0.466)
Acquirer IA x	-0.643*	-0.010	-0.050	-0.316	-0.006	0.118	-0.076	0.010	0.148
Hi Synergy	(0.335)	(0.275)	(0.351)	(0.279)	(0.172)	(0.206)	(0.249)	(0.147)	(0.185)
Relative Size	0.488	-0.333***	0.335	0.080	-0.164*	0.124	-0.079	-0.088	-0.038
	(0.533)	(0.105)	(0.288)	(0.273)	(0.088)	(0.265)	(0.317)	(0.073)	(0.242)
Tender	-0.236	-1.152	-0.734	0.090	-0.393	-0.022	-0.003	-0.296	-0.130
	(0.351)	(1.317)	(0.714)	(0.250)	(0.649)	(0.443)	(0.220)	(0.631)	(0.425)
Hostile	-0.125	1.615	0.297	0.768	1.529**	-0.005	1.289***	1.273	0.136
	(0.918)	(1.775)	(1.201)	(0.493)	(0.762)	(0.815)	(0.374)	(0.914)	(0.529)
Focus	-0.177	-0.802**	-0.385	0.112	-0.254	0.103	0.177	0.117	0.036
	(0.332)	(0.401)	(0.403)	(0.233)	(0.293)	(0.299)	(0.217)	(0.250)	(0.250)
Target Run-up	0.013*	-0.001	-0.009	0.013**	-0.008	-0.006	0.009**	-0.010*	-0.005
	(0.007)	(0.010)	(0.011)	(0.005)	(0.007)	(0.008)	(0.004)	(0.006)	(0.007)
Target B/M	0.036	-0.044	0.123*	0.040	-0.118**	0.068	0.008	-0.083**	0.048
	(0.064)	(0.098)	(0.066)	(0.054)	(0.060)	(0.045)	(0.042)	(0.042)	(0.042)
Target Leverage	-1.412*	-0.639	-2.003	-0.216	-0.0970	-1.597*	-0.696	0.342	-1.590**
	(0.841)	(1.396)	(1.262)	(0.713)	(0.919)	(0.968)	(0.610)	(0.819)	(0.735)

Table 2.17 (Cont'd)
Regression Analysis of Post-merger Takeover Gain, Information Asymmetry and Synergy

Explanatory Variables	BHAR12			BHAR24			BHAR36		
	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Target Cash Holding	-0.996	-0.385	-0.503	0.366	-0.293	-0.781	-0.021	0.002	-0.711
	(0.968)	(1.185)	(1.439)	(0.693)	(0.828)	(1.062)	(0.554)	(0.696)	(0.822)
Target Op. Perform	-3.020**	0.657	0.321	-2.355**	-0.008	-0.077	-1.662**	-0.385	-1.473
	(1.242)	(1.243)	(1.597)	(0.915)	(0.962)	(1.128)	(0.658)	(0.788)	(0.915)
Acquirer Size	0.061	-0.088	-0.080	0.044	-0.034	0.012	0.0423	0.020	-0.021
	(0.121)	(0.157)	(0.158)	(0.090)	(0.119)	(0.120)	(0.082)	(0.094)	(0.097)
Acquirer Run-up	0.020	-0.003	0.022	-0.013	0.002	0.003	-0.009	-0.005	0.001
	(0.015)	(0.013)	(0.015)	(0.010)	(0.009)	(0.013)	(0.008)	(0.008)	(0.010)
Acquirer B/M	0.032	-0.002	-0.135	-0.018	0.011	-0.065	-0.060	-0.002	-0.097
	(0.084)	(0.083)	(0.103)	(0.069)	(0.060)	(0.088)	(0.056)	(0.049)	(0.068)
Acquirer Leverage	2.994***	-0.498	0.435	1.863*	-0.378	-0.180	1.651*	-0.671	1.272
	(1.112)	(1.496)	(1.307)	(0.954)	(1.129)	(1.041)	(0.843)	(0.923)	(0.861)
Acquirer Cash Holding	0.766	2.115	-1.833	-0.408	2.019**	-0.192	-0.175	0.834	-0.093
	(1.123)	(1.350)	(1.976)	(0.877)	(0.928)	(1.165)	(0.785)	(0.810)	(0.946)
Acquirer Op. Perform	3.456	2.089	4.557*	2.764	3.649***	0.291	3.620**	2.798**	3.109*
	(2.342)	(2.196)	(2.740)	(1.798)	(1.367)	(2.123)	(1.549)	(1.303)	(1.682)
Constant	-1.238	-2.377	-0.645	-0.901	-1.247	1.113	-0.833	-1.609	-0.521
	(1.191)	(2.439)	(1.297)	(0.923)	(1.651)	(1.350)	(0.898)	(1.337)	(1.398)
Observations	487	441	406	487	441	406	487	441	406
	0.233	0.307	0.210	0.260	0.327	0.254	0.248	0.300	0.266

Table 2.18
Takeover Gain, Acquirer Information Asymmetry and Frequent Acquirer

This table presents gain from takeover of target and acquirer (Premium, TCAR and ACAR) during an announcement period conditional on acquirer information asymmetry, method of payments and frequent acquirer. Acquirers who have announced the acquisition in the previous three years are classified as frequent acquirers (Freq). The rest are labelled Less Freq. Superscripts *, ** and *** indicate significance at the 1, 5 and 10% levels.

IA level of	Only Cash					Only Stock					Mixed				
	Freq		Less Freq		Diff	Freq		Less Freq		Diff	Freq		Less Freq		Diff
Acquirer	*N*	Gain	*N*	Gain		*N*	Gain	*N*	Gain		*N*	Gain	*N*	Gain	
Panel A: Acquirer information asymmetry															
Premium															
All	554	47.462***	284	49.953***		594	38.692***	470	43.033***		471	38.640***	302	36.138***	
1 (Lo)	144	45.402***	42	37.775***	-7.627	134	29.480***	63	32.410***	2.930	116	29.837***	31	34.949***	5.112
2	132	46.006***	60	47.915***	1.910	129	37.207***	60	47.396***	10.190*	99	38.930***	59	31.749***	-7.181
3	126	43.998***	62	52.210***	8.212	120	38.597***	86	36.174***	2.423	95	38.238***	57	32.478***	-5.760
4	99	60.105***	64	59.111***	-0.993	116	45.924***	90	43.240***	2.683	101	40.662***	77	32.605***	-8.057
5 (Hi)	53	41.298***	56	48.306***	7.008	95	44.994***	171	48.757***	3.763	60	52.411***	78	46.093***	-6.319
Hi-Lo		-4.104		10.531			15.514***		16.347***			22.575***		11.144	
TCAR															
All	584	32.860***	300	28.177***		646	18.811***	519	17.850***		506	20.739***	335	17.406***	
1 (Lo)	152	32.486***	45	28.577***	-3.910	149	15.052***	67	16.382***	1.329	129	19.749***	36	15.804***	-3.945
2	142	32.298***	62	27.798***	-4.500	143	17.942***	64	18.105***	0.163	104	22.542***	63	17.827***	-4.715
3	131	29.986***	63	30.878***	0.892	129	19.318***	91	16.017***	-3.300	101	21.829***	63	15.093***	-6.736*
4	102	37.813***	65	29.505***	-8.308*	121	24.182***	100	18.689***	-5.494*	107	17.103***	83	18.156***	1.053
5 (Hi)	57	32.993***	65	24.318***	-8.675	104	18.516***	197	18.688***	0.172	65	24.113***	90	18.680***	-5.433
Hi-Lo		0.506		-4.259			3.464		2.306			4.364		2.876	
ACAR															
All	584	0.308	300	2.841***		646	-2.040***	519	-2.457***		506	-2.624***	335	-1.725***	
1 (Lo)	152	0.021	45	0.485	0.464	149	-0.958***	67	-2.045***	-1.087*	129	-1.952***	36	-1.927***	0.025
2	142	0.205	62	1.482**	1.277	143	-1.830***	64	-1.868***	-0.038	104	-2.015***	63	-2.117***	-0.101
3	131	0.264	63	2.688***	2.424**	129	-1.880***	91	-1.141	0.739	101	-3.001***	63	-3.077**	-0.077
4	102	0.440	65	2.346*	1.906	121	-2.584***	100	-2.497***	0.087	107	-3.039***	83	-1.500	1.539
5 (Hi)	57	1.196	65	6.411***	5.215***	104	-3.445***	197	-3.375***	0.070	65	-3.663***	90	-0.633	3.030
Hi-Lo		1.175		5.926***			-2.487**		-1.329			-1.711		1.295	

Table 2.18 (Cont'd)
Takeover Gain, Acquirer Information Asymmetry and Frequent Acquirer

IA level of Acquirer	Only Cash					Only Stock					Mixed				
	Freq		Less Freq		Diff	Freq		Less Freq		Diff	Freq		Less Freq		Diff
	N	Gain	*N*	Gain		*N*	Gain	*N*	Gain		*N*	Gain	*N*	Gain	
Panel B: Relative acquirer information asymmetry															
Premium															
All	554	47.462***	284	49.953***		594	38.692***	470	43.033***		471	38.640***	302	36.138***	
1 (Lo)	187	58.694***	72	66.634***	7.940	100	42.247***	59	56.998***	14.751*	67	47.332***	32	36.449***	-10.883
2	133	46.925***	59	54.957***	8.032	120	44.879***	83	46.515***	1.636	89	43.789***	54	33.642***	-10.146
3	111	40.401***	46	40.810***	0.409	118	37.503***	99	36.746***	-0.756	115	32.375***	55	39.451***	7.075
4	66	37.986***	63	41.816***	3.830	145	34.506***	115	44.156***	9.650*	109	38.937***	62	34.805***	-4.133
5 (Hi)	57	36.584***	44	37.158***	0.574	111	35.535***	114	37.597***	2.062	91	34.763***	99	36.393***	1.630
Hi-Lo		-22.110***		-29.476***			-6.712		-19.401***			-12.569**		-0.056	
TCAR															
All	584	32.860***	300	28.177***		646	18.811***	519	17.850***		506	20.739***	335	17.406***	
1 (Lo)	204	38.738***	77	39.717***	0979	121	21.258***	64	25.404***	4.146	75	23.211***	37	21.413***	-1.798
2	138	31.466***	62	24.856***	-6.610*	129	20.898***	91	21.357***	0.458	98	22.450***	60	18.474***	-3.976
3	114	29.980***	48	24.963***	-5.017	127	21.343***	107	15.224***	-6.119**	121	21.377***	61	19.537***	-1.840
4	69	28.515***	67	24.235***	-4.280	151	15.011***	127	16.433***	1.422	116	18.524***	74	14.522***	-4.002
5 (Hi)	59	26.437***	46	22.434***	-4.002	118	16.160***	130	15.223***	-0.937	96	18.933***	103	16.154***	-2.780
Hi-Lo		-12.301***		-17.283***			-5.098*		-10.181***			-4.278		-5.260	
ACAR															
All	584	0.308	300	2.841***		646	-2.040***	519	-2.457***		506	-2.624***	335	-1.725***	
1 (Lo)	204	0.344	77	0.514	0.171	121	-0.810	64	-1.695**	-0.885	75	-0.878	37	-0.036	0.841
2	138	-0.119	62	2.744***	2.863***	129	-2.246***	91	-1.243	1.003	98	-2.612***	60	-1.343	1.269
3	114	0.110	48	3.068***	2.958**	127	-1.634***	107	-2.085**	-0.451	121	-2.119***	61	-2.640***	-0.521
4	69	0.546	67	5.283***	4.737***	151	-2.477***	127	-3.104***	-0.627	116	-3.064***	74	-1.881*	1.183
5 (Hi)	59	1.289	46	3.071**	1.782	118	-2.955*	130	-3.354***	-0.399	96	-4.107***	103	-1.902*	2.205
Hi-Lo		0.945		2.557			-2.145**		-1.660			-3.230***		-1.865	

Table 2.19
Regression Analysis of Takeover Gain at Announcement, Acquirer Information Asymmetry and Frequent Acquirer

This table presents OLS regression analysis of gain from takeover. The dependent variables are Premium, 5-day TCAR and 5-day ACAR. *Tender*, *Hostile*, *Focus* take the value of one if the acquisition is a tender offer, if the deal is hostile or solicited, if the deal is in the same industry, respectively. *Relative size* is the relative size of deal value to size of acquiring firm. *Size* is defined as market capitalisation 42 days prior to the takeover announcement. *Run-Up* is the CAR over 200 trading days ending six days prior to the announcement date. *B/M* is the book value of equity divided by the market value of equity. *Leverage* is the total financial debt divided by the book value of total assets. *Cash Holding* is the cash and equivalents divided by the book value of total assets. *Op. Perform* is the operating income before depreciation divided by the book value of total assets. The calculations of *B/M*, *Leverage*, *CF/EQ*, *Cash* and *Op. Perform* use the financial data for the fiscal year-end immediately prior to the announcement. Test variable is acquirer information asymmetry (*Acquirer IA*). *IA* is the standard deviation of the market-adjusted residuals of the daily stock returns measured during the period starting from 205 to six days prior to the acquisition announcement of acquirer or target. *Ln(M/V)* is the misvaluation component decomposed from the ln(M/B) following Rhodes-Kropf et al.'s (2005) methodology. *Hi Synergy* takes the value of one if the change of average CAPEX/Asset ratio three years following the announcement changes significantly (Q4 and Q5 for positive change and Q1 and Q2 for negative change). *Freq* takes the value of one if an acquirer has announced the takeover in the previous three years. Heteroscedasticity-robust standard errors are shown in parentheses. ***, ** and * indicate significance at the 1, 5 and 10% levels, respectively.

Explanatory	Premium			TCAR			ACAR		
Variables	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Acquirer IA	-2.617	0.112	-4.920	-3.439*	-3.596	0.569	1.446**	-1.169	0.661
	(3.317)	(3.371)	(4.116)	(1.850)	(2.209)	(2.096)	(0.719)	(0.799)	(1.001)
Target IA	4.109**	7.835***	1.163	2.047**	2.869**	0.996	-0.135	0.499	0.870**
	(1.626)	(1.828)	(1.981)	(1.037)	(1.150)	(1.066)	(0.246)	(0.370)	(0.380)
Acquirer ln(M/V)	4.977	-12.45**	-7.575	4.474	-2.570	-2.019	0.791	-1.674	0.978
	(6.768)	(5.465)	(4.943)	(4.243)	(3.369)	(3.090)	(1.082)	(1.670)	(1.146)
Target ln(M/V)	-5.819	-20.29***	-12.40***	-5.121**	-9.833***	-6.631***	0.699	-0.698	-0.461
	(3.707)	(3.627)	(4.259)	(2.590)	(1.994)	(2.110)	(0.526)	(0.817)	(0.709)
Acquirer IA x	-3.286	3.322***	3.451**	-2.824**	1.093	-0.104	-0.540	0.321	-0.429
Acquirer ln(M/V)	(2.266)	(1.220)	(1.397)	(1.329)	(0.679)	(0.773)	(0.367)	(0.435)	(0.307)
Hi Synergy	14.760	5.034	10.440	16.760**	-3.566	0.499	0.868	-2.418	-0.465
	(9.362)	(7.158)	(9.864)	(6.975)	(4.464)	(5.556)	(1.746)	(1.981)	(2.544)
Acquirer IA x	-6.368*	-3.086	-1.595	-6.054**	0.951	-1.604	0.073	1.399**	-0.020
Hi Synergy	(3.571)	(2.288)	(3.611)	(2.610)	(1.463)	(1.974)	(0.688)	(0.662)	(0.889)
Freq	-12.650	6.175	3.218	-11.780*	6.401	2.461	-0.818	0.809	3.875*
	(9.686)	(8.586)	(8.926)	(6.475)	(5.054)	(4.993)	(1.545)	(2.423)	(2.160)
Acquirer IA x	4.165	-5.049*	1.389	5.011*	-3.118**	-0.657	-0.493	-0.207	-1.599*
Freq	(4.181)	(2.576)	(3.498)	(2.738)	(1.494)	(1.900)	(0.668)	(0.809)	(0.853)
Relative Size	-0.773	14.090***	2.558	-2.457	-0.459	-2.743	2.334*	-0.013	-1.059
	(4.602)	(4.951)	(3.479)	(2.781)	(0.572)	(1.967)	(1.212)	(0.386)	(0.924)
Tender	0.084	-2.486	18.610**	2.163	-7.573	7.065	0.321	3.656	-0.352
	(4.321)	(15.320)	(7.207)	(2.899)	(7.936)	(4.461)	(0.718)	(2.635)	(1.312)
Hostile	39.990***	-1.048	-6.814	4.310	1.001	-4.798	-3.746**	-4.790*	3.454
	(10.23)	(13.01)	(9.009)	(6.051)	(8.008)	(8.103)	(1.789)	(2.499)	(3.953)
Focus	5.509	2.111	3.053	2.680	-0.380	1.674	-0.165	-1.307	-0.300
	(4.248)	(4.191)	(4.642)	(2.767)	(2.332)	(2.602)	(0.683)	(0.967)	(1.031)

Table 2.19 (Cont'd)
Regression Analysis of Takeover Gain at Announcement, Acquirer Information Asymmetry and Frequent Acquirer

Explanatory Variables	Premium			TCAR			ACAR		
	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Target Run-up	0.411***	0.233**	0.168	-0.186***	-0.170***	-0.174**	-0.002	-0.004	0.032
	(0.117)	(0.108)	(0.131)	(0.071)	(0.063)	(0.070)	(0.016)	(0.024)	(0.027)
Target B/M	-0.329	0.354	0.401	-0.400	0.433	0.423	-0.229*	-0.217	0.169
	(0.980)	(0.793)	(0.640)	(0.660)	(0.409)	(0.412)	(0.128)	(0.175)	(0.155)
Target Leverage	-17.430	2.585	0.231	-8.460	-14.100*	10.900	-4.122**	-1.159	-4.500
	(13.040)	(14.840)	(15.090)	(8.570)	(7.857)	(8.185)	(1.804)	(2.867)	(2.919)
Target Cash Holding	9.352	7.324	7.220	5.599	-8.887	4.097	-3.244*	-3.357	-2.022
	(13.230)	(13.280)	(15.860)	(7.860)	(6.679)	(7.250)	(1.786)	(3.242)	(3.091)
Target Op. Perform	-19.81	53.16***	-1.886	-23.610**	26.160***	6.922	-2.614	0.152	-4.769
	(17.600)	(12.610)	(15.770)	(11.360)	(7.960)	(8.802)	(2.090)	(3.251)	(3.387)
Acquirer Size	0.347	4.598**	-0.085	1.293	2.194**	1.316	0.335	0.981**	0.148
	(1.719)	(1.833)	(1.695)	(1.127)	(0.956)	(0.988)	(0.266)	(0.384)	(0.391)
Acquirer Run-up	-0.282*	0.662***	0.299*	-0.141	0.293***	0.147	0.090***	0.001	0.072*
	(0.153)	(0.129)	(0.160)	(0.101)	(0.069)	(0.090)	(0.027)	(0.036)	(0.037)
Acquirer B/M	0.183	1.295	1.447	-0.489	0.118	0.692	-0.152	-0.083	-0.454**
	(0.883)	(0.819)	(0.923)	(0.642)	(0.357)	(0.509)	(0.200)	(0.187)	(0.195)
Acquirer Leverage	35.960**	-24.560	-0.394	15.060	-5.961	-2.267	3.774	2.789	1.144
	(15.020)	(15.480)	(15.290)	(9.506)	(7.575)	(8.341)	(2.526)	(3.857)	(3.007)
Acquirer Cash Holding	-9.638	11.940	-21.440	-0.643	14.310*	2.841	3.034	0.447	1.160
	(16.420)	(15.420)	(15.760)	(9.491)	(8.363)	(8.966)	(2.370)	(3.424)	(3.532)
Acquirer Op. Perform	8.128	0.197	-9.309	21.640	-9.108	16.950	4.481	0.714	12.780**
	(28.330)	(25.410)	(27.800)	(17.940)	(13.160)	(14.580)	(4.077)	(5.251)	(6.035)
Constant	28.940	1.297	21.330	27.910**	27.830*	13.370	-2.829	0.438	-7.571
	(20.330)	(28.380)	(17.460)	(12.800)	(16.560)	(11.340)	(2.843)	(4.734)	(4.695)
Observations	0.411***	0.233**	0.168	-0.186***	-0.170***	-0.174**	-0.00175	-0.00449	0.0322
	(0.117)	(0.108)	(0.131)	(0.071)	(0.063)	(0.070)	(0.016)	(0.024)	(0.027)
R-squared	-0.329	0.354	0.401	-0.400	0.433	0.423	-0.229*	-0.217	0.169

Table 2.20
Post-merger takeover Gain, Acquirer Information Asymmetry and Less Frequent Acquirer

This table presents 12-, 24- and 36-months post-merger takeover gain (BHAR) partitioned into quintiles of acquirer information asymmetry, method of payments and frequent acquirer. Acquirers who have announced the acquisition in the previous three years are classified as frequent acquirers (Freq). The rest are labelled Less Freq. Superscripts *, ** and *** indicate significance at the 1, 5 and 10% levels.

IA level of Acquirer	Only Cash					Only Stock					Mixed				
	Freq		Less Freq		Diff	Freq		Less Freq		Diff	Freq		Less Freq		Diff
	N	Gain	*N*	Gain		*N*	Gain	*N*	Gain		*N*	Gain	*N*	Gain	
Panel A: Acquirer information asymmetry															
BHAR12															
All	533	-0.419***	279	-0.143		617	-0.831***	494	-1.386***		483	-0.504***	325	-1.066***	
1 (Lo)	126	-0.311**	40	-0.181	0.129	144	-0.297*	61	-0.179	0.118	122	-0.687***	36	-0.732**	-0.045
2	129	-0.619***	59	-0.112	0.507	134	-0.920***	64	-0.693**	0.227	98	-0.205	60	-0.029	0.176
3	125	-0.679**	59	-0.086	0.593	124	-0.442*	84	-0.849**	-0.406	95	-0.826***	59	-1.038**	-0.213
4	98	0.069	65	0.407	0.338	115	-0.535	96	-1.100***	-0.565	105	-0.299	83	-0.574	-0.275
5 (Hi)	55	-0.475	56	-0.849	-0.373	100	-2.302***	189	-2.393***	-0.090	63	-0.476	87	-2.409***	-1.933**
Hi-Lo		-0.165		-0.667			-2.005***		-2.214***			0.211		-1.677**	
BHAR24															
All	484	-0.388***	259	-0.556***		563	-0.889***	447	-1.306***		435	-0.595***	302	-0.980***	
1 (Lo)	122	-0.352**	36	-0.531**	-0.179	137	-0.403***	60	-0.413**	-0.010	116	-0.925***	31	-0.972***	-0.046
2	121	-0.433**	54	-0.367	0.065	123	-0.877***	60	-0.537**	0.340	90	-0.578**	57	-0.280	0.298
3	108	-0.745***	56	-0.446	0.299	116	-0.334	75	-0.504*	-0.170	85	-0.528**	55	-0.930**	-0.402
4	87	0.101	58	-0.332	-0.433	100	-1.318***	89	-1.618***	-0.300	93	-0.164	78	-0.421	-0.257
5 (Hi)	46	-0.456	55	-1.106**	-0.650	87	-1.919***	163	-2.117***	-0.198	51	-0.769*	81	-2.046***	-1.278**
Hi-Lo		-0.104		-0.575			-1.516***		-1.704***			0.157		-1.075*	
BHAR36															
All	430	-0.360***	238	-0.405***		523	-0.729***	401	-1.041***		387	-0.657***	274	-0.932***	
1 (Lo)	111	-0.459***	35	-0.421**	0.038	124	-0.417***	58	-0.487***	-0.070	104	-0.995***	31	-0.987**	0.008
2	106	-0.265	50	-0.259	0.006	120	-0.529***	56	-0.292	0.237	80	-0.527***	53	-0.395*	0.132
3	91	-0.448**	52	-0.415	0.033	108	-0.274	70	-0.298	-0.023	74	-0.495**	53	-0.896***	-0.401
4	78	-0.138	53	-0.485*	-0.347	93	-1.243***	83	-1.491***	-0.248	82	-0.251	69	-0.522*	-0.270
5 (Hi)	44	-0.549	48	-0.444	0.104	78	-1.552***	134	-1.702***	-0.150	47	-1.096***	68	-1.771***	-0.676
Hi-Lo		-0.089		-0.024			-1.135***		-1.215***			-0.101		-0.784	

Table 2.20 (Cont'd)
Post-merger takeover Gain, Acquirer's Information Asymmetry and Less Frequent Acquirer

IA level of Acquirer	Only Cash					Only Stock					Mixed				
	Freq		Less Freq		Diff	Freq		Less Freq		Diff	Freq		Less Freq		Diff
	N	Gain	*N*	Gain		*N*	Gain	*N*	Gain		*N*	Gain	*N*	Gain	
Panel B: Relative acquirer information asymmetry															
BHAR12															
All	533	-0.419***	279	-0.143		617	-0.831***	494	-1.386***		483	-0.504***	325	-1.066***	
1 (Lo)	179	-0.557**	74	-0.176	0.380	114	-0.611**	62	-0.374	0.237	72	-0.449*	35	-0.080	0.369
2	131	0.051	59	-0.559	-0.611	125	-0.473	89	-0.288	0.185	95	-0.370	59	-0.830*	-0.460
3	103	-0.278	44	0.049	0.327	124	-0.772***	104	-1.230***	-0.459	113	-0.723**	61	-1.466***	-0.743
4	65	-1.333***	57	0.045	1.378*	146	-0.830***	117	-2.272***	-1.441***	111	-0.382	72	-1.186***	-0.804
5 (Hi)	55	-0.274	45	0.030	0.304	108	-1.547***	122	-1.983***	-0.437	92	-0.565	98	-1.224**	-0.659
Hi-Lo		0.283		0.206			-0.936*		-1.609**			-0.116		-1.144	
BHAR24															
All	484	-0.388***	259	-0.556***		563	-0.889***	447	-1.306***		435	-0.595***	302	-0.980***	
1 (Lo)	166	-0.522***	66	-0.713**	-0.192	107	-0.570***	57	-0.313	0.257	65	-0.675**	32	-0.379	+0.296
2	118	-0.048	56	-0.511	-0.463	115	-0.715***	83	-0.740**	-0.025	86	-0.618**	51	-0.828*	-0.210
3	96	-0.262	41	-0.332	-0.070	115	-1.229***	97	-1.385***	-0.156	106	-0.538**	57	-0.921**	-0.383
4	58	-0.755*	54	-0.290	0.464	132	-0.691***	101	-1.799***	-1.108***	101	-0.502**	67	-1.184***	-0.682
5 (Hi)	46	-0.581	42	-0.930**	-0.349	94	-1.326***	109	-1.729***	-0.403	77	-0.702**	95	-1.155***	-0.453
Hi-Lo		-0.059		-0.216			-0.756**		-1.416***			-0.026		-0.776	
BHAR36															
All	430	-0.360***	238	-0.405***		523	-0.729***	401	-1.041***		387	-0.657***	274	-0.932***	
1 (Lo)	148	-0.485***	62	-0.836***	-0.351	102	-0.482***	50	-0.684**	-0.202	58	-0.889***	30	-1.023**	+0.134
2	107	-0.142	49	0.095	0.237	105	-0.608***	79	-0.556**	0.051	73	-0.372**	47	-0.553	-0.181
3	87	-0.336	38	-0.139	-0.196	104	-0.990***	87	-0.885***	0.105	95	-0.687***	53	-0.758***	-0.071
4	51	-0.683*	49	-0.272	0.411	121	-0.580***	94	-1.534***	-0.954***	89	-0.715***	60	-0.990***	-0.275
5 (Hi)	37	-0.101	40	-0.763**	-0.661	91	-1.047***	91	-1.296***	-0.249	72	-0.649**	84	-1.181***	-0.532
Hi-Lo		0.383		0.073			-0.565*		-0.612			0.246		-0.158	

Table 2.21
Regression Analysis of Post-merger Takeover Gain, Information Asymmetry and Less Frequent Acquirer

This table presents OLS regression analysis of gain from takeover. The dependent variables are 12-, 24- and 36-months BHAR. *Tender*, *Hostile*, *Focus* take the value of one if the acquisition is a tender offer, if the deal is hostile or solicited, if the deal is in the same industry, respectively. *Relative size* is the relative size of deal value to size of acquiring firm. *Size is* defined as market capitalisation 42 days prior to the takeover announcement. *Run-Up* is the CAR over 200 trading days ending six days prior to the announcement date. *B/M* is the book value of equity divided by the market value of equity. *Leverage* is the total financial debt divided by the book value of total assets. *Cash* is the cash and equivalents divided by the book value of total assets. *Op. Perform* is the operating income before depreciation divided by the book value of total assets. The calculations of *B/M*, *Leverage*, *CF/EQ*, *Cash Holding* and *Op. Perform* use the financial data for the fiscal year-end immediately prior to the announcement. Test variable is acquirer information asymmetry (*Acquirer IA*). *IA* is the standard deviation of the market-adjusted residuals of the daily stock returns measured during the period starting from 205 to six days prior to the acquisition announcement of acquirer or target. *Ln(M/V)* is the misvaluation component decomposed from the ln(M/B) following Rhodes-Kropf et al.'s (2005) methodology. *Hi Synergy* takes the value of one if the change of average CAPEX/Asset ratio three years following the announcement changes significantly (Q4 and Q5 for positive change and Q1 and Q2 for negative change). *Freq* takes the value of one if an acquirer has announced the takeover in the previous three years. Heteroscedasticity-robust standard errors are shown in parentheses. ***, ** and * indicate significance at the 1, 5 and 10% levels, respectively.

Explanatory	BHAR12			BHAR24			BHAR36		
Variables	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Acquirer IA	0.403	-0.258	-0.583	0.258	-0.146	-0.592*	0.234	-0.259	-0.095
	(0.262)	(0.331)	(0.481)	(0.232)	(0.214)	(0.302)	(0.227)	(0.186)	(0.276)
Target IA	-0.053	0.082	0.061	-0.052	-0.030	-0.068	-0.105	0.023	-0.140
	(0.117)	(0.148)	(0.156)	(0.082)	(0.107)	(0.132)	(0.073)	(0.084)	(0.111)
Acquirer ln(M/V)	-0.002	0.735	0.752	-0.382	-0.375	0.078	-0.537	-0.297	0.269
	(0.498)	(0.589)	(0.559)	(0.422)	(0.426)	(0.393)	(0.347)	(0.366)	(0.356)
Target ln(M/V)	-0.139	-0.237	-0.410	0.006	0.231	-0.379*	-0.084	0.141	-0.138
	(0.244)	(0.322)	(0.302)	(0.189)	(0.234)	(0.209)	(0.163)	(0.213)	(0.172)
Acquirer IA x	-0.348*	-0.498***	-0.340*	-0.157	-0.233**	-0.168	-0.053	-0.157**	-0.228**
Acquirer ln(M/V)	(0.182)	(0.133)	(0.175)	(0.143)	(0.095)	(0.107)	(0.115)	(0.079)	(0.092)
Hi Synergy	1.702**	0.777	-0.313	0.760	0.792	-0.661	0.287	0.470	-0.725
	(0.787)	(0.797)	(0.886)	(0.616)	(0.564)	(0.564)	(0.554)	(0.447)	(0.506)
Acquirer IA x	-0.709**	-0.023	0.153	-0.363	-0.016	0.180	-0.126	0.007	0.124
Hi Synergy	(0.318)	(0.270)	(0.366)	(0.263)	(0.170)	(0.216)	(0.230)	(0.146)	(0.202)
Freq	0.493	2.110**	-0.696	0.282	0.996	-0.434	0.335	0.657	0.170
	(0.721)	(0.932)	(0.902)	(0.515)	(0.657)	(0.582)	(0.441)	(0.560)	(0.487)
Acquirer IA x	-0.599*	-0.637**	0.634*	-0.400*	-0.330*	0.224	-0.440**	-0.192	-0.085
Freq	(0.317)	(0.303)	(0.381)	(0.215)	(0.187)	(0.223)	(0.187)	(0.165)	(0.181)
Relative Size	0.433	-0.379***	0.347	0.0403	-0.187**	0.130	-0.120	-0.102	-0.041
	(0.541)	(0.103)	(0.294)	(0.270)	(0.090)	(0.268)	(0.299)	(0.074)	(0.243)
Tender	-0.232	-1.301	-0.684	0.0930	-0.463	-0.001	0.001	-0.343	-0.138
	(0.346)	(1.359)	(0.696)	(0.247)	(0.638)	(0.444)	(0.216)	(0.644)	(0.428)
Hostile	-0.267	1.491	0.905	0.674	1.475*	0.122	1.185***	1.233	0.090
	(0.909)	(1.752)	(1.302)	(0.505)	(0.778)	(0.842)	(0.394)	(0.913)	(0.547)
Focus	-0.173	-0.830**	-0.433	0.114	-0.264	0.097	0.179	0.108	0.038
	(0.326)	(0.398)	(0.399)	(0.229)	(0.293)	(0.301)	(0.209)	(0.250)	(0.251)

Table 2.21 (Cont'd)
Regression Analysis of Post-merger Takeover Gain, Information Asymmetry and Less Frequent Acquirer

Explanatory Variables	BHAR12			BHAR24			BHAR36		
	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Target Run-up	0.009	0.003	-0.010	0.010**	-0.007	-0.006	0.006	-0.009	-0.005
	(0.007)	(0.010)	(0.011)	(0.005)	(0.008)	(0.008)	(0.005)	(0.006)	(0.007)
Target B/M	0.049	-0.068	0.111	0.049	-0.130**	0.065	0.018	-0.091**	0.049
	(0.066)	(0.100)	(0.070)	(0.055)	(0.062)	(0.045)	(0.042)	(0.043)	(0.042)
Target Leverage	-1.120	-0.601	-1.825	-0.017	-0.091	-1.529	-0.479	0.356	-1.616**
	(0.817)	(1.392)	(1.253)	(0.709)	(0.921)	(0.965)	(0.596)	(0.824)	(0.740)
Target Cash Holding	-1.117	-0.001	-0.020	0.287	-0.105	-0.650	-0.109	0.120	-0.760
	(0.974)	(1.210)	(1.389)	(0.701)	(0.833)	(1.057)	(0.563)	(0.701)	(0.846)
Target Op. Perform	-2.969**	0.793	0.457	-2.315**	0.055	-0.070	-1.621**	-0.343	-1.474
	(1.277)	(1.265)	(1.545)	(0.951)	(0.952)	(1.107)	(0.684)	(0.785)	(0.917)
Acquirer Size	0.145	-0.134	-0.169	0.105	-0.050	-0.003	0.107	0.004	-0.016
	(0.125)	(0.166)	(0.158)	(0.094)	(0.125)	(0.123)	(0.085)	(0.101)	(0.105)
Acquirer Run-up	0.020	-0.001	0.021	-0.012	0.004	0.003	-0.009	-0.004	0.001
	(0.014)	(0.013)	(0.016)	(0.010)	(0.009)	(0.013)	(0.008)	(0.008)	(0.010)
Acquirer B/M	0.043	-0.011	-0.158	-0.011	0.006	-0.069	-0.051	-0.005	-0.096
	(0.085)	(0.085)	(0.098)	(0.069)	(0.061)	(0.087)	(0.057)	(0.049)	(0.067)
Acquirer Leverage	3.396***	-0.312	0.0581	2.149**	-0.255	-0.301	1.956**	-0.621	1.318
	(1.117)	(1.508)	(1.305)	(0.949)	(1.109)	(1.042)	(0.828)	(0.918)	(0.872)
Acquirer Cash Holding	1.090	2.236*	-2.240	-0.189	2.045**	-0.336	0.065	0.878	-0.038
	(1.108)	(1.336)	(1.905)	(0.870)	(0.947)	(1.165)	(0.764)	(0.828)	(0.965)
Acquirer Op. Perform	3.241	2.729	4.619*	2.613	4.029***	0.310	3.457**	2.980**	3.102*
	(2.324)	(2.241)	(2.699)	(1.796)	(1.400)	(2.103)	(1.530)	(1.321)	(1.691)
Constant	-2.163*	-3.120	-0.183	-1.531	-1.644	1.326	-1.521*	-1.830	-0.603
	(1.251)	(2.277)	(1.363)	(0.965)	(1.593)	(1.377)	(0.920)	(1.302)	(1.427)
Observations	487	441	406	487	441	406	487	441	406
R-squared	0.252	0.317	0.234	0.277	0.333	0.257	0.275	0.302	0.267

Table 2.22
Takeover Gain, Acquirer's Information Asymmetry and Without Equity Issued Acquirer

This table presents gain from takeover of target and acquirer (Premium, TCAR and ACAR) during an announcement period conditional on acquirer information asymmetry, method of payments and without equity issued acquirer. Acquirers who have not issued new equity in the year prior to the takeover announcement are classified as Without Equity. The rest are labelled Less Freq. Superscripts ***, ** and * indicate significance at the 1, 5 and 10% levels.

IA level of	Only Cash					Only Stock					Mixed				
	W/O Equity Issued		With Equity Issued		Diff	W/O Equity Issued		With Equity Issued		Diff	W/O Equity Issued		With Equity Issued		Diff
Acquirer	*N*	Gain	*N*	Gain		*N*	Gain	*N*	Gain		*N*	Gain	*N*	Gain	
Panel A: Acquirer information asymmetry															
Premium															
All	191	46.977***	647	48.698***		419	36.017***	645	43.594***		211	37.788***	562	37.615***	
1 (Lo)	51	43.020***	135	43.930***	0.910	134	31.103***	63	28.957***	-2.145	65	29.706***	82	31.873***	2.168
2	46	39.118***	146	48.961***	9.842	120	40.925***	69	39.602***	-1.322	51	39.626***	107	34.638***	-4.988
3	45	55.956***	143	43.796***	-12.160	93	34.678***	113	39.979***	5.301	39	40.426***	113	34.577***	-5.848
4	28	48.083***	135	62.127***	14.044	46	36.357***	160	47.165***	10.804*	40	44.352***	138	35.097***	-9.256
5 (Hi)	21	53.089***	88	42.944***	-10.145	26	42.875***	240	47.904***	5.030	16	41.916***	122	49.748***	7.832
Hi-Lo		10.070		-0.986			11.772*		18.947***			12.211		17.875***	
TCAR															
All	203	28.108***	681	32.213***		466	16.908***	699	19.367***		239	20.124***	602	19.129***	
1 (Lo)	56	29.306***	141	32.502***	3.196	152	15.867***	64	14.509***	-1.357	74	17.475***	91	20.037***	2.563
2	47	26.304***	157	32.316***	6.011	135	15.200***	72	23.227***	8.027**	54	22.331***	113	20.014***	-2.317
3	48	27.900***	146	31.057***	3.157	98	17.090***	122	18.645***	1.554	45	17.854***	119	19.765***	1.912
4	28	24.602***	139	36.589***	11.987**	50	20.973***	171	21.908***	0.935	47	25.602***	143	14.921***	-10.682***
5 (Hi)	24	33.355***	98	27.151***	-6.204	31	22.315***	270	18.205***	-4.110	19	15.989***	136	21.652***	5.663
Hi-Lo		4.048		-5.351			6.449		3.696			-1.486		1.615	
ACAR															
All	203	1.414***	681	1.094***		466	-1.862***	699	-2.468***		239	-1.332***	602	-2.637***	
1 (Lo)	56	-0.185	141	0.251	0.436	152	-1.568***	64	-0.648	0.920	74	-1.531***	91	-2.285***	-0.754
2	47	-0.398	157	0.890**	1.288	135	-1.947***	72	-1.645**	0.302	54	-1.688**	113	-2.228***	-0.540
3	48	1.648**	146	0.855	-0.793	98	-2.225***	122	-1.051	1.174	45	-0.837	119	-3.859***	-3.022**
4	28	2.215	139	0.974	-1.241	50	-1.822*	171	-2.757***	-0.935	47	-1.725*	143	-2.578***	-0.852
5 (Hi)	24	7.294**	98	3.162***	-4.132	31	-1.851	270	-3.577***	-1.726	19	0.257	136	-2.205**	-2.462
Hi-Lo		7.478**		2.910***			-0.283		-2.929***			1.788		0.070	

Table 2.22 (Cont'd)
Takeover Gain, Acquirer's Information Asymmetry and Without Equity Issued Acquirer

IA level of Acquirer	Only Cash					Only Stock					Mixed				
	W/O Equity Issued		With Equity Issued		Diff	W/O Equity Issued		With Equity Issued		Diff	W/O Equity Issued		With Equity Issued		Diff
	N	Gain	*N*	Gain		*N*	Gain	*N*	Gain		*N*	Gain	*N*	Gain	
Panel B: Relative acquirer information asymmetry															
Premium															
All	191	46.977***	647	48.698***		419	36.017***	645	43.594***		211	37.788***	562	37.615***	
1 (Lo)	56	59.329***	203	61.335***	2.006	65	37.717***	94	54.638***	16.921**	24	47.122***	75	42.756***	-4.367
2	40	43.794***	152	50.867***	7.072	87	40.530***	116	49.312***	8.781*	45	41.038***	98	39.461***	-1.576
3	30	43.953***	127	39.710***	4.243	92	35.104***	125	38.669***	3.566	43	35.542***	127	34.367***	-1.174
4	32	40.872***	97	39.521***	-1.351	97	35.067***	163	40.980***	5.913	45	34.312***	126	38.556***	4.243
5 (Hi)	33	38.544***	68	36.004***	-2.540	78	31.821***	147	39.105***	7.283	54	35.615***	136	35.612***	-0.003
Hi-Lo		-20.875**		-25.331***			-5.896		-15.533**			-11.508		-7.144	
TCAR															
All	203	28.108***	681	32.213***		466	16.908***	699	19.367***		239	20.124***	602	19.129***	
1 (Lo)	61	35.821***	220	39.889***	4.068	82	15.774***	103	28.200***	12.426***	31	21.733***	81	22.956***	1.222
2	43	19.853***	157	32.036***	12.183***	97	20.025***	123	21.926***	1.901	50	22.964***	108	20.003***	-2.961
3	32	32.894***	130	27.410***	-5.483	98	15.704***	136	20.592***	4.889*	48	19.524***	134	21.203***	1.680
4	34	22.556***	102	27.690***	5.134	102	18.136***	176	14.226***	-3.910*	54	18.625***	136	16.307***	-2.319
5 (Hi)	33	25.688***	72	24.223***	-1.465	87	14.418***	161	16.345***	1.923***	56	18.655***	143	17.040***	-1.615
Hi-Lo		-10.133*		15.666***			-1.356		-11.855			-3.078		-5.916*	
ACAR															
All	203	1.414***	681	1.094***		466	-1.862***	699	-2.468***		239	-1.332***	602	-2.637***	
1 (Lo)	61	-0.456	220	0.625*	1.081	82	-0.303	103	-1.764**	-1.461*	31	-0.913*	81	-0.480	0.433
2	43	1.145	157	0.666	-0.479	97	-1.837***	123	-1.826**	0.011	50	-0.692	108	-2.796***	-2.104**
3	32	1.765	130	0.795	-0.971	98	-2.145***	136	-1.621**	0.524	48	-2.089**	134	-2.367***	-0.278
4	34	5.018***	102	2.167**	-2.851	102	-1.886***	176	-3.272***	-1.385	54	-1.762*	136	-2.937***	-1.175
5 (Hi)	33	1.170	72	2.482**	+1.312	87	-3.013***	161	-3.247***	-0.234	56	-1.073	143	-3.706***	-2.634*
Hi-Lo		1.626		1.857			-2.710***		-1.483			-0.160		-3.227***	

Table 2.23
Regression Analysis of Takeover Gain at Announcement, Acquirer's Information Asymmetry and Without Equity Issued Acquirer

This table presents OLS regression analysis of gain from takeover. The dependent variables are Premium, 5-day TCAR and 5-day ACAR. *Tender*, *Hostile*, *Focus* take the value of one if the acquisition is a tender offer, if the deal is hostile or solicited, if the deal is in the same industry, respectively. *Relative size* is the relative size of deal value to size of acquiring firm. *Run-Up* is the CAR over 200 trading days ending six days prior to the announcement date. *Size* is defined as market capitalisation 42 days prior to the takeover announcement of target firms. *B/M* is the book value of equity divided by the market value of equity. *Leverage* is the total financial debt divided by the book value of total assets. *Cash* is the cash and equivalents divided by the book value of total assets. *Op. Perform* is the operating income before depreciation divided by the book value of total assets. The calculations of *B/M*, *Leverage*, *CF/EQ*, *Cash Hold* and *Op. Perform* use the financial data for the fiscal year-end immediately prior to the announcement. Test variable is acquirer information asymmetry (*Acquirer IA*). *IA* is the standard deviation of the market-adjusted residuals of the daily stock returns measured during the period starting from 205 to six days prior to the acquisition announcement of acquirer or target. *Ln(M/V)* is the misvaluation component decomposed from the ln(M/B) following Rhodes-Kropf et al.'s (2005) methodology. *Hi Synergy* takes the value of one if the change of average CAPEX/Asset ratio three years following the announcement changes significantly (Q4 and Q5 for positive change and Q1 and Q2 for negative change). *W/O Equity Issued* takes the value of one if an acquirer has not issued new equity in the year prior to the takeover announcement. Heteroscedasticity-robust standard errors are shown in parentheses. ***, ** and * indicate significance at the 1, 5 and 10% levels, respectively.

Explanatory	Premium			TCAR			ACAR		
Variables	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Acquirer IA	-1.207	-2.584	-4.991	-1.378	-4.400**	0.108	1.253*	-1.406*	-0.129
	(3.254)	(3.509)	(3.914)	(2.329)	(2.179)	(2.037)	(0.689)	(0.804)	(0.897)
Target IA	4.028**	7.644***	1.404	1.963*	3.080***	1.024	-0.115	0.455	0.874**
	(1.635)	(1.840)	(2.038)	(1.017)	(1.163)	(1.071)	(0.245)	(0.373)	(0.398)
Acquirer ln(M/V)	3.535	-11.48**	-8.280*	2.700	-1.259	-2.105	1.036	-1.895	1.031
	(6.452)	(5.729)	(5.014)	(4.083)	(3.493)	(3.068)	(1.090)	(1.649)	(1.198)
Target ln(M/V)	-5.661	-20.680***	-12.450***	-5.272**	-10.430***	-6.426***	0.851	-0.725	-0.176
	(3.649)	(3.562)	(4.307)	(2.540)	(1.969)	(2.086)	(0.529)	(0.795)	(0.718)
Acquirer IA x	-2.567	3.228**	3.641**	-2.191*	0.773	-0.0787	-0.605*	0.375	-0.448
Acquirer ln(M/V)	(2.013)	(1.345)	(1.410)	(1.205)	(0.724)	(0.758)	(0.365)	(0.435)	(0.352)
Hi Synergy	14.67	3.396	12.09	17.11**	-4.285	0.0846	0.845	-2.391	-1.631
	(9.832)	(7.467)	(9.655)	(7.023)	(4.501)	(5.456)	(1.812)	(2.001)	(2.473)
Acquirer IA x	-6.162	-2.719	-2.105	-6.246**	1.063	-1.401	0.124	1.399**	0.436
Hi Synergy	(3.836)	(2.430)	(3.560)	(2.652)	(1.484)	(1.907)	(0.714)	(0.669)	(0.854)
W/O Equity Issued	-0.045	-14.430	9.597	-3.726	3.536	3.286	0.337	-3.088	1.252
	(10.530)	(12.660)	(14.820)	(7.151)	(7.099)	(6.690)	(1.686)	(2.707)	(2.832)
Acquirer IA x	0.481	3.804	0.432	0.134	-3.117	-0.0234	-0.278	1.071	0.154
W/O Equity Issued	(5.036)	(5.167)	(7.042)	(3.426)	(2.996)	(2.696)	(0.942)	(1.168)	(1.289)
Relative Size	-0.780	12.840***	2.516	-2.115	0.274	-2.774	2.498**	-0.146	-1.023
	(4.226)	(4.755)	(3.400)	(2.719)	(0.736)	(1.975)	(1.254)	(0.411)	(0.925)
Tender	0.287	-3.350	17.390**	2.204	-6.285	6.810	0.329	3.552	-0.388
	(4.293)	(15.760)	(6.730)	(2.903)	(8.350)	(4.448)	(0.720)	(2.615)	(1.304)
Hostile	38.760***	-1.774	-8.963	2.815	-0.287	-4.492	-3.654**	-4.714*	4.245
	(10.160)	(13.170)	(7.670)	(5.678)	(7.594)	(7.954)	(1.723)	(2.440)	(3.893)
Focus	5.625	1.803	3.519	3.248	-0.0729	1.712	-0.121	-1.319	-0.309
	(4.223)	(4.156)	(4.691)	(2.772)	(2.359)	(2.584)	(0.711)	(0.998)	(1.034)

Table 2.23 (Cont'd)
Regression Analysis of Takeover Gain at Announcement, Acquirer's Information Asymmetry and Without Equity Issued Acquirer

Explanatory Variables	Premium			TCAR			ACAR		
	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Target Run-up	0.405***	0.228**	0.161	-0.200***	-0.174***	-0.177**	0.004	-0.006	0.032
	(0.116)	(0.110)	(0.132)	(0.072)	(0.063)	(0.070)	(0.016)	(0.023)	(0.027)
Target B/M	-0.307	0.487	0.418	-0.346	0.524	0.390	-0.248*	-0.206	0.131
	(0.979)	(0.785)	(0.656)	(0.648)	(0.408)	(0.408)	(0.128)	(0.168)	(0.163)
Target Leverage	-15.830	1.826	-2.070	-7.631	-14.080*	10.880	-4.559**	-1.420	-4.141
	(12.810)	(14.83)	(15.01)	(8.550)	(7.905)	(8.200)	(1.792)	(2.858)	(3.106)
Target Cash Hold	8.769	3.831	3.979	3.938	-9.525	4.346	-3.222*	-3.744	-1.191
	(13.390)	(13.790)	(15.480)	(7.972)	(6.661)	(7.180)	(1.776)	(3.163)	(3.043)
Target Op. Perform	-20.420	51.190***	-2.986	-24.460**	26.510***	7.178	-2.833	-0.249	-4.668
	(17.550)	(13.330)	(15.900)	(11.270)	(8.028)	(8.979)	(2.083)	(3.233)	(3.494)
Acquirer Size	-0.005	3.709**	0.279	1.439	2.110**	1.295	0.168	0.995***	0.0750
	(1.698)	(1.767)	(1.599)	(1.135)	(0.943)	(0.963)	(0.270)	(0.353)	(0.384)
Acquirer Run-up	-0.270*	0.628***	0.320**	-0.139	0.274***	0.153*	0.089***	-0.001	0.073*
	(0.152)	(0.133)	(0.162)	(0.099)	(0.067)	(0.091)	(0.027)	(0.035)	(0.038)
Acquirer B/M	0.169	1.432*	1.494*	-0.484	0.148	0.689	-0.175	-0.0712	-0.471**
	(0.895)	(0.838)	(0.898)	(0.633)	(0.358)	(0.494)	(0.199)	(0.186)	(0.197)
Acquirer Leverage	35.730**	-27.920*	3.206	15.700*	-8.190	-2.040	3.098	2.762	0.514
	(15.240)	(14.870)	(15.080)	(9.364)	(7.450)	(8.451)	(2.502)	(3.751)	(3.066)
Acquirer Cash Hold	-7.624	15.050	-17.000	0.398	13.56	3.253	2.488	0.495	0.593
	(16.580)	(15.610)	(15.430)	(9.444)	(8.513)	(9.022)	(2.531)	(3.416)	(3.605)
Acquirer Op. Perform	8.481	-12.440	-9.076	19.560	-13.290	16.660	4.958	-0.038	12.640**
	(28.890)	(26.650)	(27.360)	(18.100)	(13.240)	(14.710)	(4.105)	(5.303)	(6.356)
Constant	24.530	13.160	17.880	22.770*	34.660**	13.200	-2.033	1.143	-6.201
	(19.670)	(28.920)	(17.550)	(13.060)	(14.490)	(11.970)	(2.820)	(4.413)	(4.548)
Observations	463	412	377	488	441	406	488	441	406
R-squared	0.263	0.397	0.254	0.255	0.282	0.288	0.228	0.198	0.229

Table 2.24
Post-merger Takeover Gain, Acquirer Information Asymmetry and Without Equity Issued Acquirer

This table presents 12-, 24- and 36-months post-merger takeover gain (BHAR) partitioned into quintiles of acquirer information asymmetry, method of payments and without equity issued acquirer. Acquirers who have not issued new equity in the year prior to the takeover announcement are classified as Without Equity Issued. The rest are labelled With Equity Issued. Superscripts *, ** and *** indicate significance at the 1, 5 and 10% levels.

