Deferred Executive Compensation and Double-Layered Principal-Principal Conflicts

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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.

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Abstract

This research examines the policy effect of 'salary restriction order' on the double-layered principal-principal conflicts in Chinese State-Owned Enterprises (SOEs). According to current agency problems in highly concentrated firms in China, this research elaborates on the traditional *Type II Agency Problem* based on the seminal *Double-Layered Agency Theory* (Raelin and Bondy, 2013) from the second-layered social perspective, arguing both economic-layered principal-principal conflicts between large/controlling shareholders and the economic-layered principals (i.e., minority shareholders and outside creditors) and the overlooked societal-layered principal-principal conflicts caused by the large/controlling shareholders towards the company's primary social and environmental stakeholders. This new theoretical contribution is defined as the *Double-Layered Principal-Principal Theory*.

Because of the inevitable political affiliation and SOE managers' special political promotion, corporate governance mechanisms derived from the traditional *Agency Theory* based on the Western market with separated ownership and control lack effectiveness (Jiang and Kim, 2015; 2020). Moreover, the most commonly used approach in the *Type II Agency Problem* studies, Multiple Large Shareholders (MLS), shows negative collusion among these large shareholders in China. Therefore, this research explores potential corporate governance mechanisms to mitigate the double-layered principal-principal conflicts in Chinese SOEs.

Starting January 1st, 2010, the State-Owned Assets Supervision and Administration Commission of the State Council (SASAC) required executives and top management team (TMT) in charge of the central enterprises to defer 40% annual performance-

based salary in a 3-year tenure. I find this ‘salary restriction order’ provides an appropriate opportunity to examine the policy effects of deferred executive compensation (DEC) on the double-layered principal-principal conflicts the Chinese SOEs are confronting.

This research tests panel data of 74 listed SASAC subsidiaries from 2007 to 2015. It uses the ‘salary restriction order’ as an exogenous shock to conduct a quasi-natural experiment to examine the policy effects of DEC on the double-layered principal-principal conflicts. Unlike most US studies, this research found inconsistent results of the *CEO Inside Debt Theory* (Edmans and Liu, 2011). Rather than risk-moderating, the findings show an insignificant association between DEC and corporate risk and a direct impact on declining dividend pay-out and increasing tunnelling behaviour via related-party transactions. It indicates that DEC may not mitigate the economic-layered risk preference between large shareholders and outside creditors. Even worse, limiting executive pay is likely to accelerate wealth expropriation from large shareholders towards minority shareholders, intensifying the traditional economic-layered principal-principal conflicts. Moreover, consistent with the view of *Long-Run Net Social Benefits* (Kane, 2002), this research found a direct positive association between DEC and the quality of the social and environmental disclosure index (SEDI), demonstrating that DEC may be a potential corporate governance mechanism to alleviate the societal-layered principal-principal conflicts in Chinese SOEs. The robustness checks, including parallel trend tests and placebo tests, and 2SLS regressions, Sobel tests and Bootstrap tests examining the risk-moderating effect of DEC, are consistent with the previous findings.

The findings carry important policy implications. It reveals that limiting executive pay

would increase the traditional economic-layered principal-principal conflicts, which are unlikely to play a role in protecting the interests of small and medium-sized investors in China. Therefore, policymakers must consider specific agency problems within the national context when formulating corporate governance regulations. It necessitates a departure from the uncritical application of conventional methodologies. In this case, policymakers in China should avoid straightforwardly cutting down executives' pay without properly adjusting the length, ratios, or portfolios of other types of deferred compensation and pension plans for the executives' long-term incentives.

The research contributions are as follows. First, elaborating the theoretical framework of the *Agency Theory*, this research proposes a *Double-Layered Principal-Principal Theory*, extending beyond the economic-layered principal-principal conflicts to encompass the second societal-layered principal-principal conflicts arising from the large/controlling shareholders towards the company's primary social and environmental stakeholders in highly concentrated firms. Second, this research establishes a strong theoretical causality in examining the association between DEC and corporate social performance (measured by SEDI). Previous studies failed to demonstrate a theoretical causality between these two variables. Filling the gap, this research reports evidence (Mayberry, 2020) that risk-moderating can serve as a mediator variable to link the association between DEC and corporate social performance. Third, consistent with the literature chapter, the methodology chapter develops a new SEDI to measure the 'societal-layered principal-principal conflicts' in China. In addition, the findings enrich the CEO inside debt studies by providing robust evidence showing insignificant correlations between DEC and corporate risk. It also suggests that Chinese policymakers re-evaluate the 'salary restriction order' based on its potential consequences.

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List of Abbreviations

ADR	American Depositary Receipts
CASS	Chinese Academy of Social Sciences
CEO	Chief Executive Officer
CHQ	Corporate Headquarters
CSMAR	China Stock Market and Accounting Research
CSR	Corporate Social Responsibility
CSRC	China Securities Regulatory Commission
DEC	Deferred Executive Compensation
DID	Difference-in-Difference
EBIT	Earnings Before Interest and Tax
ESG	Environmental, Social, and Governance
GMM	Generalized Method of Moments
GRI	Global Reporting Initiative
IPO	Initial Public Offerings
IIRC	International Integrated Reporting Council
IV	Instrumental Variable
MBO	Management Buy-Outs
MLS	Multiple Large Shareholders
M&A	Mergers and Acquisitions
ODC	Other Deferred Compensation
OLS	Ordinary Least Squares
PSM	Propensity Score Matching
QFII	Qualified Foreign Institutional Investors
RAF	Rank-And-File Plans
RHQ	Regional Headquarters
RKS	Rankins CSR Ratings
ROA	Return on Assets
R&D	Research and Development
SASAC	State-owned Assets Supervision and Administration Commission of the State Council