IA level of Acquirer	Only Cash					Only Stock					Mixed				
	W/O Equity Issued		With Equity Issued		Diff	W/O Equity Issued		With Equity Issued		Diff	W/O Equity Issued		With Equity Issued		Diff
	N	Gain	*N*	Gain		*N*	Gain	*N*	Gain		*N*	Gain	*N*	Gain	
Panel A: Acquirer information asymmetry															
BHAR12															
All	188	0.270	624	-0.503***		455	-0.420***	656	-1.534***		230	0.013	578	-1.026***	
1 (Lo)	49	0.096	117	-0.437***	-0.533**	148	-0.001	57	-0.941***	-0.940***	71	-0.176	87	-1.122***	-0.946***
2	44	-0.349	144	-0.494***	-0.145	134	-0.933***	64	-0.666**	0.266	51	0.112	107	-0.257	-0.369
3	48	0.023	136	-0.670**	-0.693	97	-0.173	111	-0.986***	-0.812*	43	-0.149	111	-1.201***	-1.052**
4	28	1.251*	135	-0.014	-1.264	47	0.100	164	-1.047***	-1.147*	47	0.409	141	-0.697**	-1.105**
5 (Hi)	19	1.331	92	-1.075*	-2.407**	29	-1.857**	260	-2.418***	-0.561	18	-0.172	132	-1.791***	-1.619
Hi-Lo		1.235		-0.639			-1.856**		-1.478***			0.004		-0.669	
BHAR24															
All	174	0.069	569	-0.605***		421	-0.310***	589	-1.619***		215	0.022	522	-1.071***	
1 (Lo)	44	-0.065	114	-0.519***	-0.454*	141	-0.201*	56	-0.921***	-0.720***	65	-0.360**	82	-1.391***	-1.030***
2	40	0.107	135	-0.566***	-0.674**	121	-0.743***	62	-0.808***	-0.065	47	-0.295	100	-0.541***	-0.247
3	45	-0.323	119	-0.764***	-0.441	85	0.146	106	-0.839***	-0.986***	40	0.160	100	-1.024***	-1.184***
4	27	0.634	118	-0.234	-0.867	45	0.174	144	-1.970***	-2.143***	45	0.901**	126	-0.704**	-1.604***
5 (Hi)	18	0.449	83	-1.083***	-1.531**	29	-1.125	221	-2.169***	-1.044	18	-0.278	114	-1.754***	-1.477*
Hi-Lo		0.514		-0.564			-0.923		-1.248***			0.083		-0.363	
BHAR36															
All	159	0.078	509	-0.518***		385	-0.033	539	-1.458***		198	-0.136	463	-1.043***	
1 (Lo)	40	-0.164	106	-0.558***	-0.394*	129	-0.268***	53	-0.857***	-0.589***	60	-0.491***	75	-1.394***	-0.903***
2	38	0.128	118	-0.389**	-0.517*	115	-0.292**	61	-0.757***	-0.465*	44	-0.302	89	-0.560***	-0.258
3	40	0.097	103	-0.643***	-0.740**	78	0.453**	100	-0.858***	-1.311***	39	-0.174	88	-0.879***	-0.706
4	25	0.129	106	-0.374*	-0.503	42	0.210	134	-1.852***	-2.062***	40	0.606*	111	-0.728***	-1.335***
5 (Hi)	16	0.438	76	-0.691**	-1.129	21	0.537	191	-1.887***	-2.424***	15	-0.107	100	-1.704***	-1.600*
Hi-Lo		0.602		-0.133			0.805		-1.030***			0.384		-0.309	

Table 2.24 (Cont'd)
Post-merger takeover Gain, Acquirer Information Asymmetry and Without Equity Issued Acquirer

IA level of Acquirer	Only Cash					Only Stock					Mixed				
	W/O Equity		With Equity Issued		Diff	W/O Equity Issued		With Equity Issued		Diff	W/O Equity Issued		With Equity Issued		Diff
	N	Gain	*N*	Gain		*N*	Gain	*N*	Gain		*N*	Gain	*N*	Gain	
Panel B: Relative Acquirer information asymmetry															
BHAR12															
All	188	0.270	624	-0.503***		455	-0.420***	656	-1.534***		230	0.013	578	-1.026***	
1 (Lo)	58	-0.015	195	-0.574**	-0.559	80	-0.386	96	-0.645	-0.259	30	0.340	77	-0.588**	-0.928*
2	40	0.372	150	-0.275	-0.647	96	-0.287	118	-0.485	-0.198	48	0.097	106	-0.838**	-0.936*
3	31	0.648	116	-0.402	-1.050*	97	-0.510*	131	-1.330***	-0.820*	46	-0.538	128	-1.144***	-0.606
4	27	-0.029	95	-0.877*	-0.848	99	-0.680**	164	-1.949***	-1.270**	53	-0.080	130	-0.951***	-0.871*
5 (Hi)	32	0.546	68	-0.459	-1.004	83	-0.191	147	-2.674***	-2.483***	53	0.321	137	-1.379***	-0.700***
Hi-Lo		0.561		0.115			0.195		-2.029***			-0.018		-0.791*	
BHAR24															
All	174	0.069	569	-0.605***		421	-0.310***	589	-1.619***		215	0.022	522	-1.071***	
1 (Lo)	54	0.001	178	-0.751***	-0.753***	73	-0.069	91	-0.811***	-0.743**	25	0.180	72	-0.841***	-1.021**
2	36	0.338	138	-0.337*	-0.675*	90	-0.171	108	-1.188***	-1.017***	46	0.227	91	-1.163***	-1.390***
3	29	0.403	108	-0.468**	-0.871*	93	-0.643***	119	-1.814***	-1.171***	43	-0.521*	120	-0.726***	-0.205
4	26	0.415	86	-0.817**	-1.231**	94	-0.544**	139	-1.596***	-1.051***	51	-0.171	117	-1.037***	-0.866**
5 (Hi)	29	-0.782	59	-0.730**	0.051	71	0.010	132	-2.378***	-2.388***	50	0.416	122	-1.513***	-1.929***
Hi-Lo		-0.783		0.021			0.079		-1.567***			0.236		-0.672	
BHAR36															
All	159	0.078	509	-0.518***		385	-0.033	539	-1.458***		198	-0.136	463	-1.043***	
1 (Lo)	50	-0.073	160	-0.750***	-0.676***	67	0.046	85	-1.017***	-1.063***	24	0.158	64	-1.344***	-1.503***
2	34	0.512**	122	-0.229	-0.741***	83	-0.039	101	-1.034***	-0.995***	43	-0.027	77	-0.676***	-0.650*
3	25	0.007	100	-0.347*	-0.353	84	-0.221	107	-1.508***	-1.288***	37	-0.657**	111	-0.731***	-0.074
4	24	0.373	76	-0.752**	-1.124**	85	-0.159	130	-1.545***	-1.386***	47	-0.197	102	-1.115***	-0.919**
5 (Hi)	26	-0.402	51	-0.467	-0.065	66	0.296	116	-2.007***	-2.303***	47	0.086	109	-1.375***	-1.461***
Hi-Lo		-0.328		0.283			0.251		-0.990***			-0.073		-0.031	

Table 2.25
Regression Analysis of Post-merger Takeover Gain, Information Asymmetry and Without Equity Issued Acquirer

This table presents OLS regression analysis of gain from takeover. The dependent variables are 12-, 24- and 36-months BHAR. *Tender*, *Hostile*, *Focus* take the value of one if the acquisition is a tender offer, if the deal is hostile or solicited, if the deal is in the same industry, respectively. *Size* is defined as market capitalisation 42 days prior to the takeover announcement of target firms (Models 1 to 6) and of acquirer (Models 7 to 9). *Relative size* is the relative size of deal value to size of acquiring firm. *Run-Up* is the CAR over 200 trading days ending six days prior to the announcement date. *B/M* is the book value of equity divided by the market value of equity. *Leverage* is the total financial debt divided by the book value of total assets. *Cash Hold* is the cash and equivalents divided by the book value of total assets. *Op. Perform* is the operating income before depreciation divided by the book value of total assets. The calculations of *B/M*, *Leverage*, *Cash* and *Op. Perform* use the financial data for the fiscal year-end immediately prior to the announcement. Test variable is acquirer information asymmetry (*Acquirer IA*). *IA* is the standard deviation of the market-adjusted residuals of the daily stock returns measured during the period starting from 205 to six days prior to the acquisition announcement of acquirer or target. *Ln(M/V)* is the misvaluation component decomposed from the ln(M/B) following Rhodes-Kropf et al.'s (2005) methodology. *Hi Synergy* takes the value of one if the change of average CAPEX/Asset ratio three years following the announcement changes significantly (Q4 and Q5 for positive change and Q1 and Q2 for negative change). *W/O Equity Issued* takes the value of one if an acquirer has not issued new equity in the year prior to the takeover announcement. Heteroscedasticity-robust standard errors are shown in parentheses. ***, ** and * indicate significance at the 1, 5 and 10% levels, respectively.

Explanatory	BHAR12			BHAR24			BHAR36		
Variables	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Acquirer IA	-0.008	-0.519	-0.297	-0.127	-0.338	-0.563**	-0.148	-0.413**	-0.190
	(0.313)	(0.338)	(0.414)	(0.244)	(0.208)	(0.260)	(0.244)	(0.180)	(0.224)
Target IA	-0.048	0.081	0.062	-0.056	-0.049	-0.060	-0.106	-0.005	-0.137
	(0.116)	(0.151)	(0.161)	(0.082)	(0.107)	(0.134)	(0.074)	(0.083)	(0.110)
Acquirer ln(M/V)	0.210	0.754	0.639	-0.260	-0.423	0.0241	-0.392	-0.390	0.243
	(0.521)	(0.602)	(0.525)	(0.437)	(0.433)	(0.390)	(0.363)	(0.367)	(0.353)
Target ln(M/V)	-0.0621	-0.381	-0.517*	0.056	0.167	-0.402*	-0.029	0.103	-0.123
	(0.245)	(0.319)	(0.298)	(0.187)	(0.224)	(0.208)	(0.163)	(0.208)	(0.170)
Acquirer IA x	-0.398**	-0.510***	-0.327**	-0.170	-0.213**	-0.143	-0.075	-0.122	-0.215**
Acquirer ln(M/V)	(0.193)	(0.137)	(0.159)	(0.153)	(0.098)	(0.010)	(0.125)	(0.078)	(0.089)
Hi Synergy	1.358	0.733	0.231	0.325	0.754	-0.496	-0.119	0.452	-0.796*
	(0.863)	(0.805)	(0.852)	(0.662)	(0.570)	(0.531)	(0.600)	(0.444)	(0.457)
Acquirer IA x	-0.530	-0.016	-0.055	-0.145	0.001	0.134	0.081	0.023	0.162
Hi Synergy	(0.362)	(0.275)	(0.351)	(0.287)	(0.173)	(0.204)	(0.258)	(0.143)	(0.179)
W/O Equity Issued	-0.530	-0.809	0.198	-0.773	-0.658	0.279	-0.561	-0.493	-0.018
	(0.689)	(1.204)	(1.208)	(0.548)	(0.748)	(0.870)	(0.534)	(0.566)	(0.797)
Acquirer IA x	0.350	0.126	-0.102	0.525*	0.420*	0.109	0.455*	0.535***	0.151
W/O Equity Issued	(0.358)	(0.535)	(0.544)	(0.268)	(0.222)	(0.384)	(0.276)	(0.183)	(0.356)
Relative Size	0.425	-0.341**	0.329	-0.017	-0.236**	0.121	-0.174	-0.187**	-0.035
	(0.550)	(0.145)	(0.290)	(0.282)	(0.095)	(0.264)	(0.334)	(0.083)	(0.238)
Tender	-0.237	-1.138	-0.712	0.090	-0.497	-0.096	-0.003	-0.454	-0.191
	(0.352)	(1.312)	(0.746)	(0.249)	(0.673)	(0.466)	(0.219)	(0.695)	(0.434)
Hostile	-0.120	1.504	0.286	0.777	1.679**	0.082	1.302***	1.552*	0.194
	(0.910)	(1.754)	(1.197)	(0.480)	(0.764)	(0.845)	(0.366)	(0.916)	(0.554)
Focus	-0.200	-0.782*	-0.382	0.075	-0.293	0.098	0.132	0.050	0.030
	(0.338)	(0.410)	(0.403)	(0.231)	(0.294)	(0.299)	(0.212)	(0.246)	(0.249)

Table 2.25 (Cont'd)
Regression Analysis of Post-merger Takeover Gain, Information Asymmetry and Without Equity Issued Acquirer

Explanatory Variables	BHAR12			BHAR24			BHAR36		
	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Target Run-up	0.013*	-0.001	-0.009	0.013**	-0.008	-0.006	0.009*	-0.010*	-0.005
	(0.007)	(0.010)	(0.011)	(0.005)	(0.007)	(0.008)	(0.005)	(0.006)	(0.007)
Target B/M	0.036	-0.043	0.125*	0.039	-0.119**	0.062	0.008	-0.086**	0.043
	(0.065)	(0.098)	(0.067)	(0.055)	(0.060)	(0.044)	(0.043)	(0.041)	(0.043)
Target Leverage	-1.347	-0.749	-1.986	-0.113	-0.0850	-1.653*	-0.580	0.421	-1.636**
	(0.843)	(1.418)	(1.265)	(0.720)	(0.925)	(0.970)	(0.617)	(0.808)	(0.742)
Target Cash Hold	-0.968	-0.408	-0.504	0.410	-0.398	-0.763	0.030	-0.136	-0.699
	(0.973)	(1.186)	(1.440)	(0.701)	(0.829)	(1.066)	(0.550)	(0.699)	(0.823)
Target Op. Perform	-2.997**	0.592	0.328	-2.319**	-0.115	-0.00873	-1.623**	-0.503	-1.441
	(1.259)	(1.270)	(1.605)	(0.939)	(0.968)	(1.129)	(0.682)	(0.777)	(0.922)
Acquirer Size	0.047	-0.085	-0.083	0.022	-0.044	0.003	0.018	0.005	-0.02
	(0.125)	(0.158)	(0.159)	(0.092)	(0.119)	(0.122)	(0.083)	(0.093)	(0.097)
Acquirer Run-up	0.021	-0.003	0.021	-0.011	0.002	0.005	-0.008	-0.005	0.003
	(0.015)	(0.013)	(0.016)	(0.010)	(0.009)	(0.013)	(0.008)	(0.008)	(0.010)
Acquirer B/M	0.034	-0.001	-0.135	-0.015	0.014	-0.067	-0.055	0.001	-0.097
	(0.083)	(0.084)	(0.104)	(0.068)	(0.060)	(0.089)	(0.055)	(0.049)	(0.068)
Acquirer Leverage	2.928***	-0.518	0.469	1.763*	-0.354	-0.141	1.562*	-0.625	1.263
	(1.110)	(1.504)	(1.348)	(0.928)	(1.127)	(1.071)	(0.815)	(0.920)	(0.885)
Acquirer Cash Hold	1.008	2.030	-1.869	-0.035	2.196**	-0.028	0.190	1.137	0.031
	(1.155)	(1.368)	(1.985)	(0.888)	(0.934)	(1.170)	(0.827)	(0.810)	(0.952)
Acquirer Op. Perform	3.335	1.947	4.623*	2.592	3.500**	0.171	3.514**	2.662**	2.985*
	(2.353)	(2.184)	(2.750)	(1.780)	(1.379)	(2.128)	(1.513)	(1.302)	(1.695)
Constant	-0.906	-1.985	-0.752	-0.405	-1.479	1.064	-0.422	-2.164*	-0.454
	(1.250)	(2.549)	(1.444)	(0.926)	(1.693)	(1.400)	(0.895)	(1.275)	(1.427)
Observations	487	441	406	487	441	406	487	441	406
R-squared	0.236	0.308	0.210	0.269	0.332	0.258	0.259	0.315	0.269

Table 2.26
Regression Analysis of Takeover Gain at Announcement (Trading Activities)

This table presents OLS regression analysis of gain from takeover. The dependent variables are Premium, 5-day ACAR and 36-months BHAR. *Tender*, *Hostile*, *Focus* take the value of one if the acquisition is a tender offer, if the deal is hostile or solicited, if the deal is in the same industry, respectively. *Relative size* is the relative size of deal value to size of acquiring firm. *Run-Up* is the CAR over 200 trading days ending six days prior to the announcement date. *Size* is defined as market capitalisation 42 days prior to the takeover announcement of target firms. *B/M* is the book value of equity divided by the market value of equity. *Leverage* is the total financial debt divided by the book value of total assets. *Cash Hold* is the cash and equivalents divided by the book value of total assets. *Op. Perform* is the operating income before depreciation divided by the book value of total assets. The calculations of *B/M*, *Leverage*, *Cash* and *Op. Perform* use the financial data for the fiscal year-end immediately prior to the announcement. Test variable is acquirer information asymmetry (*Acquirer IA*). *IA* is average monthly trades during 12 months prior to the deal announcement. Heteroscedasticity-robust standard errors are shown in parentheses. ***, ** and * indicate significance at the 1, 5 and 10% levels, respectively.

Explanatory	Premium			ACAR			BHAR36		
Variables	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Acquirer IA	1.075	0.975	2.948**	0.0876	0.276	-0.100	-0.083	-0.101	-0.075
	(1.057)	(1.279)	(1.245)	(0.175)	(0.297)	(0.268)	(0.052)	(0.074)	(0.090)
Target IA	-2.390**	-2.985***	-4.796***	0.028	-0.654***	-0.472*	-0.009	-0.052	0.040
	(1.182)	(0.933)	(1.289)	(0.190)	(0.177)	(0.260)	(0.061)	(0.045)	(0.071)
Relative Size	0.220	-2.873	5.024	-0.151*	0.007	-0.610	0.123	-0.037	-0.172
	(0.443)	(2.194)	(3.650)	(0.084)	(0.296)	(0.870)	(0.283)	(0.050)	(0.230)
Tender	1.738	1.507	18.990***	1.020*	2.918*	0.425	-0.020	-0.399	-0.070
	(3.232)	(16.360)	(6.740)	(0.564)	(1.564)	(1.078)	(0.186)	(0.496)	(0.431)
Hostile	28.140***	13.860	-3.761	-3.368**	-0.957	2.572	1.356***	0.976	0.407
	(10.600)	(12.170)	(7.556)	(1.389)	(1.647)	(2.449)	(0.400)	(0.658)	(0.709)
Focus	0.862	1.331	0.680	0.339	-0.917	-0.382	0.190	0.192	0.102
	(2.977)	(3.022)	(3.038)	(0.552)	(0.588)	(0.669)	(0.175)	(0.165)	(0.217)
Target Run-up	0.534***	0.430***	0.320***	-0.009	0.003	0.021	0.009**	-0.011***	-0.003
	(0.084)	(0.075)	(0.087)	(0.011)	(0.015)	(0.018)	(0.004)	(0.004)	(0.006)
Target B/M	-1.076*	-1.003**	-0.267	-0.048	-0.091	0.139	0.025	-0.072**	-0.040
	(0.587)	(0.492)	(0.413)	(0.104)	(0.122)	(0.118)	(0.034)	(0.028)	(0.036)
Target Leverage	-2.462	13.47	-11.97	-1.021	0.548	0.898	-0.442	0.097	-1.086**
	(9.344)	(8.708)	(8.635)	(1.429)	(1.862)	(1.855)	(0.463)	(0.471)	(0.542)
Target Cash Hold	6.514	5.292	-0.673	-0.248	-4.114*	1.316	-0.003	-0.495	0.325
	(10.510)	(9.972)	(10.550)	(1.462)	(2.152)	(2.251)	(0.483)	(0.554)	(0.710)
Target Op. Perform	-23.990**	13.370	-25.830*	-1.364	-5.726***	-6.420**	-1.667***	-1.251**	-0.967
	(12.170)	(9.910)	(15.140)	(1.475)	(2.060)	(2.573)	(0.468)	(0.557)	(0.710)
Acquirer Size	-0.394	-0.182	-0.0889	-0.731***	0.282	0.0136	0.0609	0.107	0.0867
	(1.024)	(1.247)	(1.437)	(0.213)	(0.284)	(0.295)	(0.058)	(0.078)	(0.103)
Acquirer Run-up	-0.280**	0.363***	0.196*	0.048**	0.036	0.046*	-0.007	-0.011*	-0.003
	(0.114)	(0.092)	(0.116)	(0.023)	(0.023)	(0.024)	(0.007)	(0.006)	(0.008)
Acquirer B/M	-0.232	0.696	0.784	0.076	-0.090	-0.118	-0.150***	-0.126***	-0.155***
	(0.602)	(0.515)	(0.519)	(0.129)	(0.131)	(0.103)	(0.044)	(0.038)	(0.052)

Table 2.26 (Cont'd)
Regression Analysis of Takeover Gain at Announcement (Trading Volume)

Explanatory Variables	Premium			ACAR			BHAR36		
	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Acquirer Leverage	17.490*	-6.175	-7.454	2.074	2.150	-0.555	0.140	-0.215	1.054
	(10.100)	(9.641)	(10.520)	(1.830)	(2.367)	(2.005)	(0.682)	(0.709)	(0.755)
Acquirer Cash Hold	-12.780	30.560***	-8.387	1.708	-3.054	-0.403	-0.685	0.387	-0.0762
	(12.180)	(10.810)	(12.270)	(1.901)	(2.442)	(2.613)	(0.665)	(0.709)	(0.927)
Acquirer Op. Perform	35.680	-11.020	20.720	-1.786	1.064	9.239**	3.536***	4.428***	3.448*
	(21.780)	(17.940)	(17.630)	(3.672)	(3.642)	(4.587)	(1.334)	(0.999)	(1.793)
Constant	48.080**	61.610***	39.380**	0.012	-2.428	0.351	0.470	-0.421	0.160
	(20.11)	(19.70)	(18.71)	(3.323)	(4.711)	(4.315)	(1.031)	(1.188)	(1.591)
Observations	838	1,064	773	884	1,165	841	668	924	661
R-squared	0.182	0.200	0.191	0.113	0.111	0.131	0.232	0.301	0.194

Table 2.27
Regression Analysis of Takeover Gain (Firm Size)

This table presents OLS regression analysis of gain from takeover. The dependent variables are Premium, 5-day ACAR and 36-months BHAR. *Tender*, *Hostile*, *Focus* take the value of one if the acquisition is a tender offer, if the deal is hostile or solicited, if the deal is in the same industry, respectively. *Relative size* is the relative size of deal value to size of acquiring firm. *Run-Up* is the CAR over 200 trading days ending six days prior to the announcement date. *Size* is defined as market capitalisation 42 days prior to the takeover announcement of target firms. *B/M* is the book value of equity divided by the market value of equity. *Leverage* is the total financial debt divided by the book value of total assets. *Cash Hold* is the cash and equivalents divided by the book value of total assets. *Op. Perform* is the operating income before depreciation divided by the book value of total assets. The calculations of *B/M*, *Leverage*, *Cash* and *Op. Perform* use the financial data for the fiscal year-end immediately prior to the announcement. Test variable is acquirer information asymmetry (*Acquirer IA*). *IA* is the market capitalisation of firms 10 days prior to the deal announcement. Heteroscedasticity-robust standard errors are shown in parentheses. ***, ** and * indicate significance at the 1, 5 and 10% levels, respectively.

Explanatory	Premium			ACAR			BHAR36		
Variables	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Acquirer IA	2.857***	4.252***	5.388***	-0.766***	0.673***	0.207	-0.059	0.055	0.056
	(0.984)	(1.120)	(1.848)	(0.179)	(0.194)	(0.309)	(0.063)	(0.052)	(0.099)
Target IA	-8.497***	-7.747***	-8.328***	0.144	-0.878***	-0.788**	0.070	-0.088*	0.008
	(1.309)	(1.244)	(1.885)	(0.214)	(0.223)	(0.323)	(0.073)	(0.054)	(0.093)
Relative Size	0.725*	3.414	10.250**	-0.139*	0.130	-0.189	-0.0237	-0.025	-0.128
	(0.399)	(2.797)	(4.758)	(0.074)	(0.235)	(0.940)	(0.313)	(0.052)	(0.248)
Tender	3.298	4.831	18.47***	0.944*	2.977*	0.490	-0.057	-0.356	-0.071
	(3.166)	(16.230)	(6.438)	(0.561)	(1.548)	(1.067)	(0.185)	(0.496)	(0.428)
Hostile	33.910***	15.080	-0.388	-3.462**	-0.866	2.747	1.313***	1.007	0.388
	(11.370)	(12.160)	(7.418)	(1.393)	(1.564)	(2.452)	(0.414)	(0.664)	(0.700)
Focus	2.624	2.927	1.709	0.287	-0.777	-0.379	0.148	0.203	0.091
	(2.904)	(2.988)	(2.947)	(0.546)	(0.592)	(0.668)	(0.177)	(0.166)	(0.216)
Target Run-up	0.509***	0.403***	0.320***	-0.007	0.001	0.021	0.009**	-0.011***	-0.004
	(0.081)	(0.074)	(0.086)	(0.011)	(0.015)	(0.018)	(0.004)	(0.004)	(0.006)
Target B/M	-0.588	-0.645	-0.173	-0.050	-0.050	0.153	0.024	-0.066**	-0.039
	(0.561)	(0.496)	(0.401)	(0.104)	(0.122)	(0.119)	(0.034)	(0.028)	(0.035)
Target Leverage	-1.913	13.310	-19.570**	-0.975	0.269	-0.040	-0.421	0.042	-1.080*
	(8.995)	(8.446)	(8.687)	(1.424)	(1.819)	(1.772)	(0.457)	(0.468)	(0.553)
Target Cash Hold	8.305	4.086	-5.097	-0.209	-4.536**	0.655	-0.033	-0.577	0.304
	(10.060)	(9.696)	(10.170)	(1.459)	(2.113)	(2.227)	(0.483)	(0.550)	(0.699)
Target Op. Perform	-2.855	23.53**	-10.06	-1.753	-4.510**	-4.840*	-1.836***	-1.110*	-0.985
	(12.18)	(9.843)	(15.82)	(1.598)	(2.114)	(2.664)	(0.494)	(0.580)	(0.749)
Acquirer Run-up	-0.302***	0.348***	0.157	0.053**	0.032	0.044*	-0.007	-0.012**	-0.003
	(0.111)	(0.090)	(0.112)	(0.022)	(0.023)	(0.024)	(0.007)	(0.006)	(0.008)
Acquirer B/M	-0.200	0.543	0.839*	0.094	-0.100	-0.102	-0.137***	-0.126***	-0.155***
	(0.602)	(0.504)	(0.501)	(0.131)	(0.130)	(0.102)	(0.044)	(0.038)	(0.051)
Acquirer Leverage	17.490*	-6.175	-7.454	2.074	2.150	-0.555	0.140	-0.215	1.054
	(10.100)	(9.641)	(10.520)	(1.830)	(2.367)	(2.005)	(0.682)	(0.709)	(0.755)

Table 2.27 (Cont'd)
Regression Analysis of Takeover Gain (Firm Size)

Explanatory Variables	Premium			ACAR			BHAR36		
	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Acquirer Cash Hold	-12.780	30.560***	-8.387	1.708	-3.054	-0.403	-0.685	0.387	-0.0762
	(12.180)	(10.81)	(12.270)	(1.901)	(2.442)	(2.613)	(0.665)	(0.709)	(0.927)
Acquirer Op. Perform	35.680	-11.020	20.720	-1.786	1.064	9.239**	3.536***	4.428***	3.448*
	(21.780)	(17.94)	(17.630)	(3.672)	(3.642)	(4.587)	(1.334)	(0.999)	(1.793)
Constant	48.080**	61.610***	39.380**	0.012	-2.428	0.351	0.470	-0.421	0.160
	(20.110)	(19.700)	(18.710)	(3.323)	(4.711)	(4.315)	(1.031)	(1.188)	(1.591)
Observations	838	1,064	773	884	1,165	841	668	924	661
R-squared	0.182	0.200	0.191	0.113	0.111	0.131	0.232	0.301	0.194

Table 2.28
Regression Analysis of Takeover Gain at Announcement (Analyst's Coverage)

This table presents OLS regression analysis of gain from takeover. The dependent variables are Premium, 5-day ACAR and 36-months BHAR. *Tender*, *Hostile*, *Focus* take the value of one if the acquisition is a tender offer, if the deal is hostile or solicited, if the deal is in the same industry, respectively. *Relative size* is the relative size of deal value to size of acquiring firm. *Run-Up* is the CAR over 200 trading days ending six days prior to the announcement date. *Size* is defined as market capitalisation 42 days prior to the takeover announcement of target firms. *B/M* is the book value of equity divided by the market value of equity. *Leverage* is the total financial debt divided by the book value of total assets. *Cash* is the cash and equivalents divided by the book value of total assets. *Op. Perform* is the operating income before depreciation divided by the book value of total assets. The calculations of *B/M*, *Leverage*, *Cash Hold* and *Op. Perform* use the financial data for the fiscal year-end immediately prior to the announcement. Test variable is acquirer information asymmetry (*Acquirer IA*). *IA* is the number of analyst forecast earnings per share for the forthcoming accounting year during the month prior to the deal announcement. Heteroscedasticity-robust standard errors are shown in parentheses. ***, ** and * indicate significance at the 1, 5 and 10% levels, respectively

Explanatory	Premium			ACAR			BHAR36		
Variables	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Acquirer IA	-0.149	0.234*	0.078	0.067**	0.048*	-0.027	0.031***	0.025***	0.028**
	(0.186)	(0.139)	(0.183)	(0.028)	(0.029)	(0.037)	(0.009)	(0.008)	(0.013)
Target IA	-0.551*	-0.00756	-0.458*	-0.025	-0.339***	-0.023	0.027	0.013	-0.007
	(0.329)	(0.321)	(0.259)	(0.061)	(0.104)	(0.054)	(0.018)	(0.028)	(0.017)
Relative Size	0.135	-5.567***	0.137	-0.162*	-0.184	-1.136	0.003	-0.058	-0.101
	(0.402)	(2.029)	(2.822)	(0.085)	(0.366)	(0.754)	(0.284)	(0.051)	(0.191)
Tender	0.451	0.450	19.890***	1.113**	2.813*	0.679	0.060	-0.308	-0.125
	(3.278)	(16.280)	(6.785)	(0.551)	(1.573)	(1.081)	(0.185)	(0.504)	(0.428)
Hostile	27.400***	11.260	-5.082	-3.361**	-1.720	2.442	1.323***	0.847	0.196
	(10.480)	(12.510)	(7.535)	(1.379)	(1.601)	(2.468)	(0.411)	(0.645)	(0.653)
Focus	1.075	0.859	0.347	0.289	-1.134*	-0.397	0.142	0.174	0.0499
	(3.022)	(3.017)	(3.061)	(0.545)	(0.597)	(0.673)	(0.173)	(0.166)	(0.221)
Target Run-up	0.546***	0.454***	0.336***	-0.008	0.010	0.022	0.009**	-0.010**	-0.004
	(0.083)	(0.075)	(0.090)	(0.011)	(0.015)	(0.018)	(0.004)	(0.004)	(0.006)
Target B/M	-1.133*	-1.116**	-0.349	-0.053	-0.118	0.137	0.022	-0.073***	-0.043
	(0.594)	(0.504)	(0.412)	(0.100)	(0.121)	(0.117)	(0.033)	(0.028)	(0.036)
Target Leverage	-3.753	9.386	-14.510*	-0.909	-0.374	0.494	-0.450	-0.0207	-1.070*
	(9.435)	(8.628)	(8.772)	(1.419)	(1.809)	(1.805)	(0.463)	(0.461)	(0.546)
Target Cash Hold	6.843	1.850	-4.293	-0.298	-4.695**	0.846	-0.0827	-0.640	0.170
	(10.470)	(10.040)	(10.900)	(1.451)	(2.117)	(2.248)	(0.472)	(0.549)	(0.705)
Target Op. Perform	-25.820**	13.210	-27.620*	-1.049	-5.684***	-6.464**	-1.519***	-1.213**	-0.951
	(12.340)	(10.060)	(15.580)	(1.425)	(2.051)	(2.561)	(0.430)	(0.552)	(0.705)
Acquirer Size	0.033	-1.573*	-1.067	-0.816***	0.156	-0.323	-0.093	-0.056	0.001
	(0.888)	(0.840)	(0.939)	(0.179)	(0.172)	(0.200)	(0.059)	(0.046)	(0.060)
Acquirer Run-up	-0.270**	0.354***	0.192*	0.046**	0.033	0.045*	-0.008	-0.011*	-0.002
	(0.115)	(0.092)	(0.116)	(0.022)	(0.023)	(0.024)	(0.007)	(0.006)	(0.008)
Acquirer B/M	-0.264	0.772	0.821	0.072	-0.099	-0.106	-0.152***	-0.124***	-0.154***
	(0.600)	(0.525)	(0.520)	(0.128)	(0.132)	(0.103)	(0.044)	(0.038)	(0.051)

Table 2.28
Regression Analysis of Takeover Gain at Announcement (Analyst's Coverage)

Explanatory Variables	Premium			ACAR			BHAR36		
	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed	Only Cash	Only Stock	Mixed
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Acquirer Leverage	18.300*	-5.214	-3.116	2.183	2.211	-0.487	0.098	-0.303	0.877
	(10.000)	(9.5260)	(10.460)	(1.844)	(2.291)	(1.956)	(0.665)	(0.694)	(0.729)
Acquirer Cash Hold	-12.750	28.860***	-11.440	1.712	-3.243	-1.440	-1.107*	0.315	-0.038
	(12.060)	(10.600)	(11.920)	(1.871)	(2.333)	(2.561)	(0.659)	(0.693)	(0.905)
Acquirer Op. Perform	40.380*	-12.170	23.650	-2.300	0.571	9.680**	2.925**	4.377***	3.416*
	(21.950)	(17.950)	(17.880)	(3.649)	(3.661)	(4.631)	(1.322)	(0.999)	(1.775)
Constant	36.460**	43.500***	25.890**	1.131	-5.490	-5.158	-0.469	-2.039**	-0.355
	(15.180)	(14.020)	(11.640)	(2.453)	(3.428)	(3.319)	(0.794)	(0.933)	(1.163)
Observations	838	1,064	773	884	1,165	841	668	924	661
R-squared	0.180	0.194	0.169	0.117	0.110	0.126	0.246	0.305	0.200

Chapter 3 - Value of Cash and Methods of Payment in Mergers and Acquisitions

3.1 Introduction

Aggregate cash and short-term investment items of all US firms reported in the Compustat database have surged from $1.22 trillion in 1995 to $4.97 trillion in 2010.[28] The stockpile of cash built up in US corporates has increasingly caught the attention of policy makers, the media and activist shareholders. Large cash-hoarding corporates have been questioned and demanded to start spending their liquidity either in the form of payouts or corporate investment. The substantial amount of cash reserves, together with their impacts on related parties, have triggered a demand for a better understanding of the motives and value effects of these recent cash hoarding behaviours.

The phenomenon of cash hoarding has been reported and discussed not only by market participants, but also in the academic literature (see e.g. Kim et al., 1998; Opler et al., 1999). Harford (1999), however, points out that corporate cash holding has received relatively little attention. Responding to this puzzle, a number of studies on finance since the late 2000s have widely examined corporate cash holding in various dimensions.[29] Interestingly, most of them build their arguments on two general but contradictory motives relating to cash holding and corporate investment: the precautionary motive and the agency cost motive.[30] While the former suggests that holding cash can create value by avoiding the underinvestment problem when external finance is costly (see e.g. Almeida et al., 2004; Denis and Sibilkov, 2010), the latter contends that entrenched managers are likely to invest cash on their pet projects which are not aligned with shareholders' interests (see e.g. Harford, 1999; Stulz, 1990).

To pursue firms' investment opportunities, there are various types of investment that managers can opt for – e.g. R&D, capital expenditure and M&As. Among others, corporate acquisition is the only type of investment that information on deal value (investment) and method of payment (financing choice) is made

[28]Author's calculation.

[29]For example, the studies of corporate governance and cash holdings (Dittmar and Mahrt-Smith, 2007; Harford et al., 2008), financial constraints and cash holdings (Denis and Sibilkov, 2010), corporate diversification and cash holdings (Duchin, 2010), credit risk and cash holdings (Acharya et al., 2012) private firm and cash holdings (Bigelli and Sánchez-Vidal, 2012).

[30]Bates et al. (2009) identify four main motives that explain why they want to hold cash: (1) transaction motive, (2) precautionary motive, (3) tax motive, and (4) agency cost motive.

available to the public.[31] The richness of data makes corporate acquisition the best testable platform to examine the association between corporate investment and cash holding decision. Fuelled by this advantage, there are growing numbers of studies that investigate the cash-rich acquirers in terms of their method of payment decision and the response from the markets.

Early studies in the M&A literature predominantly report that cash-rich firms are likely to make acquisitions (Harford, 1999; Harford et al., 2008; Opler et al., 1999) and always experience the worst announcement returns (Harford, 1999; Lang et al., 1991; Schlingemann, 2004). From a theoretical perspective, all of them explain their empirical findings with no other than Jensen (1986) and Stulz's (1990) agency theory. Despite the literature on the strand of corporate cash holdings documenting that firms also build up their cash under their precautionary demand for cash (Almeida et al., 2004; Denis and Sibilkov, 2010; Han and Qui, 2007), only the recent study of Gao and Mohamed (2018) on cash-rich acquirers build their testable implications on this motive. Our understanding of how motives other than agency costs of cash holding can determine the characteristics and outcomes of M&A transaction is in an early stage.

From the methodology standpoint, prior M&A studies generally examine the value implications of holding cash by using the level of cash (e.g. cash-rich firms). This conventional approach is challenged by the value of cash estimation techniques pioneered by Faulkender and Wang (2006) and Pinkowitz et al. (2006). Their methods allow researchers to directly project the marginal value of cash placed by their shareholders, which is not necessarily equal to its nominal value. In Faulkender and Wang (2006), the estimated value of extra dollars ranges between \$0.46 and \$1.15, depending on the level of a firm's financial constraints. Dittmar and Mahrt-Smith (2007) report the marginal value of \$1 as \$1.27 to \$1.62 for well governed firms and \$0.42 to \$0.88 for poorly governed firms. The novel property of this measure, which can directly capture how shareholders value the additional \$1 firms hold, has motivated our study in this chapter. The key research question is whether the marginal value of cash can explain how managers make decisions between

[31]While almost all the literature on corporate acquisitions uses the method of payment to proxy for the acquirer's source of finance, Martynova and Renneboog (2009) and Schlingemann (2004) argue about its difference.

paying or saving cash in M&A transactions and whether their decisions corresponding to the value of cash can create value to their shareholders.

This study is different from the existing literature for at least four reasons. First, in addition to the agency cost motive which dominates the extant literature on M&As, we do not rule out the precautionary motive. Second, while the existing takeover literature implies value creation or value destruction from the level of cash holding, we test our hypotheses with the estimated value of cash using the method introduced by Faulkender and Wang (2006) and Pinkowitz et al. (2006). Third, prior studies use a single proxy to capture the value of cash in a single dimension, e.g. the availability of cash, investment opportunities, financial constraints Instead, we use the principal component analysis; we construct the value of cash index to capture various characteristics that contribute to firms' marginal value of cash. Fourth, we examine whether the managers who pay with the correct method corresponding to the value of cash have made a wealth creation decision.

Using the sample of 5,036 firm-years that undertook an acquisition during 1990 to 2010, we estimate the value of cash prior to the announcement across all payment methods. Our main interest is whether the value of cash prior to the takeover is associated with the payment method used by acquirers. Consistent with our prediction, we find the lowest marginal value of $1 in acquirers who pay by only cash on average and the highest in acquirers who pay by only stock. We further clarify the puzzle of the preference to pay with only stock by cash-rich acquirers raised by Pinkowitz et al. (2013). Our results stress the greater relevance of cash value than cash level that determines the choice of payment. Cash-rich firms use both methods of payment, but those cash-rich acquirers who pay with stock command a far greater marginal value of cash than cash-rich firms who pay by cash.

By examining the dynamic of the value of cash prior to and after the announcement year for a longer period, we also discover the timing behaviour corresponding to the value of cash in choosing the method of payment. The market value of additional dollar held by acquirers who pay with cash and the mixed method drop temporarily one year prior to the announcement, as well as in the announcement year, before reverting to the normal level. However, we do not find this trend in stock bids. In our multivariate analysis, we use Tobit regression to examine whether

there is an association between the value of cash held by acquirers and their payment method. Along with other individual proxies, the coefficient of our value of cash index suggests that acquirers who command high values of cash are likely to pay their transaction with a lower percentage of cash. In the last section, we run the OLS regression on the announcement return to acquirers. Consistent with our hypothesis, if managers choose the payment method that corresponds to how their shareholders place value on their cash holding, we observe an association between value creation and the acquirers who use their low marginal value of cash as a means for their takeover payments.

This chapter contributes new and important evidence to several strands of literature. For the corporate cash holding literature, our findings add to the evidence of firms' precautionary demand for cash. Acquirers who face greater underinvestment cost are likely to save their cash and pay with stock. For the choice of payment method, our results suggest that the value of cash is superior to the level of cash in explaining why managers should pay with cash or not. By using the estimated value of cash, our results can explain the puzzle articulated in Pinkowitz et al. (2013) why cash-rich firms prefer to save cash and pay with their stock. Further, we document that acquirers can add value for their shareholders by choosing the correct payment corresponding to the value of cash.

The remainder of the chapter proceeds as follows. Section 3.2 discusses previous literature on corporate cash holdings and payment methods in corporate acquisitions. Section 3.3 discusses the hypotheses development. Section 3.4 describes the data and methodologies. Sections 3.5 and 3.6 present the results and the robustness tests, respectively. Section 3.7 draws the conclusion.

3.2 Literature Review

Choice of payment methods in acquisition deals can be viewed as a specific form of corporate investment financing decision. Specifically, managers can fund their investment opportunity (M&A) with either internal finance (cash) or external finance (stock).[32] Since internal and external capital are not perfect substitutes in the

[32]According to most takeover literature, the means of payment is synonymous with the source of takeover financing (see e.g. Amihud et al., 1990; Faccio and Masulis, 2005; Ghosh and Ruland, 1998; Martin, 1996; Travlos, 1987). However, Martynova and Renneboog (2008) and Schlingemann (2004) argue about its difference, and attempt to identify and use the source of financing in their studies.

imperfect capital market, the decision of paying or preserving cash in acquisition deals is likely to have implications for firm value. This section begins with a review of prominent theories of corporate financing and investment to lay the foundation for the literature on corporate cash holding and payment methods in acquisitions. The gaps in the literature are identified in the final part of this section.

3.2.1 Corporate financing, investment and cash reserve

Modigliani and Miller (MM) (1958) pioneered the studies on the modern theory of capital structure with their value-irrelevance propositions. Built on the perfect capital market condition, their theoretical model suggests that the proportion of debt and equity financing has no relationship with firm value. Hence, there is indifference for managers to choose among the different sources of finance. While the model focuses on the choice between debt and equity, it does not explicitly discuss the role of cash as the source of finance. However, we can imply that, in the frictionless market, firms whose cash is running low can acquire additional external capital without additional costs. And since there is no liquidity premium, firms have no opportunity cost in holding their liquidity assets. Therefore, in MM's capital market firms can fund all value-increasing investment opportunities and the decision of the firm to hold cash is irrelevant.

These propositions are prominent but have been questioned regarding the unrealistic assumptions of a perfect capital market. By relaxing the few restrictions imposed, later studies confirm that corporates do have a systematic preference in their financing decision and corporate cash becomes relevant. Miller (1976) and DeAngelo and Masulis (1980) introduce the model where tax exists. From the informational aspect, Barnea et al. (1981) and Myers and Majluf (1984) acknowledge the information asymmetry between firm's insiders and outsiders, and incorporate the agency cost of debt and equity into their models. Stulz (1988), alternatively explain the preference for cash or raising debt over issuing new equity for managers who value the control of the firm. Among other frictions, costly external finance and agency problems are the widely acknowledged arguments to explain the interdependence of corporate investment and financing decisions.

3.2.1.1 Costly external finance and precautionary motive of cash holding

Costly external finance

One important feature in the perfect market is that a firm's insiders and outsiders hold the same information. However, this assumption seems not to hold in the real world where investors always face difficulties in knowing the firm's true value of assets in place and investment opportunities. Myers and Majluf (1984) demonstrate how information asymmetry possessed by a firm's insiders can raise the cost of new equity financing. While issuing new equity may signal the good news of the potential positive NPV projects, it can also be interpreted as the bad news that managers post private information about the firm's overvalued stock. To avoid paying overpriced, investors require deep discounts to compensate for the adverse selection risk they face.

In addition to the costly equity financing, information asymmetry between firms and lenders can also cause the debt financing to be expensive, though the effect may not as significant as issuing new equity. When managers have private information about a firm's bankruptcy potential, they are likely to borrow more and as a result increase their defaulting risk (Jensen and Meckling, 1976; Myers, 1977a). To avoid such a situation, lenders take the credit rationing to limit all credited at the preferred rate (Jaffee and Russell, 1976; Stiglitz and Weiss, 1981, 1983).

Differently from conventional corporate investment studies, Fazzari et al. (1988) introduce an investment model that is interdependent with the financing choices. Since the cost of new debt and equity differ substantially from internal finance, they conjecture that the marginal capital spending for constrained firms (low dividend payout) is more sensitive to fluctuations in cash flow. Although their finding is consistent with the assumption of investment-cash flow sensitivity, other studies address some of the theoretical and methodological criticisms (see e.g. Alti, 2003; Erickson and Whited, 2000; Kaplan and Zingales, 1997).

Precautionary motive of cash holding

In a world where market friction exists, the financing decision is not irrelevant. Precautionary theory suggests that firms with high growth opportunities but facing difficulties in raising additional external funds should hold more liquid

assets as the cost of being short of funds is greater. Information asymmetries and agency cost of debt play an important role in making the external fund become more expensive, or even prohibitive (Jensen and Meckling (1976); Myers (1977); Myers and Majluf (1984).

Consistent with the theory, Opler et al. (1999) report that firms with strong growth opportunities and riskier cash flows hold relatively high ratios of cash to non-cash assets. Harford (1999) finds that cash holdings are positively associated with industry cash flow volatility. Taking a different approach, Pinkowitz and Williamson (2007) find a significant and greater marginal value of cash holding among firms with a better investment set over firms with fewer opportunities. For the uncertainty aspect, they also document that less predictability makes cash more valuable.

The degree to which a firm can access external capital (referred to as constrained and unconstrained firms) and liquidity management also has been highlighted in many studies. Opler et al. (1999) provide evidence that large firms with high credit ratings tend to have lower ratios of cash to total non-cash assets. Compared with firms that are able to fund all of their positive NPV projects, Almeida et al. (2004) point out the greater necessity for firms anticipating financing constraints to follow a cash policy that balances the profitability of current and future investment. Hence, by using the firm's propensity to save cash out of cash flows (the cash flow sensitivity of cash) to capture the effect of financial constraints, they propose that the constrained firm's cash saving should be systematically related to cash flow while the unconstrained firm's should not. Empirically, the sample of US manufacturing firms over the 1971 to 2000 period finds support for their predictions.

Faulkender and Wang (2006) and Denis and Sibilkov (2010) adopt four of Almeida et al.'s (2004) five measures to partition their sample into constrained and unconstrained subsamples.[33] Consistent with their prediction, the constrained firms command a higher value of their additional cash holding than the unconstrained firms in all measures. According to Faulkender and Wang (2006), the estimated marginal value of cash is \$1.04 versus \$0.77 using the pay-out ratio criterion, \$1.09 versus \$0.72 using size, \$1.15 versus £\$0.73 using access to public debt markets, and

[33]Almeida et al. (2004) use five alternative criteria to partition their samples into constrained and unconstrained subsamples. These include payout ratio, firm size, access to public debt market, access to the commercial paper market and Kaplan and Zingales's (1997) index.

$1.09 versus $0.46 using access to the commercial market. They explain the higher value of cash held by constrained firms by higher transaction cost f when raising external funds. Denis and Sibilkov (2010) also report the marginal value of cash between 14 and 51 cents higher in constrained firms than in unconstrained firms. They further explain the greater value of cash holding with the net investment (capital expenditure net of depreciation) in constrained firms. In addition, they explain the too little cash holding in constrained firms with their persistently low cash inflow.

3.2.1.2 Agency theories and agency cost motive of cash spending

Agency theories

Among the expectation that managers make the financing decisions to maximise their shareholders' wealth, Jensen and Meckling (1976) argue that agents may not necessarily act in the best interests of their principals. The separation of ownership and control allow self-interested managers to pursue their own goal, e.g. higher than market salaries, perquisites, job security and direct capture of asset or cash flows, and building empire. Jensen (1986) later develops the free cash flow theory stating that the conflict of interest between managers and shareholders becomes more severe in firms that generate substantial free cash flow. Managers can retain their control and avoid the market discipline by using the firm's surplus cash as their internal source to fund their pet projects (Easterbrook, 1984; Rozeff, 1982).

In addition, Stulz (1990) derives the relationship between the source of financing and agency costs of managerial discretion over investment funds. Debt financing is found to be good for firms with poor investment opportunities, since free cash flows are committed to pay out to their debtors rather than to waste it when NPV opportunities are exhausted. However, the tightening monitor from capital markets can reduce the degree of flexibility and the ability to take advantage of those firms with good investment opportunities. To gain managerial discretion, managers may prefer equity over debt financing.

Focusing on the agency cost of debt, the different interests of shareholders and debt holders can raise the agency cost of debt, which means the highly leveraged firms find it more difficult to renegotiate or raise additional funds to prevent their

financial distress (Jensen and Meckling, 1976) or even pass up the investment opportunities that create value to debt holders, but not shareholders (Myers, 1977b). With a debt overhang problem, new fund providers whose claimants are more recent than the existing debt may be reluctant to invest because most returns from a project will be repaid to existing debt holders.

Agency cost motive of cash spending

Contrary to the precautionary motive, Jensen's (1986) free cash flow theory argues that holding high cash reserves may not add value to firms as the precautionary motive suggests.

In cash holding papers, Dittmar and Mahrt-Smith (2007) provide insights into how good governance enhances the value of firms' cash holdings and the spending of firms' excess cash reserves. By using Faulkender and Wang's (2006) specification, they find that cash in poorly governed firms is valued between $0.42 and $0.88, approximately half of the value in well governed firms. They further estimate the value of cash reserves in excess of the needs for investment and operation, which is most likely to be wasted by managers. Following Pinkowitz and Williamson's (2007) value regression, the market value of excess cash in firms with poor governance is also approximately one-half of that in well governed firms. Finally, Pinkowitz and Williamson (2007) document the quicker excess cash dissipation as well as low operating performance in firms with both high excess cash and poor governance. Consistent with the findings in the US, Pinkowitz et al. (2006) report the relationship between cash holdings and firm value, which is much weaker in countries with poor investor protection than in other countries.

As opposed to Dittmar and Mahrt-Smith (2007) and Pinkowitz et al. (2006), Opler et al. (1999) does not find any evidence that excess cash has a short-run impact on new projects or making acquisitions. The depletion of excess cash is to cover operating loss.

3.2.2 The method of payment in acquisition

While some arguments of motives underlying the payment method of acquirers are borrowed from corporate financing theories discussed in the previous

section, some of them are developed particularly in the setting of corporate takeover. This section will review the implication of these theories in extant empirical papers and their results. Amihud et al. (1990), Faccio and Masulis (2005), Ghosh and Ruland (1998) and Martin (1996) conduct their studies on the American market while Faccio and Masulis (2005) also focus on acquisiton across 13 Western European countries.

3.2.2.1 Cash availability

As discussed, pecking order theory (Myers and Majluf, 1984) concerns information asymmetry that makes external financing costly and favours using internal cash as the first priority. On the other hand, free cash flow theory (Jensen, 1986) suggests that firms with excess cash tend to spend their liquidity on projects such as acquisition. It also predicts that paying for the acquisition by cash or debt will generate larger benefits than stock. Based on these two theories, Martin (1996) predicts that acquirers with large amounts of cash, or high cash flow, or sufficient debt capacity, are more likely to use cash as the medium of exchange. Among the three proxies of cash availability that he used, only the cash level is reported to be consistent with his prediction.

Nevertheless, in the decade of high cash availability in US firms, Pinkowitz et al. (2013) recently report a contradictory statistic, where cash-rich acquirers prefer to pay by their stock.

3.2.2.2 Investment opportunities hypothesis

When the investment opportunities are considered, the pecking order theory no longer holds. Jung et al. (1996) argue that managers with high investment opportunities prefer to issue new equity over raising new debt. The degree of discretion from the capital owner plays an important role for their argument. Managers of high growth companies can take full advantage of their investment opportunities when they have high levels of entrenchment. However, this is not applicable to those firms with low investment opportunities where lack of monitoring from capital providers can lead to investment in value-decreasing projects. Myers' (1977a) model also supports why managers do not finance their high investment

opportunities by borrowing. The decision to undertake investment opportunities relies on the state of the world in the future; to avoid uncertainty, i.e. where the investment may not happen, firms are more likely to base their target debt ratio on asset-in-place than investment opportunities. Furthermore, Faccio and Masulis (2005) point out that high-growth acquirers are likely to have a high level of tax-deductible R&D expenditures along with low current earnings and cash dividends. These characteristics make the debt tax shield benefits from debt financing less attractive.

Consistent with their prediction, Jung et al. (1996) find that firms with high market-to-book ratio are more likely to issue equity. In the acquisition context, Martin (1996) reports the likelihood of stock payment in acquirers with high Tobin's q, high sales growth and high run-up stock price before takeover.

3.2.2.3 Risk Sharing

According to Myers and Majluf (1984), managers of acquirer firms who are better informed than the market about their firm value are expected to use stock as a means of payment when their stock is overpriced. Chemmanur et al. (2009) empirically confirm that acquirers are more likely to use stock when their stock is overvalued and use cash when their stock is correctly valued. However, the advantages of using overvalued stock as cheap currency comes with a cost. Investors are aware of this behaviour and as a result the stock price of bidders will be adjusted downward (e.g. see Amihud et al., 1990; Travlos, 1987).

Hansen (1987), Fishman (1989) and Eckbo et al. (1990) pioneer the theories to explain how information asymmetry influences the medium of exchange in the context of corporate acquisition. Hansen (1987) introduces the bargaining models under the single-side and both-side information asymmetry. One of his models predicts that when the target firm is more informed about its own value, the acquirer is likely to use stock, which has desirable contingency characteristics as a means of payment. By doing this, acquirers can share the adverse risk they face with the target firm. On the other hand, Fishman (1989) highlights the cash offer from an initial acquirer as the signal of high-value target firms and hence deters the bid contest. His model explains the higher abnormal return of cash offer as resulting from a lower

probability of rejection and deterrence. Eckbo et al.'s (1990) model implies that the offer-induced change in the bidder value is monotonically increased and convex in the amount of cash used in the offer.

Martin (1996) and Chemmanur et al. (2009) find support for Hansen's (1987) theory that there is a greater likelihood of using stock as a medium of exchange when the target firm value is hard to evaluate. While Martin (1996) uses the relative size of target to acquirer and target's investment opportunity as the proxies to capture the level of information asymmetry in the target firm, Chemmanur et al. (2009) employ analyst forecasting proxies and extend their analysis to the information asymmetry of both target and acquirer. Consistent with Fishman (1989), Chemmanur et al. (2009) also report that paying cash can deter the competing bids.

3.2.2.4 Corporate control

Extant literature suggests that the manager's incentive to maintain control over the firm has implications for its capital structure policy. Harris and Raviv (1988) and Stulz (1988) propose that corporate insiders who value control and hold a significant ownership fraction of their firms' stock should be reluctant to finance their investment by issuing new stock which can lead to dilution and may risk losing their control. They are more likely to prefer financing their new investments with debt (or cash). Stulz (1988) also discusses the debt (or cash) financing as a takeover resistance strategy since a high level of debt is associated with high restrictive covenants and limited ability to issue more debt, which can be less attractive to the prospect raiders. These propositions allow the takeover literature to empirically test the impact of corporate control on the preference payment method in acquisition.

Consistent with the hypotheses, Amihud et al. (1990) find that large managerial ownership is negatively related to the probability of stock financing. Martin (1996), Faccio and Masulis (2005) and Martynova and Renneboog (2008) also confirm the same findings over the intermediate ownership range, where the control position of the large shareholder is most vulnerable to being diluted.[34] Martin (1996) suggests that the dilutive effect on acquirers with very low or very high ownership is minimal. To capture the degree of corporate control, Amihud et al.

[34]Faccio and Masulis (2005) and Martynova and Renneboog (2008) define the cutting point of 20 to 60% as the intermediate level of voting power.

(1990) and Martin (1996) measure the managerial ownership while Faccio and Masulis (2005) and Martynova and Renneboog (2009) alternatively use the voting stake held by the largest controlling shareholder.

While the literature on corporate control and method of takeover payment has been conducted only on the control of acquirers, Ghosh and Ruland (1998) argue that the control rights of target firms as well as acquiring firms should have an impact on the method of payment. From the fact that acquisitions lead to high management turnover, managers of target firms can be motivated to insure their unemployment by retaining the voting influence in the new combined firms. Consistent with their prediction, they find the likelihood of stock payment when the target firms' managerial ownership is high as well as the likelihood of job retention being high when managers receive voting stock instead of cash.

3.2.2.5 Deal characteristics

Among others, some deal characteristics are found to have an influence on the preference choice of takeover payment. Fishman (1989) points out that deals are more likely to be consummated if the acquirer offers cash payment in tender offers, mandatory bids, competing bids, and hostile takeovers. Faccio and Masulis (2005) document the preference for cash payment involving the target firm whose public status is unlisted or subsidiary. They focus their explanations on the requirement of seller sides. The unlisted firms prefer cash because of their illiquidity and portfolio nature and also the incentive of retiring managers to cash out. In the case of subsidiary status, they are frequently sold for financial distress reasons, which explains why they need cash to restructure towards their core competence.

3.2.3 Value of cash in M&A transactions

Although the discussion on firms' cash holding has long been noticed,[35] it is only recently that this topic has really gained market attention. Fuelled by the disappearance of pay out and massive corporate cash stockpiling in US firms, the

[35]For example, Keynes (1936) describes transaction and precautionary motives as two benefits of holding liquid assets. Chudson (1945) reports the likelihood of higher cash-to-assets ratio among profitable firms. Vogel and Maddala (1967) find an inverse relationship between firms' size and their cash holding. John (1993) uses high market-to-book ratio to proxy for financial distress costs. Consistent with his prediction, he finds that financially distressed firms are likely to hold greater amounts of cash.

intention and ability of managers to create value with those larger than ever cash holdings are seriously questioned. To shed light on this puzzle, academics develop empirical models that systematically identify the determinants of corporate cash holding and examine the value of cash holding towards those determinants.

Two strands of methodologies that lay the foundations for recent cash holding literature are the optimal level of cash holding model (Harford, 1999; Opler et al., 1999) and the marginal value of cash holding model (Faulkender and Wang, 2006; Pinkowitz and Williamson, 2007). Opler et al. (1999) and Harford (1999) identify the optimal level of corporate cash holding by analysing the trade-off between benefits and costs of holding cash. They suggest that managers who maximise their shareholder wealth should not hold greater cash than the predicted level where the marginal benefit equals the marginal cost of cash holding. Alternatively, Faulkender and Wang (2006) and Pinkowitz and Williamson (2007) introduce models that directly capture the market value of each additional dollar held by firms. The value placed by shareholders above (below) its nominal value of $1 help to determine whether the firm can add (destroy) firm value by holding more cash.[36]

Empirical studies relate to corporate cash and M&A transactions have so far been dominated by the free cash flow theory. Extant literature often explains their negative effect on the gain of acquirers as the tendency of managers to spend their large cash reserves on value-destroying acquisitions. Lang et al. (1991) use Tobin's q to identify firms beset by agency problems and were expected to invest their free cash flow in the negative NPV projects. Consistent with the theory, they find that returns for acquirers with low q and high levels of free cash flow are significantly lower than the returns for high q bidders with high levels of free cash flow. Harford (1999) also documents the likelihood of cash-rich firms, rather than other firms, to make acquisitions. Moreover, the stock price reaction to the bid announcement is negative and lowering towards the amount of excess cash held by the bidder. Building on Harford (1999), Harford et al. (2008) incorporate the firm's level of

[36]We will discuss the models of Faulkender and Wang (2006), Opler et al. (1999), and Pinkowitz and Williamson (2007) in detail later, in the methodology section.

corporate governance into their study and find that poorly governed firms dissipate cash through their acquisitions.

Recently, Gregory and Wang (2013) carried out a study on cash only acquisitions in the UK, which claimed to be the class that is directly related to Jensen's free cash flow hypothesis. They argue that methods employed by previous studies do not test directly the spending of the acquirer's free cash in the acquisition, as implicitly inferred in their arguments. However, they find no evidence to support free cash flow theory. They contend that their contradictory findings may either be because of the high degree of shareholder protection in the UK market or the high free cash flow with low debt status that prevents financial distress and also facilitates leverage after an acquisition.

Differently from others, Gao (2015) is the only study that explains the bidder negative announcement effect with precautionary motive. He argues that acquirers under precautionary motive (low asset tangibility) who reserve cash for better future opportunities may not be rewarded by the market during an announcement period. Since growth opportunities are more difficult to value than asset in place, investors interpret cash-rich bidding as a signal of overvaluation and then discount their share price according to the level of cash reserve. In addition, his study does not find any association between cash reserve and acquirers who suffer from agency conflicts.

3.2.4 The gap in the literature

Almost all of the existing literature associates the decision to use excess cash as the means of payment and their inferior performance with free cash flow agency theory. Consistent with theoretical predictions, the findings of negative returns in the short- and long-run are convincing. However, we have little understanding about whether precautionary motive, the other acknowledged motive in corporate cash holding literature, can explain how bidders' managers choose to fund their acquisition by spending or preserving their liquidity.

Regarding the methodological issue, extant studies usually regress the payment method (cash, equity or mixed) or the acquirer's announcement returns on the level of cash. However, the literature on value of cash has confirmed that, conditional on the characteristics of firms, the marginal value of extra dollars held by

firms is different from its nominal value. Interestingly, the area of research that relates the marginal value of cash to M&A deal characteristics and performances is left unexplored.

While many studies document the impact of cash balance on payment methods in acquisitions, there is no study that examines the association between the value of cash and the method of payment. Alternatively, this chapter has followed the methodology pioneered by Faulkender and Wang (2006) and Pinkowitz and Williamson (2007) to estimate how shareholders place value on the $1 additional firms hold. We expect that the rational managers who attempt to increase their shareholders' wealth should give priority and make decisions corresponding to how the market place values the cash they preserve.

3.3 Hypotheses Setting

With about $2 trillion of cash lying on their balance sheets in 2011, US companies are encouraged and expected to turn their massive liquidity into more corporate investments, including takeover activities. To be more specific, when the cash availability becomes less relevant and the advantages of cash payments are greater, we expect to observe more acquisition activities, particularly financed by cash (supported by pecking order theory and free cash flow theory). Pinkowitz et al. (2013) examine this assumption in their paper 'Do cash stockpiles fuel cash acquisitions?' In contrast to an intuitive viewpoint, they report it is 23% less likely that cash-rich acquirers will make cash bids than stock bids, relative to non-cash-rich acquirers. To clarify their finding, several potential omitted variables (corporate government, earmarked funds, financial constraints, accounting method, trapped cash of multinational firms, equity overvaluation and capital structure) are examined but none of them can explain why cash-rich firms prefer to use stock in acquisition rather than cash.

Differently from Pinkowitz et al. (2013), our study aims to explain how acquirers choose their payment method by considering the marginal value of cash instead of the level of cash they hold. As discussed in the previous section, the precautionary motive suggests that managers retain cash today as a buffer for better usage in the future (e.g. when good investment opportunities are available, when

access to external capital is more costly or even prohibited, or when a cash flow shock is likely to happen). As a consequence, their shareholders place more value on the additional dollars firms hold if they believe that this cash has the potential to generate higher returns than by paying it out today. Building on this finding, acquirers who command greater value of cash should have an incentive to save their cash (which has greater market value than its nominal value) and likewise use their stock to pay for their acquisition instead. This intuition brings us to the first hypothesis as follows:

> *H_1: Acquirers that have a higher marginal value of cash pay target firm shareholders in stocks.*

By comparing the proportion of cash-rich firms one year prior to and one year after the takeover, Pinkowitz et al. (2013) find that cash-rich acquirers who pay in stock remain cash-rich following the takeover and conclude that they are not reserving cash to spend in the post-acquisition period. Instead of looking at being a cash-rich acquirer or not, our study examines the value of cash over a longer period to see how the value of cash held by the acquirer changes through time. According to Baker and Wurgler (2002), there is evidence that firms issue new equity when their stock price is overvaluing and repurchase their stock when it is undervaluing. This confirms that managers have an incentive to time the market.

Instead of the equity market timing, we are interested in investigating whether managers have cash market timing. If there is market timing behaviour on a firm's value of cash, we should find a temporary drop in cash value shortly before the acquisition in acquirers who pay by only cash. The same logic applies to the temporary rise in cash value for acquirers who pay by only stock. However, if the value of cash is persistent over time, we may imply that there is no market timing corresponding to the value of cash in the corporate control market. The invariably high or low marginal value of cash can be the result of firms' specific characteristics and their financial policies.

H_2: If there is market timing behaviour corresponding to the marginal value of cash, the value of cash should temporarily drop prior to the acquisition for acquirers who pay by cash while the value of cash should temporarily rise prior to the acquisition for acquirers who pay by stock.

Extending our previous analysis, this section continues to examine whether the acquirer's value of cash has the power to explain their payment decision. Extant literature identifies many determinants that influence the payment method in acquisition, including the availability of cash (see Martin, 1996), but none of it examines their market value. To test hypotheses H_1 and H_2, we are able to adapt Faulkender and Wang's (2006) model to estimate directly the marginal value of cash held by acquirers who choose different payment methods. However, the existing values of cash regressions do not allow us to estimate the marginal value of cash held by individual firms. Hence, in this section we employ various proxies to identify the acquirers who are likely to command high market values of cash. They include 1) the investment opportunity, 2) the volatility of cash flow and 3) the financial constraints.

Investment opportunities have long been associated with corporate financing decisions. Almost all of the studies point out that firms with higher investment opportunities are likely to raise their funds by raising equity rather than debt. Myers and Majluf (1984) explain this finding with the entrenchment level of managers. Equity financing can add value to firms as the discretion over funds helps managers to take full advantage of their investment opportunities. Jung et al. (1996) report that firms with valuable investment opportunities are more likely to issue equity and that the stock-price reaction to equity issues is more favourable for firms with valuable investment opportunities. In the takeover context, Martin (1996) documents that acquirers who have high investment opportunities, proxied by Tobin's q ratio, and run-up cumulative abnormal returns prior to an announcement date, are likely to use their stock as a means of payment.

Coincidently, the empirical prediction from this section is similar. We expect to see a higher probability of stock acquisition in those acquirers who have high investment opportunity sets. However, this section offers an alternative explanation, departing from the previous approach. Based on the value of cash viewpoint, acquirers who have more valuable investment opportunities in the future (resulting in

a high marginal value of cash) should prefer to save their cash and pay out by using their stock instead. To make sure that the result highlights our value of cash assumption and is not influenced by the stock-price reaction discussed in the previous paragraph, we examine several investment opportunity measures both prior to and after the takeover announcement period. This section also controls for the run-up cumulative abnormal return before announcement and recent equity issuance by acquirers prior to the takeover.

In risk management theories, greater volatility of cash flow increases the present value of the deadweight costs of financial distress. One would expect firms with greater volatility of cash flow to hedge more, but if they have unhedgeable risks, they will hold more cash. Bates et al. (2009) explain the recent increasing cash ratio with the firm's riskier cash flow. Following the same explanation, Pinkowitz and Williamson (2007) find that firms with more uncertain cash flows should have more valuable cash.

This study also extends its analysis to examine how the degree of financial constraint influences the acquirer's value of cash. To be consistent with previous studies, which witness high values of cash in constrained firms relative to unconstrained firms, this analysis expects to see the higher use of stock acquisition in constrained acquirers as they want to preserve their scarce and valuable cash. Three proxies, i.e. pay-out ratio, firm size and long-term bond ratings as used in Almeida et al. (2004) are used to identify the constrained and unconstrained acquirers.

H_3: Acquirers who have high marginal value of cash holding (proxied by high investment opportunities, high volatility of cash flow and financial constraint), are likely to use a lower percentage of cash in their payment.

Finally, we examine whether choosing the correct payment method according to their value of cash has an impact on the return to acquirers. If shareholders place high value on a firm's cash holding, the decision to save cash and pay by stock is likely to be consistent with the perception of shareholders. From this point of view, holding cash may create more value than spending on this acquisition project. In contrast, if shareholders place low value on a firm's cash holding, managers can create value by using the cheap currency to finance their acquisition. We define the

correct payment method corresponding to the value of cash held by acquirers as (1) high value of cash acquirers (Hi VOC) pay with stock and mixed payment and low value of cash acquirers (Lo VOC) pay with cash, (2) Hi VOC pay with stock and Lo VOC pay with cash, (3) Lo VOC pay with cash, and (4) Hi VOC pay with stock.

H_4: Acquirers who choose the correct payment method according to their marginal value of cash should gain more than acquirers who choose the incorrect method.

3.4 Methodology and Sampling

3.4.1 Value of cash estimation

Since Pinkowitz and Williamson (2007) and Faulkender and Wang (2006) introduced their breakthrough methodologies to estimate the market value of corporate cash holding, both methods have become prominent and widely adopted in various topics of subsequent literature. Denis and Sibilkov (2010) and Tong (2011) build on Faulkender and Wang (2006) by applying their method to value cash and investigate how financial constraint and firm diversification, respectively, impact this value. Alternatively, Bates et al. (2009) modify the specification of Pinkowitz and Williamson (2004) to study the value of corporate cash holding through time. Pinkowitz et al. (2006) extend their primary model into the context of international corporate governance. Complementarily, both methodologies are used by Dittmar and Mahrt-Smith (2007) in their corporate governance study.

Regarding the methodology of Pinkowitz and Williamson (2007), their specification is modified from the valuation model of Fama and French (1998) that was originally used in evaluating the impact of debt tax shields on firm value.[37] To allow the model to capture the impact of cash holding on the value of the firm, cash is augmented as the test variable to the original model. The level, past change and future change of variables that are used in Fama and French (1998) to control for the investor's expectation of future net cash flows are all included. To avoid the heteroscedasticity issue from using market value as the dependent variable, all terms are deflated by the book values of assets. Their baseline regression is:

[37]This model is controversial. Despite the high ability to explain cross-sectional variation in firm values, there are questions about the lack of theoretical background.

$$\frac{MV_{i,t}}{NA_{i,t}} = \beta_0 + \beta_1 \frac{E_{i,t}}{NA_{i,t}} + \beta_2 \frac{dE_{i,t}}{NA_{i,t}} + \beta_3 \frac{dE_{i,t+2}}{NA_{i,t}} + \beta_4 \frac{RD_{i,t}}{NA_{i,t}} + \beta_5 \frac{dRD_{i,t}}{NA_{i,t}} + \beta_6 \frac{dRD_{i,t+2}}{NA_{i,t}} + \beta_7 \frac{D_{i,t}}{NA_{i,t}} + \beta_8 \frac{dD_{i,t}}{NA_{i,t}} + \beta_9 \frac{dD_{i,t+2}}{NA_{i,t}} + \beta_{10} \frac{I_{i,t}}{NA_{i,t}} + \beta_{11} \frac{dI_{i,t}}{NA_{i,t}} + \beta_{12} \frac{dI_{i,t+2}}{NA_{i,t}} + \beta_{13} \frac{dNA_{i,t}}{NA_{i,t}} + \beta_{14} \frac{dNA_{i,t+2}}{NA_{i,t}} + \beta_{14} \frac{dNA_{i,t+2}}{NA_{i,t}} + \beta_{15} \frac{dMV_{i,t+2}}{NA_{i,t}} + \beta_{16} \frac{Cash_{i,t}}{NA_{i,t}} + \varepsilon_{i,t} \quad (3.1)$$

where X_t is the level of variable X in year t; dX_t is the change in the level of X from year t-2 to year t, $X_t - X_{t-2}$; dX_{t+2} is the change in the level of X from year t to year t+2, $X_{t+2} - X_t$. MV is the market value of firm's equity; E is earnings before extraordinary items plus interest, deferred tax credits, and investment tax credits; RD is the R&D expense; $D$is the dividend; I is the interest expense; NA is the net asset; $Cash$ is the cash holdings. The coefficient of $Cash$ is interpreted as the value of cash the firm holds.

Unlike the methodology initiated by Pinkowitz and Williamson (2007), Faulkender and Wang (2006) measure the change in firm value by excess return instead of market value. By following Grinblatt and Moskowitz (2004) and Daniel and Titman (1997), they define the excess return as stock *i*'s return minus the benchmark portfolio return during fiscal year *t*. The excess return is regressed over the unexpected change in cash holding controlled for the change in firms' profitability, financial policy and investment policy. By standardising the dependent and independent variables (except leverage) with the firm's lagged equity value, the coefficient of cash holding and its interaction can determine a dollar change in shareholder value caused by a dollar change in the amount of cash held by the firm.

Faulkender and Wang (2006) set up their hypotheses by linking firms' financial characteristics (cash position, financial leverage and financial constraints) into three regimes in which cash is likely to be spent.[38] Explained by the (i) distribution of cash and (ii) raising cash regime, firms with higher cash reserves are more likely to distribute cash to their shareholders and less likely to seek new funds from external sources. The dividend tax that causes the fraction of $1 - \tau_d$ return in

[38]The regimes are similar to Hennessy and Whited (2005).

the hand of shareholder and the less costly fund without having to access the capital market can together make the value of cash in the eyes of shareholders to be significantly lower than one. $\frac{C_{i,t}}{M_{i.t-1}} \times \frac{\Delta C_{i,t}}{M_{i.t-1}}$ is added to the baseline regression to test the hypothesis H_1. For the (ii) servicing debts or other liabilities regime, they also predict the marginal value of cash should be a decreasing function of firm's leverage. When leverage increases, the additional cash the firm generates is more likely to benefit the debt holder than solely the shareholders. $L_{i,t} \times \frac{\Delta C_{i,t}}{M_{i.t-1}}$ is presented in the specification to capture this impact. Their specification is as follows:

$$\begin{aligned} r_{i,t} - R_{i,t}^{B} \quad = \quad & \gamma_0 + \gamma_1 \frac{\Delta C_{i,t}}{M_{i.t-1}} + \gamma_2 \frac{\Delta E_{i,t}}{M_{i.t-1}} + \gamma_3 \frac{\Delta NA_{i,t}}{M_{i.t-1}} + \gamma_4 \frac{\Delta RD_{i,t}}{M_{i.t-1}} + \gamma_5 \frac{\Delta I_{i,t}}{M_{i.t-1}} \\ & + \gamma_6 \frac{\Delta D_{i,t}}{M_{i.t-1}} + \gamma_7 \frac{C_{i,t-1}}{M_{i.t-1}} + \gamma_8 L_{i,t} + \gamma_9 \frac{NF_{i,t}}{M_{i.t-1}} + \gamma_{10} \frac{C_{i,t}}{M_{i.t-1}} \times \frac{\Delta C_{i,t}}{M_{i.t-1}} \\ & + \gamma_{11} L_{i,t} \times \frac{\Delta C_{i,t}}{M_{i.t-1}} + \varepsilon_{i,t} \end{aligned} \tag{3.2}$$

where $r_{i,t}$ is stock i's return over year *t*-1 to *t*; $R_{i,t}^{B}$ is the Fama and French (1993) size and book-to-market matched portfolio return from year *t*-1 to *t*; X_t indicates the level of variable X in year *t* ; X_{t-1} indicates the level of variable X in year *t*-1; ΔX_t indicates a change in X from year *t*-1. The financing variables include the cash holding of firm (C), interest expense (I), total dividend (D), market leverage (L), and the firm's net financing (NF). Control for changes in firm's profitability are earnings before interest and extraordinary item (E), the total assets net of cash (NA), and R&D expenditure (RD). All independent variables are deflated (except leverage) by the 1-year lagged market value of equity (M_{t-1}).

Although both methodologies are widely used in the value of cash studies, Faulkender and Wang (2006) claim that their model offers two improvement from Pinkowitz and Williamson's (2007) methodology. Although the latter model attempts to control for future cash flow, the authors fail to account for the risk factors that can influence the discount rate. Faulkender and Wang (2006) correct this issue by adding the stock's benchmark return to control for the time series and cross-sectional variations in risk factors exposed by these variables. Moreover, using an equity return instead of market-to-book ratio provides an advantage in interpreting

the value of cash in a meaningful and straightforward manner. Taking these into account, this study adopts the methodology of Faulkender and Wang (2006) as our baseline regression while using Pinkowitz and Williamson (2007) in our robustness check.

Faulkender and Wang (2006) also describe their methodology as a long-term event study. They view an unexpected change in cash holding as an event which has an event window for one fiscal year. Similarly to other standard event studies, by controlling for other changes in a firm's financial status, the model can estimate the abnormal return around the time of the event (change in cash holding).

3.4.2 Cash-rich firm identification

Opler et al. (1999) use a static trade-off model to identify the optimal level for firm's cash holding. In order to maximise shareholder wealth, they suggest that managers should maintain cash at the level where the marginal benefit and marginal value of holding cash are equal. Based on literature related to the cost of transactions and insufficient liquidity, they include various determinants of firm's cash holding such as firm growth opportunities, riskiness of cash flow, cost of financial distress and capital market accessibility. The specification used in their static trade-off model is as follows:

$$\begin{aligned} \ln(Cash) = \quad & \beta_0 + \beta_1 MB + \beta_2 Size + \beta_3 Cash\ Flow + \beta_4 NWC + \beta_5 RD \\ & + \beta_6 Indsigma + \beta_7 Leverage + \beta_8 Capex + \beta_9 Dividend \\ & + \varepsilon_{i,t} \end{aligned} \tag{3.3}$$

where $Cash$ is the ratio of cash and marketable securities to net assets, book value of assets less $Cash$; MB is the ratio of the market value of a firm's assets to the book value of its assets; $Cash\ Flow$ is the earnings after interest, dividends, and tax before depreciation, divided by net assets; NWC is the net working capital minus $Cash$ deflated by net assets; RD is the R&D expense-to-sales ratio; $Indsigma$ is the median of the industry's cash flow volatility for the previous 20 years, if available; $Leverage$ is the debt-to-assets ratio; $Capex$ is capital expenditure deflated by net assets; and $Dividend$ is a dummy variable equal to one in years where a firm pays a divided and zero otherwise.

Following Opler et al. (1999), we use their static tradeoff model to estimate the optimal level of cash holding. The difference between actual and predicted normal cash or the residual of the cash levels regression is the excess cash. Then we define the cash-rich firm as a firm in the top third for excess cash within a given year.

3.4.3 Firms with high value of cash

Existing value regressions proposed by Faulkender and Wang (2006) and Pinkowitz and Williamson (2007) allow us to estimate the value of cash held by firms on average but not individually. To test hypotheses H_3 and H_4, we alternatively capture the value of each firm's cash holding with various proxies reviewed in the hypotheses development section. Extant literature suggests that shareholders in firms who face high investment opportunities, high cash flow riskiness and financial constraint are likely to place higher value on their firm's cash holding. In this study, we use sales growth, capital expenditure and R&D expenditure as the measures of investment opportunities. The cash flow standard deviation is used to measure the cash flow riskiness. We also measure the financial constraint by using the pay-out ratio, sales of the firm and long-term bond rating. In addition, we aggregate all measures into a single index by using principal component analysis.

3.4.4 Announcement period abnormal return estimation

To capture the value created for shareholders of acquiring firms, we estimate the announcement return by using the market-adjusted model as discussed in Section 2.5.1. The cumulative abnormal return is estimated over the event window of (-2, +2).[39] To test whether the estimated abnormal return is significantly different from zero in our univariate analysis, we use a simple t-test and the test statistic is:

$$t = \frac{\bar{x}-\mu}{s/\sqrt{n}} \qquad (3.4)$$

where $\bar{x}$ is the average cumulative abnormal return, μ is the hypothesised population mean equal to zero, s is the standard deviation and n is the number of observations

[39]The review of the abnormal return estimation and our justification for using the market-adjusted model is discussed previously in Chapter 2.

which are event firms. If the p-value of the test statistics is lower than 0.01, 0.05 and 0.10, there is evidence to reject the null hypothesis, suggesting that the average of cumulative abnormal return is significantly different from zero at the confidence levels of 99%, 95% and 90%.

3.4.5 Multivariate regression

3.4.5.1 Tobit regression

In the spirit of Faccio and Masulis (2005), we use the Tobit regression to explain the percentage of cash payment in takeover deals. The estimation is based on a two-boundary Tobit model to reflect the lower and upper bound constraints of dependent variables, 0 and 100% of the cash payment. Although Wooldridge (2002) points out that censoring is caused by how data were recorded, not how they were generated, the censoring and corner solution motivations give rise to the same maximum likelihood (ML) estimator.

A solution to the problem with censoring at 0 was first introduced by Tobin (1958) as the censored regression model. This model can be expressed in terms of a latent variable. The structural equation in the Tobin model is:

$$y_i^* = x_i^{'} \beta + \varepsilon_i \qquad (3.5)$$

where ε_i is an independently distributed error term assumed to be normal with zero mean and variance σ^2. The dependent variable has both left and right censoring so that

$$y_i = \begin{cases} 0 & if\ y_i^* \leq 0 \\ y_i^* & if\ 0 < y_i^* < 0 \\ 100 & if\ 100 \leq y_i^* \end{cases} \qquad (3.6)$$

where 0 and 100 are the censoring points.

The parameter β and σ are estimated by maximising the log likelihood function

$$\ell_i(\beta, \sigma_u) = \sum_{i \ni y_i = 0} \log F\left(\frac{-x_i'\beta}{\sigma}\right) + \sum_{i \ni 0 < y_i < 100} \log f\left(\frac{(y_i - x_i'\beta)}{\sigma}\right) + \sum_{i \ni y_i = 100} \log(1 - F\left(\frac{(100 - x_i'\beta)}{\sigma}\right) \quad (3.7)$$

where f and F are the density and cumulative distribution functions, respectively. Denoting $\emptyset\left[\frac{-x_i'\beta}{\sigma}\right], \emptyset\left[\frac{(100-x_i'\beta)}{\sigma}\right]$, $\Phi\left[\frac{-x_i'\beta}{\sigma}\right]$, and $\Phi\left[\frac{(100-x_i'\beta)}{\sigma}\right]$ by the respective symbols $\phi_0, \phi_{100}, \Phi_0$, and Φ_{100}, the conditional prediction of y_i given x_i is

$$E(y_i | \, 0 \leq y_i^* \leq 100) = x_i'\beta + \sigma(\phi_0 - \phi_{100})/(\Phi_{100} - \Phi_0) \quad (3.8)$$

and the unconditional prediction of y_i is

$$E(y_i) = x_i'\beta\{\Phi_{100} - \Phi_0\} + \sigma\{\phi_0 - \phi_{100}\} + (1 - \Phi_{100})100 \quad (3.9)$$

Finally, quasi-maximum likelihood (QML) White standard errors are used to adjust for heteroscedasticity in this panel data.

Our test variables are the value of cash measures. To control for other determinants that prior literature suggests impact on payment choice, we include the *FF excess return*, 12-month excess buy and hold return benchmarked against the appropriate 5 × 5 Fama-French size and MB portfolio; CAR run-up, the abnormal return cumulated over the 250 to 5 days prior to the event date; NWC, non-cash net working capital deflated by assets; Leverage, the book value of short-term and long-term debt deflated by market equity; Relative size (deal value/ (bidder market capitalisation + deal value)); Acquirer size, the natural logarithm of acquirer's market capitalisation 42 days prior to the announcement; Defence, a dummy variable set to one if the target uses some techniques of takeover defence; Private, a dummy variable set to one if SDC indicates that the target is private; Subsidiary, a dummy variable set to one if SDC indicates that the target is subsidiary. Relatedness, a dummy variable set to one if the acquirer and target firms share the same 2-digit standard industrial classification (SIC). We also include the acquirer's industry and year fixed effect to control for omitted variables related to industry-level and economic-wide time-varying determinants of payment method.

3.4.5.2 Cross-sectional Regression

To draw the *ceteris paribus* conclusion, this section uses OLS regression to examine the impact of correct payment corresponding to the value of cash on the return to acquirers as well as to control for other variables that can affect the gain from acquisitions. Our baseline specification is as follows:

$$CAR_i = \alpha + \text{measure of correct payment} + \sum_{i=1}^{N} X_i + \varepsilon_i \qquad (3.10)$$

where CAR_i is the market-adjusted return for the (-2, +2) period surrounding an announcement. The vector of explanatory variables, X, includes Stock only, a dummy variable set to one if the acquirer pays by only stock; Cash only, a dummy variable set to one if the acquirer pays by only cash; CAR run-up, the abnormal return cumulated over the 250 to 5 days prior to the event date; Acquirer size, the natural logarithm of the acquirer's market capitalisation 42 days prior to the announcement; Leverage, the book value of short-term and long-term debt deflated by market equity; Relative size (deal value/ (bidder market capitalisation + deal value)); Tender offer, a dummy variable set to one if the SDC indicates that the deal is a tender offer; Defence, a dummy variable set to one if the target uses some techniques of takeover defence; Private, a dummy variable set to one if SDC indicates that the target is private; Subsidiary, a dummy variable set to one if SDC indicates that the target is subsidiary; Relatedness, a dummy variable set to one if acquirer and target firms share the same 2-digit SIC. The acquirer's industry and year fixed effect are also included.

To estimate the marginal value of cash and the gain from the takeover, we require two different sets of variables with different data frequency. We begin our sample construction by preparing two separate datasets before combining them at the final stage. The first dataset contains variables that are used in the marginal value of cash regression. The second is for estimating the abnormal returns of the acquirer. By doing this, we benefit from following the well-defined screening criteria in each discipline and having the ability to compare our sample with prior studies.

3.4.6 Sample construction and description

For the first dataset, we construct the sample that will be used to estimate the marginal value of cash holding by firms in the spirit of Faulkender and Wang (2006). The initial sample includes 161,243 firm-year observations of all US public firms over the period of 1990 to 2010. All relevant firm-specific financial and return data are from the CRSP/Compustat merged database. The monthly portfolio benchmark return and the 25 portfolios formed on size and the BE/ME breakpoint for calculating the benchmark return are from French's web page: (https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html).

All financial data are converted to real values in 2011 dollars using the consumer price index (CPI). The market value of equity is the number of shares (54) times the stock closing price at the fiscal-year end (199). Cash is defined as cash plus marketable securities (1). Net assets equals total assets (6) minus cash holdings. Earnings are calculated as earnings before extraordinary items (18) plus interest (15), deferred tax credits (50), and investment tax credits (51). Dividend is the common dividend paid (1). Leverage is defined as total debt (9+34) over the sum of total debt and the market value of equity. Net financing is total equity issuance (108) minus repurchases (115) plus debt issuance (111) minus debt redemption (114). R&D expense (46), which equals zero if missing, and the interest expense (15).

Following the screening criteria adopted in the corporate cash holding literature, we exclude 46,852 firm-year observations of financial firms (SIC codes between 6000 and 6999) and 4,720 firm-year observations of utility firms (SIC codes between 4900 and 4999) to make sure that the decision of holding cash in our sample is not because of the regulations. We also require the net assets, market value of equity and dividend to have a non-negative value. These requirements eliminate four firm-year observations. All variables used in Faulkender and Wang's (2006) regression are truncated at the 1% and 99% levels to minimise the effect of outliers. As a result, we retain 70,813 firm-year observations that present non-missing value in all required variables. Apart from using this dataset to obtain the coefficients for the marginal value of cash estimation, these 70,813 firm-year observations will be merged with the acquirer dataset to obtain the final set of samples.

For our second dataset, we collect the announcement date and deal-related information from Thomson Financial SDC Mergers Database (obtained through Thomson ONE). We are interested in majority domestic takeover transactions[40] proposed by US public firms between 1 January 1990 and 31 December 2010.[41] To ensure the significance of the transactions to acquiring firms, we put a few restrictions on the transaction value and size of target firms to acquirer. 36,555 observations that have a transaction value less than $10 million or have no value reported are removed. We also want to make sure that the control of assets is changed to the acquirer, so the acquirer has to own less than 50% of the target's share prior to the announcement and obtain more than 50% as a result of the transaction.[42] 21,985 observations are eliminated. More importantly, since the medium of payment information is critical for our analysis, 11,752 transactions without the medium of payment reported are removed. Lastly, we follow Pinkowitz et al. (2013) by keeping only the first completed bid of acquirers in each year to avoid the next payment decision that can be biased by the first payment decision, e.g. when managers pay cash in their first bid, they are unlikely to have cash available for their later bids in that year; 5,780 transactions are thus removed.

To obtain information essential for estimating the acquirer's abnormal return and performing the multiple regressions, we require each acquirer to have the return and financial data on the Center for Research in Securities Prices (CRSP)/Compustat merged database during the event windows. 8-digit CUSIPs and Ticker are used as the identifiers to merge 17,136 observations from SDC with the CRSP/Compustat database; 11,155 observations pass this requirement.

At the final stage, 70,814 firm-year observations of the first dataset will be merged with the 11,155 takeover observations to obtain the takeover-related data with the variables for estimating the value of cash in the fiscal-year prior to takeover announcement. Merging these two datasets yields a result of 5,973 observations.

In Table 3.1, we present the distribution of our sample across time and the method of payment. For all 5,036 deals, approximately 50% of them are entirely paid

[40]The transaction is reported as a completed deal and categorised by SDC as a majority takeover transaction, i.e., a merger, acquisition of majority interest, or acquisition of all assets.

[41]Netter et al. (2011) suggest that SDC has better coverage compared to Grimm database after the 1990s and the range of 1990 to 2010 covers several takeover waves.

[42]Criteria (4) and (5) are to ensure the control of asset change (see Netter et al., 2011).

by cash followed by mixed and stock payments which accounted for 1,450 deals (28.79%) and 974 deals (19.35%), respectively. Cash bids also dominate as the majority deal type in every single year throughout our sample. Interestingly, we find the proportion of cash bids in the second half of our sample is double the size of the figure in the first half – 67.82% from 2001 to 2010 compared to 39.89% from 1990 to 2000. Overall, the distribution of our sample is in line with Pinkowitz et al. (2013) in terms of the majority and growth of cash bid transactions.

Table 3.2 presents the descriptive statistics of all variables used in our analysis. In Panel A, we show the mean and median of variables used in Faulkender and Wang's (2006) specification across all firms, all acquirers and acquirers conditional on different payment methods. All variables except $r_{i,t} - R_{i,t}^{B}$ and L_t in this panel are deflated by the lagged market of equity. Despite the different time period, the descriptive statistics of our all firms sample are consistent with Faulkender and Wang (2006) in both sign and magnitude. Compared with the sample of all firms, we find the higher mean in almost all variables of our acquirer samples except the market leverage and previous year cash plus marketable securities. More specifically, stock bids exhibit the highest mean in excess return, increasing cash and market securities holding and R&D expenditure. Together with mixed bids, stock bids also show a higher increase in net asset, interest expense and net financing relative to deals that are paid by only cash.

In Panel B of Table 3.2, we present the mean and median of other firm and deal characteristics that are used in our normal firm's cash holding regression and other multivariate analysis. We find that the transaction value in stock and mixed payment deals are approximately four times greater than cash payment deals. Consistent with the transaction value, the relative size between the target and acquirer has the highest ratio in stock bids but lowest in cash bids deals. We also find the greatest proportion of diversified and hostile deals in deals that are entirely paid by stock. For the listed status of target firms, the public targets account for 41.64% in stock bids relative to 26.29% in cash bids. In contrast, 38.48% of subsidiary targets are paid by cash compared to only 9.13% paid by only stock.

Among others, acquirers who pay with only stock have the highest amount of cash holding, net working capital, MB ratio, capital expenditure, and sales growth

and particularly a far greater R&D expenditure. At the other extreme, cash bidders are the largest in size either measured by book value of asset or market capitalisation. They also have the highest level of cash flow, operate in the industries that have the most volatile cash flow and have the highest proportion of paying dividends in each firm year.

In Panel C, we present the univariate analysis of event period returns conditional on the methods of payment. To avoid the offset between the returns of acquirers from public and private deals, as suggested by a number of the extant literature, we also classify our sample using the public status of target firms. We find that, in public deals, the ACAR in only stock and mixed payment deals suffers a loss of 2.654% and 1.571%, respectively while enjoying a significant gain of 0.991% in cash deals. However, when acquirers pay private firms with their stock or mixed payment, the ACAR turns to significantly positive at 4.983%. and 3.310%, respectively. The ACAR received in the cash-financed acquisition is the lowest among others in private deals (1.489%).

3.5 Results

This section contains the results of our empirical predictions. Following Faulkender and Wang's (2006) method, Sections 3.5.1 to 3.5.3 present the marginal value of cash held by average firms, as posited in hypotheses H_1 and H_2. In Sections 3.5.4 and 3.5.5, we present the results of Tobit and OLS regression run over various proxies capturing an individual firm's value of cash.

3.5.1 Value of cash and payment method in acquisitions

In Table 3.3, we present the results of coefficients estimated from Faulkender and Wang's (2006) value regression in Panel A and the estimated marginal value of cash that firms hold in Panel B. Following Faulkender and Wang (2006), the marginal value of \$1can be estimated by using the coefficient corresponding to the change in cash holder (ΔC_t) and its interaction with the level of cash ($C_{t-1} * \Delta C_t$) and with leverage ($L_t * \Delta C_t$). Considering the sample of all firms in Model 1, the value of additional \$1 firms hold placed by their shareholders is \$1.876 given that

firms have no cash in hand and do debt in their capital structure.[43] Consistent with the theoretical viewpoint that shareholders will place a low value on additional cash if the firm pays out their cash as dividend or debt servicing, the coefficients of interaction terms are both negative and significant. We obtain the mean value of lagged cash (C_{t-1}) and leverage (L_t) from Table 3.2 as 0.1535 and 0.2716, respectively. With these impacts, the marginal value of cash to shareholders in the mean firm is \$1.352 (=\$1.876 + (-\$1.182*0.1535) + (-\$1.263*0.2716)).[44] We notice that the marginal value of \$1 estimated from all firms in our sample is slightly higher than those in the original paper of Faulkender and Wang (2006) – \$1.352 compared to \$0.94. This finding can be explained by the difference in the time period of our sample which is 1990 to 2010 while Faulkender and Wang (2006) studied US firms from 1971 to 2001.[45] Furthermore, the greater value of cash recently placed by shareholders is consistent with McLean (2011) who documents that the precautionary demand for cash increases over time.

To test our first hypothesis, *H_1: "Acquirers that have a higher marginal value of cash pay to target firm shareholders in stocks"*, we narrow our sample down to only firms that undertake an acquisition, and partition them into subsamples with their payment method. In Model 2, we find that the marginal value of \$1 held by all acquirers is \$1.257 which is very close to the estimation in Column 1. When considering the subsample conditional on payment method in Models 3 to 5, the marginal value of \$1 prior to the acquisitions paid with only stock commands the highest market value of \$2.161, while those who paid with only cash receive the lowest market value of \$0.788. The results confirm our empirical prediction that the value of cash prior to takeover should be higher in acquiring firms paid by stock so they can preserve their more valuable cash. The same intuition applies for acquirers with a lower value of cash to spend their cheap cash since they can fund their positive NPV projects with inexpensive financing sources in the future.

[43]Whilst 1.876 looks high on its own, it is comparable to the evidence provided by earlier studies. For example, Faulkender and Wang (2006) report the coefficient of ΔC_t ranging from 0.448 to 1.70 and Aktas (2019) documents as high as 1.997.

[44]We obtain the mean value of lagged cash (C_{t-1}) and leverage (L_t) from Table 2 as 0.1535 and 0.2716, respectively.

[45]In our untabulated results, we follow the same estimating method with the expanded sample of all firms from 1975 to 2001, and the estimated marginal value of \$1 is very close to \$1.

3.5.2 Value of cash and payment method in acquisitions of cash-rich firms

This section aims to shed light on the puzzle of why cash-rich firms prefer to pay by stock rather than cash as pointed out by Pinkowitz et al. (2013). Instead of looking at the excess level of cash, our study further examines how shareholders place value on those firms that hold far greater amounts of cash than their normal level. To our knowledge, there is no study that examines the value of cash held by cash-rich (CR) and non-cash-rich (NCR) firms. We argue that although cash-rich firms hoard a great amount of cash, managers might be reluctant to use it if the shareholders place very high market value on their liquidity.

We first use Opler et al.'s (1999) static trade-off model to identify which Compustat firms hold excess cash (Pinkowitz et al., 2013). Then, we identify the acquirers in our sample as CR (NCR) if they are those firms who are ranked in the top (bottom) third of this group. As presented in Tables 3.4 and 3.5, we estimate the market value of additional dollars held by acquiring firms as conditional on the payment method and cash-rich firm status. In both cash and stock bids, cash-rich firms command a higher marginal value of $1 over non-cash-rich firms – $1.940 versus $0.823 in cash bids and $2.868 versus $2.569 in stock bids. This finding is likely to support that holding cash is a value creating decision for acquirers, particularly those who pay by cash. We find support for our argument that cash-rich firms do not necessarily have to pay by cash because they have great amounts of cash. The marginal value of $1 held by cash-rich firms who pay by stock (2.868) is far greater than cash-rich firms who pay by cash (1.940) which implies that it is the value of cash not the level of cash that explains the decision to choose the payment method of cash-rich acquirers.

3.5.3 Value of cash and timing behaviour in payment method

Table 3.7 presents the marginal value of $1 held by acquirers during the three years prior to and three years after an announcement. With the expanded time period, we can examine the dynamic of cash value held by acquirers. More importantly, we can test Hypothesis H_2 regarding whether managers of acquiring firms exhibit the timing behaviour to exploit the cheaper, or avoid spending the costly cash according to their market value.

For cash bids, we find that the marginal value of $1 is consistently low at approximately $1.20 before temporarily dropping to $0.859 and $0.723 in the year before and the year of announcement, respectively. After that, the value of cash recovers and fluctuates at around $1.070 and $1.235. The value of cash in acquirers who pay by mixed method also has the same pattern as cash payment, where the marginal value of cash temporarily drops during the period of announcement. Their values in years t-3 and t+3 are also much higher than in the cash payment. For stock bids, the value of cash fluctuates throughout those years from $1.601 to $2.424. However, the highest value of cash ($2.424) is in year t-1.

Consistent with our predictions in hypothesis H_2, all empirical results lend support to the market timing behaviour of cash value. We find a temporary drop in cash value prior to cash acquisitions as well as a temporary rise in cash value in stock acquisitions.

3.5.4 Value of cash and the percentage of cash payment

Table 3.8 presents the results of Tobit regression. The dependent variable is the percentage cash financing in takeover deals which are in the range of 0 to 100. We use various proxies to capture the marginal value of cash held by acquiring firms prior to their announcements. Consistent with our empirical prediction, all of the coefficients are negative and statistically significant at 1%, except for the coefficient of Bond Ratings in Model 5 which is statistically significant at 10%. These results support our third hypothesis *H_3: "Acquirers who have high marginal value of cash holding are likely to use a lower percentage of cash in their payment"*.

In Models 1 and 2, the level of capital expenditure and R&D expenditure are used to proxy the acquirer's investment opportunities. Motivated by precautionary motives, firms with good investment opportunity sets should want to save their cash to invest in the future. However, an investment opportunity does not capture only the value of cash that firms hold. Extant literature also explains the preferences for stock payment in high investment opportunity firms with a high degree of discretion (Jung et al., 1996) and the less attraction towards tax shield advantage (Faccio and Masulis, 2005). From the risk viewpoint, the negative coefficient of cash flow volatility in Model 3 can be interpreted as firms with uncertain cash flow are less likely to be

involved with cash bids than firms with smooth cash flow. This finding is consistent with Bates et al. (2009) and Pinkowitz and Williamson (2007) who report the high level of cash and high marginal value of cash held by firms with riskier cash flow, respectively. Models 4 to 6 measure the value of cash by firm's financial constraint. Following the criterion of constrained used by Almeida et al. (2004) and Faulkender and Wang (2006), our results confirm that acquirers with high pay-out ratio, large size and have a bond rating are less likely to pay target firms by cash. Since it is difficult and more costly to constrained firms to obtain external finance, cash held by these firms should command higher value than firms that are able to fund all of their positive NPV projects.

Although our test variables in Models 1 to 6 are significant and lend support to hypothesis H_3 each of them is not a clean measure for the acquirer's marginal value of cash. They capture the value of cash in one certain dimension and also proxy for other determinants that may affect the decision of payment method. To overcome these drawbacks, we construct the value of cash index. The weights for each value of cash measure used in Models 1 to 6 are obtained by running the principal component analysis. Consistent with others, the negative and significant coefficient of value of the cash index in Model 7 confirms that acquirers who command a high marginal value of cash holding are less likely to use cash as the means of payment.

Turning to our control variables, we find negative and significant coefficients of relative size, relatedness of industry and run-up, as reported in Faccio and Masulis (2005). The difference between the size of acquiring and target firms reflects the intensity of Hansen's (1987) adverse selection problem. The relatively larger size of target firms can discourage payment with cash since the risk of overpayment is not shared by target firms. Acquiring target firms in different industries also face the risk of information asymmetry. Hence, acquirers are less likely to use cash when purchasing firms operate in different sectors. In addition, we find that overvalued stock dummy and run-up are significantly negatively correlated with the proportion of cash used as a method of payment. These findings support that overvalued acquirers are motivated to use their stock as cheap currency to secure payment. Martin (1996) also uses the run-up as the proxy for investment opportunity in his

study. He documents the inverse relationship between run-up and only cash payment. Overall, the coefficient estimates in our regression in this table are comparable to those of Faccio and Masulis (2005).

For the deal characteristics, the significant and negative coefficients in takeovers involving tender offers and hostile deals are consistent with Fishman's (1989) model where these deals are likely to be successful if acquirers offer cash payment. The unlisted status of firms also shows the positive impact on the proportion of cash payment. This is due to the nature of cash requirement by private firms and subsidiaries.

3.5.5 Value of cash, correct payment method, and acquirer returns

This section aims to examine whether acquirers who choose the correct takeover payment method corresponding to the marginal value of cash can create value to their shareholders. To define the correct payment method, we start by ranking the acquirers by our value of cash index. Acquirers in the top (bottom) 30th percentile are identified as acquirers who command a high (low) marginal value of cash: Hi VOC (Lo VOC) acquirers. In our analysis, according to our intuitive and initial empirical findings that managerial decisions to pay or preserve corporate cash are subject to their marginal value of cash, we classify the correct method of payment into four criteria: (1) Hi VOC acquirers pay with stock or mixed payment and Lo VOC acquirers pay with cash, (2) Hi VOC acquirers pay with stock and Lo VOC acquirers pay with cash, (3) Lo VOC acquirers pay with cash, and (4) Hi VOC acquirers pay with stock.

Before we analyse the M&A performances, we firstly validate our firm level's value of cash index obtained in the previous section. By following Faulkender and Wang (2006), we then estimate the marginal value of $1 held by Hi VOC and Lo VOC acquirers. As expected, our findings in Tables 3.9 and 3.10 confirm the validity of our value of cash index. Shareholders place greater value on additional cash for Hi VOC acquirers ($1.645) compared with Lo VOC acquirers ($1.147).

Panel A of Table 3.11 shows the univariate analysis on the 5-day acquirer cumulative abnormal returns (ACAR) conditional on our four criteria of the correct payment method. Since extant literature has widely documented the impact of target

firm listed status on ACAR, we also split our sample into public deals in Panel B and private deals in Panel C. For all deals, we cannot find evidence to support that correct methods of payment corresponding to the marginal value of cash can gain superior returns to incorrect ones. This can possibly be explained by the offset of ACAR from public and private deals. However, when putting the restriction on the listed status of target firms, we find that correct payments can outperform the rest under two conditions. First, in our third criteria, Lo VOC acquirers who pay with cash earn greater ACAR by 0.667% in public deals, although the difference is not statistically significant. Second, in our fourth criteria, Hi VOC acquirers who pay with stock to private targets gain significantly higher ACAR than the rest by 4.967%.

In Table 3.12, we present the results of OLS regression on acquirer's performance. In Model 1, the correct payment method is defined as acquirers with high value of cash use stock or mixed payment while acquirers with low value of cash pay by cash. To avoid the complication of mixed bids, we include only cash and stock bids in Models 2 to 4. The correct payment in Model 2 is similar to Model 1 without mixed payment. Model 3 defines the correct payment as acquirers with a low value of cash pay the takeover transaction with cash while Model 4 defines the same variable as acquirers with a high value of cash pay with stock.

Among others, the coefficient of correct payment is significant only in Model 3. The positive sign implies the association of the cash payment by acquirers with a low value of cash and gains from acquisitions. More specifically, acquirers who realise they have a low marginal value of cash and choose to pay with it can significantly earn more than those who pay with stock by 1.035%. This result is consistent with our hypothesis *H_4: "Acquirers who choose the correct payment method according to their marginal value of cash should gain more than acquirers who choose the incorrect method"*. However, we do not find evidence of value creation in acquirers with a high value of cash who choose to pay by stock.

Apart from the tested variables, our other control variables lend support to the previous studies. Consistent with Moeller et al. (2004), the size of acquirers is found to be negatively related to their announcement return. Large firms are prone to high agency costs and loose monitoring from lower ownership concentration (Demsetz and Lehn, 1985; Moeller et al., 2004). Moeller et al. (2004) also identify hubris as

one explanation for undertaking value destroying deals. Furthermore, we find that relative size of target to acquiring firms is positive and significant.

For industry relatedness, we find support for Morck et al. (1990) and Moeller and Schlingemann (2005) that diversified deals perform worse than intra-industry deals. The defensive of target firms is found to be associated with relatively lower acquirer returns (Servaes, 1991). Jennings and Mazzeo (1993) and Cotter and Zenner (1994) also find a higher bid premium received by target firms with managerial resistance. Consistent with Chang (1998), Draper and Paudyal (2006), Faccio et al. (2006) and Fuller et al. (2002), acquiring private firms and subsidiaries is associated with higher acquirer returns. In the same line as Jensen and Ruback (1983), the coefficient of tender offer is significant and has a positive sign.

3.6 Robustness test

3.6.1 Value of cash and payment method

Previously, we estimate Faulkender and Wang's (2006) marginal value of cash by partitioning acquirers into subsamples according to their different methods of payment. As the robustness check, we include $Only\ stock \times \Delta C_t$ in our specification and run the regression on the full sample. The positive and significant coefficient of this interaction term, reported in Table 3.13, implies the increasing in market value of additional cash held by acquirers who intended to finance their takeover transaction with only stock afterwards. Putting it another way, paying with stock can save their valuable cash and create value in the eyes of their shareholders.

As a complement to Faulkender and Wang's (2006) method, this section also estimates the marginal value of cash by following the specification of Pinkowitz and Williamson (2004). We follow the specification shown in equation (1) and report the results in Table 3.14.[46] After controlling for determinants that can affect the market value in the past and future, the coefficient of *cash/assets* measures the value of holding a dollar. We find support for our previous results as the acquirers who pay by stock command the highest value of cash ($5.820) prior to the announcements, while the acquirers who pay by cash have the lowest value of cash ($2.271) prior to the announcements.

[46]We also run the regression with 1-year leads and lags according to Pinkowitz and Williamson's (2007) specification, and the quality of the results remains unchanged.

We notice that the estimated value of one dollar using all the firms in our sample is far greater than the results presented in Pinkowitz and Williamson (2007) – \$2.535 versus \$0.94. We expect that the difference may be caused by the time period used in the estimation. While Pinkowitz and Williamson (2007) use 40 years (from 1965 - 2004) we use 20 years (1990 - 2010). This may imply that overall the value of cash is greater in the last few decades. This also helps explain the higher marginal value of cash in our study compared to the original in Faulkender and Wang's (2006) study.

3.6.2 Logistic regression for value of cash and the percentage of cash payment

Instead of using Tobit regression, our robustness test runs a logistic regression to examine the effect of value of cash on the choice of payment method. All variables in the specification are the same as in Table 3.10, except the dependent variable which takes the value of zero if the deal is completely financed with stock and one if financed completely with cash. The results in Table 3.15 are consistent with our previous findings. All values of cash variables are significant and negative. We interpret the results as the higher the value of cash at acquirers' command, the greater the likelihood of the payment being by stock. The coefficient of the value of cash index is -0.503. The estimate implies that the odds ratio of paying cash versus stock decreases by -11.42%.[47]

3.7 Conclusions

The key research questions of this chapter are: (1) whether bidder managers make decisions on payment method corresponding to the marginal value of cash they hold (2) and if so, by choosing the correct payment method, can these managers add value to their shareholders. From our overall results, there is evidence to support our predictions that acquirers preserve their cash and choose to pay their targets with stock. With the innovative approach introduced by Pinkowitz and Williamson (2004) and Faulkender and Wang (2006), we are able to estimate that a dollar of cash held by acquirers prior to their deal announcement is worth approximately \$1.257 in the eyes of their shareholders. This figure is statistically insignificant at \$1.352 for all

[47]The percentage change in the odds ratio is calculated as exp(coefficient x one standard deviation) – 1
One standard deviation of the value of cash variable is 0.241.

firms, including non-acquirers, in our sample. When we classify our sample using the method of payment, we find that an additional one dollar of cash holding in acquirers who pay with stock is worth economically substantially more than other payment methods. The marginal value of cash is $2.161 compared with $1.011 and $1.010 in cash and mixed payment acquisitions, respectively. This finding confirms our prediction that acquirers that have a higher marginal value of cash pay target firm shareholders in stocks. When we further split our sample into cash-rich and non-cash-rich firms using the statictrade-off model introduced by Opler et al. (1999). An additional dollar held by cash-rich acquirers who pay with cash is worth $1.940 more than our previous findings in cash acquisitions ($1.011). However, the value of cash is still less than the $2.868 reported for cash-rich acquirers who choose to pay with stocks. The results in this section not only support our previous findings but also shed light on the puzzle why cash-rich firms are less likely to make cash bids than stock bids (Pinkowitz et al., 2013). Collectively, our results suggest that bidder managers make decisions on payment method by taking the marginal value of cash they hold into consideration. These findings are in line with Gao and Mohamed (2018) who document the precautionary demand for cash in M&A deals.

We also examine the dynamic of marginal value of cash held by acquirers. If such a phenomenon exists, we should observe its variation prior to and after the year of takeover announcement. Managers should engage in cash acquisitions when the marginal value of cash is low and stock deals when the marginal value of cash is high. In addition, by following this approach, we can test our hypothesis on the marginal value of cash timing behaviour. As predicted, we find a temporary drop in cash value prior to cash acquisitions ($0.859, $0.723 and $1.235 in years t-1, t and t+1, respectively) as well as a temporary rise in cash value in the stock acquisitions ($2.424, $1.934 and $ 1.790) in years t-1, t and t+1, respectively). Our interpretation of this finding is that the value of cash timing behaviour of managers exists.

When using the Tobit regression to examine the relationship between the percentage of cash paid and the value of cash held by acquirers, all six measures proxied for the marginal value of cash held by individual acquirers are statistically significant. The negative sign indicates that the higher the value of the additional cash the acquirer holds, the lower the percentage of cash they will pay. Since the

measures used in this regression can only capture the value of cash in certain dimensions (e.g. growth opportunity, risk, financial constraint), to mitigate this limitation we use the principal analysis to obtain the marginal value of cash index. For the sake of validation, we estimate the marginal value of cash held by acquirers in each tercile ranked by our index. The estimate value is $1.646 in the top tercile (high value of cash index) and $1.148 in the bottom tercile (low value of cash index). When we apply the index into our multivariate analysis, the coefficient of this index remains negative and statistically significant at the 1% level. Our findings are robust when we use the logistic regression in which the dependent variable takes the value of zero if the deal is completely financed with stock, and one if financed completely with cash.

Finally, we examine whether acquirers who pay with the correct method corresponding to their marginal value of cash can add value for their shareholders. From our OLS regression, we find evidence to support our prediction in only one condition, which is that acquirers pay with cash when their value of cash holding is low. All other things being equal, acquirers who pay with the correct payment can significantly earn more than those who pay incorrectly, by 1.035%. Therefore, choosing the correct payment method corresponding to how shareholders place value on the cash firms hold can be a value creation decision.

Table 3.1
Payment Method Summary

This table presents the distribution of 5,036 bid years through time. We classify firm years as Cash bids (Stock bids) if all the considerations offered for acquisition bids within that year comprise cash (equity) components. Bids are classified as mixed if both equity and cash are offered in acquisition bids.

Year	Only Cash	Only Stock	Mixed Payment	Total	% cash
1990	40	24	35	99	40.40%
1991	45	34	37	116	38.79%
1992	65	41	64	170	38.24%
1993	80	68	67	215	37.21%
1994	104	89	73	266	39.10%
1995	113	113	90	316	35.76%
1996	139	91	100	330	42.12%
1997	147	114	108	369	39.84%
1998	128	112	105	345	37.10%
1999	135	85	83	303	44.55%
2000	111	56	76	243	45.68%
2001	132	29	81	242	54.55%
2002	147	19	78	244	60.25%
2003	173	21	68	262	66.03%
2004	191	15	79	285	67.02%
2005	216	18	80	314	68.79%
2006	201	7	68	276	72.83%
2007	160	11	57	228	70.18%
2008	109	16	51	176	61.93%
2009	156	9	48	213	73.24%
2010	20	2	2	24	83.33%
Total	2,612	974	1,450	5,036	51.87%

Table 3.2
Summary Statistics

This table provides summary statistics for the variables in our sample of firm-years from US-based publicly traded firms over the period of 1990 to 2010. Panel A presents the variables used in Faulkender and Wang's (2006) model. $r_{i,t}$ is the stock return for firm i during fiscal year t and $R_{i,t}^{B}$ is stock i's benchmark return at year t. A benchmark return is based on the 25 Fama and French portfolios formed on size and book-to-market. All variables except L_t and excess stock return are deflated by the lagged market value of equity ($M_{i.t-1}$). C_t is cash plus marketable securities, E_t is the earnings before extraordinary items plus interest, deferred tax credits, and investment tax credits, and NA_t is total assets minus cash holdings. I_t is interest expense, total dividends are measured as common dividends paid, L_t is market leverage, and NF_t is the total equity issuance minus repurchases plus debt issuance minus debt redemption. ΔX_t is the notation for the 1-year change, $X_t - X_{t-1}$.
In Panel B, the deal and firm-level control variables include *Deal Value*, the deal value reported by SDC; *Relative value* (deal value / (bidder market capitalisation + deal value)); *Hostile, Tender, Defensive*, *Friendly*, *Public*, *Private*, *Subsidiary* and *Relate* if the acquisition is reported by ThomsonOne SDC as being a hostile takeover, tender offer, using the defensive techniques, friendly, public firms, private firms, subsidiary and having the same 2-digit SIC code, respectively; *Cash*, the ratio of cash to net asset; *lnCash*, log Cash; *MB* (book value of equity + book value of asset)/net asset; *Size,* the natural logarithm of assets deflated to year 2011 dollars using the CPI; Capitalisation, market capitalisation 42 days prior to the announcement date; *Cash flow*, operating income before depreciation, interest and taxes divided by net assets; *NWC*, non-cash net working capital deflated by assets; *Leverage,* the book value of short-term and long-term debt deflated by market equity; *Sales growth,* the average annually compounded growth rate in sales over the five-year period prior to the year of takeover announcement; *Capex,* capital expenditure; *R&D,* the research and development expense. ***, ** and * indicate significance at the 1, 5 and 10% levels, respectively.

Variable	All Firms	Acquirers			
		All	Only Cash	Only Stock	Mixed
Panel A: FW's VOC Regression					
$r_{i,t} - R_{i,t}^{B}$	-0.0824	0.0420	0.0101	0.0955	0.0637
	[-0.1608]	[-0.0488]	[-0.0493]	[-0.0442]	[-0.0502]
ΔC_t	0.0003	0.0159	0.0150	0.0206	0.0144
	[-0.0003]	[0.0040]	[0.0038]	[0.0059]	[0.0037]
C_{t-1}	0.1535	0.1228	0.1159	0.1219	0.1360
	[0.0885]	[0.0710]	[0.0672]	[0.0753]	[0.0757]
ΔE_t	0.0077	0.0159	0.0155	0.0077	0.0223
	[0.0042]	[0.0097]	[0.0086]	[0.0093]	[0.0131]
ΔNA_t	0.0310	0.1009	0.0876	0.1136	0.1164
	[0.0192]	[0.0433]	[0.0354]	[0.0561]	[0.0528]
ΔRD_t	0.0001	0.0016	0.0009	0.0031	0.0018
	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]
ΔI_t	0.0000	0.0008	0.0002	0.0014	0.0014
	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]
ΔD_t	-0.0002	0.0002	0.0003	0.0001	0.0000
	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]
L_t	0.2716	0.2114	0.2143	0.1688	0.2350
	[0.1696]	[0.1390]	[0.1547]	[0.0655]	[0.1654]
NF_t	0.0581	0.0761	0.0655	0.0839	0.0900
	[0.0162]	[0.0257]	[0.0264]	[0.0225]	[0.0263]
Observations	70,826	5,036	2,612	975	1,449

Table 3.2 (Cont'd)
Summary Statistics

Variable	Acquirers			
	All	Only Cash	Only Stock	Mixed
Panel B: Deal and acquirer characteristics				
Deal value	529.9	287.7	815.6	774.1
	[67.0]	[70.0]	[61.0]	[66.2]
Relative Size	0.0006	0.0002	0.0016	0.0005
	[0.0001]	[0.0001]	[0.0001]	[0.0002]
Hostile	0.3773	0.3829	0.5128	0.2761
Tender	6.93	11.72	1.13	2.21
Related	18.07	13.78	29.23	18.29
Public	26.29	20.71	41.64	26.02
Private	44.98	40.08	49.03	51.07
Subsidiary	28.16	38.48	9.13	22.36
Cash	0.5613	0.5552	0.7466	0.4478
	[0.1163]	[0.0928]	[0.2156]	[0.1156]
lnCash	-2.2864	-2.4641	-1.7797	-2.3068
	[-2.1514]	[-2.3772]	[-1.5342]	[-2.1578]
Market-to-Book	4.0100	3.2565	6.3357	3.8033
	[2.1499]	[2.0256]	[3.1942]	[2.0317]
Size	6.6580	7.1552	6.1266	6.1191
	[6.5359]	[7.0255]	[5.9830]	[6.0353]
Market Cap	6214.5	7725.3	6374.6	3378.8
	[743.0]	[1085.0]	[638.3]	[410.5]
Cash flow	0.0609	0.1093	-0.0253	0.0317
	[0.1012]	[0.1052]	[0.1086]	[0.0894]
NWC	0.3868	0.3719	0.4390	0.3783
	[0.3724]	[0.3570]	[0.4410]	[0.3575]
R&D	0.3721	0.0570	1.5257	0.1641
	[0.0044]	[0.0051]	[0.0293]	[0.0000]
Leverage	0.2383	0.2314	0.2195	0.2635
	[0.1959]	[0.2059]	[0.1511]	[0.2135]
Capex	0.0763	0.0655	0.0980	0.0813
	[0.0520]	[0.0456]	[0.0694]	[0.0541]
Sales Growth	1.3246	0.8458	1.7399	1.9080
	[0.3528]	[0.3391]	[0.4380]	[0.3391]
Dividend Dummy	0.3485	0.4345	0.2656	0.2491
Panel C: CAR (-2, +2)				
All	1.653***	1.386***	1.806***	2.208***
Public deals	-0.868***	0.991***	-2.654***	-1.571***
Private deals	2.553***	1.489***	4.983***	3.310***

Table 3.3
Regression Results for All firms and All Acquirers

This table shows the results of the excess stock return regressions on changes in firm characteristics modified from Faulkender and Wang's (2006) model. The dependent variable is the excess stock return, where $r_{i,t}$ is the stock return for firm i during fiscal year t and $R_{i,t}^{B}$ is stock i's benchmark return at year t. A benchmark return is the 25 Fama and French portfolios formed on size and book-to-market. All variables except L_t and excess stock return are deflated by the lagged market value of equity ($M_{i.t-1}$). C_t is cash plus marketable securities, $E_t$is the earnings before extraordinary items plus interest, deferred tax credits, and investment tax credits, and NA_t is total assets minus cash holdings. I_t is interest expense, total dividends are measured as common dividends paid, L_t is market leverage, and NF_t is the total equity issuance minus repurchases plus debt issuance minus debt redemption. ΔX_t is the notation for the 1-year change, $X_t - X_{t-1}$. White heteroscedastic-consistent standard errors are in parentheses. ***, ** and * indicate significance at the 1, 5 and 10% levels, respectively.

Model	(1)	(2)	(3)	(4)	(5)
Variable	All Firms	Acquirer			
		All	Only Cash	Only Stock	Mixed
Panel A					
ΔC_t	1.876***	1.760***	0.991***	3.132***	1.646***
	(0.0531)	(0.195)	(0.227)	(0.467)	(0.355)
ΔE_t	0.551***	0.643***	0.952***	0.429*	0.478***
	(0.0178)	(0.0995)	(0.172)	(0.252)	(0.135)
ΔNA_t	0.255***	0.237***	0.161**	0.325***	0.277***
	(0.011)	(0.049)	(0.076)	(0.099)	(0.088)
ΔRD_t	0.622***	0.650	0.035	-0.367	1.887
	(0.159)	(0.917)	(1.302)	(1.613)	(1.476)
ΔI_t	-3.074***	-3.214***	-3.385**	-1.363	-3.693**
	(0.176)	(0.975)	(1.585)	(1.991)	(1.489)
ΔD_t	0.598*	0.023	-1.865	7.057	0.577
	(0.322)	(1.558)	(2.311)	(5.347)	(2.098)
C_{t-1}	0.307***	0.441***	0.510***	0.449***	0.373***
	(0.015)	(0.068)	(0.092)	(0.165)	(0.113)
L_t	-0.250***	-0.283***	-0.160***	-0.594***	-0.320***
	(0.007)	(0.033)	(0.040)	(0.095)	(0.060)
NF_t	0.076***	0.257***	0.239*	0.231	0.270*
	(0.021)	(0.089)	(0.126)	(0.243)	(0.145)
$C_{t-1} \times \Delta C_t$	-1.182***	-0.507	0.145	-2.529**	-0.046
	(0.100)	(0.446)	(0.511)	(1.219)	(0.984)
$L_t \times \Delta C_t$	-1.263***	-2.378***	-0.949*	-3.925***	-2.706***
	(0.083)	(0.400)	(0.489)	(0.969)	(0.724)
Intercept	-0.088***	-0.030**	-0.070***	0.019	0.001
	(0.004)	(0.013)	(0.017)	(0.032)	(0.027)
Observations	70,826	5,036	2,612	975	1,449
R-squared	0.134	0.137	0.129	0.199	0.139
F	549.9	31.36	11.43	12.55	11.09
Panel B					
Marginal Value of $1	1.352	1.257	0.788	2.161	1.010

Table 3.4
Summary Statistics for Cash-rich and Non-Cash-rich Acquirers

This table provides summary statistics across the cash-rich and non-cash-rich acquirers over the period of 1990 to 2010. The first number corresponds to the mean and the medians are in brackets. $r_{i,t}$ is the stock return for firm i during fiscal year t and $R^B_{i,t}$ is stock i's benchmark return at year t. A benchmark return is the 25 Fama and French portfolios formed on size and book-to-market. All variables except L_t and excess stock return are deflated by the lagged market value of equity ($M_{i.t-1}$). C_t is cash plus marketable securities, E_t is the earnings before extraordinary items plus interest, deferred tax credits, and investment tax credits, and NA_t is total assets minus cash holdings. I_t is interest expense, total dividends are measured as common dividends paid, L_t is market leverage, and NF_t is the total equity issuance minus repurchases plus debt issuance minus debt redemption. ΔX_t is the notation for the 1-year change, $X_t - X_{t-1}$.

Variables	Only Cash		Only Stock		Mixed	
	CR	NCR	CR	NCR	CR	NCR
$r_{i,t} - R^B_{i,t}$	0.0461	-0.0077	0.0045	0.0560	0.1421	0.0143
	[-0.0282]	[-0.0426]	[-0.2191]	[-0.0427]	[-0.0268]	[-0.0591]
ΔC_t	-0.0180	0.0301	-0.0262	0.0364	-0.0238	0.0371
	[-0.0022]	[0.0127]	[-0.0065]	[0.0163]	[-0.0043]	[0.0141]
ΔE_t	0.0484	0.1375	0.0960	0.1254	0.0821	0.1591
	[0.0172]	[0.0891]	[0.0496]	[0.0846]	[0.0300]	[0.0915]
ΔNA_t	0.0245	0.0124	-0.0282	0.0112	0.0329	0.0176
	[0.0143]	[0.0067]	[-0.0120]	[0.0099]	[0.0210]	[0.0116]
ΔRD_t	0.1335	0.0648	0.0801	0.1189	0.1727	0.1005
	[0.0826]	[0.0262]	[0.0463]	[0.0551]	[0.0867]	[0.0432]
ΔI_t	0.0002	0.0012	-0.0015	0.0044	0.0008	0.0026
	[0.0000]	[0.0000]	[0.0000]	[0.0005]	[0.0000]	[0.0000]
ΔD_t	0.0023	-0.0001	0.0030	0.0013	0.0016	0.0018
	[0.0000]	[0.0000]	[0.0002]	[0.0000]	[0.0005]	[0.0000]
C_{t-1}	0.0003	0.0004	0.0007	0.0001	-0.0002	0.0003
	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]
L_t	0.3051	0.1844	0.2913	0.1482	0.2891	0.2111
	[0.2704]	[0.1207]	[0.2241]	[0.0614]	[0.2235]	[0.1542]
NF_t	0.0871	0.0618	0.0937	0.0806	0.1022	0.0874
	[0.0230]	[0.0301]	[0.0374]	[0.0271]	[0.0254]	[0.0279]
Observations	329	1369	118	530	265	533

Table 3.5
Regression Results for Cash-rich and Non-Cash-rich Acquirers

This table shows the results for the excess stock return regressions on changes in firm characteristics modified from Faulkender and Wang's (2006) model across the groups of cash-rich and non-cash-rich, and conditional on the methods of payment. The dependent variable is the excess stock return, where $r_{i,t}$ is the stock return for firm i during fiscal year t and $R^B_{i,t}$ is stock i's benchmark return at year t. A benchmark return is the 25 Fama and French portfolios formed on size and book-to-market. All variables except L_t and excess stock return are deflated by the lagged market value of equity ($M_{i.t-1}$). C_t is cash plus marketable securities, E_t is the earnings before extraordinary items plus interest, deferred tax credits, and investment tax credits, and NA_t is total assets minus cash holdings. I_t is interest expense, total dividends are measured as common dividends paid, L_t is market leverage, and NF_t is the total equity issuance minus repurchases plus debt issuance minus debt redemption. ΔX_t is the notation for the 1-year change, $X_t - X_{t-1}$. White heteroscedastic-consistent standard errors are in parentheses. ***, ** and * indicate significance at the 1, 5 and 10% levels, respectively.

Independent Variables	(1)	(2)	(3)	(4)	(5)	(6)
	Only Cash		Only Stock		Mixed	
	CR	NCR	CR	NCR	CR	NCR
ΔC_t	1.943*	1.044***	6.952***	2.921***	1.868**	1.508***
	(1.186)	(0.257)	(2.207)	(0.529)	(0.923)	(0.484)
ΔE_t	0.668	0.832***	-0.323	0.334	0.630**	0.250
	(0.416)	(0.269)	(0.456)	(0.342)	(0.275)	(0.234)
ΔNA_t	-0.135	0.189***	0.530***	0.325**	0.170	0.148
	(0.183)	(0.0732)	(0.187)	(0.150)	(0.189)	(0.118)
ΔRD_t	-8.509**	0.990	-8.706***	-0.819	8.172	2.802
	(3.982)	(1.586)	(2.104)	(2.764)	(7.815)	(2.451)
ΔI_t	1.462	-6.694***	7.293*	-3.801**	-3.535	1.894
	(3.220)	(2.336)	(3.791)	(1.776)	(3.174)	(2.640)
ΔD_t	5.979	-0.228	12.690	1.121	8.730*	-6.683
	(5.115)	(4.307)	(12.220)	(5.376)	(5.187)	(4.916)
C_{t-1}	1.494***	0.594***	-1.013*	0.752***	1.473**	0.349**
	(0.542)	(0.121)	(0.609)	(0.253)	(0.687)	(0.148)
L_t	-0.370***	-0.118**	-1.058***	-0.473***	-0.698***	-0.269***
	(0.119)	(0.057)	(0.277)	(0.123)	(0.153)	(0.082)
NF_t	0.520	0.129	-0.263	-0.265	0.762***	0.147
	(0.352)	(0.157)	(0.368)	(0.347)	(0.287)	(0.267)
$C_{t-1} \times \Delta C_t$	-5.196	0.444	-18.690***	-1.747	4.419	0.736
	(4.205)	(0.711)	(6.160)	(1.871)	(2.796)	(1.042)
$L_t \times \Delta C_t$	2.286	-1.199**	-7.861**	-2.377**	-4.061*	-3.081**
	(2.857)	(0.564)	(3.729)	(1.098)	(2.348)	(1.224)
Intercept	0.066	-0.125***	0.310***	-0.078*	0.145*	-0.066*
	(0.061)	(0.022)	(0.112)	(0.041)	(0.082)	(0.035)
Observations	329	1,369	118	530	265	533
R-squared	0.123	0.143	0.327	0.176	0.197	0.148
F	6.213	7.327	5.780	7.404	5.907	3.490
Panel B Marginal Value of $1	1.940	0.823	2.868	2.569	0.694	0.858

Table 3.6
Summary Statistics for the Acquirers Prior to and After the Year of Announcement

This table provides summary statistics of the acquirers three years prior to and three years after the year of announcement (t). The first number corresponds to the mean and the medians are in brackets. $r_{i,t}$ is the stock return for firm i during fiscal year t and $R_{i,t}^{B}$ is stock i's benchmark return at year t. A benchmark return is the 25 Fama and French portfolios formed on size and book-to-market. All variables except L_t and excess stock return are deflated by the lagged market value of equity ($M_{i,t-1}$). C_t is cash plus marketable securities, E_t is the earnings before extraordinary items plus interest, deferred tax credits, and investment tax credits, and NA_t is total assets minus cash holdings. I_t is interest expense, total dividends are measured as common dividends paid, L_t is market leverage, and NF_t is the total equity issuance minus repurchases plus debt issuance minus debt redemption. ΔX_t is the notation for the 1-year change, $X_t - X_{t-1}$.

	t-3	t-2	t-1	t	t+1	t+2	t+3
Panel A: Only Cash							
$r_{i,t} - R_{i,t}^{B}$	0.0170	0.0050	0.0201	-0.0438	-0.1188	-0.1019	-0.1102
	[-0.0570]	[-0.0604]	[-0.0426]	[-0.0862]	[-0.1446]	[-0.1313]	[-0.1233]
ΔC_t	0.0096	0.0107	0.0141	-0.0111	0.0027	0.0061	0.0085
	[0.0027]	[0.0033]	[0.0038]	[-0.0021]	[0.0012]	[0.0028]	[0.0027]
C_{t-1}	0.1107	0.1105	0.1168	0.1208	0.1042	0.1073	0.1156
	[0.0645]	[0.0646]	[0.0681]	[0.0695]	[0.0571]	[0.0569]	[0.0660]
ΔE_t	0.0157	0.0149	0.0163	0.0024	0.0047	0.0025	0.0099
	[0.0082]	[0.0087]	[0.0085]	[0.0055]	[0.0076]	[0.0049]	[0.0062]
ΔNA_t	0.0921	0.0904	0.0807	0.2120	0.0864	0.0322	0.0279
	[0.0372]	[0.0348]	[0.0331]	[0.1145]	[0.0334]	[0.0161]	[0.0115]
ΔRD_t	0.0013	0.0008	0.0008	0.0026	0.0004	0.0005	-0.0002
	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]
ΔI_t	0.0010	0.0008	0.0002	0.0029	0.0054	0.0014	0.0006
	[0.0000]	[0.0000]	[0.0000]	[0.0002]	[0.0009]	[0.0000]	[0.0000]
ΔD_t	0.0001	0.0005	0.0003	0.0003	0.0002	0.0001	-0.0001
	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]
L_t	0.2368	0.2334	0.2177	0.2668	0.2876	0.2927	0.2910
	[0.1640]	[0.1682]	[0.1556]	[0.2074]	[0.2255]	[0.2265]	[0.2351]
NF_t	0.0611	0.0618	0.0594	0.1253	0.0718	0.0538	0.0498
	[0.0226]	[0.0245]	[0.0253]	[0.0568]	[0.0293]	[0.0243]	[0.0201]
	1,681	1,828	2,004	2,132	2,099	1,835	1,585

Table 3.6 (Cont'd)
Summary Statistics for the Acquirers Prior to and After the Year of Announcement

	t-3	t-2	t-1	t	t+1	t+2	t+3
Panel B: Only Stock							
$r_{i,t} - R^B_{i,t}$	-0.0004	0.1122	0.1043	-0.0492	-0.1875	-0.1300	-0.0593
	[-0.0808]	[-0.0002]	[-0.0390]	[-0.1637]	[-0.2856]	[-0.2118]	[-0.1666]
ΔC_t	0.0156	0.0141	0.0218	0.0218	0.0035	0.0018	0.0076
	[0.0015]	[0.0044]	[0.0058]	[0.0072]	[-0.0002]	[-0.0004]	[-0.0002]
C_{t-1}	0.1251	0.1232	0.1197	0.1058	0.1115	0.1341	0.1554
	[0.0834]	[0.0785]	[0.0766]	[0.0681]	[0.0703]	[0.0848]	[0.0923]
ΔE_t	0.0072	0.0188	0.0078	-0.0039	-0.0047	0.0195	0.0281
	[0.0074]	[0.0109]	[0.0087]	[0.0050]	[0.0035]	[0.0050]	[0.0102]
ΔNA_t	0.0897	0.1208	0.0967	0.1881	0.1041	0.0259	0.0022
	[0.0441]	[0.0523]	[0.0528]	[0.0843]	[0.0450]	[0.0193]	[0.0159]
ΔRD_t	0.0051	0.0031	0.0028	0.0065	0.0022	-0.0020	-0.0017
	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]
ΔI_t	0.0003	0.0015	0.0006	0.0029	0.0030	0.0018	0.0009
	[0.0000]	[0.0000]	[0.0000]	[0.0001]	[0.0000]	[0.0000]	[0.0000]
ΔD_t	0.0002	0.0001	0.0001	0.0003	0.0001	0.0001	-0.0001
	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]
L_t	0.1894	0.1827	0.1699	0.1521	0.1789	0.1865	0.1830
	[0.1011]	[0.0744]	[0.0599]	[0.0654]	[0.0764]	[0.0957]	[0.0929]
NF_t	0.0745	0.0774	0.0760	0.0599	0.0605	0.0529	0.0553
	[0.0161]	[0.0219]	[0.0191]	[0.0162]	[0.0174]	[0.0219]	[0.0221]
	544	645	753	811	856	769	670

Table 3.6 (Cont'd)
Summary Statistics for the Acquirers Prior to and After the Year of Announcement

	t-3	t-2	t-1	t	t+1	t+2	t+3
Panel C: Mixed							
$r_{i,t} - R^B_{i,t}$	0.0804	0.0377	0.0602	-0.0105	-0.1369	-0.1250	-0.0872
	[-0.0549]	[-0.0755]	[-0.0558]	[-0.0917]	[-0.1997]	[-0.1941]	[-0.1621]
ΔC_t	0.0121	0.0151	0.0116	-0.0035	0.0004	-0.0046	0.0060
	[0.0012]	[0.0015]	[0.0039]	[-0.0008]	[-0.0002]	[-0.0002]	[0.0015]
C_{t-1}	0.1385	0.1369	0.1412	0.1367	0.1187	0.1279	0.1313
	[0.0776]	[0.0783]	[0.0801]	[0.0813]	[0.0702]	[0.0741]	[0.0713]
ΔE_t	0.0262	0.0131	0.0216	0.0075	-0.0019	0.0227	0.0174
	[0.0105]	[0.0096]	[0.0130]	[0.0071]	[0.0090]	[0.0092]	[0.0083]
ΔNA_t	0.0706	0.0945	0.1125	0.3083	0.1283	0.0332	0.0207
	[0.0420]	[0.0397]	[0.0480]	[0.1792]	[0.0486]	[0.0158]	[0.0139]
ΔRD_t	0.0001	0.0007	0.0018	0.0036	0.0008	-0.0017	0.0000
	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]
ΔI_t	-0.0002	0.0015	0.0013	0.0047	0.0087	0.0035	0.0018
	[0.0000]	[0.0000]	[0.0000]	[0.0004]	[0.0012]	[0.0000]	[0.0000]
ΔD_t	0.0001	-0.0002	0.0001	0.0002	0.0002	0.0002	0.0000
	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]	[0.0000]
L_t	0.2438	0.2467	0.2302	0.2719	0.2973	0.3212	0.3053
	[0.1466]	[0.1515]	[0.1436]	[0.2010]	[0.2270]	[0.2564]	[0.2300]
NF_t	0.0784	0.0829	0.0862	0.1320	0.0904	0.0683	0.0584
	[0.0255]	[0.0253]	[0.0233]	[0.0482]	[0.0269]	[0.0198]	[0.0252]
	858	982	1,164	1,231	1,252	1,145	970

Table 3.7
Regression Results for the Acquirers Prior to and After the Year of Announcement

This table shows the results for the excess stock return regressions on changes in firm characteristics modified from Faulkender and Wang's (2006) model. The dependent variable is the excess stock return, where $r_{i,t}$ is the stock return for firm i during fiscal year t and $R_{i,t}^{B}$ is stock i's benchmark return at year t. A benchmark return is the 25 Fama and French portfolios formed on size and book-to-market. All variables except L_t and excess stock return are deflated by the lagged market value of equity ($M_{i.t-1}$). C_t is cash plus marketable securities, $E_t$is the earnings before extraordinary items plus interest, deferred tax credits, and investment tax credits, and NA_t is total assets minus cash holdings. I_t is interest expense, total dividends are measured as common dividends paid, L_t is market leverage, and NF_t is the total equity issuance minus repurchases plus debt issuance minus debt redemption. ΔX_t is the notation for the 1-year change, $X_t - X_{t-1}$. White heteroscedastic-consistent standard errors are in parentheses. ***, ** and * indicate significance at the 1, 5 and 10% levels, respectively.

Independent Variables	(1) t = -3	(2) t = -2	(3) t = -1	(4) t = 0	(5) t = +1	(6) t = +2	(7) t = +3
Panel A: Only Cash							
ΔC_t	1.786***	1.479***	1.086***	0.928***	1.739***	1.792***	1.538***
	(0.330)	(0.292)	(0.271)	(0.249)	(0.370)	(0.430)	(0.355)
ΔE_t	1.148***	0.570***	0.870***	0.413***	0.444***	0.454***	0.370***
	(0.198)	(0.164)	(0.177)	(0.116)	(0.105)	(0.113)	(0.100)
ΔNA_t	0.228***	0.230***	0.137	0.156***	0.177***	0.096*	0.111**
	(0.066)	(0.054)	(0.091)	(0.057)	(0.049)	(0.058)	(0.053)
ΔRD_t	0.247	-1.477	0.645	-0.796	0.735	-0.021	-1.052
	(2.231)	(1.470)	(1.537)	(1.036)	(0.810)	(1.779)	(1.159)
ΔI_t	-2.956*	-3.598***	-2.310	-1.903	0.465	-1.338	-1.938
	(1.571)	(1.199)	(1.639)	(1.402)	(0.778)	(1.109)	(1.370)
ΔD_t	-1.064	3.097	-2.268	0.185	0.087	0.464	2.799
	(2.394)	(3.253)	(2.567)	(1.310)	(2.380)	(2.145)	(2.450)
C_{t-1}	0.449***	0.418***	0.502***	0.457***	0.197*	0.287**	0.310***
	(0.096)	(0.114)	(0.100)	(0.133)	(0.111)	(0.138)	(0.106)
L_t	-0.243***	-0.176***	-0.144***	-0.360***	-0.382***	-0.279***	-0.207***
	(0.052)	(0.046)	(0.046)	(0.041)	(0.042)	(0.041)	(0.045)
NF_t	-0.095	0.014	0.244	0.265***	-0.130	0.037	-0.095
	(0.127)	(0.105)	(0.152)	(0.099)	(0.091)	(0.110)	(0.103)
$C_{t-1} \times \Delta C_t$	-1.072	-2.158**	-0.387	-0.103	-1.998*	-1.739**	-0.313
	(0.891)	(0.901)	(0.621)	(0.722)	(1.129)	(0.854)	(0.578)
$L_t \times \Delta C_t$	-2.365***	-0.703	-1.070*	-0.768*	-1.027*	-0.744	-1.607**
	(0.712)	(0.659)	(0.575)	(0.461)	(0.550)	(0.662)	(0.703)
Intercept	-0.024	-0.039**	-0.060***	-0.055***	-0.051***	-0.070***	-0.099***
	(0.020)	(0.019)	(0.019)	(0.019)	(0.019)	(0.021)	(0.021)
Observations	1,681	1,855	2,004	2,132	2,099	1,835	1,585
R-squared	0.134	0.118	0.120	0.109	0.119	0.098	0.098
F	10.30	11.19	8.791	15.27	20.76	11.95	12.16
Panel B							
Marginal Value of $1	1.226	1.241	0.859	0.723	1.235	1.605	1.070

Table 3.7 (Cont'd)
Regression Results for the Acquirers Prior to and After the Year of Announcement

Independent Variables	(1) t = -3	(2) t = -2	(3) t = -1	(4) t = 0	(5) t = +1	(6) t = +2	(7) t = +3
Panel B: Only Stock							
ΔC_t	2.476***	2.021***	3.740***	1.934***	2.491***	2.334***	2.249***
	(0.481)	(0.560)	(0.583)	(0.638)	(0.480)	(0.497)	(0.492)
ΔE_t	0.606***	0.748***	0.245	0.805***	0.442***	0.199	0.546***
	(0.227)	(0.196)	(0.278)	(0.256)	(0.117)	(0.126)	(0.134)
ΔNA_t	0.236*	0.424***	0.378***	0.294**	0.184***	0.243**	0.331***
	(0.120)	(0.101)	(0.109)	(0.122)	(0.061)	(0.096)	(0.105)
ΔRD_t	2.427	2.655**	-1.774	1.229	-1.291	0.292	1.352
	(1.560)	(1.260)	(1.802)	(1.775)	(0.812)	(1.030)	(1.406)
ΔI_t	-3.194*	-4.925**	-1.014	-1.109	-3.180**	-1.569	-2.461
	(1.818)	(1.918)	(2.239)	(2.101)	(1.377)	(2.494)	(2.167)
ΔD_t	5.234**	4.994	-3.256	-6.390	-7.455	-1.739	-5.177
	(2.289)	(3.493)	(8.872)	(4.695)	(5.318)	(6.923)	(5.386)
C_{t-1}	0.803***	0.621***	0.447**	0.609**	0.910***	0.868***	0.565***
	(0.282)	(0.213)	(0.200)	(0.262)	(0.208)	(0.201)	(0.168)
L_t	-0.268***	-0.480***	-0.642***	-0.502***	-0.441***	-0.335***	-0.331***
	(0.010)	(0.096)	(0.114)	(0.104)	(0.074)	(0.075)	(0.091)
NF_t	-0.437**	-0.054	0.010	0.396	0.320*	0.255	0.474*
	(0.213)	(0.176)	(0.314)	(0.388)	(0.179)	(0.216)	(0.263)
$C_{t-1} \times \Delta C_t$	-2.583*	-3.168	-3.598*	-2.335	-0.225	-0.118	-0.966
	(1.485)	(2.006)	(1.924)	(1.908)	(1.043)	(1.082)	(0.595)
$L_t \times \Delta C_t$	-1.400	-2.298**	-5.209***	-1.205	-3.920***	-0.994	-1.396
	(1.279)	(0.944)	(1.277)	(1.257)	(0.912)	(0.813)	(1.160)
Intercept	-0.102**	0.007	0.040	-0.158***	-0.242***	-0.211***	-0.146***
	(0.042)	(0.039)	(0.039)	(0.036)	(0.031)	(0.034)	(0.034)
Observations	544	661	753	811	856	769	670
R-squared	0.183	0.185	0.231	0.150	0.203	0.190	0.233
F	6.681	11.46	11.32	8.148	14.39	10.31	11.02
Panel B Marginal Value of $1	2.153	1.601	2.424	1.934	1.790	2.334	2.249

Table 3.7 (Cont'd)
Regression Results for the Acquirers Prior to and After the Year of Announcement

Independent Variables	(1) t = -3	(2) t = -2	(3) t = -1	(4) t = 0	(5) t = +1	(6) t = +2	(7) t = +3
Panel C: Mixed							
ΔC_t	2.043***	2.229***	1.598***	1.252***	1.990***	2.116***	1.764***
	(0.411)	(0.376)	(0.404)	(0.329)	(0.348)	(0.537)	(0.573)
ΔE_t	0.656***	1.061***	0.369***	0.814***	0.693***	0.413***	0.383***
	(0.178)	(0.269)	(0.123)	(0.168)	(0.121)	(0.105)	(0.123)
ΔNA_t	0.326***	0.341**	0.271***	0.143***	0.0829	0.148***	0.215***
	(0.108)	(0.135)	(0.093)	(0.049)	(0.052)	(0.047)	(0.069)
ΔRD_t	-0.302	3.180*	0.975	-1.202	-1.038	-0.188	0.884
	(1.277)	(1.832)	(1.519)	(1.058)	(0.829)	(1.004)	(1.344)
ΔI_t	-4.137**	-2.228	-3.533**	-0.934	2.770*	-2.747**	-2.944**
	(1.672)	(1.904)	(1.735)	(1.420)	(1.560)	(1.295)	(1.490)
ΔD_t	-3.842	-4.304*	-0.878	2.415	4.120	8.058**	0.040
	(3.412)	(2.451)	(2.618)	(2.086)	(2.659)	(3.384)	(3.531)
C_{t-1}	0.710***	0.694***	0.390***	0.529***	0.299**	0.150	0.632***
	(0.182)	(0.176)	(0.133)	(0.174)	(0.137)	(0.136)	(0.172)
L_t	-0.336***	-0.244***	-0.302***	-0.584***	-0.434***	-0.334***	-0.265***
	(0.076)	(0.068)	(0.069)	(0.070)	(0.072)	(0.061)	(0.062)
NF_t	-0.271	0.064	0.284*	0.432***	0.043	0.146	0.002
	(0.216)	(0.196)	(0.169)	(0.132)	(0.122)	(0.111)	(0.203)
$C_{t-1} \times \Delta C_t$	-0.072	-0.162	0.700	0.030	-1.032	-1.631	-2.119
	(1.447)	(1.180)	(1.172)	(0.831)	(0.664)	(1.277)	(1.301)
$L_t \times \Delta C_t$	-1.023	-2.262***	-3.253***	-1.571**	-1.921***	-1.824**	-1.139
	(0.990)	(0.795)	(0.815)	(0.612)	(0.628)	(0.754)	(1.056)
Intercept	0.020	-0.073**	-0.002	-0.022	-0.091***	-0.059*	-0.112***
	(0.040)	(0.035)	(0.030)	(0.033)	(0.030)	(0.034)	(0.033)
Observations	858	955	1,164	1,231	1,252	1,145	970
R-squared	0.189	0.219	0.133	0.168	0.174	0.135	0.152
F	10.58	14.29	8.264	12.29	16.66	14.38	13.38
Panel B Marginal Value of $1	2.043	1.671	0.849	0.825	1.419	1.530	1.764

Table 3.8
Tobit Regression Results of Determinants of Method of Payment

This table presents the results of Tobit regression of the percentage of cash paid by acquirers. The dependent variable is the percentage of cash that is in the interval of 0 to 100. *Capex* is the capital expenditure. *R&D* is the research and development expense. *Cash flow volatility* is the standard deviation of cash flow five years prior to the takeover announcement. *Pay-out* is the total dividends (total common dividends plus repurchases) over earnings. *Size* is the sales. *Bond ratings* is a dummy variable set to one if the firm has bond ratings when it reports positive debt and zero if the firm does not have a bond rating but reports positive amounts of debt. *Value of Cash* is the value of cash index that obtains its weight from running the propensity analysis on *Capex, R&D, Cash flow volatility, Pay-out, Size* and *Bond ratings.*

The firm and deal-level control variables include *FF Excess Return*, 12-month excess buy and hold return benchmark against the 25 Fama-French size and MB portfolio; *Overvalued Acquirer,* is the dummy variable set to one if Ln(M/V) is more than zero. *NWC*, non-cash net working capital deflated by assets; *MB*, market-to-book ratio; *Leverage,* the book value of short-term and long-term deflated by market equity; *Relative value* (deal value / (bidder market capitalisation + deal value)); *Acquirer size*, the natural logarithm of acquirer's market capitalisation 42 days prior to the announcement; *Cash availability,* cash divided by the deal value, CAR *Run-up*, the abnormal return cumulated over the 250 to 5 days prior to the event date. *Defensive*, *Friendly*, *Private* and *Relatedness* are the dummy variables set to one if the acquisition is reported by ThomsonOne as using defensive techniques, friendly, private firms and having the same SIC code, respectively. Heteroscedasticity-robust standard errors are shown in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

Independent Variables	Dependent Variable 0 if only stock and 1 if only cash						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Capex	-24.88***						
	(4.260)						
R&D		-23.40***					
		(4.904)					
Cash-flow vol.			-39.92***				
			(5.029)				
Pay-out				-30.58***			
				(3.638)			
Bond ratings					-8.390*		
					(4.295)		
Size						-79.10***	
						(8.617)	
Value of cash							-9.960***
							(2.961)
FF excess ret	-1.893	-6.436***	-2.529	-4.029	-5.431**	-4.880	-5.228*
	(2.791)	(2.375)	(3.014)	(2.570)	(2.205)	(3.357)	(2.940)
CAR run-up	-0.431***	-0.330***	-0.192**	-0.320***	-0.349***	-0.108	-0.421***
	(0.102)	(0.079)	(0.096)	(0.083)	(0.073)	(0.103)	(0.090)
Overvalued Acquirer	-18.36***	-22.62***	-21.14***	-17.14***	-19.35***	-6.857	-14.16***
	(5.390)	(4.457)	(5.458)	(4.505)	(4.072)	(5.950)	(4.812)
Cash available	0.044	0.076	0.190	0.053	0.144	0.057	0.099
	(0.158)	(0.136)	(0.224)	(0.136)	(0.180)	(0.124)	(0.187)
NWC	-24.13**	-18.49**	-31.62***	-19.60**	-18.79**	-10.85	-31.56***
	(10.41)	(8.581)	(10.59)	(8.973)	(7.996)	(12.26)	(9.577)
Leverage	34.60***	36.48***	10.83	38.29***	32.33***	12.48	7.282
	(10.00)	(8.290)	(10.46)	(8.166)	(8.168)	(11.01)	(10.20)
Relative size	-135.0***	-138.0***	-146.5***	-138.0***	-137.9***	-150.4***	-148.9***
	(14.40)	(12.06)	(14.50)	(12.19)	(10.96)	(15.44)	(12.98)
Deal value	0.871	2.264*	-1.276	-1.203	0.104	-7.525***	-2.323
	(1.542)	(1.242)	(1.607)	(1.297)	(1.299)	(1.986)	(1.715)
Tender offer	155.7***	165.5***	143.6***	153.8***	156.0***	156.6***	154.3***
	(11.71)	(9.254)	(9.996)	(8.562)	(7.832)	(9.377)	(8.989)
Defensive	-37.05**	-45.36***	-51.72***	-43.62***	-45.39***	-51.48***	-55.97***
	(16.15)	(12.07)	(13.81)	(11.91)	(10.98)	(13.16)	(14.77)
Private	36.63***	31.05***	34.44***	28.02***	30.14***	29.55***	33.21***
	(8.661)	(6.999)	(8.506)	(6.843)	(6.181)	(8.106)	(7.635)
Subsidiary	95.04***	93.51***	97.06***	86.66***	93.88***	99.45***	96.29***
	(8.992)	(7.332)	(8.897)	(7.136)	(6.456)	(8.423)	(7.897)
Relatedness	-9.501	-17.56**	-5.281	-19.56***	-15.73**	-14.26*	-15.53*
	(9.393)	(7.591)	(8.983)	(7.328)	(6.666)	(8.235)	(8.072)
Constant	42.24	61.28**	25.52	92.72***	73.81***	88.28**	-2.378
	(41.71)	(28.27)	(37.39)	(28.39)	(27.83)	(37.81)	(37.29)
Acquirer Ind	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observation	3,089	4,704	2,932	4,359	5,540	3,186	3,875
Pseudo R-Squared	0.0795	0.0818	0.0875	0.0819	0.0797	0.0910	0.0869

Table 3.9
Summary Statistics for Acquirers with Hi and Lo Values of Cash

This table provides summary statistics across acquirers with high and low market values of cash over the period of 1990 to 2010. The first number corresponds to the mean and the medians are in brackets. $r_{i,t}$ is the stock return for firm i during fiscal year t and $R_{i,t}^{B}$ is stock i's benchmark return at year t. A benchmark return is the 25 Fama and French portfolios formed on size and book-to-market. All variables except L_t and excess stock return are deflated by the lagged market value of equity ($M_{i.t-1}$). C_t is cash plus marketable securities, E_t is the earnings before extraordinary items plus interest, deferred tax credits, and investment tax credits, and NA_t is total assets minus cash holdings. I_t is interest expense, total dividends are measured as common dividends paid, L_t is market leverage, and NF_t is the total equity issuance minus repurchases plus debt issuance minus debt redemption. ΔX_t is the notation for the 1-year change, $X_t - X_{t-1}$.

Variables	Value of cash index	
	Hi	Lo
$r_{i,t} - R_{i,t}^{B}$	0.0920	-0.0285
	[-0.0525]	[-0.0483]
ΔC_t	0.0198	0.0118
	[0.0059]	[0.0029]
ΔE_t	0.1541	0.0803
	[0.0989]	[0.0443]
ΔNA_t	0.0265	0.0084
	[0.0117]	[0.0068]
ΔRD_t	0.1006	0.1009
	[0.0460]	[0.0334]
ΔI_t	0.0014	0.0010
	[0.0000]	[0.0000]
ΔD_t	0.0017	0.0010
	[0.0000]	[0.0000]
C_{t-1}	0.0001	0.0006
	[0.0000]	[0.0000]
L_t	0.1188	0.3024
	[0.0177]	[0.2565]
NF_t	0.0851	0.0667
	[0.0213]	[0.0343]
Observations	1,325	1,326

Table 3.10
Regression Results for Acquirers with Hi and Low Values of Cash

This table shows the results for the excess stock return regressions on changes in firm characteristics modified from Faulkender and Wang's (2006) model across the groups of acquirers who present high and low values of cash. The dependent variable is the excess stock return, where $r_{i,t}$ is the stock return for firm i during fiscal year t and $R_{i,t}^{B}$ is stock i's benchmark return at year t. A benchmark return is the 25 Fama and French portfolios formed on size and book-to-market. All variables except L_t and excess stock return are deflated by the lagged market value of equity ($M_{i.t-1}$). C_t is cash plus marketable securities, E_t is the earnings before extraordinary items plus interest, deferred tax credits, and investment tax credits, and NA_t is total assets minus cash holdings. I_t is interest expense, total dividends are measured as common dividends paid, L_t is market leverage, and NF_t is the total equity issuance minus repurchases plus debt issuance minus debt redemption. ΔX_t is the notation for the 1-year change, $X_t - X_{t-1}$. White heteroscedastic-consistent standard errors are in parentheses. ***, ** and * indicate significance at the 1, 5 and 10% levels, respectively.

Independent Variables	(1)	(2)
	Value of cash index	
	Hi	Lo
ΔC_t	2.303***	1.380***
	(0.358)	(0.404)
ΔE_t	0.433***	0.426**
	(0.158)	(0.178)
ΔNA_t	0.696***	-0.0158
	(0.153)	(0.0808)
ΔRD_t	0.779	-0.962
	(1.252)	(1.771)
ΔI_t	-1.088	-0.950
	(2.423)	(1.317)
ΔD_t	-6.781*	3.310
	(3.943)	(2.628)
C_{t-1}	0.532***	0.714***
	(0.125)	(0.161)
L_t	-0.581***	-0.147***
	(0.108)	(0.0464)
NF_t	0.273	0.237
	(0.198)	(0.178)
$C_{t-1} \times \Delta C_t$	-1.180	-0.0529
	(0.914)	(1.229)
$L_t \times \Delta C_t$	-3.996***	-0.627
	(1.284)	(0.770)
Intercept	-0.0697***	-0.0738***
	(0.0264)	(0.0210)
Observations	1,325	1,326
R-squared	0.205	0.092
F	12.68	7.713
Panel B		
Marginal Value of $1	1.646	1.148

Table 3.11
Gain to Acquirer and Correct Payment Method

This table presents the univariate analysis of 5-day acquirer returns during announcement (ACAR) partitioning by the correct payment criteria. Acquirers in the top (bottom) 30th percentile are identified as acquirers who command high (low) market values of cash: Hi VOC (Lo VOC) acquirers. ACAR is also conditional on the target public status. The number in parenthesis is the number of deal observations. ***, ** and * indicate significance at the 1, 5 and 10% levels, respectively.

Model	(1)	(2)	(3)	(4)
Variable	Correct Payment Criteria			
	Hi VOC pay Stock & Mixed Lo VOC pay Cash	Hi VOC pay Stock Lo VOC pay Cash	Lo VOC pay Cash	Hi VOC pay Stock
Panel A: All deals				
Correct	1.222***	1.054***	0.611***	2.144*
	(1,181)	(868)	(617)	(251)
Incorrect	1.784***	1.643***	1.685***	1.453***
	(3,887)	(2,741)	(2,992)	(3,358)
Correct - Incorrect	-0.563	-0.589	-1.074***	0.691
Panel B: Public deals				
Correct	-1.889***	-1.944***	-0.070	-6.533***
	(367)	(307)	(218)	(89)
Incorrect	-0.480	0.064	-0.737*	0.030
	(967)	(644)	(733)	(862)
Correct - Incorrect	-1.409**	-2.008***	0.667	-6.564***
Panel C: Private deals				
Correct	2.624***	2.695***	0.983***	6.912***
	(814)	(561)	(399)	(162)
Incorrect	2.534***	2.128***	2.471***	1.944***
	(2,920)	(2,907)	(2,259)	(2,496)
Correct - Incorrect	0.090	0.567	-1.488***	4.967***

Table 3.12
Regression Analysis of Gain to Acquirer and Correct Payment Method

This table presents OLS regression analysis of gain from the takeover. The dependent variables are 5-day ACAR. *Correct payment* is a dummy variable that takes the value of one if the correct payment method is used. Acquirers in top (bottom) 30th percentile are identified as acquirers who command a high (low) marginal value of cash: Hi VOC (Lo VOC) acquirers. *Tender*, *Stock only*, *Cash only*, *Defensive*, *Private, Subsidiary Relatedness* take the value of one if the acquisition is a tender offer, if only stock is used to pay for the acquisition, if only cash payment is used, if the acquisition is reported by ThomsonOne as defensive, target firm is a private firm, target firm is a subsidiary, and acquirer and target share 2-digit SIC. *Size* is defined as market capitalisation of the acquirer 42 days prior to the takeover announcement of the target. *Relative value* is (deal value / (bidder market capitalisation + deal value)). Deal Value is transaction value. Heteroscedasticity-robust standard errors are shown in parentheses. ***, ** and * indicate significance at the 1, 5 and 10% levels, respectively.

Model	(1)	(2)	(3)	(4)
Variable	Correct Payment Criteria			
	Hi VOC pay Stock & Mixed Lo VOC pay Cash	Hi VOC pay Stock Lo VOC pay Cash	Lo VOC pay Cash	Hi VOC pay Stock
Correct payment	0.054	0.388	1.035**	-0.733
	(0.391)	(0.504)	(0.449)	(1.281)
Stock only	0.674			
	(0.592)			
Cash only	0.131	-0.298	-0.483	-0.520
	(0.361)	(0.553)	(0.582)	(0.599)
CAR run-up	0.052***	0.058***	0.058***	0.059***
	(0.015)	(0.019)	(0.019)	(0.019)
Acquirer Size	-0.339***	-0.307**	-0.379***	-0.286**
	(0.106)	(0.137)	(0.143)	(0.121)
Leverage	0.974	0.724	0.521	0.695
	(0.849)	(0.963)	(0.983)	(0.951)
Relative size	8.471***	8.728***	8.594***	8.786***
	(1.650)	(2.140)	(2.131)	(2.151)
Tender offer	3.599***	3.270***	3.234***	3.316***
	(0.626)	(0.720)	(0.717)	(0.722)
Defensive	-2.528***	-2.092**	-2.045**	-2.166**
	(0.848)	(0.988)	(0.992)	(0.988)
Private	3.270***	3.636***	3.672***	3.663***
	(0.634)	(0.731)	(0.733)	(0.736)
Subsidiary	3.690***	3.679***	3.710***	3.723***
	(0.635)	(0.735)	(0.735)	(0.739)
Relatedness	-1.628***	-0.939	-0.903	-0.904
	(0.624)	(0.736)	(0.735)	(0.739)
Constant	-2.612	-1.522	-0.397	-1.684
	(2.977)	(3.138)	(3.216)	(2.999)
Acquirer Ind.	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Observations	5,035	3,588	3,588	3,588
R-squared	0.082	0.076	0.077	0.076

Table 3.13
Regression Results for All firms and All Acquirers

This table shows the results for the excess stock return regressions on changes in firm characteristics modified from Faulkender and Wang's (2006) model. The dependent variable is the excess stock return, where $r_{i,t}$ is the stock return for firm i during fiscal year t and $R_{i,t}^{B}$ is stock i's benchmark return at year t. A benchmark return is the 25 Fama and French portfolios formed on size and book-to-market. All variables except $Only\ stock, L_t$ and excess stock return are deflated by the lagged market value of equity ($M_{i.t-1}$). C_t is cash plus marketable securities, E_t is the earnings before extraordinary items plus interest, deferred tax credits, and investment tax credits, and NA_t is total assets minus cash holdings. I_t is interest expense, total dividends are measured as common dividends paid, L_t is market leverage, NF_t is the total equity issuance minus repurchases plus debt issuance minus debt redemption and $Only\ stock$ is a dummy variable that equals one for acquirers in only stock bids and zero otherwise. ΔX_t is the notation for the 1-year change, $X_t - X_{t-1}$.White heteroscedastic-consistent standard errors are in parentheses.

	(1)	(2)	(3)	(4)
	All samples	All bids		
				ex. mixed bids
ΔC_t	1.871***	1.683***	1.377***	1.269***
	(0.053)	(0.215)	(0.206)	(0.246)
$Only\ stock \times \Delta C_t$			0.994***	1.183***
			(0.316)	(0.332)
$Only\ stock$			0.019	0.028
			(0.024)	(0.024)
ΔE_t	0.557***	0.604***	0.611***	0.799***
	(0.018)	(0.102)	(0.101)	(0.148)
ΔNA_t	0.251***	0.245***	0.242***	0.220***
	(0.011)	(0.047)	(0.047)	(0.055)
ΔRD_t	0.626***	0.107	-0.025	-0.174
	(0.160)	(0.978)	(0.966)	(1.263)
ΔI_t	-3.004***	-1.909*	-1.962*	-1.007
	(0.176)	(1.004)	(1.003)	(1.343)
ΔD_t	0.478	0.095	0.021	-0.411
	(0.325)	(1.645)	(1.643)	(2.426)
C_{t-1}	0.312***	0.483***	0.493***	0.519***
	(0.016)	(0.072)	(0.074)	(0.091)
L_t	-0.251***	-0.307***	-0.295***	-0.282***
	(0.007)	(0.035)	(0.034)	(0.040)
NF_t	0.081***	0.153*	0.146*	0.081
	(0.021)	(0.089)	(0.089)	(0.105)
$C_{t-1} \times \Delta C_t$	-1.150***	0.088	0.267	-0.032
	(0.102)	(0.630)	(0.623)	(0.742)
$L_t \times \Delta C_t$	-1.278***	-2.289***	-2.068***	-1.932***
	(0.084)	(0.436)	(0.425)	(0.516)
Intercept	-0.088***	-0.021	-0.027*	-0.038**
	(0.004)	(0.015)	(0.015)	(0.018)
Observations	70,900	3,929	3,929	2,742
R-squared	0.134	0.140	0.146	0.163
F	552.1	27.48	23.92	17.69

Table 3.14
Regression Results for All firms and All Acquirers

This table shows the results for the value regressions modified from Pinkowitz and Williamson's (2007) model. The dependent variable is the ratio of the firm's market value to assets. The independent variables include the two-year lagged change (ΔL2), the two-year future change (Δ2), and the current realisations of the ratios of the following variables over assets: Earnings, Assets, R&D, Interest Expense, Dividends, Market Value (only future change). All ratios are winsorized at the 1% and 99% levels.

	(1) All Firms	(2) All Acquirer	(3) Cash Only	(4) Stock Only	(5) Mixed
Earning/Assets	-0.729	2.163**	5.541***	-1.912	0.322
	(1.151)	(0.848)	(1.245)	(2.239)	(1.241)
Δ*2 Earning/Assets*	0.741**	-0.163	0.570***	3.705**	-0.796**
	(0.294)	(0.156)	(0.215)	(1.513)	(0.309)
Δ*L2 Earning/Assets*	1.094*	0.132	2.995***	0.0154	0.0276
	(0.593)	(0.277)	(0.627)	(0.745)	(0.208)
RD/ Assets	5.113***	9.390**	2.273	0.648	16.35***
	(1.957)	(4.074)	(2.254)	(3.014)	(4.282)
Δ*2 RD/Assets*	1.174*	-9.466*	6.854***	1.974	-27.07***
	(0.683)	(4.865)	(2.627)	(4.515)	(9.127)
Δ*L2 RD/Assets*	3.831***	2.425***	5.389***	-1.296	4.858*
	(1.055)	(0.703)	(1.987)	(1.434)	(2.480)
Dividend/ Assets	2.081	2.936	9.400***	18.17*	-2.575
	(2.462)	(1.928)	(2.873)	(10.75)	(2.833)
Δ*2 Dividend/Assets*	1.362	0.246	-4.309	-3.951	2.016***
	(2.522)	(0.884)	(5.215)	(8.963)	(0.779)
Δ*L2 Dividend/Assets*	1.846	2.491	0.633	-4.323	1.374
	(1.327)	(1.969)	(2.510)	(4.070)	(3.174)
Interest/ Assets	2.868	7.613*	-4.972	1.675	12.49**
	(3.986)	(4.333)	(3.562)	(7.416)	(5.634)
Δ*2 Interest/Assets*	-2.056	1.712	-2.454	-8.001	-10.89
	(2.249)	(5.827)	(8.522)	(15.93)	(7.439)
Δ*L2 Interest/Assets*	2.082	8.276	-5.379***	2.698	8.120**
	(2.823)	(7.000)	(1.921)	(7.200)	(3.550)
Δ*2 Assets/Assets*	0.380	1.604***	0.137	2.758***	2.141***
	(0.365)	(0.514)	(0.576)	(0.717)	(0.489)
Δ*L2 Assets/Assets*	0.0132	0.245***	0.394**	0.243*	0.241***
	(0.0380)	(0.0179)	(0.167)	(0.147)	(0.0254)
Δ*2 Market Value/Assets*	-0.0106***	-0.163**	-0.163	-0.0218	-0.310***
	(0.000483)	(0.0765)	(0.120)	(0.0499)	(0.0835)

Table 3.14 (Cont'd)
Regression Results for All firms and All Acquirers

	(1) All Firms	(2) All Acquirer	(3) Cash Only	(4) Stock Only	(5) Mixed
Cash/ Assets	2.535***	2.546***	2.271***	5.820***	2.733***
	(0.452)	(0.735)	(0.485)	(1.395)	(0.705)
Constant	1.315***	0.870***	1.133***	0.912*	0.649**
	(0.132)	(0.210)	(0.144)	(0.478)	(0.289)
Observations	23,955	1,986	1,159	273	554
R-squared	0.993	0.999	0.567	1.000	0.800
F	18197	1.550e+08	32.71	8.500e+07	101.3

Table 3.15
Logistic Regression Results of Determinants of Method of Payment

This table presents the logistic regression analysis of the payment method used by acquirers. The dependent variable $Y_{i,t}$ takes the value of zero if the deal is completely financed with stock, and one if financed completely by cash. *Capex* is the capital expenditure. *R&D* is the research and development expense. *Cash flow volatility* is the standard deviation of cash flow five years prior to the takeover announcement. *Pay-out* is the total dividends (total common dividends plus repurchases) over earnings. *Size* is the sales. *Bond ratings* is a dummy variable set to one if the firm has bond ratings when it reports positive debt and zero if the firm does not have a bond rating but reports positive amounts of debt. *Value of Cash* is the value of cash index that obtains its weight from running the propensity analysis on *Capex, R&D, Cash flow volatility, Pay-out, Size* and *Bond ratings.*
The firm and deal-level control variables include *FF Excess Return*, 12-month excess buy and hold return benchmark against the 25 Fama-French size and MB portfolio; *Overvalued Acquirer,* is the dummy variable set to one if ln(M/V) is more than zero. *NWC*, non-cash net working capital deflated by assets; *MB*, market-to-book ratio; *Leverage,* the book value of short-term and long-term deflated by market equity; *Relative value* (deal value / (bidder market capitalisation + deal value)); *Acquirer size*, the natural logarithm of acquirer's market capitalisation 42 days prior to the announcement; *Cash availability,* cash divided by the deal value, CAR *Run-up*, the abnormal return cumulated over the 250 to 5 days prior to the event date. *Defensive*, *Friendly*, *Private* and *Relatedness* are the dummy variables set to one if the acquisition is reported by ThomsonOne as using the defensive techniques, friendly, private firms and having the same SIC code, respectively. Heteroscedasticity-robust standard errors are shown in parentheses. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

Independent Variables	Dependent Variable 0 if only stock and 1 if only cash						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Capex	-0.560***						
	(0.141)						
R&D		-0.547***					
		(0.151)					
Cash-flow vol.			-1.048***				
			(0.169)				
Pay-out				-0.822***			
				(0.126)			
Bond ratings					-0.301**		
					(0.144)		
Size						-1.971***	
						(0.279)	
Value of cash							-0.503***
							(0.086)
FF excess ret	-0.045	-0.130*	-0.108	-0.053	-0.117	-0.054	-0.077
	(0.085)	(0.075)	(0.099)	(0.088)	(0.071)	(0.103)	(0.098)
CAR run-up	-0.014***	-0.012***	-0.011***	-0.013***	-0.013***	-0.010***	-0.016***
	(0.003)	(0.002)	(0.003)	(0.002)	(0.002)	(0.004)	(0.003)
Overvalued Acquirer	-0.492**	-0.643***	-0.440**	-0.434***	-0.440***	-0.173	-0.166
	(0.196)	(0.160)	(0.203)	(0.167)	(0.147)	(0.214)	(0.187)
Cash available	-0.002	-0.002	-0.001	-0.003*	-0.001	-0.002	-0.002
	(0.001)	(0.001)	(0.003)	(0.001)	(0.002)	(0.001)	(0.002)
NWC	-0.365	-0.266	-0.299	-0.715**	-0.308	-0.346	-1.016***
	(0.341)	(0.285)	(0.398)	(0.315)	(0.269)	(0.389)	(0.346)
Leverage	1.802***	1.776***	0.626	1.886***	1.552***	1.325***	0.800**
	(0.390)	(0.318)	(0.384)	(0.327)	(0.313)	(0.402)	(0.398)
Relative size	-3.647***	-3.412***	-3.299***	-3.654***	-3.321***	-2.991***	-4.070***
	(0.551)	(0.443)	(0.558)	(0.464)	(0.406)	(0.573)	(0.508)
Deal value	0.053	0.052	-0.022	-0.073*	-0.033	-0.153***	-0.204***
	(0.054)	(0.040)	(0.054)	(0.043)	(0.042)	(0.056)	(0.055)
Tender offer	4.588***	5.279***	4.962***	4.768***	4.825***	4.863***	5.099***
	(0.582)	(0.534)	(0.610)	(0.473)	(0.429)	(0.519)	(0.537)
Defensive	-0.817	-0.690	-1.195**	-0.888**	-0.819**	-0.939**	-1.058*
	(0.617)	(0.451)	(0.487)	(0.428)	(0.378)	(0.429)	(0.568)
Private	1.048***	0.893***	1.136***	0.963***	0.960***	0.962***	1.076***
	(0.262)	(0.213)	(0.283)	(0.220)	(0.194)	(0.242)	(0.238)
Subsidiary	2.453***	2.450***	2.733***	2.516***	2.567***	2.714***	2.912***
	(0.292)	(0.241)	(0.319)	(0.249)	(0.219)	(0.275)	(0.279)
Relatedness	-0.123	-0.493**	-0.097	-0.326	-0.277	-0.190	-0.308
	(0.306)	(0.248)	(0.323)	(0.251)	(0.223)	(0.257)	(0.271)
Constant	2.617***	0.242	-0.275	1.472*	0.663	-0.086	0.425
	(0.798)	(1.138)	(0.965)	(0.870)	(1.011)	(0.906)	(1.030)
Acquirer Ind	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observation	2,108	3,259	2,104	3,078	3,913	2,330	2,799
Pseudo R-Squared	0.393	0.399	0.428	0.403	0.392	0.406	0.437

Chapter 4 - Capital Control and Gains from Mergers and Acquisitions

4.1 Introduction

The sustained increase in FDI across the globe has widened the interest of academics, corporate managers, and investors in the performance of merging partners. While acquiring targets in a foreign country offers more choices and opportunities for an acquirer, it also raises challenges by increasing frictions that do not exist in the home market. Prior literature on cross-border mergers and acquisitions (hereafter CBAs) has widely analysed the differences in gains between CBAs and domestic acquisitions and several factors that may have impacted on the levels of gains/losses. While Doukas and Travlos (1998), Doukas (1995) and Kiymaz (2004) find that cross-border deals enhance firm values, Denis et al. (2002) and Moeller and Schlingemann (2005) report negative cross-border effects on acquirers' value. However, studies on the role of the economic policy of a country in general and control of capital mobility in particular, are extremely limited. This study aims to bridge this void by examining the implications of capital control (i.e. restrictions on cross-border mobility of capital) on the gains/losses of firms engaged in CBAs.

According to the UNCTAD World Investment Report (2015), the FDI outflows from developing to developed countries hit a new record in 2014. Two main drivers of these flows capture our interest and lead to the formation of this chapter's hypotheses. First, most countries maintain their policies that gear towards investment promotion and liberalisation. Second, the multinational enterprises (MNEs) from developing economies acquire more affiliates that reside in developed countries located in their regions. Developing and transition economies together invested $553 billion in CBAs in 2014, or 39% of global FDI outflows, compared with only 12% at the beginning of the 2000s.

Among the economic policies of a country, capital control is one of the policies that have a direct impact on the flows of capital. While there are voluminous studies interested in the macroeconomic effects after the control is lifted, only a few studies examine the effect of capital control on firms' behaviour. This is in addition to the studies on corporate acquisitions. To the best of our knowledge, Barbopoulos et al. (2012) and Francis et al. (2008) are the only studies that explicitly discuss the motive for undertaking CBAs with a capital control policy. Building on different

theoretical viewpoints, both studies report that purchasing foreign firms in countries with high levels of capital control can create value to their acquirers.

Literature on capital control suggests that imposing controls does not have an impact only on the flow level, but creates at least three consequential and substantial economic costs, which are (i) increasing the cost of capital, (ii) tightening the financial constraints and (iii) weakening the market discipline.[48] Countries with fewer capital control levels are likely to experience less severe effects from these costs. Extant studies also document the distorted behaviour of multinational firms that attempt to evade the high cost of capital controls (see e.g. Auguste et al. (2002); Desai et al. (2006)). Unlike Barbopoulos et al. (2012) and Francis et al. (2008), our chapter is motivated by the springboard perspective, a well-established theory from the strand of international business. Luo and Tung (2007) propose that emerging market enterprises use international expansion as the springboard to acquire strategic resources as well as reduce their institutional and market constraints at home. Building on the improvement of the institutional factor perspective, we expect that managers of bidding firms are motivated to evade their high costs of capital control at home as well as benefit from their newly acquired entities that operate in less cost of capital control environment. Therefore, this discussion leads to our key research questions in this chapter which are whether acquirers can add value for their shareholders by─purchasing targets residing in relatively lower capital control countries and if so, what are the explanations for such value creation.

To shed light on how purchasing targets in relatively lower capital control countries can affect acquirer performance, this chapter further examines three main drivers, which are (i) lower cost of capital, (ii) better risk diversification and (iii) better market discipline. First, by gaining access to lower cost of capital, acquirers can undertake the positive NPV projects which they would otherwise have foregone. Second, acquirers' shareholders can benefit from better risk sharing beyond their domestic market. Third, acquirers with competitive advantage should operate more efficiently in a better market discipline environment where capital is allocated on return on investment rather than other factors (e.g. cronyism, political favouritism,

[48]See Bekaert and Harvey (2000), Chari and Henry (2004), Desai et al. (2006), Forbes (2004, 2005), Harrison et al. (2004), Henry (2000), Johnson and Mitton (2003) and Laeven (2003).

etc.) which can enter the market where the capital is efficiently allocated. These reasons have value implications for shareholders leading to the positive announcement period return.

To answer our proposed research questions, we use a comprehensive sample of 13,053 cross-border deals that were announced between 1999 and 2012 covering 63 countries in which acquirers are based. Our results reveal that acquirers who purchase firms that reside in countries with relatively lower capital control, gain more than those who acquire firms in countries with relatively higher capital control by 0.43%. This pattern holds even after controlling for the effects of other variables that are potentially contributing to acquirers' returns. We further find that these value creations can be explained by the availability of cheaper capital and better risk sharing. However, we find no evidence of value enhancing through an improvement in market discipline.

Our studies make several contributions to CBAs, capital control and international business literature. First, we provide new evidence that acquirers in the countries that impose high levels of capital control can gain more by purchasing firms in target countries with relatively lower capital control levels. Second, by design, our study can be considered as a natural experiment on the effect of capital control by utilising the difference in capital control levels between merging countries without any real change in the country's capital control policy. Third, by using the detailed measures of capital control in this study, we can detect the statistical and economical significance in our findings, which is not possible if using simple measures. Finally, we add our findings to the scarce areas of international business literature; as mentioned by Henisz and Swaminathan (2008) "International business research necessarily requires attention to the institutional characteristics that alter the costs of engaging in the business activity of a given form in one nation as compared to another".

The remainder of the chapter proceeds as follows. Section 4.2 discusses previous literature on capital control and CBAs. Section 4.3 discusses the hypotheses development. Sections 4.4 describes the data and methodologies. Section 4.5 and 4.6 present the results and robustness test, respectively. Finally, the conclusions are drawn in Section 4.7.

4.2 Literature Review

Since the purpose of this chapter is to study the impact of capital control on CBA activities, in this section we review the relevant literature from the strands of both capital control and CBAs. Although there are voluminous capital control studies on the macroeconomic perspective of a few specific countries, our review focuses more on the general effects of capital control. In addition to our understanding of domestic acquisition, as reviewed in prior chapters, this section adds to the literature relevant to country effects that do not exist in the domestic domain but are found to have a significant impact on the flow and performance of cross-border deals.

4.2.1 Capital control

During the last few decades, a rapid increase in the cross-border flow of capital has created a demand for a better understanding of different capital control regimes and their consequences. The focal point of a number of studies has been on the macroeconomics effect on countries after capital account liberalisation. In the spirit of the neoclassical growth model pioneered by Solow (1956), the literature points out that by removing restrictions on capital movements, countries can enjoy a temporary rise in investment and growth, and permanently a better standard of living (Fischer, 1998, 2003; Obstfeld, 1998; Rogoff, 1999; Summers, 2000). However, the empirical benefits are not clearly visible, as suggested by the theory (Eichengreen, 2001; Rodrik, 1998). In the surveys conducted by Prasad et al. (2003), from 14 studies, only three report a significant positive relationship between international financial integration and economic growth.

Among the controversial and mixed results reported in the literature, Henry (2000) offers some explanations why prior studies cannot find an impact of capital account liberalisation on growth. First, crude measures of capital account openness make it hard to capture the complexity of a country's liberalisation.[49] Second, some studies ignore the different foundations of developing and developed countries and include both in their studies. Third, empirical studies misinterpret the neoclassical

[49]Many capital control measures inherit the binary characteristic from their IMF AREAER source. The treatment of countries as either completely closed or completely open does not allow for varying degrees of intensity across countries.

growth theory by using growth on a permanent rather than temporary basis. Fourth, different types of capital flows and capital controls may have different effects on the outcome of the variable of interest.[50] In addition, Rossi (1999) argues that the impact of removing capital controls could depend on a range of other hard-to-measure factors that are difficult to capture in simple cross-country regressions.

Recently, the availability of detailed firm-level data across countries has helped in spurring growth and advancement in microeconomic literature. Using firm-level data not only yields better explaining power, but also offers opportunities to examine the benefit (cost) of capital account liberalisation (capital control) which classical macroeconomic literature cannot capture. As a result, the focus of capital control studies has been no longer on national wealth but has shifted to explain the value created to firms from various perspectives, such as cost of capital, capital allocation, risk diversification, and market discipline.

4.2.1.1 Capital control and supply and cost of capital

From the theoretical framework, the neoclassical growth model demonstrates how capital account liberalisation can lower the cost of capital. In the simple model of the world without risk, the steady state marginal product of capital equals the interest rate plus the depreciation rate:

$$f'(k_{s.state}) = r + \delta \tag{4.1}$$

where $f'(k_{s.state})$ is the marginal product of capital r and δ denote interest rate and depreciation rate, respectively. Let r^*be the exogenously given world interest rate and r^* is expected to be less than r, as the rest of the world has more capital per unit of effective labour than the developing country. At the time of financial liberalisation, capital flows in to exploit the difference between the world interest rate and the country's rate. At the new steady state, the marginal product of capital is equal to the world interest rate plus the rate of depreciation:

[50]Reisen and Soto (2001) find FDI and portfolio equity flows are positively associated with growth. Henry and Lorentzen (2003) report that equity market liberalisations are more likely to promote growth than debt market liberalisations. Klein and Olivei (1999) find that capital account openness only stimulates financial development in OECD countries.

$$f'(k *_{s.state}) = r^* + \delta \qquad (4.2)$$

The changes in this main equation (4.1 vs. 4.2) suggest that the lower interest rate (r^*) is the key measure of financial liberalisation and explain the following outcomes of investment, growth rate of GDP per worker and level of GDP per worker. Empirically, few studies lend support to the derivation of this model. Chari and Henry (2004) report the fall in risk-free rate of return in the range of 5.9% to 9.1% in 11 emerging markets that removed the controls on stock market investment in their local firms. Using a unique dataset of US multinational affiliates, Desai et al. (2006) find that affiliates located in countries without capital controls face local borrowing costs that are 5% less than affiliates of the same parent company borrowing locally in countries with capital control.

In more specific empirical studies, Henry (2000) and Bekaert and Harvey (2000) examine the effect of stock market liberalisation on the cost of equity capital. Standard international asset pricing models (IAPMs) predict that stock market liberalisation should reduce the cost of equity because of better risk sharing between domestic and foreign agents.[51] Henry (2000) adopts an event study approach to examine the association between equity price index and the market perspective of stock market liberalisation and the fall in cost of equity capital. Consistent with his prediction, he reports average abnormal returns of 4.8% per month over an eight month window prior to the implementation of a country's initial stock market liberalisation in 12 emerging countries. The abnormal returns remain significant and positive at 3.3% per month, even when controlling for co-movements with world stock markets, economic policy reforms, and macroeconomic fundamentals.

Bekaert and Harvey (2000), note the difficulty in measuring the cost of capital and alternatively use the dividend yields to measure the change in cost of capital instead of measuring the discrete price change directly. Consistent with the IAPM and Henry (2000), they find that equity market liberalisation can reduce the

[51]Improvement in risk sharing lays a foundation for these studies but neither of them explicitly demonstrates how better risk sharing can reduce the cost of capital. To highlight this issue, we will discuss better risk sharing and capital control as separate topics in the next section.

cost of equity although the magnitude is less than 1%; they also criticise the endogeneity that can make it upwardly biased.

In addition to the better risk sharing hypothesis, Bekaert et al. (2005) suggest that an improvement in financial constraints may complementarily reduce the cost of equity during the period of stock market liberalisation. Lifting the restrictions on equity investments can bring in foreign capital and provide additional sources of capital. If this can free up the domestic credit, capital can be redirected to constrained firms and help to lower their more costly external finance.[52]

Empirically, a few recent studies confirm the benefit (cost) of financial liberalisation (capital control) on firm's financial constraints. They use the sensitivity of investment to the availability of internal funds to capture the degree of financing constraints in the Euler equation.[53] Harrison et al. (2004) conduct various tests on 7,000 samples of large publicly traded firms in 38 countries for the period of 1988 to 1998. They report an inverse and significant relationship between Foreign Direct Investment and financial constraints. In the spirit of Lewis (1997), they also test for the impact of restrictions on international transactions on firms' financial constraints (as opposed to individual credit constraints in Lewis (1997). As predicted, firms are more financially constrained in countries that impose controls on capital account transactions. Finally, they document that firms that are less likely to have access to international capital markets experience a greater reduction in financial constraints. In addition, Laeven (2003) focuses on the different effects of financial liberalisation on the ability to access funds for investment, conditional on firm's size. He finds that from the number of firms from liberalised developing countries between 1988 and 1998, small firms are relatively more financially constrained than large firms prior to financial liberalisation; however, he finds the opposite result as the process of liberalisation progresses, i.e. small firms become less financially constrained while large firms become more finally constrained. He explains this contradiction as

[52]Since financially constrained firms face more costly external finance this makes their investment sensitive to cash flows (see e.g. Gilchrist and Himmelberg, 1999; Hubbard, 1998).

[53]One important weakness of firm-level papers that examine the efficiency implications of capital control is their interpretation of the sensitivity of investment to cash flow as a measure of firm-financing constraints. If firms face financing frictions then their investment will be sensitive to cash flow. But the converse of the preceding statement needs not to be true: sensitivity of investment to cash flow does not imply that firms face financial constraints (Kaplan and Zingales, 1997, 2000; Stein, 2003).

resulting from the worst preferential credit terms for large firms when financial liberalisation takes place.

Building on our discussion that lowering capital control can bring down the cost of capital, firms can benefit by purchasing other firms resided in relatively lower capital control countries. By gaining access to low-cost capital, acquirers can overcome the financial constraints and undertake the positive NPV projects which they would otherwise have to forego. Given that the stock markets are efficient, the benefits should be reflected in positive abnormal returns during the deal announcement.

4.2.1.2 Capital control and risk sharing

In the previous section, we have reviewed the literature on capital control and cost of capital. Although some of them build on the International Asset Pricing Model and explain the lower cost of capital in liberalised countries with better risk diversification, none of them explicitly demonstrate that such reductions are from better risk sharing.

From the theoretical framework, we can extend the original neoclassical model discussed in 2.1.1 to incorporate risky assets. In the risky world, optimality shifts from investing until the expected marginal product of capital equals the interest rate to the interest rate plus a risk premium to compensate for the uncertain return to capital. The first-order condition for this investment is:

$$f_i'(k)^e = r + \theta + \delta \tag{4.3}$$

where $f_i'(k)^e$ is the expected marginal product of capital, r is interest rate, θ is the aggregate equity premium, and δ is depreciation rate. In the context of the capital asset pricing model (CAPM), θ is equal to the price of risk, γ, times the variance of the market return, $Var(\tilde{r}_M)$.

$$f_i'(k)^e = r + \gamma Var(\tilde{r}_M) + \delta \tag{4.4}$$

At the time of financial liberalisation, components on the right hand side of the model highlight two different mechanisms in the cost of capital reduction. First,

like a world without risk, the domestic rate, r, will fall to the world interest rate, r^*. Second, the variance of domestic market return will fall to the smaller covariant of the domestic market return with the world market, $Cov(\tilde{r}_{M,}\tilde{r}_W)$. The first-order condition for investment after liberalisation becomes [54]

$$f_i'(k)^e = r^* + \gamma Cov(\tilde{r}_{M,}\tilde{r}_W) + \delta \qquad (4.5)$$

In the asset pricing literature, the empirical study of Chari and Henry (2004) is the first to disentangle the impact of risk sharing from interest rate during financial liberalisation.[55] Unlike prior studies that rely on a country-level aggregate data, the usage of firm's stock price as a proxy for cost of capital change helps them to overcome the problem of insufficient degree of freedom.

Their hypotheses testing rests on an intuition that if the liberalisation mirrors the reduction in cost of capital, there should be a revaluation in firm's stock price during that period. To distinguish between the effect of risk sharing and interest rate, they deliberately consider the stock price revaluation by the eligible of foreign owners. The common shock to the cost of capital should bring a rise in investment in all types of firms, regardless of the foreign eligibility to invest. However, for the firm-specific shock, there should be a difference between firms that become eligible for foreign purchases (investible firms) and those who remain off-limit (non-investible firms). Since only the investible firms can benefit from better covariance (the source of systematic risk for pricing firms' stocks changes from local stock market index to world stock index), the price revaluation is expected to be greater in these firms than in the non-investible firms.

[54]In segmented capital markets, the cost of equity capital is related to the local volatility of the particular market. In integrated capital markets, the cost of equity capital is related to the covariance with world market returns. Given that emerging economies have different industrial mixes and are less subject to macroeconomic shocks originating from developed economies, covariance with world factors is low.

[55]Systematic risk is difficult to detect in other settings. Covariance is measured with error (Fama and French, 2004), and measurement error reduces the statistical power of any regression. Instead of testing for a relationship between levels of return and levels of systematic risk, the firm-level-policy experiment approach focuses on episodes where there are large changes in both risk and returns. The magnitude of liberalisation-induced changes in expected returns and systematic risk associated with opening up the economy to foreign capital flows may simply dominate the attenuating effects of measurement error that usually plague efforts to find cross-sectional pricing relationships. Similarly changes in emerging-market stock prices may convey little firm-specific information in general, but they do convey such information during episodes such as liberalisations when the magnitude of the information is sufficiently large.

To test their hypotheses, Chari and Henry (2004) adopt the CAPM which is in the same line as the neo-classical model that we discussed before. They model the revaluation of investible securities under mild segmentation as

$$\Delta E(\tilde{R}_i) = (r - r^*) + \gamma DIFCOV_i \qquad (4.6)$$

where $\Delta E(\tilde{R}_i)$ is the change in the required rate of return on impact and $DIFCOV_i$ is the historical covariance of a firm's stock return with the local market index, minus the historical covariance of the firm's stock return with the world market index.

Chari and Henry (2004) use data from 410 firms in 11 developing countries. They report a 200 times larger historical covariance of the average investible firm's stock returns with the local market than its historical covariance with the world market. Consistent with the prediction that high $DIFCOV$ firms should experience greater re-pricing than low $DIFCOV$ firms, they find a 6.8% firm-specific price revaluation in investible firms during liberalisation but no revaluation in non-investible firms. Their results also support the CAPM theory that change in systematic risks have an impact on the stock price of firms in emerging markets.

Engaging in CBAs can be considered as a geographical diversification activity. When acquirers purchase firms in other countries, they are likely to benefit from better covariance (the source of systematic risk for pricing acquirer's stocks shifts from local stock market index to target country's index). In other words, the risk sharing originates from the dispersion of operations across different regulatory markets and the environment in which they operate (Kogut and Kulatilaka, 1994). Investors who value the risk sharing beyond the domestic market are willing to pay higher premiums for acquirer's stock since they cannot do their own homemade diversification at a cheaper cost.

4.2.1.3 Capital control and market discipline

In recent years, academics as well as regulators have called for an increased use of market discipline. The identification of market discipline as one of the three pillars in the Basel II proposal indicates how vital the participation of the market as an effective tool in supervision is.

Although recent researches have been conducted mostly around financial firms,[56] an analysis of market discipline from the perspective of principle-agent problems helps in explaining why this issue is important and applicable to other, non-financial firms.[57]

The literature based on agency theory suggests many mechanisms to mitigate the conflicts of interest between managers (who direct firms) and financial market participants (who invest funds).[58] Complementary to other mechanisms, market discipline, monitoring and influencing mechanisms by private sector agents, can adjust the behaviours of managers and align their goals with shareholders' interests. The feedback mechanisms range from extremist, such as filing for bankruptcy or voting out inefficient management. to the reflection in equity price, yield spreads, or even unwillingness to invest.

While regulations (direct mechanism) and market discipline (indirect mechanism) are expected to work collaboratively in reducing agency cost, a few studies argue that market discipline can also be distorted by some regulations, for example deposit insurance (Bliss, 2004) or capital control (Forbes, 2005). Forbes (2005) documents the consequences of imposing capital control as insulating an economy from competitive forces, reducing market discipline and allowing capital to be allocated inefficiently.

One approach to test the impact of capital control on market discipline is through the efficiency of capital allocation.[59] When countries lift their restrictions on capital movement, the inflow of foreign capital should enhance the market discipline with its stronger motivation and greater competence to monitor and influence local

[56]Financial institutions have become increasingly complex, e.g. the complexity and valuation of modern financial engineering products, large derivative position, off-balance sheet activities. While the largest firms are becoming difficult to examine and supervise prudentially, the potential adverse impact of their failure is increasing.

[57]Bliss (2004) argues the ignorance of analysing market discipline from the perspective of the principle-agent problem.

[58]For example the delegated monitors (boards of directors, regulatory supervision), reducing information costs (required disclosures of relevant information), and reducing managers' incentives to abuse their position (fiduciary, fraud, and insider trading laws; threat of takeover; and performance incentives such as managerial stock options).

[59]Wurgler (2000) examines the development of financial market on capital allocation. He finds that size of the domestic stock and credit market relative to GDP, are associated with a better allocation of capital (increase investment more in their growing industries and decrease investment more in their declining industries). He also reports that efficiency of capital allocation is (1) negatively correlated with the extent of state ownership, (2) positively correlated with the amount of firm-specific information in domestic stock returns, and (3) positively correlated with legal protection.

firms. As a consequence, we should see more investment in the profitable sectors or firms and divestment from unprofitable ones. Consistent with this argument, Chari and Henry (2004) find higher capital investment after financial liberalisation in those firms with better fundamentals prior to the liberalisation. Their study uses panel data from 369 firms across five countries: India, Jordan, South Korea, Malaysia and Thailand. From their baseline regression, an increase of a 1-percentage point of firm's expected future cash flow (capturing the fundamentals of firms) predicts a 4.1-percentage point increase in its investment ratio. In comparison, the country-specific shock on the lowering cost of capital after liberalisation only predicts a 2.3-percentage point increase in investment.[60]

Instead of considering an allocation of capital at firm-level, another approach puts greater emphasis on the role of government. As financial markets are not fully functioning in developing economies this leads the government to play an important role in allocating the resources. With capital control policies, governments can distort the market discipline by isolating themselves from competitive forces and exploiting this freedom to allocate the capital for their own purpose inefficiently. Building on this approach, Johnson and Mitton (2003) use the sample of 424 Malaysian public firms during the financial crisis to examine cronyism and capital control. They find the stock price performance of firms politically-connected to Prime Minister Mahathir suffer more ($60 billion estimated loss in market value) at the time of a macroeconomic shock, as the government has less ability to provide privileges and subsidies. However, these firms benefit more ($5 billion estimated gain in market value) after the imposition of capital control. The evidence broadly confirms their hypothesis that capital controls provide an opportunity for well-connected firms to benefit from better subsidies.

Also, capital controls can impact the allocation of capital by affecting the liquidity of asset markets and the efficiency of asset market pricing. Controls can reduce competitive pressure and market discipline, thereby reducing the information content of asset prices. This effect could be particularly important in less developed financial markets. The impact of capital liberalisation on asset market liquidity and

[60]The efficiency of capital allocation is closely related to the cost of capital. The larger the fall in a country's cost of capital, the more its investment should be driven by capital allocation.

pricing efficiency must be resolved empirically. Li et al. (2004) provide evidence on how capital account liberalisation could affect the efficiency of asset pricing. When stock prices are driven more by aggregate, country-level news instead of by firm-specific variables and information, there is less market discipline.

Market discipline is an effective mechanism to monitor and influence managers in making decisions that align with their shareholders' interests. Building on this argument, acquirers can enhance value for their shareholders by entering the country with a better market discipline relative to their country of domicile. As a consequence, the value should be reflected in the acquirer returns during an announcement.

4.2.2 Determinants of flows and wealth creations in CBAs

If the main motive for a corporate takeover is to reallocate control rights over companies and achieve the best possible use of corporate assets, the decision to undertake M&As should not be bounded by its national boundary. In fact, a greater pool of potential firms available abroad is likely to provide managers with more effective choices. In addition to the idea of allocative efficiency, cross-border deals can benefit from the variation of "country effects", such as the corporate governance, legal system, favourable government policies and level of technological development which are identical for domestic deals. The recent trend of trade and financial liberalisation that reduces the cost of being international also promotes the growth of CBAs.

According to previous statements, managers should receive higher NPV from participating in cross-border than domestic deals. However, differences in national borders are accompanied by the greater degree of transaction costs, information asymmetries and agency conflicts that are believed to deter the efficiency of transfer. The "country effects" on the other hand can result in value destruction rather than creation. Moreover, Moeller and Schlingemann (2005) explain why acquirers cannot realise the benefit from such market integration activities. These include (1) an increase in competition, (2) an increase of hubris and agency problem, (3) a decreasing benefit of corporate diversification as the cost of individual portfolios falls and (4) a value destroying effect from diversification activity.

Among the controversial results of value creating from cross-border deals, recent empirical studies document various determinants, such as distances, diversification, corporate governance, valuation and capital control, as having effects on cross-border deals. This section reviews how such determinants explain the direction of takeover activities and how wealth is created.

4.2.2.1 Diversification

How corporate diversification affects wealth creation for shareholders has long drawn an interest from financial communities. Studies extensively examine diversification activity at both industry and country level. In this review, we are more interested in the latter activity as international diversification is more directly associated with cross-border acquisitions than diversifying across industries within national borders. Financial theory and empirical evidence also suggest that industrial diversification appears to have a weak explanatory power for wealth creation as shareholders can replicate the strategy and diversify their own portfolio. In contrast, diversifying across countries has higher potential for value creation as it is more difficult for shareholders to perform home-made diversification and is likely to gain benefits from the "country effect", as documented in Cakici et al. (1996).

Among the literature on whether diversifying across countries leads to value creation, the evidence yields mixed results. Bodnar et al. (2003) and Errunza and Senbet (1984) report that diversification is a value creating corporate strategy; Christophe (1997), Click and Harrison (2000) and Denis et al. (2002) argue that such activity instead destroys the value of the firm. Christophe (1997) and Morck and Yeung (1991) however, find no effect of diversifying across borders. Building on these literatures, many other literatures employ a sample of firms that participate in CBAs to empirically demonstrate the effect of international diversification (see Dos Santos et al., 2008; Kiymaz and Mukherjee, 2000; Moeller and Schlingemann, 2005)

Using the sample of US firms engaged in cross-border acquisition, Kiymaz and Mukherjee (2000) find support for international diversification as a value creation strategy. They posit that differences caused by the 'country effect', such as difficulties in obtaining information, differences in the current exchange rate control, variations in business and tax regulation, and divergences in the level of technology,

can contribute to the divergence in international market and economic activities between merging nations. The greater the degree of difference, the higher the potential benefits that merging firms can receive. As expected, they find that abnormal return is inversely associated with the degree of economic co-movement between two merging countries. They use GNPCOR (correlation between the quarterly growth in GNPs of the two countries over a five-year period ending in the year before each merger) and STKCOR (the correlation between monthly stock market returns of the two countries over a five-year period ending in the year before each merger) to proxy for the degree of economic co-movement.

Consistent with Morck and Yeung (1991) and Christophe (1997), Dos Santos et al. (2008) document that acquisitions of "fairly valued" target do not lead to value discounts. They argue that the value discount reported in CBAs can be biased from underlying characteristics and the pre-merger market value of target firms. Their argument builds on Graham et al. (2002), in that the associated value reduction can happen because firms acquire already discounted foreign business units. By controlling for the pre-acquisition value of the target, they find that international diversification does not destroy the value of US acquirers while an industrial diversification still displays the discount in value. In contrast, building on Denis et al.'s (2002) negative effect of diversification, Moeller and Schlingemann (2005) confirm that stock returns of US acquirers are negatively related to an increase in global and industrial diversification.

4.2.2.2 Laws and corporate governance

In the spirit of the literature on law and finance pioneered by La Porta et al. (1998), studies on CBAs generally examine the effect of corporate governance through the lens of legal protection. Complementary to other studies that report a relationship between the legal protection and quality of financial measures, Dyck and Zingales (2004) find that stronger legal protection of minority shareholders can lower the private benefits of control. Following this intuition, Rossi and Volpin (2004) expect to see more active marketing of corporate control in those countries with better law enforcement where the shareholder protection is enhanced. Recently, Attah-Boakye et al. (2020) document that the economic freedom/quality of legal

environment are associated with the likelihood of deal withdrawal and the announcement gains.

In addition to shareholder protection, accounting standards are another important governance structure discussed in La Porta et al. (1998) and widely adopted in cross-border takeover literature. Since high accounting standards are associated with better disclosure, Rossi and Volpin (2004) posit that acquiring firms should have more potential to identify their targets in countries whose accounting standards are high. As a result, there should be high takeover activities.

To empirically test the effect of corporate governance on CBAs, like most of the literature in this strand, Rossi and Volpin (2004) adopt the set of indices developed by La Porta et al. (1998) to proxy for the level of shareholder protection and accounting standards.[61] Using the sample of M&As in 49 major countries announced during the 1990s, they find support for their predictions. The volume of takeover activity is significantly larger in those countries with strong shareholder protection and better accounting standards. They also find a higher takeover premium in target countries with greater shareholder protection. This finding can be explained by low cost of capital (increasing competition among bidders) and diffused shareholders (leading to the free-ride problem as mentioned in Grossman and Hart (1980)), which are common characteristics in countries with greater shareholder protection.

Extending from target-country analysis, the literature shows an interest in how the differences in governance structure between merging firms affect the decisions and values of cross-border deals. As predicted by Coffee (1999), Rossi and Volpin (2004) find a convergent pattern in corporate governance where firms from countries with better shareholder protection are likely to buy firms from countries with weaker protection. Bris et al. (2008) and Danbolt and Maciver (2012) report that the adjusted merger premium is significantly larger when the shareholder protection and accounting standards of the acquirer are better than the target's. While the reason

[61] Apart from the original La Porta et al.'s (1998) indices, various measures have been adopted in recent governance-related studies. For example, Bekaert et al. (2005) define the quality of institutions as the sum of the International Country Risk Guide (ICRG) Political Risk (ICRGP) subcomponents: Corruption, Law and Order, and Bureaucratic Quality. Djankov et al. (2008) develop the anti-self-dealing index which is a survey-based measure of legal protection of minority shareholders against expropriation by corporate insiders, the difference in index on the quality of their disclosure of accounting information (disclosure quality), as well as the quality of the institution.

to sell-off is well explained by the gains to target firms from lower cost of capital associated with better shareholder protection, the motive of acquirers to acquire poor governance firms is not clarified in these papers.

One possible explanation for value creating for shareholders of acquiring firms is how corporate governance in target firms can be improved by the corporate governance of acquiring firms. From the fact that target firms can adopt the governance system of their acquirer, it is likely that a better system can be transferred to the target firm and as a result improve their governance system. In the same line of this argument, Chari et al. (2010) find that, with control, acquiring firms with strong contracting institutions (from developed markets) can create value through the acquisition of firms with weak institutions (from emerging markets) by strengthening their contracting institutions and therefore overcoming incomplete contracts.

While most of the literature appreciates and follows the perspective of legal rule, Bris and Cabolis (2008) offer a complementary view to the value of shareholder protection. Built on the Coasian view (see Glaeser et al., 2001) and previous empirical findings on the valuation effect of private contract (Cremers and Nair, 2005; Gompers et al., 2003), Bris and Cabolis (2008) posit that firms can adopt the better voluntary shareholder protection practices, which should yield higher value relative to conforming with the legal minimum.

The novel approach of this study is to distinguish the value impact of firm-specific provisions from the legal rule. By international law, 100% of CBAs result in a change in nationality and in turn the laws applicable to target firms.[62] As a consequence, the law relevant to shareholder protection and accounting standards will be affected by this change.[63] Benefiting from the data of accounting standards (US GAAP, IAS, EU standards, or local standards) of 100% newly merged firms, the accounting standards that are changed by firm-specific consolidation rules can be told apart from the change by default.

[62]In principle, the law applicable to companies is the law of the country of nationality of the firm. The relevant protection is not determined by the law of the country of nationality of the shareholders, the country where the firm operates, or the country where the assets are located. The location of the shareholders of the company is irrelevant.

[63]There are some legal protections that are not affected by changes of nationality, for example creditor protection and corruption.

In their empirical test, Bris and Cabolis (2008) construct a sample of 506 CBAs from 39 countries in the period of 1989 to 2002. The transfer of investor protection from acquirer to target is proxied by differences in the indices of shareholder protection and accounting standards. The original accounting standards from La Porta et al. (1998) are modified to reflect the firm-specific measures of investor protection. As a result, the study finds that a firm's specific governance provision has an effect on takeover premium and is economically more significant than legal rules.

4.2.2.3 Valuation

Since markets in different countries are not perfectly integrated, which means firms in the poorer countries are inexpensive relative to other potential investments for the acquiring firms, Erel et al. (2012) propose that changes in the relative valuation of two countries should be able to motivate CBAs. The rationale behind consummated deals depends on whether the change in valuation is temporary or permanent. As suggested by Shleifer and Vishny (2003), mispricing and arbitrage play a central role in short-term changes. According to their model, rational managers who operate in inefficient markets can exploit the private information of their overvalued stock and therefore use the stock to pay for the transaction. While sceptics argue about the plausibility that a particular manager can own superior information about the valuation of the overall market or currency, Baker et al. (2009) propose the fluctuations in local investors' risk aversion and irrational expectations about a market's value as alternative explanations why target firm managers would be willing to accept such payment.

If the changes in valuation are permanent, foreign acquirers will have an advantage from the lower cost of capital. Froot and Stein (1991) describe this prediction with the reduction in information asymmetry in raising capital. As a result, foreign acquirers can bid more aggressively relative to their domestic rivals and drive the CBAs.

To test their predictions, Erel et al. (2012) analyse a sample of 56,978 CBAs between 1990 and 2007. The valuation differences between acquiring and target firms are decomposed into three components: (1) currency, (2) return of local stock

market, and (3) MB value. They find that firms in countries whose currency has appreciated, whose stock market has increased in value and who have a relatively high market-to-book value tend to be acquiring firms, while the weaker economic performances tend to be those of target firms. Following Baker et al. (2009), they also show that wealth is better than mispricing, which explains the relationship between valuation differences and CBAs.

4.2.2.4 Geographical and cultural distance

International trade literature has long been interested in the impact of geographical proximity on the flow of bilateral trade. Most studies apply the basic gravity model which predicts the bilateral flow between countries using their distance and economic sizes (often using GDP measures). Empirically, the results in general support that geographical distance has a significantly negative impact on bilateral trade flow (see e.g. Frankel, 1997; Frankel et al., 1995; Linneman, 1966).

The benefits of geographical proximity are widely recognised from both an operational and informational perspective. Cornett and Tehranian (1992), DeLong (2001) and Houston et al. (2001) report the role of proximity in reducing costs in the banking industry as well as Spiller (1985) in vertical mergers. Much evidence of the informational advantage of local agents includes the local bias in mutual fund investment and individual portfolio selection (Coval and Moskowitz, 1999, 2001; Dvořák, 2005; Feng and Seasholes, 2004; Grinblatt and Keloharju, 2001; Huberman, 2001; Zhu, 2002), better earnings forecast from local analysts (Malloy, 2005), and information resolution for local lending (Degryse and Ongena, 2005; Petersen and Rajan, 2002).

In takeovers, although there are discussions on informational advantage posted by acquirers, this has not been examined in the context of geographical proximity.[64] Kedia et al.'s (2005) is the first study to document the impact of geographical proximity on acquisition performance. Using the sample of US public firms over the period of 1990 to 2004, they find that acquisitions where the target firms are located within 100 kilometres (local transactions) gain 2.39% compared to

[64] The studies of Fishman (1989), Hirshleifer and Png (1989), Milgrom (1981), Milgrom and Weber (1982) and Povel and Singh (2006) on the information asymmetry among acquirers suggest that well-informed bidders can benefit from their informational advantage.

0.90% for non-local transactions. Their results are robust after controlling for target and deal characteristics. In addition, consistent with the vital role of soft information in assessing the target firms whose assets are difficult to value (Coffee, 1999), they report the positive and significant acquirer returns when the target firm is private, small, R&D intensive, located in an non-metropolitan area and has no analyst coverage.

Instead of geographical proximity, Ahern et al. (2015) examine the impact of cultural distance on the decision of CBAs. Since cultural differences cause difficulties in coordination among employees,[65] it is likely that cultural distance between merging firms can increase the integration cost and make the deal less successful. To test this hypothesis, Ahern et al. (2015) apply the gravity model on a comprehensive sample of 20,893 CBAs from 52 countries between 1991 and 2000. They measure cultural distance through three dimensions that are most commonly identified in sociology and economics, which are (1) Trust and Distrust, (2) Hierarchy and Egalitarianism, and (3) Individuals and Collectivism. Along the same lines as geographical distance, their results confirm the negative impact of cultural distance between merging firms on the merger volume and combined announcement return.

4.2.2.5 Capital control and financial integration

While the literature on capital control is voluminous, an understanding of its impact on CBAs is minimal. To the best of our knowledge, Barbopoulos et al. (2012) and Francis et al. (2008) are the only studies conducted in this area. Although both of them share some interests in the capital control of target countries, their studies develop from different theoretical viewpoints.

Barbopoulos et al. (2012) find that UK firms can create value for their shareholders by acquiring targets from countries that have higher restrictions on capital mobility. The results from their univariate and multivariate analyses confirm that gains from acquisitions are positively associated with the capital control level in target countries. They argue that value creation can be explained by the advantage of

[65]The findings of the literature on social science support the argument that greater social distance can reduce the coordination among players (Akerlof, 1997; Arrow and Fisher, 1974; Fershtman and Gneezy, 2000; Glaeser et al., 2000; Hewstone et al., 2002; Hoffman et al., 1996).

firms over individuals in accessing restricted markets, where there is less competition in product markets.

Francis et al. (2008) examine the cross-border effect of acquiring firms from different financial market integration perspectives. They hypothesise that a surge in purchasing firms from segmented markets during the mid to late 1900s is motivated by an opportunity in which US acquirers can provide funds for those financially constrained firms through their internal and external financial markets. By overcoming their constraints, newly merged entities can pursue the positive NPV projects previously foregone. As a result, this value creation should be reflected in the positive abnormal return following the takeover announcement.[66] Consistent with predictions, they no longer find a negative cross-border effect in the second period of their sample (1996-2003) where numbers of target firms from a segmented-market are increasing. They also find that acquiring target firms from segmented markets yields significantly higher announcement abnormal returns, as well as post-merger operating performance, than target firms from integrated markets. The greater return presented by acquirers who have a lower cost of capital further confirms that the value is created by a combination of firms with different financial market integration status, in which funds are provided to high cost firms.

4.3. Hypotheses Setting

At the present time, where most countries have already experienced financial liberalisation, the traditional studies that usually focus on the macroeconomic effect of a country's financial liberalisation turn out to be less relevant and harder to implement. Alternatively, by using a sample of CBAs, this study offers a new approach by conducting a natural experiment on the effect of capital control on the decisions and value of cross-border investment. From the fact that a newly merged entity is obliged to accept the corporate legal system, which includes the capital control policy of the country of residence, acquirers should, to some degree, be affected by the different control policy that governs their new entity. Following this

[66]Francis et al. (2008) note that the high performance and costly fees required by US exchange can deter foreign firms in segmented markets from pursuing a cross-listing strategy to gain access into US financial markets. Although OTC cross-listing requirements are less restrictive, they do not provide the same benefit of reducing firm's cost of capital as cross-listing in exchange.

intuition, the difference in the level of capital control between acquirer and target nation is likely to provide richer information and variant rather than relying on the change of capital control level in one particular country.

Prior literature, inspired by the neoclassical growth model, explains the motive for cross-border flow with return on capital (Solow, 1956). Under this model, an allocative efficiency suggests that capital will flow from capital-abundant developed countries to capture higher returns in the capital-scarce developing countries during the period of capital account liberalisation. However, this model is not applicable to the rapid growth in capital outflow from high capital control developing economies such as China and India. Although a few studies on international business studies explain these flows with different motives of strategic resource seeking[67], none of them explicitly distinguish the high capital control countries from developing countries. From both theoretical and empirical perspectives, we need more understanding of how capital control policies influence the direction of capital flow, particularly to and from high capital control countries.

As summarised in the previous section, it is generally acknowledged that firms operating in countries with capital control are likely to face higher cost of capital (Bekaert and Harvey, 2000; Chari and Henry, 2004; Desai et al., 2006; Henry, 2000), tighter financial constraint (Harrison et al., 2004; Laeven, 2003) and less market discipline (Chari and Henry, 2004; Forbes, 2005; Johnson and Mitton, 2003). Evidence of reducing reported local profitability and increasing the frequency of dividend repatriations by multinational affiliates located in countries with capital control suggest that firms are aware of the costs exhibited by capital controls and are likely to alter their behaviour to circumvent them (see Desai et al., 2006). If this is the case, firms in high capital control countries who bear higher costs are likely to acquire foreign targets operating in countries with lower capital control and benefit from relatively lower costs of capital.

> *H_1: "Firms are likely to acquire foreign targets operating in countries with relatively lower levels of capital control."*

[67]Such as natural resources, product differentiation, patent-protected technologies, superior managerial and marketing skills, as well as achieving economies of scale (Accenture, 2006; Athreye & Kapur, 2009; Chen, 2008; Cui and Jiang, 2010, Deng, 2007, 2009; Kumar, 2009; Rui and Yip, 2008; Wang and Boateng, 2007).

Furthermore, if this acquisition helps firm to reduce costs created by capital controls, we expect to see this value creation through the positive abnormal return during the announcement period.

> *H_2: "There is a positive relationship between acquirer's country capital control level and their gain at announcement, given that acquirers purchase targets operating in relatively low capital control countries."*

Among the various consequences brought about by capital controls, their effect on the supply of capital and its cost are well recognised in both theoretical and empirical literature. Standard theory in economics suggests that the restriction in capital movement, particularly into the country, will limit the supply of capital in that country and in turn increase their cost of capital. Empirically, Harrison et al. (2004) find that the restriction of capital control movement increases firms' financial constraints. Along the same line, Forbes (2005) confirms that capital controls make it more difficult and expensive for small firm to access funds. Using the unique dataset of US affiliates, Desai et al. (2006) estimate 5% higher cost of borrowing by US affiliates located in countries with capital controls relative to others from the same parent companies who locate in countries without controls. Bekaert et al. (2005) and Henry (2000) find the cost of equity capital decreases significantly after financial liberalisation.

The association between cost of capital and capital control is emphasised in the recent DFI studies. Baker et al. (2009) and Francis et al. (2008) posit that DFI flows are driven by the cheap capital cost available in the source country and the effect is expected to be greater in the host country where there are capital account restrictions. Francis et al. (2008) further report the significant higher announcement excess returns and post-merger operating performance of US firms who acquire foreign targets in segmented markets.[68] The abnormal return is even higher when the acquiring firms have relatively low cost of capital (both cost of equity and cost of debt). They explain that the value is created through the combination of firms from

[68]Segmented markets are defined following Bekaert and Harvey (2000) and Edison and Warnock (2001) if the country has a fully integrated market financial defined as integrated and all other markets are defined as segmented.

different integrated market status, in which the fund can be provided to high capital cost firms in segmented market.

In the spirit of Francis et al. (2008), this study focuses on the motive of exploiting low-cost capital that is available in lower capital control countries. However, we argue that the value created from this intuition should not be limited only to acquirers from developed economies, as suggested in the existing literature. The discussion in Francis et al. (2008) about foreign firms who agree to be acquired by US acquirers in return for gaining access to the US financial market suggests that there is a possible motive for high capital cost firms to gain access to countries where low-cost capital is available.

In this section, we examine whether the gains of acquirers who acquire foreign targets from countries with relatively lower levels of capital control can be explained by the accessibility to the cheaper cost of capital. If so, we expect to see higher abnormal returns in the high cost of capital acquirers and also in acquirers whose post-merger cost of capital declines.

> *H_3: "There is a positive relationship between acquirer's country capital control level and their gain at announcement, given that acquirers can access the low-cost capital by purchasing targets operating in relatively low capital control countries."*

While the benefit of international risk diversification has been recognised in both prior literature in capital control and CBAs, our justification for examining this topic separately in this chapter comes from at least three reasons. First, Bekaert et al. (2005) point out that the reduction in cost of capital following stock market liberalisation can be the result of an easing in firms' financial constraints and improving access to external capital markets or better risk sharing, or both of them. Based on this argument, our findings can possibly be dominated by the first effect which makes the hypothesis of better risk diversification become irrelevant. Second, among the many capital control literatures that explain their falling cost of capital during financial liberalisation with better risk sharing, none of them conduct direct tests on risk sharing nor distinguish the impact of risk sharing from the interest rate. Third, the use of macroeconomic co-movements (GDP and economic growth)

between two merging countries presented in the takeover literature (see Dos Santos et al., 2008; Kiymaz and Mukherjee, 2000) is too general and cannot fully explain the better risk diversification in our setting which is more related to the financial liberalisation event.

In their asset pricing literature, Chari and Henry (2004) use financial liberalisation as an event to test the effect of international risk sharing on the revaluation of stock price. From a theoretical viewpoint, the source of systematic risk for pricing stocks will change from the local stock market index to a world stock market index at the time of liberalisation. A decrease in exposure to systematic risk will lower the expected return and finally lead to the rise in stock price.

In the spirit of Chari and Henry (2004), the source of systematic risk of acquiring firms will change from local stock market index of their countries to local stock market of target countries. On the assumption that countries with less restriction on capital movement should be better integrated with the world financial market, the exposure to risk of acquirers who purchase targets operating in relatively low capital control environments should decline, as well as the expected return. As a result, we expect to see an upward price revaluation in their stocks.

> *H_4: There is a positive relationship between acquirer's country capital control level and their gain at announcement, given that acquirers can benefit from risk sharing by purchasing targets operating in relatively low capital control countries."*

Complementary to internal corporate governance, external market discipline is another powerful instrument to mitigate the principle-agent problem at the firm level. Under this mechanism, the private sector plays an important role in monitoring and influencing manager behaviours to comply with their shareholders' interests. To confirm this intuition, the literature has documented the positive effect of market discipline on firm performance and its role in conflict resolutions between shareholders and managers (e.g. Allen and Gate, 2000; Masulis et al., 2007; Shleifer and Vishny, 1997).[69]

[69]These studies use the product market competition and takeover threat to proxy for the market discipline.

Market discipline is supposed to function well in the environment where regulations are supportive. However, there are several evidences that market discipline is instead distorted by regulations. By considering the trade barriers imposed in Canada, Morck et al. (1990) find that entrenched firms who are well-connected (as measured by family inheritance of control) are less efficient and had negative abnormal returns after the barriers were lifted as a result of the US-Canada free trade agreement. Johnson and Mitton (2003) document that firms with political favouritism benefit more from higher levels of privileges and subsidies from the Malaysian government during the time of imposing capital control. These studies build on Olson's (1982) proposition that collusions and entrenchments can protect, and inefficiency activities can hurt, society.

From Morck et al. (2000) and Johnson and Mitton (2003), we can infer that by imposing a regulation such as capital control, government can isolate an economy from competitive forces, reducing market discipline and exploiting this freedom to allocate the capital inefficiently. We expect that the distortion should be more severe in an economy with weak governance and great potential for corruption. Under this circumstance, the competition is not held on fair ground or on the efficiency of the firm, since not all of firms can win support from the government and evade the imposed cost of capital control.

Local firms with competitive advantage, who can enter the new market in which the capital is allocated efficiently by the return on investment rather than other factors (e.g. political connections), should benefit from the alleviation of the market discipline. We contend that gains derived from the improvement in market discipline should be more pronounced for acquirers who reside in countries with relatively high levels of capital control and suffer from weak governance.

> H_5: *There is a positive relationship between acquirer's country capital control level and their gain at announcement, given that acquirers can benefit from an improvement in market discipline by purchasing targets operating in relatively low capital control countries."*

4.4. Sample and Methodology

In this section, we discuss how our sample and the measure of capital control are constructed. To achieve our goal in generalising the effect of capital control, we attempt to include as many countries as possible into our sample. However, although we carefully choose the data sources that provide the broadest country coverage, the unavailability of data of some countries in some databases may reduce the numbers of countries and observations in our final sample. Lastly, we include an analysis of descriptive statistics in this section.

4.4.1 Sample construction

This study obtains acquisition data from the SDC M&As database. We collect all completed acquisitions valued at $1 million or more from 1999 to 2012 for all available countries.[70] We exclude deals that are categorised by SDC as leveraged buyouts (LBOs), spin-offs, recapitalisations, self-tender offers, exchange offers, repurchases, partial equity stake purchases, acquisition of remaining interest, and privatisations. We collect both acquiring and target firm information on the name, ultimate parent, public status, primary four digits SIC code, country of domicile, as well as deal-level information on the announcement and completion dates, deal value, deal status, fraction of share held by acquirers prior to and after the transaction.

To be included in our sample, the acquirer has to own less than 10% of the target's share prior to the announcement and obtain more than 50% as a result of the transaction.[71] We drop firms that are recorded by SDC as multinational or unknown location. However, we put no restriction on listed status and the majority of transactions involving private target firms. We end up with an initial sample of 32,593 mergers. We record numbers of domestic deals in each country for later analysis before keeping only 15,887 cross-border deals.[72]

[70]The reason for not starting the sample period from 1990 in chapter 4 (as in other chapters) is unavailability of data prior to 1999. To construct Schindler's capital control index, we require detailed data from IMF's AREAER report that is available only since 1999. In addition, we extended our sample period to 2012 for the 3rd empirical chapter to incorporate as many observations as possible at the time of data collection for this study.

[71]These criteria are to ensure the change of control of assets (see Netter et al., 2011).

[72]Numbers of domestic transactions will be used to calculate the volume of CBAs in Section 4.6.2.1

For the return and financial data, we collect information on the acquirer's daily stock returns, local market index returns, market capitalisations and MB value as well as target's daily stock and local market index returns. All of data items collected from Datastream are reported or calculated in US dollars. These result in a sample of 15,466 cross-border transactions for which acquirers' return data are available at least one day during an announcement window. We obtain data used in constructing Schindler's capital control index from the International Monetary Fund's (IMF) Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) database.[73] Data on governance indicators (Voice and accountability, Political stability, Government efficiency, Regular quality, Rule of law and Control of corruption) are from Worldwide Governance Indicator (WGI). Our geographical distance (Distance and Common border) as well as cultural distance (Official language, Religion and Legal system) are from Centre d'Etudes Prospectives et d'Informations Internationales (CEPII). We obtain the average corporate tax rates from Economic Freedom. Annual GDP growth and GDP per capita (in US dollars) are from the World Development Indicator (WDI). Data on export and import figures are from the United Nations Commodity Trade Statistics database. The Standard & Poor (S&P) debt rating are from the SDC database. Details on the definitions of these variables are in Appendix A. The availability of these control variables reduces our final sample to 13,053 transactions.

4.4.2 Capital control measures

In this strand of literature, scholars usually focus on studying financial openness, financial integration, financial globalisation, financial liberalisation and capital account liberalisation. Despite the variety of terms used, they all imply changes in a country's capital control policies and are sometimes used interchangeably. To avoid confusion and obtain a direct measure for our hypotheses testing, this study concentrates on the term and methodology of capital control measure rather than others.

Along with a surge in capital-control related studies, the literature has introduced a range of indicators with various methodologies. Fundamentally, they

[73] The detail and our justification for using this measure will be discussed later on in this section.

are classified into two main types: *de jure* and *de facto*. While the first group of indicators is a direct administrative control through outright prohibitions (including restrictions on capital account transactions, restrictions on current account transactions, repatriation requirements, and restrictions on the use of funds), the latter is a market-based measure. Deriving from actual capital flows allows *de facto* measures to capture indirect controls including multiple exchange rate systems, taxation of cross-border flows, and other indirect regulatory controls. However, there are arguments regarding the pitfalls of both approaches.

De jure indicators mostly benefit from IMF's AREAER as their primary source of data. Early studies use the simple binary measures from AREAER's categorical table in their regression analysis (see Alesina et al., 1994; Edison et al., 2004; Garrett, 1995; Grilli and Mislesi-Ferretti, 1995; Klein, 2003; Leblang, 1997).[74] The reports become more clarified after the introduction of a new AREAER tabular format in 1997 (data for year 1996) with 13 distinct aspects of capital account transactions. Johnston and Tamirisa (1998), Miniane (2004) and Tamirisa (1999) develop more detailed measures by using binary scores from these 13 categories.

To conduct research on a more generalised basis, researchers demand measures that have broader coverage in both country ranges and time periods. Among others, Brune and Guisinger's (2006) FOI (Financial Openness Index), Chinn and Ito's (2008) KAOPEN and Gwartney et al.'s (2012) EFW serve the purpose. Brune and Guisinger (2006) extend the Johnston and Tamirisa (1998) data to cover 187 countries from 1970 to 2004 by coding the quantitative description for missing data prior to volume 1997. However, this measure is not publicly available. In Gwartney et al. (2012), capital control index is reported in area 4.D.ii along with other indices in the EFW Annual Report. The index based on 13 types of capital control in AREAER is defined as the percentage of capital controls not levied of 153 countries from 1970 to 2011. Emphasising more on a data reduction exercise, Chinn and Ito (2008) run the principle component analysis on three categorical measures of current account restrictions, export proceeds surrender requirements, presence of multiple exchange rates, plus the rolling average of AREAER's binary measure over

[74]The report published since 1950 in prose format but it was not until 1967 that it included a table "Summary Features of Exchange and Trade Systems in Member Countries".

the four years window *t-4* to *t*. Their data are periodically updated and the latest is the 2008 version available for 182 countries from 1970.

While AREAER's table-based indicators are well-known for being straightforward and easy to implement, Quinn et al. (2011) note three pitfalls of this approach. They include an ambiguity in IMF's methodology to switch the restriction between 'yes' and 'no', the structural break in data reported between years 1995 and 1996, and the measurement point which is 31 December of every year. Being aware of these problems, Quinn (1992, 1997) construct alternative *de jure* indices, CAPITAL and FIN_CURRENT by coding the text reported in AREAER instead of using instant table-based indicators. CAPITAL represents the capital account restriction (payment for imports and receipt from exports) with the score ranging from 0-4, while FIN_CURRENT reflects the financial current account regulations (payment for invisibles, receipts from invisibles, capital flows by residents and capital flows by non-residents) with the score ranging from 0-8. These measures are available for 122 countries from 1949 to 2007.

Another recent AREAER text indicator that finally provides an intensity and breadth of capital control is Schindler's (2009) KA index. Coding with the level of individual types of transaction (e.g. purchased locally by non-residents or sold or issued locally by non-residents) allow this method to construct sub-indices according to different types of transaction (asset categories, residency status, and direction of flow) before being aggregated into the main index. They cover 91 countries during the time period from 1995 to 2005.

Although *de jure* indicators reveal whether there are restrictions on capital accounts or not, they fail to capture the level of enforcement as well as the effect of control on other asset flows. For example, there are speculative capital flows into China in recent years despite its strict capital control regulations (see Prasad and Wei, 2007). For some scholars, *de facto* is likely to be a sound choice to measure the degree of financial integration of an economy into the international market. Lane and Milesi-Ferretti's (2007) TOTAL are recognised as the most widely used *de facto* measures (Kose et al., 2009). TOTAL is a volume-based measure of international financial integration calculated from the combination of the stock of external assets and liabilities divided by gross domestic product (GDP). In the 2009 update, the data

cover 179 countries from 1970 to 2007 where data is available. Likewise, the United Nations Conference on Trade and Development (UNCTAD) provides two additional quantity measures, which are inward FDI and stock. They cover most of the United Nation countries and are available from 1970.

Edison and Warnock (2003) propose a measure that captures the intensity of capital controls on a monthly basis across 29 emerging markets. Their idea is to measure the restrictions on foreign ownership of equity by using the ratio of the market capitalisation of a country's IFCI index (represent the portion of the market that is available to foreign investors) to a country's IFCG index (representing the whole market index). FORU is one minus the ratio.

However, *de facto* measures also face some criticisms. Ignorance of administrative control can make the interpretation using only actual capital flow become misleading in some particular situations. For example, the surge in capital inflows may induce the capital control imposition and reduce the capital inflows temporarily (see Ostry et al., 2011). FDI-based measures also suffer from inconsistency of FDI reports across countries.

Scholars have long been cautious about any accuracy of capital-control related measurements (see Desai et al., 2006; Edison et al., 2004; Eichengreen, 2001; Francis et al., 2008). Quinn et al. (2011) argue that among the large choices of indicators most of them are valid and capture different and useful (facets) of financial openness. Of 10 *de jure* and *de facto* measures in their assessment, only the Investment Freedom Index by Heritage Foundation is claimed to have weaknesses that are not suitable for rigorous economic analysis. They also recommend that researchers should primarily choose their index by (1) the coverage of countries and time that match their sample and (2) the desired degree of disaggregation.

Prior financial literatures show no consensus in their choices of measures. Barbopoulos et al. (2012) and Moeller and Schlingemann (2005) use the EFW index. The latter also use two additional measures of market integration introduced by Bekaert et al. (2005) and Edison and Warnock (2003). Desai et al. (2006) firstly use Bekaert et al.'s (2005) measures to identify whether the country in their sample is an integrated or segmented market before adding on the missing information in some

emerging economies to Edison and Warnock's (2001). Desai et al. (2006) opt for the FDI measures.

In this study, we choose Schindler's KA index as our main measure of capital control. The reasons are (1) we need to include as many countries as possible in our sample[75]; (2) the clear methodology allows us to replicate and extend the construction of measures up to 2012; and (3) KA provides intensity and breadth which provides us with more information than the binary AREAER indicator.[76] Other measures will be used for robustness checking purposes. To start with, we acquire the AREAER binary data from the IMF AREAER database from 1999 to 2012.[77] Following Schindler's (2009) methodology, the information contained in the AREAER takes a value of zero (unrestricted) or one (restricted). In our analysis, we construct sub-indices according to six main asset categories which are equity (eq), bonds (bo), money market instruments (mm), collective instruments (ci), financial credits (fc) and direct investment (di) for each country and each year, before aggregating them by taking an unweighted average and obtaining the broader index of a country's restrictiveness of capital account transactions.

4.4.3 Descriptive statistics

Table 4.1 presents the frequency of CBAs conditional by year and domicile of acquirer. From 1999 to 2012, the numbers of cross-border deals have gradually increased and exceeded 1,000 deals shortly before the financial crises broke out in 2000 and 2007. Our sample covers acquirers from 63 countries where the Australia, Canada, France, UK and US ~~US, UK, Canada, Australia and France~~ are the top five source countries. Out of all 13,053 deals, 5,159 of them are categorised as cross-border deals flowing into target countries that have relatively lower capital control levels. Most deals originate from the US, Sweden, Australia, the UK, Japan and India. The other 6,906 deals are acquisitions that flow into target countries that have relatively higher capital control levels. The majority of deals in this subsample

[75]Sample biases.

[76]Although constructed from the binary indicators, the cross-sectorial and time variation that results from aggregating along various dimensions of binary indicators can reflect the intensity of a country's capital control.

[77]The measures include Lane and Milesi-Ferretti's (2007) Total index, Economic Freedom of the EFW's index and Chinn and Ito's (2008) KAOPEN.

include acquirers from the UK, Canada, the US, France, Australia, and the Netherlands.

In some countries where the level of capital control is very high, such as Colombia, Turkey, Bahamas, Ukraine, Saudi Arabia, India, China, South Africa, Brazil, Mexico, Malaysia, Poland and Thailand, more than 80% of their cross-border deals go for the target with a relatively lower level of capital control. It is also worth noting that by partitioning the sample with relative capital control levels makes our subsamples contain good distributions of both developed and emerging nations.

Table 4.2 presents summary statistics of all samples and subsamples partitioned by the relative capital control level between acquirer and target countries. In Panel A, we present the mean and standard deviation of Schindler's KA capital control index of both acquiring and target nations. The low value of capital control index (0.25 for acquirer and 0.39 for target from a scale of 0-1) implies a less-restricted capital flow in all countries on average. This may be explained by the growing trend for financial liberalisation in recent decades. Relative to all transactions, our subsample contains acquisitions flow into the relatively lower capital control countries, highlighting the higher capital control level (0.39) in acquiring countries and lower capital control level (0.14) in target countries. In contrast, the acquisitions that flow into the relatively higher capital control countries present a lower capital control level in acquiring countries (0.15) and a higher one in target countries (0.46).

Panel B presents the country-pair variables that will be used for control purposes in the multivariate analysis. Log Distant, Same language, Same border, Same religion, Same legal system show no differences across all groups of samples. However, there are significant differences in the remaining variables between two groups of our subsamples. Countries of acquirers in our first subsample (acquisitions flow into relatively lower capital control countries) exhibit higher GDP growth, exchange rate volatility and corporate tax, relative to their target firms. In contrast, acquirers in our second subsample (acquisitions flow into relatively higher capital control countries) have higher GDP per capita, exchange rate growth and export ratio and better corporate governance (measured by voice, politics, government, regulatory, rule of law and corruption) relative to their target. These identical

characteristics are also found in our full sample implying the strong effect and domination of the latter subsample group.

In Panel C, we report the mean and standard deviation of control variables at deal level. These include the size of acquirer, value of transaction, the percentage of target firms which are private and subsidiary, the percentage of deals paid by only cash, only stock and the percentage of non-conglomerate deals. Almost 40% of the target status is subsidiary and the majority of payments are paid by cash only. On average, our results exhibit no difference across the subgroups in our sample.

4.4.4 Event time abnormal return estimation

After the modern event study was first introduced as a tool to solve a puzzle in a firm's stock split by Fama et al. (1969), the basic statistical format that aims to examine the behaviour of a firm's stock process around corporate events remains a workhorse for research in corporate finance. The popularity of this method is confirmed by Kothari and Warner (2007) who found that 565 papers published in five top finance journals[78] employed event study as a research method between 1974 and 2000.

As in other corporate events, the event study is the most common approach used to examine the value creation in M&As. Given that markets operate efficiently, all benefits and costs associated with an acquisition should be assessed and incorporated into the stock price. The rise in price during a short window surrounding an announcement then reflects the value created from an acquisition while a fall mirrors value destruction.

In the standard model of Brown and Warner (1985), for each stock, the actual return on the stock price for time period t relative to the event, R_{it} is

$$R_{it} = E(R_{it}) + AR_{it} \tag{4.7}$$

where $E(R)_{it}$ is the normal return, the expected return for stock i on day t and AR_{it} is the component of returns, which is abnormal or unexpected. The main focus of this

[78] *Journal of Business, Journal of Finance, Journal of Financial Economics, Journal of Financial and Quantitative Analysis*, and *The Review of Financial Studies*.

approach is on the equivalent AR_{it} in equation (4.8) which is the difference between the return conditional on an event and the expected return unconditional on the event.

$$AR_{it} = R_{it} - E(R_{it}) \tag{4.8}$$

Unlike actual return, expected return is unobservable and needs to be estimated. According to Campbell et al. (1997), there are several methods to estimate the expected return and these can be grouped into two categories – statistical (constant-mean-return model, market model and factor model) and economic (capital asset pricing model and arbitrage pricing model) models. Although the economic model possesses more advantages by including the statistical model assumption and provides a more precise normal return by using economic restrictions, the complicated implementation and its advantages, compared to the unrestricted statistical model, has to be taken into account (see Brown and Weinstein, 1985).

Golubov et al. (2013) point out that the two models typically used in estimating expected returns are market model and market-adjusted model. The first model involves the estimation of the market model parameter in equation (4.9) by regression of stock returns, R_{it} for equal weight or a value-weight market index return, R_{mt} over a certain period prior to the event, mostly on the window of (-205, -6).

$$R_{it} = \alpha_i + \beta_i R_{mt} \tag{4.9}$$

where α_i is the regression intercept for stock i, and β_i is the slope coefficient for stock i. The obtained parameters (α_i and β_i) with market index return on the event date are then used to estimate the expected return of stock i on that date.

$$E(R_{it}) = \alpha_i + \beta_i R_{mt} \tag{4.10}$$

For the second approach, the market-adjusted model is a modified market model. With α_i = 0 and β_i = 1, the expected return of stock i on the event date then equals the market index.

$$AR_{it} = R_{it} - R_{mt} \tag{4.11}$$

To examine whether the mean abnormal returns around the event are equal to zero, we can aggregate the abnormal return over the event window (t_1, t_2) to obtain the cumulative abnormal return $CAR(t_1, t_2)$. By including a few days before the announcement date, CAR may capture the abnormal return caused by the potential leak of information. Also, by allowing a few days after the event date, the delay in the stock price reaction can be picked up.

$$CAR(t_1, t_2) = \sum_{t=t1}^{t2} AR_{it} \quad (4.12)$$

It is interesting to examine whether mean abnormal returns for the period around the events are equal to zero. The statistical significance of the CARs is then tested using formal statistical procedures. However, event study tests are well-specified only to the extent that the assumptions underlying their estimations are correct. First, event studies are jointly tested to check whether abnormal returns are zero and whether the assumed model of expected return is correct. Second, the statistical properties of the abnormal return measures must be correct. A standard t-test for mean abnormal performance assumes that the mean abnormal performance for the cross section of stock is normally distributed.

Following Barbopoulos et al. (2012), Dong et al. (2006), Faccio and Masulis (2005) and Fuller et al. (2002), we choose to estimate the expected return by the market-adjusted model instead of the market model. The main reason for this is to avoid contamination from the earlier deal announcement, which may be within the estimation periods of frequent acquirers. In our sample, there are 3,405 deals where acquirers announce more than one bidding within two years. Furthermore, our study is on a short-run basis, which Brown and Warner (1980) document as the effect of using different estimation methods being minimal. To obtain the abnormal return, we follow equation (4.11) and use the local market index as the expected return. The cumulative abnormal return is estimated over the event window of (-2, +2).

4.4.5 Cross-sectional analysis

As discussed previously, many factors affect acquirers' returns. This section uses cross-sectional regression to control for those variables and examines whether

the capital control level still has a significant impact on the gain of acquirers. Our baseline specification is as follows:

$$CAR_i = \alpha + \text{measure of capital control} + \sum_{i=1}^{N} X_i + \varepsilon_i \qquad (4.13)$$

where CAR_i is the market-adjusted return for (-2, +2) period surrounding an announcement. The vector of explanatory variables, X, includes the log Acquirer size, log Transaction value, Private, Subsidiary, Cash, Stock, Same industry, log Distant, Same language, Same border, Same religion, Same legal system, Dif ln GDP growth, Dif ln GDP per capita, Exchange rage growth, Exchange rate volatility Dif corporate tax rate, Export from Acquirer, Dif voice, Dif politic, Dif government, Dif regulatory, Dif rule of law and Dif corruption. We also include the year, industry and country fixed effects into our specifications. The variables are defined in Appendix C.

4.5 Results

4.5.1 CBAs' volume and capital control

Our first hypothesis *H1:"Firms are likely to acquire foreign targets operating in countries with relatively lower levels of capital control"* predicts an association between capital control levels and the volumes of cross-border flows from acquiring countries, particularly when the capital control levels in acquiring countries are relatively higher than their targets. In the spirit of Rossi and Volpin (2004) and Erel et al. (2012), we define the volume of cross-border deals as the ratio of cross-border deals where the target is from country s and the acquirer is from country b (s≠b) as a percentage of the total number of deals (domestic and cross-border deals) in country b.

Table 4.3 reports the coefficient of six OLS regression analyses of the cross-border merger volume. The dependent variable is the volume of cross-border deals as mentioned in the previous paragraph. Models 1 to 4 include all deals with different sets of control variables. The coefficients of acquirer capital control are negative and statistically different from zero in every model. Restricting the sample to two subsamples based on the relative level of capital control between acquirer and target

countries, Model 5 includes deals that flow into relatively lower capital control countries while Model 6 includes deals that flow into relatively higher capital control countries. The different sign in the coefficients of acquirer capital control between Models 5 and 6 confirm our prediction in the first hypothesis. Consistent with our first hypothesis, the positive and significant coefficient of acquirer capital control in Column 5 indicates that higher capital control levels in acquiring countries increase the likelihood of firms in that country to purchase firms from another country, given that their target countries have relatively lower control levels. Our results are in line with the springboard perspective that the acquirer's motive to pursue an international strategy is to reduce their vulnerability to institutional and market constraints at home.

Turning to the estimation of control variables coefficients, they exhibit some findings, as we expected. First, consistent with Barbopoulos et al. (2012), the high positive and significant coefficient of target capital control can be explained by less competition in the product market motive. Second, the negative coefficients of log Distant can be interpreted as the distant effect caused from poor information sharing (Kedia et al., 2005). The larger the distance between two countries, the less likely CBA is to take place. Third, from a macroeconomic viewpoint, the exchange rate volatility reflects uncertainty that discourages the cross-border deals' propensity. Fourth, there is a trading effect, i.e. where the trading level between two countries is high, potential firms may have a motive to avoid trading barriers and relevant costs by switching their mode of doing business from exporting to operating in that country using the channel of CBAs. Finally, for country governance variables, we find support to the convergence in cross-border flow from higher to lower governance countries as suggested in Rossi and Volpin (2004). The coefficients of the difference in voice, politic, government and corruption between two merging countries, which are all positive and significant, suggest the likelihood of CBAs between two countries where the acquirer is relatively higher in voice and accountability, political stability, government effectiveness and control of corruption than their targets.

4.5.2 Abnormal return and capital control

If there are benefits for purchasing firms in relatively lower capital control countries, our second hypothesis *H_2: "There is a positive relationship between acquirer capital control and their gain at announcement, given that acquirers purchase targets operating in relatively low capital control countries"* should hold. Table 4.4 presents the results of OLS regression analysis on abnormal returns of acquiring firms. In addition to control variables used previously, an analysis in this section includes deal-characteristic control variables and country-level fixed effects in some models.

Models 1 to 9 include all deals with different control variables. In general, the coefficients of acquirer capital control are positive and significant except in Model 9 when adding the acquirer and target countries' fixed effect. It is possible that the country variables capture and dominate the effect of capital control in that country. The target capital control becomes insignificant from Model 4 where GDP per capita has been added on. In Models 10 and 11 we partition all samples by relative capital control level between acquiring and target countries. We run the regression on these subsamples with the same set of control variables, including time, acquiring and target country fixed effect, as used in Model 9. As predicted in hypothesis H_2, the coefficient of acquirer capital control in Model 10, where acquisitions flow into relatively lower capital control countries, exhibits a positive sign and is statistically significant. The results are consistent with hypothesis H_2, supporting that when purchasing firms in relatively low capital countries, the higher the capital control level of acquirers, the greater the ACAR received by acquirers. In terms of economic significance of key variables, the coefficient of 4.876 on *Acquirer capital control* indicates that a one-standard deviation increase in Acquirer capital control is associated with a 1.033% increase in ACAR.[79]

[79]The VIF statistics are quite high in our models that employed country-fixed effect. By dropping the dummy of country variables, the mean VIF of all models drop to around 3. However, we decide to keep our control for the country effect as previously presented in this chapter. As discussed in Linder et al. (2020), excluding variables that have high partial correlations with others can reduce collinearity, it can also simultaneously increase the risk of violating the regression assumptions leading to the bias of coefficient estimation. In addition, the VIF are indicators of standard errors that are too large. This confirms that our significant results are relatively conservative. Further, though we use some of the country-related control countries e.g. the difference between institutional factors, they may not capture all country-level variants. Finally, we noticed that numbers of cross-border acquisition literature employ both time- and country-fixed effect in their analysis (see e.g. Rossi and Volpin, 2004; Chakrabarti et al., 2009; Aleksanyan et al., 2021).

For other explanatory variables included in our specification, we notice that variables at the deal level exhibit far more statistical significance than country-level variables. The coefficients of both acquirer and target size in all models are significant and consistent with our expectations. Consistent with the studies of Ahern et al. (2015), Francis (2000) and Moeller et al. (2004), acquirer's size is found to have an inverse relationship with their announcement period return. Possible explanations are that large firms are likely to have high agency cost and are prone to hubris (Moeller et al., 2004) compared with small firms where managers are subject to close monitoring due to the high concentration in ownership (Demsetz and Lehn, 1985). The size of target firm proxied by the transaction value confirms the positive impact on the return to acquirer. Francis et al. (2008) support this finding with two possible explanations. First, the information availability in large target firms reduces information asymmetry and help acquirers to make better decisions. Second, a large-sized target can reduce the number of potential acquirers leading to no competitive negotiation for their premium. A lower premium to target firms means a lower wealth transfer from acquirer's shareholders to target's shareholders.

In addition, the coefficient of variable *Private* is significant and negative. Our result differs from prior studies (Chang, 1998; Draper and Paudyal, 2006; Faccio et al., 2006; Francis et al., 2008; Fuller et al., 2002) that report the positive returns from private target acquisitions. We explain this divergence with the small proportion of private target firms in our sample. For example, compared to 16% of public targets in Francis et al. (2008), our sample contains only 16% private targets (84% public).

We notice that the statistical insignificance found in most country-level control variables is similar to other studies (see Ahern et al., 2015; Danbolt and Maciver, 2012). The difference in GDP per capita and the export level from acquirer to target country has a significant positive relationship. Our results are in the same line as Kiymaz (2004) who shows that a target country's economic conditions significantly impact bidders' abnormal returns. Ahern et al. (2015) also report the

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In summary, although there is some evidence of multicollinearity due to country fixed effects but the benefit of including country dummy variables outweighs its cost. As noted above, this has made our results more conservative. In addition, I have run additional regressions by dropping the country-fixed effects in our main model in Table 4.4 (Model 10 and 11). The quality of results does not differ from those with country-fixed effects.

significant impact of acquirer and target country GDP per capita on acquisition performance. However, our results are not directly comparable to theirs as they measure the effect on the combined abnormal return of acquirer and target firms. In Model 9, the difference in GDP per capita and the export level are no longer significant after we introduce the acquirer and target countries' fixed effects. It could be possible that control for countries can capture all of these effects.

In our subsample, Model 10, the exchange rate volatility and rule of law have positive relationships with acquirers' returns. Interestingly, Dif tax rate is significant but has a different sign between Models 10 and 11.

4.5.3 Abnormal return and capital control and cost of capital

This section investigates our third hypothesis *"H_3: There is a positive relationship between acquirer's country capital control level and their gain at announcement, given that acquirers can access the low-cost capital by purchasing targets operating in relatively low capital control countries,"* If H_3 holds, we expect to witness a stronger gain for acquirers who face a high cost of capital prior to the deal announcement. Tables 4.5 and 4.6 present the analysis conditional on the cost of equity and cost of debt, respectively.

In Table 4.5, Models 1 to 4 put two restrictions on all samples: (1) the relative capital control level between countries of acquirer and target firms and (2) the cost of equity level. In our study we proxy the cost of equity by firm beta. The higher the beta represents the higher the systematic risk the firm faces leading to the higher cost of capital the investor demands. Following Francis et al. (2008), we estimate the acquiring's firm beta over the window (-265,-11) prior to the announcement and assign a firm as having hi (low) cost of equity if its beta is above (below) the median of all samples' beta. Consistent with hypothesis H_4, only the subsample of high cost of equity acquirers who purchase foreign firms in relatively lower capital control countries in Model 1 exhibits the positive and significant coefficient of acquirer capital control.

Instead of partitioning the samples by the beta prior to an announcement, Models 5 to 8 alternatively look at the change of beta 3-years after an announcement. We assign the samples in which their 3-years after announcement betas are lower

than their prior to announcement betas as decrease in cost of equity (Models 5 and 7) and the opposite as increase in cost of equity (Models 6 and 8). The only positive and significant coefficient of acquirer capital control in Model 5 also strongly supports hypothesis H_4 on the benefit of cheaper capital cost.

Table 4.6 follows the pattern presented in Table 4.5 with the change from cost of equity to cost of debt. To classify whether acquirer firms face high or low cost of debt, we apply the same criteria used in Francis et al. (2008). Hi cost of debt indicates that acquirers do not have an S&P credit rating or have a credit rating below AA while low cost of debt indicates the acquirers have higher than or equal to AA. From Models 1 to 4, only the subsample of high cost of debt acquirers who purchase foreign firms in relatively lower capital control countries in Model 1 exhibits a positive and significant coefficient of acquirer capital control. Our finding indicates that acquirers who reside in a high capital control country and face high cost of debt can benefit from accessing lower cost of capital firms in relatively lower capital control countries.

In Models 5 to 8, we again test for the change in cost of debt. The decrease in cost of debt in Models 5 and 7 is defined as a firm who receives better rating after the deal is consummated or receives a rating having had no rating before. The increase in cost of debt in Models 6 and 8 contains the firms that receive worse ratings compared with before undertaking the takeover. If acquiring foreign firms in relative lower capital control countries can gain from the reduction in the cost of debt, we expect to see a significant and positive coefficient of acquirer capital control in Model 5. However, contrary to our prediction, we find a positive and significant coefficient of acquirer capital control in Model 6, which represents the increase in cost of debt after the bidding announcement, instead.

4.5.4 Abnormal return and capital control and better risk sharing

As discussed in our hypotheses development section, the benefit of reduction in cost of capital by purchasing firms in relatively lower capital control countries contains a mixed effect of an improvement in financial constraint and better risk diversification. This section aims to highlight the latter determinant and examine whether it can still explain the gains for acquirers on its own.

Chari and Henry (2004) explain the falling cost of capital in firms operating in financially liberalising countries with the shift in the source of systematic risk from local stock market to world stock market. However, since our interest is on target countries, we make an assumption that target countries with a relatively lower capital control level should integrate better with the world market than their acquirers. In the spirit of Chari and Henry (2004), we expect that by purchasing firms in countries that have a relatively lower capital control level, the source of systematic risk used in pricing stock will shift from the local stock market of acquirers to the local stock market of target firms that are better integrated with world stock markets. As a result, the better risk sharing should trigger the acquirer's stock price revaluation, leading to a higher expected return. To capture the degree of better risk sharing, we modify Chari and Henry's (2004) $DIFCOV$ from the historical covariance of a firm's stock return with the local market index, minus the historical covariance of the firm's stock return with the world market index, to the historical covariance of the acquirer's stock return with the acquirer's local market index, minus the historical covariance of the acquirer's stock return with the target's local market index.

In Table 4.7, we report the results of four OLS regressions. Models 1 and 2 contain the subsample of acquirers who purchase target firms from relatively lower capital control countries while Models 3 and 4 are the opposite. In Models 1 and 3, we include DIFCOV in the regression to test whether better risk diversification can explain an acquirer's announcement return. As predicted, the coefficient of DIFCOV is positive and significant in Model 1 but not in Model 3. We interpret this finding as being that acquirers can benefit from better risk diversification if they purchase target firms in those countries that are better integrated with world stock markets.

In Models 2 and 4, we examine the coefficient of acquirer capital control conditional on the relative level of capital control between two merging countries. Consistent with our prediction, Table 4.8 reports that the coefficient of acquirer capital control is significantly positive in Column 2 but not in Column 4. These findings confirm our hypothesis *H_4: There is a positive relationship between acquirer's country capital control level and their gain at announcement, given that*

acquirers can benefit from risk sharing by purchasing targets operating in relatively low capital control countries"

4.5.5 Abnormal return, capital control and country level governance

Imposing restrictions on capital movement can bring about not only the higher cost of capital but a weakening market discipline. Our hypothesis H_5 predicts that purchasing firms in relatively lower capital control countries can create value as acquirers can benefit from better market discipline in target countries. If this is the case, the effect of acquirers from countries with weak governance, where governments are likely to allocate the capital by cronyism rather than firm performance, should be more pronounced.

To test hypothesis H_5, we use the aggregated WGI index published by the World Bank to measure the level of country governance. The WGI index ranges from -2.5 (weak governance) to 2.5 (strong governance). Table 4.8 presents the results of our OLS regression. Models 1 and 2 contain the subsample of acquirers who purchase target firms from relatively lower capital control countries while Models 3 and 4 are the opposite. We assign acquirers into the Hi (Lo) Acquirer WGI index if their WGI index value is above (below) the median value of all acquirers' countries in the sample.

The insignificant coefficient of acquirer capital control reported in Model 2 suggests that our prediction does not hold. There is no evidence to support that acquirers in high capital control and weak governance countries can create value through the better market discipline of target countries.

4.6 Robustness Test

4.6.1 OECD and non-OECD countries

Level of country development is closely related to the degree of restriction in capital movement. Strict controls of capital are likely to be imposed in developing rather than developed economies. As a robustness check, this section examines whether our study, which focuses on the difference between countries' capital controls, is dissimilar to the difference between developed and developing economies. We classify OECD (Organisation for Economic Co-operation and

Development) countries as the developed countries and the rest as developing countries. The sample is then partitioned into four groups according to acquiring and target countries' development level.

According to the results reported in Table 4.9, there is no significance in the coefficient of both acquirer and target capital control across all of the models. If the level of capital control and the level of economic advancement can interchangeably explain our acquisition gains, the condition that non-OECD acquirers purchase OECD target firms should be similar to acquirers buying the target firm in relatively low capital control countries. Under this setting, we should observe a significant and positive coefficient of acquirer capital control in Model 3. However, our robustness test suggests that the acquirer gains are driven by the level of capital control, not the level of economic advancement.

4.6.2 Other capital control measures

As discussed in Section 4.2, among the number of capital control measures, each type has its own limitations. Instead of our main KA index, this section uses other capital control measures in our main specification to examine whether they can capture the effect of capital control on return on acquirer, or not. The measures include Lane and Milesi-Ferretti's (2007) Total index, EFW's index and Chinn and Ito's (2008) KAOPEN index.

Table 4.10 presents the regression results of three alternative measures of capital controls. Although there is no significance found in the coefficient of any measures of capital control, the magnitude of the coefficients in Columns 1, 3 and 5 are positive and higher than in Columns 2, 4 and 6, respectively. These results support our main hypothesis. *"There is a positive relationship between acquirers' country capital control level and their gain at announcement, given that acquirers purchase targets operating in relatively low capital control countries."*

4.7 Conclusion

The key research question of this chapter is whether acquirers can create value to their shareholders by avoiding high costs incurred by the capital control in their home countries. Motivated by the possibility that multinational firms can

alleviate their costs of engaging in business activities by expanding abroad and enjoying the better institutional characteristics of host countries (see e.g. Ellis et al., 2017; Henisz and Swaminathan, 2008), we posit that, similarly, acquirers who face high costs of doing business in their home country should be able to enhance their shareholders' wealth by purchasing firms resided in a country with relatively lower capital control levels. Therefore, when these gains are realised by the market, we should observe an increase in acquirer returns during bid announcements.

The main findings in this chapter are consistent with Luo and Tung's (2007) springboard theoretical framework. Our empirical results reveal a positive association between the improvement in capital control environment and the flow of cross-border deals, as well as gains to acquirers. To clearly highlight the different effects between the flow from high to low capital control countries and vice versa, we partition our samples into to two subgroups and expect to observe a difference in the sign of estimated coefficient of our test variable (*Acquirer capital control*). Following this methodology, we observe the statistical significance and positive sign of our tested variable only in the subsample where the country of the acquirers has a relatively higher capital control than the target country. This is true in both cross-border flow and acquirer returns regression, which confirm hypotheses H_1 and H_2 that *"Firms are likely to acquire foreign targets operating in countries with relatively lower levels of capital control."* and *"There is a positive relationship between acquirer's country capital control level and their gain at announcement, given that acquirers purchase targets operating in relatively low capital control countries."*

We further examine whether the sources of value creation, by pursuing this strategy, can be explained by (i) the accessibility to cheap cost of capital, (ii) better risk diversification and (iii) the improvement in market discipline. For the cheap cost of capital assumption, we employ firm's beta and S&P's credit rating as the proxy for cost of equity and cost of debt, respectively. Consistent with Francis et al. (2008), our results show that the coefficient of acquire capital control are significantly positive only when the capital control in the acquirer country is relatively higher than in the target country. The quality of results remains unchanged, whether it be cost of equity or cost of debt. Therefore, hypothesis H_3 *"There is a positive relationship*

between acquirer's country capital control level and their gain at announcement, given that acquirers can access the low-cost capital by purchasing targets operating in relatively low capital control countries" is upheld. For better risk diversification, the coefficient of acquirer capital control is significantly positive only when the capital control in the acquirer country is relatively higher than in the target country and the benefit from diversification is high (the historical covariance of the acquirer's stock return with the acquirer's local market index, minus the historical covariance of the acquirer's stock return with the target's local market index is above the median). This finding supports hypothesis H4 *"There is a positive relationship between acquirer's country capital control level and their gain at announcement, given that acquirers can benefit from risk sharing by purchasing targets operating in relatively low capital control countries."* Finally, when we turn to the joint effect of market discipline and an improvement in the capital control environment on acquirer returns, we find no evidence to support hypothesis H5 that *"There is a positive relationship between acquirer's country capital control level and their gain at announcement, given that acquirers can benefit from an improvement in market discipline by purchasing targets operating in relatively low capital control countries."*

To confirm our main findings, we further run the robustness test by using the level of economic advancement. Instead of partitioning the sample by using the level of capital control, we use the economic advancement classified by OECD. If our results are driven by the level of economic advancement, we should observe statistical significance in acquirer capital control, given that the bidders (target firms) are OECD (non-OECD) countries. Consistent with hypothesis H_2, we find no evidence to support that value creation is driven by the difference between the levels of economic advancement. In addition, instead of our main KA index, when we use other capital control measures including Lane and Milesi-Ferretti's (2007) Total index, EFW's index and Chinn and Ito's (2008) KAOPEN index, the quality of our results remains unchanged.

Table 4.1
Sample Distribution by Year and Country of Acquirer

The table presents the frequency of sample by year and acquiring country. The latter is also partitioned by whether their capital control level is relatively higher or lower than their target's country capital control level. The sample includes completed CBAs that have a transaction value no less than US$ 1 million announced during 1999 to 2012. The acquirer has to own less than 10% of the target's share prior to the announcement and obtain more than 50% as a result of the transaction. To be included in our final sample, they are required to have an announcement period return and control variables used in the base line regression analysis.

Year	Frequency	Acquiring Country	Frequency		
			All	Acquirer has relatively higher capital control level than target	Acquirer has relatively lower capital control level than target
1999	936	Argentina	3	2	1
2000	1,198	Australia	746	363	300
2001	875	Austria	83	27	54
2002	670	Bahamas	5	5	
2003	655	Bahrain	4	2	2
2004	850	Brazil	18	16	2
2005	1,055	Canada	1,590	171	1,366
2006	1,242	Chile	19	2	13
2007	1,348	China	64	62	
2008	955	Colombia	23	23	
2009	659	Croatia	3	1	2
2010	930	Cyprus	22	6	16
2011	935	Czech Republic	5		5
2012	745	Denmark	122		107
		Egypt	12	4	8
		Estonia	3		2
		Finland	215	72	121
		France	545	186	345
		Germany	379	171	186
		Greece	49	21	26
		Hungary	10	2	8
		Iceland	38	25	13
		India	206	202	2
		Indonesia	6	4	2
		Ireland-Rep	189	7	97
		Israel	163	11	147
		Italy	247	56	186
		Japan	383	219	158
		Jordan	1		1
		Kenya	3		3
		Kuwait	12	7	4
		Lebanon	2	1	1
		Lithuania	3	1	2
		Malaysia	86	72	14
		Malta	3	1	2
		Mexico	43	38	5
		Morocco	1		1
		Netherlands	342	2	297
		New Zealand	74	5	66
		Norway	221	67	142
		Oman	3		3
		Panama	1		1

Table 4.1 (Cont'd)
Sample Distribution by Year and Country of Acquirer

Year	Frequency	Acquiring Country	Frequency		
			All	Acquirer has relatively higher capital control level than target	Acquirer has relatively lower capital control level than target
		Peru	10	1	8
		Philippines	22	13	5
		Poland	36	30	5
		Portugal	23	18	5
		Qatar	7	1	4
		Russian Fed	47	37	8
		Saudi Arabia	2	2	
		Singapore	234	28	200
		Slovenia	5	3	1
		South Africa	101	94	7
		South Korea	117	18	97
		Spain	204	68	93
		Sweden	523	384	133
		Switzerland	266	62	116
		Thailand	25	20	5
		Turkey	10	10	
		Ukraine	2	2	
		United Kingdom	2,393	221	1,939
		United States	3,063	2,288	558
		Uruguay	2		2
		U.A.E.	14	5	9
Total	**13,503**		**13,053**	**5,159**	**6,906**

Table 4.2
Summary Statistics of Variables

The table presents means and standard deviations for each variable. Panel A includes the test variables related to level of capital control. Panels B and C include country-pair-year level and deal-level, respectively. Dif indicates the difference between the acquirer and target nation. All variables are defined in Appendix A.

	All cross-border samples		Acquirer has relatively higher capital control level than target firm		Acquirer has relatively lower capital control level than target firm	
	N = 13,053		N = 5,159		N = 6,906	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Panel A: Capital control variables						
Acquirer capital control	0.249	0.204	0.388	0.212	0.150	0.130
Target capital control	0.315	0.257	0.136	0.130	0.463	0.247
Dif capital control	-0.066	0.327	0.251	0.171	-0.313	0.208
Panel B: Country-pair variables						
log Distant	7.974	1.245	8.000	1.231	7.964	1.223
Same language	0.458	0.498	0.469	0.499	0.450	0.498
Same border	0.205	0.404	0.196	0.397	0.211	0.408
Same religion	0.231	0.186	0.238	0.189	0.233	0.189
Same legal system	0.509	0.500	0.505	0.500	0.509	0.500
Dif ln GDP growth	-0.289	2.936	0.469	2.705	-0.918	3.039
Dif ln GDP per capita	0.242	1.086	-0.046	1.044	0.477	1.121
Exchange rate growth	0.007	0.097	0.002	0.099	0.011	0.096
Exchange rate volatility	1.123	13.372	1.710	18.726	0.776	8.345
Dif corporate tax rate	-0.558	11.491	5.566	9.955	-5.271	10.606
Export from Acquirer	12.617	20.965	7.099	8.484	17.710	26.778
Dif voice	0.175	0.747	-0.112	0.611	0.410	0.795
Dif politic	0.123	0.812	-0.164	0.771	0.357	0.782
Dif government	0.203	0.760	-0.094	0.703	0.446	0.752
Dif regulatory	0.173	0.729	-0.140	0.658	0.423	0.725
Dif rule of law	0.217	0.823	-0.109	0.735	0.485	0.836
Dif corruption	0.260	1.003	-0.232	0.902	0.659	0.945
Panel C: Deal-level variables						
log Acquirer size	6.647	2.499	6.798	2.396	6.495	2.570
log Transaction value	3.599	1.926	3.687	1.930	3.511	1.917
Private	0.116	0.320	0.132	0.338	0.106	0.307
Subsidiary	0.386	0.487	0.400	0.490	0.375	0.484
Cash	0.389	0.487	0.400	0.490	0.377	0.485
Stock	0.072	0.259	0.070	0.255	0.076	0.266
Same industry	0.564	0.496	0.559	0.497	0.569	0.495
Panel D: Acquirer Returns						
ACAR [-2, +2]	2.224	10.240	2.026	9.982	2.454	10.694

Table 4.3
Cross-sectional Analysis of Cross-border Flow and Capital Control

The table presents the results of six OLS regressions of our final sample. The dependent variable is cross-border deals $_{b,s,}$ or the number of cross-border deals where the acquirer is from country b and the target is from country s (b≠s) as a percentage of the total number of deals in country b. Dif indicates the difference between the acquirer and target nation. All variables are defined in Appendix A. The standard errors shown in parenthesis are adjusted for heteroscedasticity using White (1980) corrections. ***, ** and * indicate significance at the 1, 5 and 10% levels, respectively.

	All				Acquirer has relatively higher capital control level than target firm	Acquirer has relatively lower capital control level than target firm
	(1)	(2)	(3)	(4)	(5)	(6)
Acquirer capital control	-10.980***	-14.30***	-4.963***	-6.112***	2.999***	-7.697***
	(0.455)	(0.502)	(0.542)	(0.555)	(1.022)	(0.744)
Target capital control	-0.617***	7.670***	1.376***	1.824***	-1.987**	3.982***
	(0.233)	(0.259)	(0.239)	(0.241)	(0.939)	(0.467)
log Distant		-0.684***	-0.467***	-0.608***	-0.860***	-0.389***
		(0.081)	(0.069)	(0.065)	(0.075)	(0.106)
Same language		4.309***	2.288***	2.750***	1.997***	3.265***
		(0.177)	(0.161)	(0.157)	(0.166)	(0.281)
Same border		4.880***	0.782**	1.211***	-1.953***	-0.148
		(0.248)	(0.305)	(0.296)	(0.603)	(0.332)
Same religion		0.192	1.172***	1.295***	3.967***	-0.683*
		(0.356)	(0.328)	(0.335)	(0.374)	(0.413)
Same legal system		-2.173***	-1.407***	-1.828***	-0.329*	-2.299***
		(0.168)	(0.150)	(0.150)	(0.185)	(0.232)
Dif ln GDP growth		0.196***	0.094***	0.168***	0.106***	0.0282
		(0.026)	(0.022)	(0.027)	(0.035)	(0.034)
Dif ln GDP per capita		-2.848***	-1.359***	-0.840***	-0.385**	-2.004***
		(0.070)	(0.064)	(0.116)	(0.163)	(0.168)
Exchange rate growth			-0.0211	-1.063**	0.308	-1.145
			(0.533)	(0.528)	(0.540)	(0.755)
Exchange rate volatility			-0.020***	-0.024***	-0.010***	-0.058***
			(0.004)	(0.004)	(0.003)	(0.014)
Dif corporate tax rate			-0.237***	-0.219***	-0.181***	-0.141***
			(0.008)	(0.009)	(0.019)	(0.012)
Export from Acquirer			0.135***	0.110***	0.221***	0.128***
			(0.006)	(0.006)	(0.037)	(0.007)
Dif voice				1.918***	1.243***	1.240***
				(0.149)	(0.197)	(0.194)
Dif politic				1.139***	0.630***	0.514**
				(0.160)	(0.148)	(0.224)
Dif government				1.499***	-0.213	1.980***
				(0.261)	(0.321)	(0.393)
Dif regulatory				-2.693***	-1.470***	-3.195***
				(0.181)	(0.261)	(0.253)

Table 4.3 (Cont'd)
Cross-sectional Analysis of Cross-border Flow and Capital Control

	All				Acquirer has relatively higher capital control level than target firm	Acquirer has relatively lower capital control level than target firm
	(1)	(2)	(3)	(4)	(5)	(6)
Dif rule of law				-3.419***	-0.583*	-3.108***
				(0.333)	(0.326)	(0.395)
Dif corruption				1.077***	0.940***	1.625***
				(0.212)	(0.183)	(0.271)
Constant	8.732***	11.70***	8.878***	10.46***	7.683***	9.654***
	(0.250)	(0.623)	(0.560)	(0.522)	(0.616)	(0.882)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13,044	13,044	13,044	13,044	5,157	6,899
R-squared	0.063	0.324	0.491	0.512	0.405	0.588
F	41.42	358.0	957.7	861.7	76.16	1318

Table 4.4
Cross-sectional Analysis of Acquirer Announcement Return and Capital Control

The table presents the results of OLS regressions of our final sample. The dependent variable is acquirer abnormal return calculated for a 5-day (-2, +2) announcement window. Dif indicates the difference between the acquirer and target nation. All variables are defined in Appendix A. The standard errors shown in parenthesis are adjusted for heteroscedasticity using White (1980) corrections. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

	All									Acquirer has relatively higher capital control level than target firm	Acquirer has relatively lower capital control level than target firm
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Acquirer capital control	-0.174	0.853**	0.455	1.225***	1.235***	1.700***	1.858***	1.877***	0.672	4.876**	-1.807
	(0.384)	(0.399)	(0.415)	(0.449)	(0.450)	(0.456)	(0.459)	(0.465)	(0.933)	(2.342)	(1.723)
Target capital control	1.430***	1.475***	1.139***	0.199	0.186	-0.0854	-0.363	-0.535	0.666	1.385	2.434
	(0.403)	(0.400)	(0.405)	(0.456)	(0.456)	(0.474)	(0.479)	(0.491)	(0.868)	(2.328)	(2.125)
log Acquirer size		-1.220***	-1.227***	-1.246***	-1.244***	-1.237***	-1.230***	-1.225***	-1.213***	-1.266***	-1.221***
		(0.069)	(0.070)	(0.071)	(0.071)	(0.071)	(0.071)	(0.070)	(0.072)	(0.123)	(0.098)
log Transaction value		0.654***	0.653***	0.682***	0.681***	0.678***	0.668***	0.667***	0.654***	0.729***	0.617***
		(0.066)	(0.066)	(0.067)	(0.067)	(0.067)	(0.067)	(0.067)	(0.068)	(0.111)	(0.097)
Private		-1.506***	-1.509***	-1.543***	-1.538***	-1.542***	-1.490***	-1.471***	-1.508***	-1.622***	-1.442***
		(0.295)	(0.295)	(0.295)	(0.295)	(0.295)	(0.294)	(0.295)	(0.306)	(0.482)	(0.440)
Subsidiary		0.265	0.257	0.245	0.243	0.231	0.251	0.261	0.255	0.269	0.223
		(0.191)	(0.191)	(0.190)	(0.191)	(0.190)	(0.190)	(0.190)	(0.193)	(0.321)	(0.274)
Cash		-0.147	-0.143	-0.0872	-0.0817	-0.0737	-0.0630	-0.0555	-0.0133	-0.461*	0.355
		(0.155)	(0.155)	(0.155)	(0.155)	(0.155)	(0.155)	(0.156)	(0.160)	(0.249)	(0.234)
Stock		1.114*	1.106*	1.032*	1.040*	1.055*	1.038*	1.044*	0.885	-0.542	1.886**
		(0.618)	(0.618)	(0.617)	(0.617)	(0.617)	(0.616)	(0.616)	(0.621)	(1.027)	(0.855)
Same industry		0.183	0.192	0.163	0.158	0.155	0.158	0.147	0.117	0.174	0.0198
		(0.176)	(0.176)	(0.176)	(0.176)	(0.176)	(0.176)	(0.176)	(0.178)	(0.286)	(0.255)

Table 4.4 (Cont'd)
Cross-sectional Analysis of Acquirer Announcement Return and Capital Control

	All									Acquirer has relatively higher capital control level than target firm	Acquirer has relatively lower capital control level than target firm
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
log Distant			0.275***	0.240**	0.238**	0.230**	0.307***	0.299***	0.0615	-0.565**	0.410
			(0.0974)	(0.0968)	(0.0968)	(0.0968)	(0.0982)	(0.0990)	(0.145)	(0.251)	(0.267)
Same language			-0.243	-0.105	-0.111	-0.138	-0.446*	-0.383	-0.643	-0.249	-0.880
			(0.232)	(0.232)	(0.232)	(0.233)	(0.246)	(0.249)	(0.404)	(0.643)	(0.639)
Same border			0.343	0.317	0.307	0.271	-0.444	-0.401	-0.524	-0.658	-1.020
			(0.301)	(0.301)	(0.301)	(0.300)	(0.314)	(0.315)	(0.376)	(0.667)	(0.624)
Same religion			-0.549	-0.489	-0.478	-0.478	-0.291	-0.263	-0.343	-0.605	0.252
			(0.394)	(0.394)	(0.395)	(0.395)	(0.394)	(0.392)	(0.571)	(0.853)	(0.926)
Same legal system			-0.0183	-0.0296	-0.0281	-0.0146	0.0925	0.0575	0.185	-0.479	0.421
			(0.222)	(0.222)	(0.222)	(0.222)	(0.224)	(0.228)	(0.295)	(0.516)	(0.458)
Dif ln GDP growth				-0.063	-0.072*	-0.078*	-0.071*	-0.055	-0.048	-0.016	-0.069
				(0.039)	(0.040)	(0.040)	(0.040)	(0.042)	(0.052)	(0.100)	(0.073)
Dif ln GDP per capita				0.383***	0.361***	0.423***	0.520***	0.416**	-0.299	0.569	-0.0917
				(0.114)	(0.115)	(0.118)	(0.119)	(0.172)	(0.661)	(1.250)	(0.965)
Exchange rate growth					1.381	1.158	0.903	0.980	1.455	1.668	1.697
					(0.978)	(0.982)	(0.988)	(1.006)	(1.072)	(1.559)	(1.648)
Exchange rate volatility					0.0001	-0.0002	-0.0002	0.0003	0.019**	0.048***	0.005
					(0.005)	(0.005)	(0.005)	(0.005)	(0.007)	(0.011)	(0.018)
Dif corporate tax rate						-0.018**	0.0003	0.005	0.050	-0.645**	0.333***
						(0.009)	(0.009)	(0.011)	(0.157)	(0.318)	(0.118)
Export from Acquirer							0.029***	0.027***	0.004	-0.030	0.024
							(0.008)	(0.008)	(0.014)	(0.027)	(0.020)

Table 4.4 (Cont'd)
Cross-sectional Analysis of Acquirer Announcement Return and Capital Control

	All									Acquirer has relatively higher capital control level than target firm	Acquirer has relatively lower capital control level than target firm
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Dif voice								0.175	-0.0393	-1.236	0.924
								(0.248)	(0.715)	(1.443)	(1.184)
Dif politic								-0.010	-0.606	0.312	-1.070*
								(0.178)	(0.399)	(0.698)	(0.580)
Dif government								-0.507	-0.523	-1.356	-0.691
								(0.468)	(0.649)	(1.048)	(1.045)
Dif regulatory								-0.312	0.348	-0.487	0.325
								(0.331)	(0.560)	(0.927)	(0.808)
Dif rule of law								0.503	0.060	2.777*	-0.110
								(0.498)	(0.901)	(1.623)	(1.338)
Dif corruption								0.301	0.251	0.877	0.469
								(0.308)	(0.482)	(0.890)	(0.736)
Constant	1.817***	7.796***	6.020***	6.279***	6.274***	6.285***	5.490***	5.568***	2.093	12.23**	-22.59***
	(0.171)	(0.534)	(0.845)	(0.850)	(0.850)	(0.850)	(0.860)	(0.875)	(7.230)	(5.571)	(3.699)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Acquirer fixed effects	No	No	No	No	No	No	No	No	Yes	Yes	Yes
Target firm fixed effects	No	No	No	No	No	No	No	No	Yes	Yes	Yes
Observations	13,053	13,053	13,053	13,053	13,053	13,053	13,053	13,053	13,053	5,159	6,906
R-squared	0.001	0.072	0.073	0.074	0.075	0.075	0.076	0.077	0.090	0.096	0.105
F	6.318	17.06	14.15	13.30	12.49	12.10	11.81	10.07	.	.	.

Table 4.5
Cross-sectional Analysis of Acquirer Announcement Return, Capital Control and Cost of Equity

The table presents the results of OLS regressions of our final sample. The dependent variable is acquirer's acquirer abnormal return calculated for a 5-day (-2, +2) announcement window. Cost of equity is assigned as Hi (Lo) if acquirer's beta is above (below) the median value of beta. Beta is estimated over the window (-265, -11) prior to the announcement. Changing in cost of equity is assigned as decrease (increase) if cost of equity of the 3-year post-announcement acquirer's beta is below (above) acquirer's beta. Dif indicates the difference between the acquirer and target nation. All variables are defined in Appendix A. The standard errors shown in parenthesis are adjusted for heteroscedasticity using White (1980) corrections. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

	Acquirer has relatively higher capital control level than target firm		Acquirer has relatively lower capital control level than target firm		Acquirer has relatively higher capital control level than target firm		Acquirer has relatively lower capital control level than target firm	
	Hi cost of equity	Lo cost of equity	Hi cost of equity	Lo cost of equity	Decrease in cost of equity	Increase in cost of equity	Decrease in cost of equity	Increase in cost of equity
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Acquirer capital control	7.831**	4.723	-0.895	-4.076	11.08***	3.106	-3.299	-1.214
	(3.535)	(4.127)	(2.516)	(2.954)	(4.159)	(3.588)	(2.463)	(2.738)
Target capital control	0.0361	5.234	0.521	4.789	0.565	3.427	1.945	5.559*
	(2.801)	(4.280)	(2.676)	(3.453)	(3.190)	(4.038)	(3.305)	(3.258)
log Acquirer size	-1.085***	-1.531***	-1.126***	-1.446***	-1.437***	-1.224***	-1.159***	-1.365***
	(0.172)	(0.196)	(0.151)	(0.154)	(0.207)	(0.172)	(0.137)	(0.156)
log Transaction value	0.570***	0.919***	0.622***	0.674***	0.842***	0.717***	0.650***	0.679***
	(0.136)	(0.195)	(0.127)	(0.154)	(0.183)	(0.158)	(0.138)	(0.149)
Private	-0.647	-2.895***	-1.443**	-1.370**	-1.232	-2.420***	-1.588**	-1.472**
	(0.636)	(0.767)	(0.654)	(0.645)	(0.767)	(0.662)	(0.702)	(0.632)
Subsidiary	1.176***	-0.747	0.784**	-0.236	0.925*	-0.269	0.377	-0.0727
	(0.400)	(0.556)	(0.369)	(0.424)	(0.505)	(0.490)	(0.383)	(0.435)
Cash	-0.396	-0.583	0.415	0.284	-0.543	-0.539	0.552*	0.189
	(0.318)	(0.415)	(0.315)	(0.362)	(0.412)	(0.359)	(0.333)	(0.375)
Stock	-2.126*	0.583	1.581	1.808	-2.275	-0.117	1.564	3.030**
	(1.115)	(1.973)	(1.130)	(1.317)	(1.405)	(1.597)	(1.129)	(1.464)

Table 4.5 (Cont'd)
Cross-sectional Analysis of Acquirer Announcement Return, Capital Control and Cost of Equity

	Acquirer has relatively higher capital control level than target firm		Acquirer has relatively lower capital control level than target firm		Acquirer has relatively higher capital control level than target firm		Acquirer has relatively lower capital control level than target firm	
	Hi cost of equity	Lo cost of equity	Hi cost of equity	Lo cost of equity	Decrease in cost of equity	Increase in cost of equity	Decrease in cost of equity	Increase in cost of equity
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Same industry	0.458	0.151	0.244	0.00550	-0.201	0.249	-0.0321	0.124
	(0.339)	(0.500)	(0.335)	(0.391)	(0.451)	(0.414)	(0.368)	(0.411)
log Distant	-0.463	-0.916**	0.488	0.342	-0.669	-0.628	-0.191	0.833*
	(0.312)	(0.449)	(0.376)	(0.436)	(0.414)	(0.400)	(0.376)	(0.467)
Same language	-0.492	0.154	-0.852	-1.586	-1.080	-0.343	-1.160	-0.951
	(0.782)	(1.203)	(0.783)	(1.062)	(1.195)	(0.967)	(0.817)	(1.052)
Same border	0.308	-2.552**	-0.711	-0.886	0.00417	-1.046	-1.353	-1.104
	(0.919)	(1.187)	(0.941)	(0.991)	(1.095)	(1.075)	(0.892)	(1.053)
Same religion	-0.961	0.531	-0.551	1.345	0.138	-1.226	1.825	0.00855
	(1.260)	(1.330)	(1.094)	(1.674)	(1.343)	(1.337)	(1.205)	(1.578)
Same legal system	0.261	-1.286	0.664	0.554	-0.309	-0.178	0.509	0.378
	(0.649)	(0.920)	(0.593)	(0.744)	(0.886)	(0.770)	(0.598)	(0.737)
Dif ln GDP growth	0.0975	-0.225	0.0599	-0.146	-0.0102	-0.135	-0.0135	-0.119
	(0.0975)	(0.201)	(0.0857)	(0.126)	(0.194)	(0.142)	(0.106)	(0.121)
Dif ln GDP per capita	2.227	1.147	0.587	-1.211	-0.238	3.101	-1.492	0.626
	(1.446)	(2.574)	(1.292)	(1.564)	(2.111)	(2.066)	(1.509)	(1.559)
Exchange rate growth	2.520	1.203	2.204	2.374	3.553	1.049	2.234	2.337
	(1.981)	(2.524)	(2.131)	(2.609)	(2.789)	(2.047)	(2.408)	(2.619)
Exchange rate volatility	0.0396***	0.154***	0.0319*	-0.0539*	0.0348**	0.0848***	0.0121	-0.00283
	(0.00958)	(0.0566)	(0.0182)	(0.0312)	(0.0138)	(0.0323)	(0.0329)	(0.0205)
Dif corporate tax rate	-15.42**	-2.163	0.212	-7.862	-18.16***	2.526	0.403***	0.434*
	(7.379)	(4.627)	(0.130)	(5.206)	(5.459)	(2.626)	(0.140)	(0.239)

Table 4.5 (Cont'd)
Cross-sectional Analysis of Acquirer Announcement Return, Capital Control and Cost of Equity

	Acquirer has relatively higher capital control level than target firm		Acquirer has relatively lower capital control level than target firm		Acquirer has relatively higher capital control level than target firm		Acquirer has relatively lower capital control level than target firm	
	Hi cost of equity	Lo cost of equity	Hi cost of equity	Lo cost of equity	Decrease in cost of equity	Increase in cost of equity	Decrease in cost of equity	Increase in cost of equity
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Export from Acquirer	-0.0572	-0.000971	0.0540*	-0.00567	-0.0751	-0.0379	0.0374	0.0162
	(0.0425)	(0.0463)	(0.0280)	(0.0323)	(0.0586)	(0.0344)	(0.0289)	(0.0328)
Dif voice	-0.551	-3.354	0.740	1.365	-2.311	-0.990	3.745**	-0.684
	(2.196)	(2.222)	(1.639)	(1.995)	(2.389)	(2.155)	(1.613)	(1.948)
Dif politic	1.550*	-1.173	-1.061	-1.128	0.0243	0.0793	-0.953	-1.399
	(0.897)	(1.212)	(0.786)	(0.979)	(1.065)	(1.108)	(0.835)	(0.970)
Dif government	-1.197	-1.343	-0.441	-1.180	-1.936	-2.194	-0.245	-0.434
	(1.469)	(1.658)	(1.473)	(1.612)	(1.834)	(1.501)	(1.572)	(1.672)
Dif regulatory	-1.802	0.160	-0.241	1.022	0.0305	-0.391	0.154	-0.817
	(1.373)	(1.498)	(1.104)	(1.382)	(1.552)	(1.488)	(1.203)	(1.410)
Dif rule of law	3.819*	1.934	-0.200	-0.476	3.262	3.305	1.135	-1.058
	(2.188)	(3.131)	(2.152)	(2.376)	(2.915)	(2.507)	(2.217)	(2.414)
Dif corruption	0.667	0.468	0.506	0.720	1.996	-0.660	0.385	0.669
	(1.206)	(1.521)	(1.049)	(1.086)	(1.502)	(1.313)	(1.046)	(1.156)
Constant	7.049	19.10**	4.757	-16.48***	14.79**	15.89**	-19.22***	0.807
	(4.856)	(7.987)	(7.101)	(5.311)	(6.355)	(6.880)	(4.887)	(8.989)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Acquirer fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Target firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,884	2,236	3,199	3,605	2,292	2,458	3,167	3,244
R-squared	0.091	0.147	0.130	0.115	0.125	0.117	0.133	0.129

Table 4.6
Cross-sectional Analysis of Acquirer Announcement Return, Capital Control and Cost of Debt

The table presents the results of OLS regressions of our final sample. The dependent variable is acquirer's acquirer abnormal return calculated for a 5-day (-2, +2) announcement window. Cost of debt is assigned as Hi (Lo) if the acquirer has an S&P credit rating below AA or no credit rating (higher than or equal to AA). Change in cost of debt is assigned as decrease (increase) if a recent acquirer's credit rating after an announcement is better (worse) than prior to an announcement. Dif indicates the difference between the acquirer and target nation. All variables are defined in Appendix A. The standard errors shown in parenthesis are adjusted for heteroscedasticity using White (1980) corrections. Superscripts ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

	Acquirer has relatively higher capital control level than target firm		Acquirer has relatively lower capital control level than target firm		Acquirer has relatively higher capital control level than target firm		Acquirer has relatively lower capital control level than target firm	
	Hi cost of debt	Lo cost of debt	Hi cost of debt	Lo cost of debt	Decrease in cost of debt	Increase in cost of debt	Decrease in cost of debt	Increase in cost of debt
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Acquirer capital control	7.669**	-14.55	-3.042	2.745	0.0802	6.483*	1.961	-3.721
	(3.271)	(42.28)	(2.342)	(5.873)	(5.641)	(3.546)	(4.803)	(2.504)
Target capital control	1.322	33.38	2.709	19.28*	9.205**	0.868	-3.423	4.438*
	(2.773)	(25.18)	(2.375)	(9.759)	(4.590)	(3.028)	(3.827)	(2.560)
log Acquirer size	-1.028***	-0.334	-1.101***	-1.343**	-0.877***	-1.392***	-1.283***	-1.238***
	(0.0866)	(0.463)	(0.0804)	(0.549)	(0.136)	(0.0911)	(0.129)	(0.0844)
log Transaction value	0.621***	0.415	0.644***	0.0924	0.398**	0.820***	0.489***	0.693***
	(0.100)	(0.426)	(0.101)	(0.317)	(0.156)	(0.116)	(0.163)	(0.109)
Private	-1.844***	-6.789***	-1.269**	-2.812**	-0.551	-2.015***	-0.151	-1.885***
	(0.500)	(2.330)	(0.542)	(1.327)	(0.831)	(0.582)	(0.840)	(0.592)
Subsidiary	0.518	-0.365	0.731**	-1.023	0.857	0.156	0.452	0.133
	(0.332)	(1.545)	(0.313)	(1.169)	(0.542)	(0.377)	(0.529)	(0.336)
Cash	0.00191	1.451	0.254	1.793*	0.0732	-0.603*	0.00221	0.398
	(0.317)	(1.461)	(0.318)	(1.063)	(0.521)	(0.362)	(0.520)	(0.339)
Stock	-0.0668	-0.314	0.471	0.529	-2.125*	-0.291	0.660	2.272***
	(0.642)	(6.039)	(0.578)	(3.432)	(1.100)	(0.697)	(1.053)	(0.603)

Table 4.6 (Cont'd)
Cross-sectional Analysis of Acquirer Announcement Return, Capital Control and Cost of Debt

	Acquirer has relatively higher capital control level than target firm		Acquirer has relatively lower capital control level than target firm		Acquirer has relatively higher capital control level than target firm		Acquirer has relatively lower capital control level than target firm	
	Hi cost of debt	Lo cost of debt	Hi cost of debt	Lo cost of debt	Decrease in cost of debt	Increase in cost of debt	Decrease in cost of debt	Increase in cost of debt
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Same industry	0.147	1.039	-0.0233	0.168	0.271	0.0960	0.630	-0.117
	(0.299)	(1.227)	(0.292)	(0.995)	(0.494)	(0.339)	(0.483)	(0.312)
log Distant	-0.313	0.219	0.199	1.399	-0.812	-0.385	0.330	0.599*
	(0.321)	(2.813)	(0.333)	(2.038)	(0.512)	(0.358)	(0.618)	(0.363)
Same language	0.886	-2.829	-0.468	-2.813	-0.150	-0.143	-1.953	-0.484
	(0.876)	(9.273)	(0.841)	(4.676)	(1.619)	(0.976)	(1.623)	(0.904)
Same border	-1.629*	-2.465	-2.208***	0.879	0.255	-1.000	0.831	-1.567*
	(0.960)	(7.302)	(0.828)	(2.865)	(1.568)	(1.080)	(1.445)	(0.911)
Same religion	-0.996	1.114	-0.406	0.994	-0.889	-0.185	2.777	-0.212
	(1.335)	(6.953)	(1.179)	(5.231)	(2.076)	(1.413)	(2.032)	(1.254)
Same legal system	-0.592	-0.694	0.515	2.490	-0.621	-0.579	0.359	0.412
	(0.652)	(6.284)	(0.622)	(3.238)	(1.118)	(0.720)	(1.096)	(0.664)
Dif ln GDP growth	-0.0116	-0.722	-0.0835	0.182	0.244	-0.0445	0.183	-0.165*
	(0.0922)	(0.635)	(0.0789)	(0.437)	(0.185)	(0.102)	(0.152)	(0.0861)
Dif ln GDP per capita	0.380	4.850	1.475	0.131	-1.761	1.089	1.463	-0.0162
	(1.280)	(8.274)	(0.940)	(2.823)	(2.272)	(1.406)	(1.732)	(1.021)
Exchange rate growth	0.891	17.12	1.439	-7.844	0.689	2.591	1.605	1.505
	(1.772)	(13.48)	(1.696)	(6.564)	(2.561)	(2.022)	(2.847)	(1.884)
Exchange rate volatility	0.0419*	12.21	-0.00748	0.102	0.0833	0.0477**	-0.00362	0.00241
	(0.0218)	(23.47)	(0.0204)	(0.0657)	(0.0760)	(0.0239)	(0.0515)	(0.0225)
Dif corporate tax rate	-0.585	0.932	0.267	0.00162	2.291	-0.656	0.368	0.316
	(0.674)	(2.372)	(0.325)	(1.182)	(9.206)	(0.769)	(0.376)	(0.393)
Export from Acquirer	0.000459	-0.136	0.0480**	0.257	-0.0454	-0.00125	-0.0137	0.0476**
	(0.0427)	(0.523)	(0.0211)	(0.237)	(0.0698)	(0.0482)	(0.0366)	(0.0226)

Table 4.6 (Cont'd)
Cross-sectional Analysis of Acquirer Announcement Return, Capital Control and Cost of Debt

	Acquirer has relatively higher capital control level than target firm		Acquirer has relatively lower capital control level than target firm		Acquirer has relatively higher capital control level than target firm		Acquirer has relatively lower capital control level than target firm	
	Hi cost of debt	Lo cost of debt	Hi cost of debt	Lo cost of debt	Decrease in cost of debt	Increase in cost of debt	Decrease in cost of debt	Increase in cost of debt
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dif voice	-0.159	-2.513	0.578	6.409	0.586	-1.911	1.360	0.0583
	(1.684)	(10.41)	(1.489)	(5.215)	(2.811)	(1.888)	(2.332)	(1.609)
Dif politic	-0.525	-2.236	-0.248	-1.048	0.974	0.335	-2.106**	-0.798
	(0.781)	(3.815)	(0.659)	(2.003)	(1.238)	(0.862)	(1.055)	(0.711)
Dif government	-0.927	11.16	-1.345	-1.413	-0.703	-1.883	2.669	-1.735
	(1.325)	(7.958)	(1.249)	(5.615)	(2.113)	(1.474)	(2.039)	(1.337)
Dif regulatory	-0.499	-15.26**	-0.139	5.112	-0.743	-0.515	-0.428	0.454
	(1.131)	(6.001)	(1.070)	(3.060)	(1.769)	(1.248)	(1.710)	(1.124)
Dif rule of law	2.434	-3.800	-0.246	-0.327	-1.856	4.080*	0.967	-0.620
	(1.998)	(13.21)	(1.711)	(6.002)	(3.332)	(2.227)	(2.877)	(1.817)
Dif corruption	0.753	6.342	1.028	-6.233*	0.0909	1.113	-2.903**	1.570
	(0.986)	(5.209)	(0.922)	(3.186)	(1.698)	(1.095)	(1.477)	(0.980)
Constant	1.715	-5.445	-23.39**	0.506	3.391	2.455	5.117	-24.01*
	(8.813)	(37.57)	(11.40)	(23.72)	(10.01)	(9.812)	(11.49)	(12.33)
Year fixed effects	3,900	116	4,761	141	1,263	3,820	1,817	4,924
Acquirer fixed effects	0.085	0.592	0.103	0.614	0.171	0.105	0.164	0.119
Target firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,884	2,236	3,199	3,605	2,292	2,458	3,167	3,244
R-squared	0.091	0.147	0.130	0.115	0.125	0.117	0.133	0.129

Table 4.7
Cross-sectional Analysis of Acquirer Announcement Return, Capital Control and Risk Sharing

The table presents the results of OLS regressions of our final sample. The dependent variable is acquirer's acquirer abnormal return calculated for a 5-day (-2, +2) announcement window. DIFCOV is the historical covariance of an acquirer's stock return with the local market index, minus the historical covariance of the acquirer's stock return with the target's stock return. Dif indicates the difference between the acquirer and target nation. All variables are defined in Appendix A. The standard errors shown in parenthesis are adjusted for heteroscedasticity using White (1980) corrections. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

	Acquirer has relatively higher capital control level than target firm		Acquirer has relatively lower capital control level than target firm	
	All	Hi DIFCOV	All	Hi DIFCOV
	(1)	(2)	(3)	(4)
DIFCOV	34.920**		-202.7	
	(17.71)		(134.1)	
Acquirer capital control		19.17**		-5.720
		(7.582)		(9.419)
Target capital control		2.391		9.696
		(8.486)		(18.46)
log Acquirer size	-0.723***	-0.202	-0.582*	-0.905*
	(0.252)	(0.292)	(0.313)	(0.539)
log Transaction value	0.379	0.205	-0.139	0.0199
	(0.275)	(0.306)	(0.264)	(0.415)
Private	-2.459	-2.596	-3.292	-5.324
	(1.676)	(1.975)	(2.810)	(3.937)
Subsidiary	0.732	2.922	0.201	0.0140
	(2.041)	(2.735)	(2.996)	(4.042)
Cash	1.282*	0.732	1.370*	0.779
	(0.746)	(1.042)	(0.796)	(1.221)
Stock	-1.859	2.380	-0.304	1.247
	(1.406)	(2.027)	(1.695)	(2.858)
Same industry	-0.501	0.799	-0.816	-0.896
	(0.717)	(0.902)	(0.809)	(1.249)
log Distant	0.0293	-0.129	-1.618*	0.174
	(0.562)	(0.763)	(0.888)	(2.131)
Same language	0.501	1.103	1.222	1.671
	(1.707)	(2.198)	(2.414)	(3.847)
Same border	3.295	7.472**	-1.369	2.474
	(2.122)	(2.905)	(2.162)	(4.399)
Same religion	-1.662	-0.341	1.272	8.462
	(2.761)	(3.770)	(2.960)	(6.192)
Same legal system	-1.578	-5.077**	-1.355	-0.860
	(1.345)	(1.987)	(1.707)	(2.953)
Dif ln GDP growth	-0.0856	-0.681*	0.177	0.620
	(0.211)	(0.363)	(0.242)	(0.387)
Dif ln GDP per capita	1.707	4.186	-1.604	-0.198
	(2.467)	(3.628)	(2.627)	(5.792)

Table 4.7 (Cont'd)
Cross-sectional Analysis of Acquirer Announcement Return, Capital Control and Risk Sharing

	Acquirer has relatively higher capital control level than target firm		Acquirer has relatively lower capital control level than target firm	
	All	Hi DIFCOV	All	Hi DIFCOV
	(1)	(2)	(3)	(4)
Exchange rate growth	4.698	3.878	0.0230	5.193
	(3.255)	(4.832)	(3.617)	(5.576)
Exchange rate volatility	-0.00107	-0.175	0.135*	-0.0425
	(0.0603)	(0.128)	(0.0701)	(0.0517)
Dif corporate tax rate	0.407	-0.928	-1.911**	-0.650
	(3.488)	(0.811)	(0.888)	(1.056)
Export from Acquirer	-0.104	-0.166*	-0.0311	-0.0224
	(0.0763)	(0.0913)	(0.0495)	(0.0733)
Dif voice	-2.263	-10.38*	-1.535	0.437
	(4.352)	(5.652)	(3.684)	(7.011)
Dif politic	-2.789*	-5.663**	0.772	-2.475
	(1.553)	(2.283)	(1.747)	(2.607)
Dif government	-1.495	-0.697	-2.742	-7.113
	(2.839)	(3.688)	(2.776)	(4.412)
Dif regulatory	-1.202	-3.937	1.557	5.509
	(2.284)	(3.600)	(2.404)	(3.802)
Dif rule of law	6.879	12.28*	-5.040	-8.929
	(5.086)	(6.768)	(5.212)	(9.455)
Dif corruption	1.505	3.766	2.942	2.756
	(2.350)	(3.330)	(2.117)	(3.089)
Constant	15.72	23.44	41.26***	7.721
	(9.547)	(16.80)	(12.37)	(24.50)
Year fixed effects	Yes	Yes	Yes	Yes
Acquirer fixed effects	Yes	Yes	Yes	Yes
Target firm fixed effects	Yes	Yes	Yes	Yes
Observations	686	311	724	390
R-squared	0.143	0.384	0.183	0.322

Table 4.8
Cross-sectional Analysis of Acquirer Announcement Return, Capital Control and Market Discipline

The table presents the results of OLS regressions of our final sample. The dependent variable is acquirer's acquirer abnormal return calculated for a 5-day (-2, +2) announcement window. WGI index is the country governance index aggregate from six dimensions of governance. The sample will be assigned as Hi (Lo) WGI index if its WGI index is above (below) the median value of the WGI index. Dif indicates the difference between the acquirer and target nation. All variables are defined in Appendix A. The standard errors shown in parenthesis are adjusted for heteroscedasticity using White (1980) corrections. ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

	Acquirer has relatively higher capital control level than target firm		Acquirer has relatively lower capital control level than target firm	
	Hi Acquirer WGI index	Lo Acquirer WGI index	Hi Acquirer WGI index	Lo Acquirer WGI index
	(1)	(2)	(3)	(4)
Acquirer capital control	8.485*	-1.001	1.024	-3.118
	(4.966)	(2.924)	(2.633)	(2.601)
Target capital control	-3.454	7.344**	3.896	-3.407*
	(4.634)	(2.993)	(3.112)	(1.992)
log Acquirer size	-1.376***	-1.166***	-1.347***	-0.934***
	(0.181)	(0.166)	(0.126)	(0.153)
log Transaction value	0.888***	0.575***	0.657***	0.555***
	(0.183)	(0.141)	(0.129)	(0.134)
Private	-2.792***	-0.731	-1.970***	-0.496
	(0.801)	(0.624)	(0.595)	(0.640)
Subsidiary	-0.348	0.619	0.118	0.437
	(0.528)	(0.400)	(0.367)	(0.375)
Cash	-0.252	-0.610*	0.475	0.206
	(0.430)	(0.318)	(0.313)	(0.341)
Stock	-0.452	-0.531	1.804*	1.931
	(1.299)	(1.700)	(0.999)	(1.591)
Same industry	0.423	-0.0787	-0.336	0.876**
	(0.477)	(0.362)	(0.339)	(0.363)
log Distant	-0.825	-0.590*	0.181	0.297
	(0.569)	(0.331)	(0.371)	(0.383)
Same language	-0.652	-0.00152	-0.443	-0.236
	(1.311)	(0.856)	(1.095)	(0.721)
Same border	-1.153	-0.564	-1.726*	0.529
	(1.261)	(0.870)	(0.989)	(0.756)
Same religion	1.200	0.695	-1.243	-0.430
	(2.047)	(1.357)	(1.578)	(1.627)
Same legal system	-0.218	-0.724	-0.0110	0.640
	(0.963)	(0.713)	(0.665)	(0.728)
Dif ln GDP growth	-0.133	0.0621	-0.118	0.0151
	(0.201)	(0.100)	(0.108)	(0.103)
Dif ln GDP per capita	4.260*	-3.285**	1.269	0.864
	(2.561)	(1.547)	(1.578)	(1.254)
Exchange rate growth	7.466**	0.634	4.650*	-3.275*
	(3.652)	(1.749)	(2.497)	(1.732)

Table 4.8 (Cont'd)
Cross-sectional Analysis of Acquirer Announcement Return, Capital Control and Market Discipline

	Acquirer has relatively higher capital control level than target firm		Acquirer has relatively lower capital control level than target firm	
	Hi Acquirer WGI index	Lo Acquirer WGI index	Hi Acquirer WGI index	Lo Acquirer WGI index
	(1)	(2)	(3)	(4)
Exchange rate volatility	0.287	0.0485***	0.214	-0.00675
	(0.633)	(0.0104)	(0.220)	(0.0189)
Dif corporate tax rate	-2.912	-0.602**	-7.462	0.0412
	(5.368)	(0.271)	(4.940)	(0.108)
Export from Acquirer	-0.0447	-0.0182	0.0284	0.0178
	(0.0778)	(0.0295)	(0.0265)	(0.0417)
Dif voice	-6.126**	1.274	0.400	-0.426
	(2.722)	(2.012)	(1.731)	(1.647)
Dif politic	-1.376	0.280	-3.121***	0.0497
	(1.500)	(0.920)	(0.923)	(0.781)
Dif government	-1.192	-0.680	-1.323	-0.303
	(1.789)	(1.296)	(1.513)	(1.392)
Dif regulatory	-0.487	-1.875	0.613	-1.748
	(1.559)	(1.485)	(1.237)	(1.351)
Dif rule of law	3.666	0.859	2.948	2.214
	(3.058)	(2.003)	(2.321)	(2.044)
Dif corruption	-3.082*	2.865**	-0.00522	1.075
	(1.663)	(1.199)	(1.113)	(1.041)
Constant	9.197	12.53**	-34.96	-13.06***
	(30.76)	(5.784)	(25.57)	(4.200)
Year fixed effects	Yes	Yes	Yes	Yes
Acquirer fixed effects	Yes	Yes	Yes	Yes
Target firm fixed effects	Yes	Yes	Yes	Yes
Observations	2,256	2,903	4,571	2,335
R-squared	0.118	0.109	0.124	0.130

Table 4.9
Acquirer Announcement Return, Capital Control and Level of Country Advancement

The table presents the results of OLS regressions of our final sample. The dependent variable is acquirer's acquirer abnormal return calculated for a 5-day (-2, +2) announcement window. Dif indicates the difference between the acquirer and target nation. All variables are defined in Appendix A. The standard errors shown in parenthesis are adjusted for heteroscedasticity using White (1980) corrections. Superscripts ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

	Acquirer is OECD Target is OECD	Acquirer is OECD Target is not OECD	Acquirer is not OECD Target is OECD	Acquirer is not OECD Target is not OECD
	(1)	(2)	(3)	(4)
Acquirer capital control	1.210	0.419	-3.229	-0.0130
	(1.108)	(2.696)	(3.826)	(4.054)
Target capital control	0.623	-1.895	6.056	4.400
	(0.990)	(2.714)	(3.847)	(6.383)
log Acquirer size	-1.144***	-1.417***	-1.197***	-1.023**
	(0.082)	(0.205)	(0.350)	(0.421)
log Transaction value	0.672***	0.573***	-0.140	1.203**
	(0.077)	(0.215)	(0.270)	(0.546)
Private	-1.869***	1.827	-0.133	0.0910
	(0.337)	(1.111)	(1.157)	(1.442)
Subsidiary	0.302	-0.310	1.626*	-1.627
	(0.208)	(0.689)	(0.980)	(1.059)
Cash	-0.0429	0.512	-0.762	-0.230
	(0.173)	(0.589)	(0.756)	(0.990)
Stock	0.387	4.489**	-0.394	0.130
	(0.646)	(2.227)	(4.174)	(3.488)
Same industry	0.0182	0.690	0.578	-0.182
	(0.192)	(0.676)	(0.794)	(0.898)
log Distant	0.221	-0.801	1.269	1.186
	(0.179)	(0.906)	(1.334)	(1.435)
Same language	-0.600	-1.302	-0.408	1.400
	(0.515)	(1.121)	(1.861)	(2.040)
Same border	-0.396	0.502	-7.941**	-1.140
	(0.403)	(2.103)	(3.207)	(1.924)
Same religion	-0.597	0.984	-1.635	0.633
	(0.692)	(1.525)	(3.202)	(3.862)
Same legal system	0.411	0.400	0.494	7.270
	(0.350)	(1.259)	(2.473)	(4.662)
Dif ln GDP growth	-0.003	-0.338**	0.004	-0.150
	(0.0661)	(0.137)	(0.215)	(0.177)
Dif ln GDP per capita	-0.749	2.438	-5.059*	-4.317
	(0.978)	(1.821)	(2.590)	(2.951)
Exchange rate growth	1.654	1.397	0.443	1.041
	(1.286)	(2.870)	(3.741)	(2.639)
Exchange rate volatility	0.027	0.024	0.019	-0.0008
	(0.030)	(0.018)	(0.021)	(0.010)

Table 4.9 (Cont'd)
Acquirer Announcement Return, Capital Control and Level of Country Advancement

	Acquirer is OECD Target is OECD (1)	Acquirer is OECD Target is not OECD (2)	Acquirer is not OECD Target is OECD (3)	Acquirer is not OECD Target is not OECD (4)
Dif corporate tax rate	-0.171	0.419	0.279	0.0616
	(0.159)	(0.282)	(0.587)	(0.621)
Export from Acquirer	0.0135	-0.236	0.113	0.129
	(0.016)	(0.202)	(0.070)	(0.301)
Dif voice	0.424	1.294	-4.435	-4.748
	(0.877)	(2.013)	(2.891)	(4.996)
Dif politic	-0.741	0.493	-1.415	0.116
	(0.464)	(1.215)	(1.780)	(2.283)
Dif government	-1.187*	6.471***	-3.665	-0.437
	(0.709)	(2.481)	(3.229)	(5.341)
Dif regulatory	0.399	-0.020	4.412	-0.721
	(0.631)	(1.831)	(3.190)	(3.427)
Dif rule of law	0.141	-2.733	-0.544	6.524
	(1.095)	(2.749)	(4.035)	(6.697)
Dif corruption	0.202	-2.498	1.610	-1.351
	(0.547)	(1.938)	(2.452)	(2.927)
Constant	4.915**	7.559	-14.000	-29.890
	(2.123)	(13.690)	(16.010)	(19.280)
Year fixed effects	Yes	Yes	Yes	Yes
Acquirer fixed effects	Yes	Yes	Yes	Yes
Target firm fixed effects	Yes	Yes	Yes	Yes
R-squared	0.070	0.175	0.224	0.320

Table 4.10
Acquirer Announcement Return and Measures of Capital Control

The table presents the results of OLS regressions of our final sample. The dependent variable is acquirer's acquirer abnormal return calculated for a 5-day (-2, +2) announcement window. All variables are defined in Appendix A. The standard errors shown in parenthesis are adjusted for heteroscedasticity using White (1980) corrections. Superscripts ***, **, and * indicate significance at the 1, 5, and 10% levels, respectively.

	Acquirer has relatively higher capital control level than target firm			Acquirer has relatively lower capital control level than target firm		
	Total index	EFW index	KAOPEN index	Total index	EFW index	KAOPEN index
	(1)	(2)	(3)	(4)	(5)	(6)
Acquirer capital control	1.180	-0.171	0.122	-0.013	2.153	0.850
	(1.059)	(1.066)	(0.153)	(0.174)	(1.887)	(0.967)
Target capital control	0.175	-0.113	-0.210	-0.163	0.449	2.716
	(0.845)	(0.375)	(0.149)	(0.171)	(0.516)	(2.313)
log Acquirer size	-1.213***	-1.204***	-1.209***	-1.318***	-1.316***	-1.493***
	(0.109)	(0.102)	(0.103)	(0.124)	(0.174)	(0.261)
log Transaction value	0.623***	0.723***	0.627***	0.784***	0.486***	0.772***
	(0.105)	(0.096)	(0.104)	(0.111)	(0.183)	(0.224)
Private	-1.485***	-1.615***	-1.298***	-1.768***	0.483	-1.212
	(0.416)	(0.476)	(0.473)	(0.472)	(0.858)	(0.942)
Subsidiary	0.0197	0.636**	0.254	0.385	0.761	-0.0694
	(0.286)	(0.289)	(0.291)	(0.335)	(0.544)	(0.655)
Cash	0.101	-0.244	0.233	-0.325	0.408	-1.172**
	(0.243)	(0.233)	(0.245)	(0.269)	(0.455)	(0.555)
Stock	0.822	0.824	2.350***	-0.707	4.185**	-0.671
	(0.851)	(0.939)	(0.911)	(0.980)	(1.737)	(2.229)
Same industry	0.0289	0.230	0.00737	0.227	0.333	1.267**
	(0.260)	(0.262)	(0.269)	(0.299)	(0.501)	(0.575)
log Distant	0.122	0.025	0.424	-0.327	-0.744	-0.525
	(0.252)	(0.232)	(0.282)	(0.278)	(0.669)	(0.949)
Same language	-0.318	-2.141***	-0.824	-0.387	0.174	0.595
	(0.621)	(0.713)	(0.704)	(0.719)	(1.066)	(1.471)
Same border	-0.790	0.151	-1.147*	-0.052	-0.973	-3.126
	(0.613)	(0.583)	(0.662)	(0.655)	(1.611)	(2.272)
Same religion	-0.959	0.503	-0.160	-0.748	1.300	-4.197
	(0.814)	(1.024)	(0.889)	(0.922)	(1.298)	(2.932)
Same legal system	-0.080	1.007**	0.595	-0.601	-0.697	-1.970
	(0.426)	(0.513)	(0.481)	(0.576)	(0.827)	(1.342)
Dif ln GDP growth	-0.047	-0.121	-0.060	-0.052	-0.078	-0.087
	(0.075)	(0.091)	(0.078)	(0.108)	(0.110)	(0.198)
Dif ln GDP per capita	-1.203	1.350	-0.357	0.307	0.0397	-3.037
	(0.878)	(1.143)	(0.995)	(1.288)	(1.746)	(2.431)
Exchange rate growth	3.334**	-0.755	1.479	0.684	1.457	0.661
	(1.459)	(1.811)	(1.630)	(1.685)	(2.226)	(3.261)
Exchange rate volatility	-0.004	0.035***	-0.001	0.051***	0.028	0.034*
	(0.017)	(0.012)	(0.018)	(0.011)	(0.017)	(0.019)

Table 4.10 (Cont'd)
Acquirer Announcement Return and Measures of Capital Control

	Acquirer has relatively higher capital control level than target firm			Acquirer has relatively lower capital control level than target firm		
	Total index	EFW index	KAOPEN index	Total index	EFW index	KAOPEN index
	(1)	(2)	(3)	(4)	(5)	(6)
Dif corporate tax rate	0.085	0.212*	0.369***	0.141	0.454***	-0.623
	(0.192)	(0.127)	(0.110)	(0.351)	(0.152)	(0.799)
Export from Acquirer	0.016	-0.016	0.028	-0.013	-0.093	0.020
	(0.018)	(0.030)	(0.021)	(0.026)	(0.168)	(0.042)
Dif voice	1.766*	-1.715	-0.175	-1.166	0.132	-1.115
	(1.019)	(1.261)	(1.141)	(1.515)	(1.737)	(3.158)
Dif politic	-0.632	-1.070	-1.192*	0.114	-0.303	-0.513
	(0.581)	(0.652)	(0.632)	(0.781)	(0.956)	(1.592)
Dif government	-0.466	-0.178	0.248	-0.672	2.072	-2.562
	(0.935)	(1.101)	(1.019)	(1.148)	(1.884)	(2.647)
Dif regulatory	-0.449	2.211**	0.0592	-0.680	-0.316	-3.635
	(0.808)	(0.952)	(0.910)	(1.089)	(1.469)	(2.828)
Dif rule of law	-0.0551	-1.338	1.224	0.617	0.161	4.006
	(1.321)	(1.488)	(1.404)	(1.704)	(2.214)	(3.312)
Dif corruption	-0.0436	0.412	0.147	1.494	-0.115	1.106
	(0.681)	(0.777)	(0.801)	(0.924)	(1.511)	(2.194)
Constant	-1.978	3.371	-23.81***	16.54***	-18.70***	19.27
	(9.056)	(3.757)	(3.856)	(4.110)	(6.812)	(15.37)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Acquirer fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Target firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,354	5,931	6,283	4,712	2,427	1,357
R-squared	0.098	0.106	0.110	0.108	0.157	0.158

Chapter 5 – Summary and Conclusions

5.1 Summary of Findings

Theoretically, managers are expected to invest in projects that only generate positive NPV. This statement should also be applicable to M&A decisions. However, most of the prior empirical studies on takeover performances have reported conflicting results from the theoretical prediction. The market reactions to acquiring firms' value in public deals appear to be negative or neutral at best. This phenomenon is likely to be explained by the number of determinants with a multi-directional influence. In this thesis, we attempt to examine whether managers of acquiring firms can create value for their shareholders by (i) exploiting information asymmetry between acquirers and target firms/markets regarding to their true value and takeover synergy (henceforth acquirer information asymmetry), (ii) choosing the correct payment method corresponding to the marginal value of cash holdings and (iii) evading high costs incurred by the capital control in the home country. Understanding how these three drivers that have received relatively low attention in M&A literature can help us to better understand the source and cause of observed value creation/destruction.

Acquirer Information Asymmetry and Gains from Mergers and Acquisitions

Adverse selection cost is likely to be the most common theoretical framework used to explain the wealth destruction in stock-acquisition deals (see e.g. Moeller et al., 2007). From this perspective, market infers the choice of stock payment as the signal that bidders possess private information regarding their overvalued stock. The consequential fall in stock price generally leads to the conclusion that information asymmetry reduces bidder's shareholder wealth. However, some studies alternatively demonstrate that this friction is not necessarily always a bad thing for firm value. One strand of literature documents the benefit of information sharing that can enhance the value of target firms who have high levels of information asymmetry (Chan et al., 2016; Chang, 1998; Raman et al., 2013). Another strand of the literature suggests that managers are opportunistic and attempt to use their inflated stock as the currency of payment (see e.g. Dong et al., 2006; Rhodes-Kropf et al., 2005; Shleifer and Vishny, 2003). Although this motive can be related to the adverse selection theory to some extent, the degree of information asymmetry has never been explicitly examined in the context of opportunistic behaviours. Given that managers

have incentives to exploit their private information corresponding to their firm's intrinsic value and perhaps takeover synergies, the gain should be more pronounced for difficult-to-value acquirers than less difficult-to-value ones. Complementary to adverse selection theory, our chapter does not rule out the possibility of information advantage and attempts to examine whether acquirers can benefit from their information asymmetry from paying lower takeover premiums and/or receiving higher acquirer gains.

Initially, we find that the condition of double-sided information asymmetry does have an impact on the successful integration and deal performance. By classifying our sample with the level of information asymmetry on both parties, the deals are unlikely to be consummated in the setting in which acquirers possess high levels of private information while target firms hold low levels of such information (Hi A + Lo T). Given that acquirers are ranked as having low information asymmetry, managers who purchase high information asymmetry target firms (Lo A + Hi T) have to pay greater premiums, by 23.89% relative to low information asymmetry targets (Lo A + Lo T). In contrast, we find no difference in premium and TCAR received by target firms who hold high levels of private knowledge regardless of information asymmetry on the acquirer side. Turning to ACAR in stock acquisitions, Hi A + Hi T suffer -3.41%, while Lo A + Hi T are better off at -1.28%. The trend is reversed for cash deals; Hi A + Hi T enjoy the highest gain of 3.41% compared with 0.27% from the Lo A + Lo T. When we focus on the degrees of information asymmetry by partitioning them into quintiles, we find a positive correlation between premium and the level of acquirer information asymmetry across all payment types. For ACAR, acquirers ranked in the top quintile receive a significantly higher gain than those in the bottom quintile by 3.85% (2.10%) in cash (stock) deals. The difference is not statistically significantly different from zero in stock acquisitions. The result from this part supports the adverse selection theory and suggests that acquirers cannot benefit from their higher level of information asymmetry. However, this analysis may be naïve since it ignores the double-sided information asymmetry, which can lead to negotiation and bargaining power between the merging parties. To mitigate this problem, we introduce the relative acquirer information asymmetry of target firms into our analysis. Interestingly, after

the sample is classified by using the new measure, the results reveal the difference between using the absolute and relative acquirer information asymmetry. The greater the relative acquirer information asymmetry, the lower premium acquirers are likely to pay. Acquirers in the top quintile (highest relative acquirer information asymmetry) pay a significantly lower premium by 11.14% (24.07%) in stock (cash) deals. After incorporating the private knowledge held by target managers, we can find the benefit of paying a lower premium but not the gain to acquirer (ACAR), which reveals an indifferent pattern when sorting the deal with absolute or relative acquirer information asymmetry. The multivariate analysis that allows us to control for the information asymmetry on the target side as well as other determinants that can affect the gains from acquisitions, confirms our univariate results. We find a negative relationship between acquirer information asymmetry and Premium (TCAR) in both cash and stock acquisitions. In addition, our regression analysis shows an association of acquirer information asymmetry and ACAR in only cash deals.

By allowing the time for price to be corrected and synergy gain to take place, this chapter estimates the 12-, 24- and 36-months after the deal announcement. In our univariate and multivariate analyses, all results point to the same conclusion, i.e. that the higher the level of information asymmetry (absolute or relative to target firms), the higher the lost they incur in stock and mixed payments. The difference between top and bottom quintile in cash deals is insignificant. This is in line with other post-merger performance literature (see e.g. Akbulut, 2013).

We further examine whether difficult-to-value acquirers can successfully exploit their overvalued stocks as the currency to pay for target assets. In general, our results show that acquirers are more overvalued than target firms and both parties are more overvalued in stock relative to cash acquisitions. From the univariate analysis, we cannot find any significant difference in premium paid between Hi ln (M/V) and Lo ln (M/V) along the level of acquirer information asymmetry. However, we see striking results in the returns to acquirers. While sorting the deals with absolute information asymmetry of acquirers, overvalued acquirers who are ranked as holding the highest level of private information suffer the loss of -4.61% which is significantly higher than the non-overvalued acquirers at -2.95%. If sorting by

relative acquirer information asymmetry, we observe the converse results. Overvalued acquirers suffer the greater loss when the relative information asymmetry increases. We observe the significantly negative and increasing trend of ACAR from Q1 (-1.57%) to Q4 (-4.12%) but not in Q5 (insignificant at -1.48%). In contrast, the non-overvalued acquirers suffer the loss of -4.76% in Q5 whilst not experiencing the significantly negative ACAR in the previous quintiles (Q1 to Q4). Our results suggest that when the information asymmetry of the acquirer is much greater than their target firm, the gain received by overvalued acquirers makes them better off than non-overvalued acquirers. In cash deals, ACAR is significantly positive only in the top quintile (6.55%). Our multivariate analysis confirms that overvalued acquirers who have high levels of information asymmetry have to pay a higher premium only in stock deals. The coefficient of the interaction term *(Acquirer IA x Acquirer ln (M/V))* is significantly positive at 1%. Interestingly, this term become significantly positive when regressing the data on ACAR and conditional on cash payment. For the long-term, our univariate results are as expected. The multivariate analysis reports the significantly negative coefficient of interaction term for BHAR for 12-, 24- and 36-months in stock and mixed payments. There is no evidence to support that difficult-to-value acquirers can enjoy the post-merger stock performance by exchanging their overvalued stocks with target firms.

In addition, we analyse the takeover synergies by calculating the change in the average ratio of capital expenditures over assets across three years following the acquisition and have labelled firms which this ratio has changed significantly (Q4 and Q5 for positive change and Q1 and Q2 for negative change) as high synergies. Our univariate analysis confirms that acquirers with high information asymmetry and high synergies outperform those with high information asymmetry but low synergies (5.84% if sorting by absolute acquirer information asymmetry and 4.28% if sorting by relative acquirer information asymmetry). Our regression analysis reveals the positive association of ACAR and the interaction term of acquirer information asymmetry and the dummy of high synergy, indicating that acquirers can benefit from having private information of synergies by gaining the higher ACAR but not paying a lower premium. In the long-term, we notice that only in the top quintile, high-synergy acquirers experience less loss than those with low-synergy across 12-,

24- and 36-months by 1.89% (2.17%), 1.60% (1.50%) and 0.97% (0.58%) if sorting by absolute (relative) acquirer information asymmetry. However, the regression results do not find support to our findings in univariate analysis . The coefficient of the interaction term *Acquirer IA x Hi Synergy* is statistically insignificant.

To mitigate the revaluation bias, we split our samples into frequent and less frequent acquirers. However, we cannot detect any systematic difference between frequent and less frequent acquirers in stock deals. Interestingly, in cash deals, the ACARs received by less frequent acquirers are statistically significant and also exhibit a positive correlation with the level of acquirer information asymmetry. For long-term gain, when sorting the sample with acquirer information asymmetry, we see the clear effect on mixed payment, i.e. less frequent acquirers suffer greater loss than frequent acquirers across 12-, 24- and 36-months after deal announcements by 1.93%, 1.28% and 0.68%, respectively. When sorting the sample with relative acquirer information asymmetry, in Q4 of stock acquisitions, the frequent acquirers earn less BHAR12, BHAR24 and BHAR36 than less frequent acquirers by 1.44%, 1.11% and 0.96%, respectively. The difference is statistically significant at the 1% level. Our findings indicate that frequent acquirers with high levels of private knowledge can benefit from a stock-related payment than less frequent acquirers that may be affected by the revaluation cost. However, our multivariate analysis is contradictory to the univariate results, the coefficient of *Acquire IA x Freq* is significantly negative in cash and stock deals for BHAR12, BHAR24 and BHAR36.

Finally, to disentangle the effect of financing (new equity issued) from the true gain of M&As, we classify acquirers into with and without equity issued subgroups. Our results clearly show that without equity issued acquirers gain more (lose less) than with equity issued acquirers, particularly when they hold high levels of private information (Q4 and Q5) and use stocks or mixed payment as the methods of payment. When controlling for other possible determinants that can affect acquirer gains, our regression analysis cannot find any association between *Acquirer IA x W/O Equity Issued* and ACAR. For post-merger analysis, we find a strongly negative relationship between acquirer information asymmetry and long-term gains only in the deals in which acquirers issued new stocks. In line with the univariate analysis, our regression analysis confirms that acquirers who hold high levels of private

information, and have not issued new equity one year prior to the takeover announcement, gain more than those who issued new equity. Overall, our results in this section suggest that the announcement and long-term loss in stock-related acquisitions, particularly when acquirers have high levels of information asymmetry, have been largely influenced by a firm's financing decision (issuing new equity) rather than the results of acquisitions *per se*.

Marginal Value of Cash and Methods of Payment in M&A deals

Several studies suggest that shareholders do not perceive the one additional dollar that firms hold as equal to its nominal value. The marginal marginal value of cash can be varied, from as high as $1.60 to as low as $0.40, depending on different firm characteristics as well as their financial policies (see e.g. Dittmar and Mahrt-Smith, 2007; Faulkender and Wang, 2006). Building on the novel approach that directly examines the value implication, the marginal value of cash should offer an alternative explanation to the puzzle that cannot be explained by using the level of cash. In line with Pinkowitz et al. (2013), our sample reveals that cash and marketable securities account for 74% of net assets in stock deals compared to 55% in cash deals. These figures lead to the intuitive question of why cash-rich acquirers favour stocks as the currency of payment instead of using their immense cash. To our knowledge, there is no study that explicitly relates the value of cash to the payment choice in the M&A literature. Therefore, the research questions in this chapter are whether the marginal value of cash can influence the bidder's manager on the choice of payment (pay cash or save cash) and its effect on firm value.

Following the estimation method used in Faulkender and Wang (2006), our main results reveal that shareholders place value on the additional cash acquirers hold prior to the deal announcement as $1.352. When we partition our sample by method of payment and re-estimate the value of cash, we find the additional cash held by acquirers to be worth approximately $1.010, $1.011 and $2.161 in cash, mixed and stock payments, respectively. We interpret the highest marginal value of cash prior to stock bids as managers realise and make a choice of payment corresponding to the value of cash. The approximately double in value relative to the nominal value is consistent with the precautionary motive, suggesting that acquirers

who use stock as a means of payment may want to save their cash for potential investments in the future.

To be more specific, we identify cash-rich acquirers as those who have a cash balance greater than their target level by using Opler et al.'s (1999) static trade-off model. We find that cash-rich acquirers have no preference for specific payment methods and they do not necessarily pay the transaction with their abundant cash. The results in this section are consistent with our main findings. We still observe the highest value of cash in stock only payments and a small gap in the estimated value of cash held by cash-rich ($2.868) and non-cash-rich acquirers ($2.569). Interestingly, for only cash payment, we find a jump in the value of the additional dollar held by cash-rich acquirers ($1.940) compared to non-cash-rich acquirers ($0.823).

Further, we examine whether the value of cash held by acquirers in each payment method is persistent. From our results, we can observe the variation of value ranging from $0.723 to $1.605 for cash deals, $1.601 to $2.424 for stock deals, and $0.825 to $2.043 for mixed payment deals. In addition, we notice the timing pattern of payment decision corresponds to the marginal value of cash. In cash deals, the marginal value of cash drops slightly from $1.241 to $0.859 prior to the announcement year before reverting to $1.235. For stock deals, the value of cash reaches the highest point at $2.424 before returning to $1.790 one year after the deal announcement. For the mixed payment deals, we can see a slight drop from $2.043 to $0.849 at the year t-1 which returns to $1.419 in year t+1. This is consistent with the prediction that managers should engage in cash acquisitions when the marginal value of cash is low and stock deals when the marginal value of cash is high.

In our multivariate analysis, we alternatively use the Tobit regression to regress the value of cash proxies on the percentage of cash paid in the deal. Consistent with our prior analysis, the coefficients of our explanatory variables which are capital expenditure, R&D expenses, cash flow volatility, payout, bond rating, and size, are negatively significant as expected. The significance level is at 1% for all variables except the bond rating which is significant at 10%. This can be interpreted as being that cash is more valuable for acquirers with high growth opportunities, high risk from cash flow volatility and financial constraints. However,

since each individual proxy can capture only a certain dimension of value of cash, we also use the principal analysis technique to construct the value of cash index. The coefficient of 9.960 remains negative and statistically significant at the 1% level. We also estimate the marginal value of cash, conditional on our index, to cross-check its validity. The estimate value is $1.646 ($1.148) in the top (bottom) tercile where the index implies the highest (lowest) marginal value of cash. Overall, this section confirms our previous finding that when the marginal value of cash is higher, bidder managers are less likely to spend their valuable cash.

Finally, we associate the correct payment method with the value creation. We define the correct payment method corresponding to the value of cash held by acquirers as (1) high value of cash acquirers (Hi VOC) pay with stock and mixed payment and low value of cash acquirers (Lo VOC) pay with cash, (2) Hi VOC pay with stock and Lo VOC pay with cash, (3) Lo VOC pay with cash, and (4) Hi VOC pay with stock. In our univariate analysis, we find that acquirers who pay with the correct methods gain less than those who use incorrect methods in the first three criteria. The difference of -1.704% is statistically significant only in the third criteria. However, in the fourth criteria, acquirers who pay with the correct method can outperform their peers by 0.691%, though this is not statistically significant. Since our sample includes both public and private targets, we further conduct our sub-analysis conditional on the public status of target firms. For public deals, the correct payment acquirers suffer greater loss relative to acquirers who choose the incorrect method by 1.409%, 2.008% and 6.564% in the first, second and fourth criteria, respectively. For the third criteria where acquirers choose to pay with cash when their value of cash holding is low, ACAR is -0.737% and greater than other deals by 0.667%. For the private deals, we find that acquirers who pay with stock when their cash holdings have high market value (criteria 4) receive higher gains by 4.976% and the difference is statistically significant at the 1% level. In contrast, acquirers who want to disgorge their cash when the value is low gain significantly less than others by 1.488%. After controlling for other possible determinants that can affect ACAR, our regression analysis reveals that only the coefficient of correct payment method in model 3 is positively significant. This leads to our conclusion that acquirers who pay with cash when their value of cash is low can receive the higher ACAR by 1.035%.

Our results should not be influenced by the cash payment or private status of target firms which have been controlled in our analysis.

Capital control and Gains from M&A deals

Literature on the strand of international business posits that firms can alter their costs of engaging in businesses at home by internationalisation and benefit from the better institutional environment in host countries (see e.g. Ellis et al., 2017; Luo and Tung, 2007). However, Henisz and Swaminathan (2008) mention that this area of research is in an early stage. In finance, one of the institutional factors that is crucial and has been extensively studied, is the country's capital control. While the studies of capital control from a macro perspective are voluminous, the understanding of the effect of capital control at firm-level is minimal. To our knowledge, Barbopoulos et al. (2012) and Francis et al. (2008) are the only two works that explicitly discuss the effect of capital control on cross-border acquisitions. However, there are no studies that examine the cross-border deals that flow from high to relatively low capital control countries built on the theoretical perspective of Luo and Tung (2007). These factors motivated our chapter and lead to the formulation of the key research question whether acquirers can enhance firm values by purchasing firms in a better institutional environment (low capital control) than at home (high capital control).

Our main results are in line with the springboard perspective introduced by Luo and Tung (2007) which posits that firms from emerging countries use international expansion as the springboard to reduce their institutional constraints at home. We find an association between capital control levels and the volume of cross-border flows from acquiring countries, particularly when the capital control levels in acquiring countries are relatively higher than those of the targets. As a consequence, we also find that by purchasing firms in relatively low capital control countries, acquirers resided in higher capital control countries can gain higher ACAR. In our regression analysis, a one-standard deviation increase in acquirer capital control corresponds to a 1.033% increase in ACAR. Consistent with our prediction, we cannot find any statistical significance in acquirer capital control level when acquirers purchase target firms in relatively lower capital control countries.

Our study is consistent with Baker et al. (2009) and Francis et al. (2008) who posit that FDI flows are driven by the cheap capital cost available in the source country and the effect is expected to be greater in the host country where the capital account is restricted. The gain of bidders who acquire foreign targets from countries with relatively lower levels of capital control can be explained by the accessibility to the cheaper cost of capital. If our hypotheses hold, we should witness high abnormal returns in the high cost of capital acquirers and acquirers whose cost of capital declines after the acquisitions take place. We use firm's beta to capture the cost of equity and S&P's credit rating to proxy the cost of debt. Our results reveal a positive relationship between acquirer capital control level and ACAR only in the subsample where the acquirers bear the high cost of equity but also enjoy the decrease in cost of equity. For the cost of debt, the coefficient of acquirer capital control is positively significant if the acquirers face the high cost of debt but not for the decrease in cost of debt. These findings support our hypothesis that accessibility to a cheaper cost of capital can be a source of value creation.

Built on the risk sharing perspective of Chari and Henry (2004), when acquirers purchase foreign firms, the source of systematic risk for pricing stocks will change from the local stock market index to the host country stock market index at the time of acquisition. A decrease in exposure to systematic risk will lower the expected return and lead to a rise in stock price. We contend that countries with less restrictive capital movements should be well integrated with the world financial market and benefit from better risk sharing. From our results, we find that the coefficient of *difcov* is significantly positive only when the deals are flowing from higher to lower capital control countries. This supports our hypothesis that the value creation from purchase firms in relatively lower capital control countries is derived from better risk sharing.

Finally, we examine whether better market discipline can explain the higher gain discovered in our main finding. Intuitively, market discipline should function well in the environment where regulations are supportive. However, the extant literature has confirmed that market discipline can also be distorted by regulations. Governments can isolate an economy from competitive forces, reducing the market discipline, and exploit this freedom to allocate capital ineffectively. We posit that the

distortion should be more severe in an economy with weak governance and also has a potential for corruption (low WGI index). Firms with competitive advantage who can enter new markets in which capital is allocated efficiently on the return on investment should benefit from the improvement in market discipline. However, we cannot find support for our hypothesis which expects to see a significantly positive coefficient of acquirer capital control in the subset of acquirers who reside in countries with a low WGI index.

5.2 Recommendations and Implications

The findings in this thesis provide several implications for managers as well as investing communities. Regarding the information asymmetry issues, managers should be aware of the existence of double-sided information asymmetry, which can influence the deal negotiations and their outcomes. Offsetting with the negative reaction from the market, bidder managers who possess superior information than other market participants are able to gain better position in bargaining and as a result pay less premium. However, they should not attempt to exploit their overvalued stocks as the currency of payment since the market would be aware of the adverse selection cost and pay extra attention to acquirers with high information asymmetry. On the other hand, the market reacts positively to the acquirers who possess high levels of private information, particularly the knowledge regarding takeover synergies if engaging in stock acquisitions. Lastly, managers and investors should also be aware that the conventional announcement gains to acquirers are likely to bias downward from the self-revaluation effect or new equity issuing effect. They should be less worry about the information asymmetry effect on the acquirer's announcement and post-announcement performances.

In M&As, we find an evidence that managers are aware of their marginal value of cash holdings and make decisions to spend or save cash as a deal payment accordingly. Therefore, instead of the level of cash, the marginal value of cash should serve as a tool for investors to monitor whether the corporate cash holding policy is effective and corresponding to their wealth creation. Not limited only to stock or cash deals, the proportion of cash in mixed payments can also be used as a signal of the marginal value of cash held by acquirers. In addition, the market also

rewards managers who choose the correct payment method corresponding to the marginal value of cash. Among others, managers who choose to pay with only cash when their value of cash is low can gain the highest announcement returns.

Considering the cross-border acquisitions, our chapter confirms that acquirers can benefit from purchasing firms domiciled in countries with better institutional environments, including capital control policies. Based on our findings, managers of bidding firms who suffer high costs of capital controls imposed by their country can enhance their firm values by choosing the target residing in relatively lower capital control countries. Further, gains from acquisitions should be more pronounced if acquirers are looking for accessibility to cheaper capital or better risk diversification. Finally, managers should be aware of and study the details of capital control policies imposed by target countries.

5.3 Limitations

One of the limitations in this study is the sample period which is not up to date at the time of thesis submission and not identical for all empirical chapters. Data for this PhD were collected between 2012 and 2015. I used the most recent data available at that time. However, due to my official responsibility at sponsoring university the writing up and corrections took longer time than anticipated. Hence, although the thesis was submitted in 2020 the sample period ended in 2012. Further, The reason why the third empirical chapter (chapter 4) does not use the same sample window of 1990 – 2010 is due to the availability of data. To construct Schindler's capital control index, we require detailed data from IMF's AREAER report that is available only since 1999. In addition, we extended our sample period to 2012 for the 3rd empirical chapter to incorporate as many observations as possible at the time of data collection for this study.

We also face the difficulties to capture some difficult-to-measure key variables like information asymmetry, the value of cash, takeover synergy and the level of capital control and the level of market discipline. Though literature has no consensus on the best proxy for these variables, we review and choose the appropriate variables which best fit with our criteria. To ensure that some well-documented variables are not left out, we include them in the robustness test section.

5.4 Further/ Future Research

For the studies in information asymmetry, we can further extend our analysis by examining the bargaining power between the merging parties to clarify that whether bidder or target firms can strategically exploit the information advantage. The measures of wealth distributions between acquirers and target firms (Ahern, 2012 and Bauguess et al., 2009) and the premium-CAR relationship (Antoniou et al., 2008 and Diaz et al., 2009) can be adopted in this study.

By following the tradition of M&A literature, we conduct our analysis in first and second empirical chapter through the means of payment which are synonymous with the source of takeover finance (see e.g. Amihud et al., 1990; Faccio and Masulis, 2005; Ghose and Ruland, 1998; Martin, 1996; Travlos, 1987). However, extending our research on the information asymmetry and the value of cash by examining the sources(s) of fund (Martynova and Renneboog, 2008; Schlingemann, 2004) used to finance a deal could add the comprehensive understanding to this strand of literature.

In addition to the difference in institutional factors investigated in the cross-border acquisition literature, we can explore the difference in alternative factors apart from institution one e.g. Hofstede cultural difference.

Since our second and third empirical chapters focus is on explaining how acquirers can create value through the channel of correct payment method corresponding to their value of cash and realizing the relatively low cost of capital control environment, we stick with the short-term announcement return which is acknowledged to be the cleanest method to measure the effect of M&A. However, using alternative measures to gauge the post M&A performance e.g. buy and hold abnormal return (BHAR) or Calendar Time Portfolio can provide new evidence to the literature whether benefits arise during the time of announcement can persist in long run.

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Appendix

Appendix A
Chapter 2 Variable Definitions

Variables	Description	Source
Panel A: Information asymmetry variables		
IA	Standard deviation of the market-adjusted residuals of the daily stock returns measured during the period starting from 205 to six days prior to the acquisition announcement of acquirer or target.	CRSP
Panel B: Deal-level variables		
Relative Size	Relative size of deal value to size of acquiring firm.	Compustat
Tender	Dummy variable equal to one if the acquisition is a tender offer.	SDC
Hostile	Dummy variable equal to one if the acquisition is hostile or solicited.	SDC
Focus	Dummy variable equal to one if the acquisition is in the same industry.	SDC
Hi Synergy	Dummy variable equal to one if the change of average CAPEX/Asset ratio three years following the announcement changes significantly (Q4 and Q5 for positive change and Q1 and Q2 for negative change).	Compustat
W/O Equity Issued	Dummy variable equal to one if an acquirer has not issue new equity in the year prior to the takeover announcement.	Compustat
Freq	Dummy variable equal to one if an acquirer has announced the takeover in the previous three years.	SDC
Panel C: Firm-level variables The calculations of B/M, Leverage, CF/EQ, Cash and Op. Perform use the financial data for the fiscal year-end immediately prior to the announcement.		
B/M	Book value of equity divided by the market value of equity.	Compustat
Leverage	Total financial debt divided by the book value of total assets.	Compustat
Cash Holdings	Cash and equivalents divided by the book value of total assets.	Compustat
Op. Perform	Operating income before depreciation divided by the book value of total assets.	Compustat
Size	Natural logarithm of market capitalisation 42 days prior to the takeover announcement.	CRSP
Run-up	CAR over 200 trading days ending six days prior to the announcement date.	CRSP
Ln(M/V)	Misvaluation component decomposed from the ln(M/B) following Rhodes-Kropf et al.'s (2005) methodology.	Compustat

Appendix B
Chapter 3 Variable Definitions

Variables	Description	Source
	;;	
Panel A: Marginal value of cash variables (Faulkender and Wang, 2006)		
$r_{i,t}$	Stock return for firm i during fiscal year t.	CRSP
$R^{B}_{i,t}$	Stock i's benchmark return at year t. A benchmark return is based on the 25 Fama and French portfolios formed on size and book-to-market.	Kenneth R. French's Website
C_t	Cash plus marketable securities deflated by the lagged market value of equity.	Compustat
E_t	Earnings before extraordinary items plus interest, deferred tax credits, and investment tax credits deflated by the lagged market value of equity.	Compustat
NA_t	Total assets minus cash holdings deflated by the lagged market value of equity.	Compustat
I_t	Interest expense deflated by the lagged market value of equity.	Compustat
D_t	Total dividends are measured as common dividends paid deflated by the lagged market value of equity.	Compustat
L_t	Market leverage.	Compustat
NF_t	Total equity issuance minus repurchases plus debt issuance minus debt redemption deflated by the lagged market value of equity.	Compustat
ΔX_t	The notation for the 1-year change, $X_t - X_{t-1}$.	
Panel B: Deal-level variables		
Deal Value	Deal value reported by SDC	SDC
Relative Size	Deal value / (bidder market capitalisation + deal value))	CRSP
Hostile	Dummy variable equal to one if the acquisition is reported by ThomsonOne SDC as being a hostile takeover.	SDC
Tender	Dummy variable equal to one if the acquisition is reported by ThomsonOne SDC as being a tener takeover.	SDC
Defensive	Dummy variable equal to one if the acquisition is reported by ThomsonOne SDC as using the defensive techniques.	SDC
Friendly	Dummy variable equal to one if the acquisition is reported by ThomsonOne SDC as being friendly.	SDC
Public	Dummy variable equal to one if the acquisition is reported by ThomsonOne SDC as public firms.	SDC
Private	Dummy variable equal to one if the acquisition is reported by ThomsonOne SDC as private firms.	SDC
Subsidiary	Dummy variable equal to one if the acquisition is reported by ThomsonOne SDC as subsidiary	SDC

Appendix B
Chapter 3 Variable Definitions

Relate	Dummy variable equal to one if the acquisition is reported by ThomsonOne SDC as having the same 2-digit SIC code.	SDC
Panel C: Firm-level variables		
Cash	Ratio of cash to net asset.	Compustat
lnCash	Natural logarithm of Cash.	Compustat
MB	(Book value of equity + book value of asset)/net asset.	Compustat
Capitalisation	Market capitalisation 42 days prior to the announcement date.	Compustat
Cash flow	Operating income before depreciation, interest and taxes divided by net assets.	Compustat
NWC	Non-cash net working capital deflated by assets.	Compustat
Leverage	Book value of short-term and long-term debt deflated by market equity.	Compustat
Overvalued acquirer	Dummy variable equal to one if ln (M/V) is more than zero	Compustat
Sales growth	Average annually compounded growth rate in sales over the five-year period prior to the year of takeover announcement.	Compustat
Capex	Capital expenditure.	Compustat
R&D	Research and development expense.	Compustat
Cash flow volatility	Standard deviation of cash flow five years prior to the announcement.	Compustat
Pay-out	Total dividend (total common dividend plus repurchases) over earnings.	
Size	Natural logarithm of assets deflated to year 2011 dollars using the CPI.	CRSP
Bond ratings	Dummy variable equal to one if the firm has bond ratings when it reports positive debt.	Compustat
Value of cash	Value of cash index that obtains its weight from running the propensity analysis on Capes, R&D, Cashflow volatility, Pay-out, Size and Bond ratings	Compustat

Appendix C
Chapter 4 Variable Definitions

Variables	Description	Source
Panel A: Capital control variables		
Capital Control	Schindler's KA index (ranges from 0 (low level of control) to 1 (high level of control)).	AREAER
Panel B: Country-pair variables		
Distant	Geographical distance between capitals. The geographical distances are calculated following the great circle formula, which uses latitudes and longitudes of the most important city or of its official capital.	CEPII
Same language	Dummy variable equal to one if the acquirer and target countries share the same official language.	CEPII
Same border	Dummy variable equal to one if the acquirer and target countries share the same border.	CEPII
Same religion	Dummy variable equal to one if the acquirer and target countries share the same religion.	CEPII
Same legal system	Dummy variable equal to one if the acquirer and target countries share the same legal system.	CEPII
GDP growth	The growth rate of Gross Domestic Product in US dollars.	WDI
GDP per capita	The Gross Domestic Product per capita in US dollars.	WDI
Exchange rate growth	Exchange rate (between merging nations) growth 12 months prior to the announcement.	I/B/E/S
Exchange rate volatility	Exchange rate (between merging nations) standard deviation from 36 months up to one month prior to the announcement.	I/B/E/S
Corporate tax rate	Country corporate income tax rate.	EFW
Voice	The governance index reflects the perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance).	WGI
Politic	The governance index reflects the perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance).	WGI
Government	The governance index reflects the perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance).	WGI

Appendix C (Cont'd)
Chapter 4 Variable Definitions

Variables	Description	Source
Regulatory	The governance index reflects the perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance).	WGI
Rule of law	The governance index reflects the perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance).	WGI
Corruption	The governance index reflects the perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the State by elites and private interests (ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance).	WGI
Panel C: Deal-level variables		
Acquirer size	Market capitalisation of acquirer 41 days prior to the announcement.	Datastream
Transaction value	The dollar value of all consideration paid.	SDC
Private	Dummy variable equal to one if the target status is reported as private.	SDC
Subsidiary	Dummy variable equal to one if the target status is subsidiary.	SDC
Cash	Dummy variable equal to one if the merger payment is made with all cash.	SDC
Stock	Dummy variable equal to one if the merger payment is made with all stock.	SDC
Same industry	Dummy variable equal to one if the acquirer and target have the same two-digit SIC code.	SDC
Cumulative abnormal return	The market-adjusted return for (-2, +2) period surrounding an announcement.	Datastream
Beta	The slope of the fitted line from the linear least-squares estimation where the dependent variable is return of stock and the explanatory variable is local market index. The estimation is over the window (-265, -11) prior to the announcement.	Datastream
Debt rating	Bond credit rating issued by S&P.	SDC
DIFCOV	The historical covariance of the acquirer's stock return with the acquirer's local market index, minus the historical covariance of the acquirer's stock return with the target's local market index over 300 days prior to the announcement.	Datastream