SEC	US Securities and Exchange Commission
SEDI	Social and Environmental Disclosure Index
SERP	Supplemental Executive Retirement Plan
SOE	State-Owned Enterprise
SSE	Shanghai Stock Exchange
ST	Special Treated
SZSE	Shenzhen Stock Exchange
TMT	Top Management Team
UEM	United Engineers Malaysia
UK	United Kingdom
UNGC	United Nations Global Compact
US	United States
2SLS	Two-Stage Least Squares

Chapter 1. Introduction

1.1 Introduction

This research aims to argue two main agency problems when companies are highly concentrated, especially when the ultimate owner is the state. The first is establishing an appropriate theoretical framework to identify the agency problems that concentrated firms confront. The second is to explore whether any corporate governance mechanism would be practical to mitigate these agency problems.

When exploring the two-dimensional (i.e., economic and societal layers) agency problems (Raelin and Bondy, 2013) in companies with concentrated ownership, the traditional one-tier *Agency Theory* (Jensen and Meckling, 1976) is no longer appropriate to examine and explain such two-tier principal-principal agency conflicts. Regarding the principal-principal agency problems, existing studies mainly argue how to alleviate wealth expropriation (i.e., the *Type II Agency Problem*[1]), thereby protecting

[1] The *Agency Theory* considers the optimal form of contract to control relationships in which one 'principal', an entity or an organisation that owns the company's share, delegates the company's daily operation to another, the 'agent' (Jensen and Meckling, 1976). The conflicts of interest appear when the agent focuses on boosting corporate short-term profitability to build up their personal image in the labour market; however, the principal expects constant long-term returns. It is also known as the classic *Type I Agency Problem*. In order to alleviate this agency problem, the agent is likely to be issued with long-term equity-based compensation, such as shares or options, to reach the interest alignment with the principal. Therefore, the classic *Type I Agency Problem* mainly addresses the agency costs between the principal and the agent caused by information asymmetry when a company's ownership and control are separated.

While the *Type II Agency Problem* explores the agency problem when companies are concentrated ownership structures. Information asymmetry is likely to be effectively avoided because the principal owns large shareholdings and remains in absolute power in key corporate decision-making. The management has been hollowed out, and the traditional *Type I* agency costs are less practical. However, the conflicts of interest between a company's large shareholder(s) and minority shareholders occur in the context of concentrated ownership structures because the large shareholder(s) own absolute power and focus on self-interests, neglecting the various interests of minority shareholders, especially in regions where legal environment is less effective in protecting the small and medium-sized investors. It is also defined as the *Principal-Principal Conflicts* (Young et al., 2008). Due to the opportunistic nature and lack of mutual monitoring, the large shareholder(s) often gain greater shareholdings by exploiting minority shareholders through unethical behaviours, such as declining dividend pay-out and increasing related-party transactions. Therefore, the wealth expropriation problems from large shareholders

the interests of small and medium-sized shareholders (e.g., La Porta et al., 2000; Claessens et al., 2002; Faccio et al., 2001; Young et al., 2008; Liu and Lu, 2007; Solarino and Boyd, 2020; Jia et al., 2020; Li, 2021). It has led to the needs of the company's societal-layered principals being overlooked. If the company fails to acknowledge and fulfil its social participation, the consequences will inevitably be at the cost of shareholders' wealth (Raelin and Bondy, 2013). For example, the dramatic losses from 2011 to 2014 and the slump in share price in 2021 of the Brazilian state-run oil company Petrobras are likely to explain this statement. In 2021, the CEO of Petrobras, Roberto Castello Branco, was forcibly removed by the president of Brazil because of his obstinate behaviour of raising the fuel price regardless of the governmental warnings and the public strikes. The consequence directly caused Petrobras ADRs traded in New York to slump 8.9% in after-hours trading, adding to a drop of nearly 7% in its Brazil-listed preferred shares. Similar historical lessons have not woken up Roberto Castello Blanco. Before him, the former CEO of Petrobras, Pedro Parente, rejected lowering the fuel price, breaking the governmental policy and triggering over $40 billion in losses from 2011 to 2014[2].

Therefore, this research will first establish a theoretical framework to critically identify and argue both economic and societal principal-principal conflicts caused by large/controlling shareholders. This novel theoretical framework also contributes to completing the current *Type II Agency Problem* from a social stakeholder-principal perspective (Freeman, 1984, 1994).

After establishing the double-layered principal-principal structure to examine both

towards minority shareholders are the crucial issues that the *Type II Agency Problem* focuses.

[2] Accessible at: https://www.cnbc.com/2021/02/20/brazils-jair-bolsonaro-to-oust-petrobras-ceo-over-fuel-price-hikes.html

economic and societal layers of agency problems for highly concentrated companies, this research will explore whether any corporate governance mechanism is likely to mitigate these agency issues, especially in the context of Chinese State-Owned Enterprises (SOEs).

The current literature mainly applies Multiple Large Shareholders (MLS) to deal with the *Type II Agency Problem* (e.g., Faccio et al., 2001; Attig et al., 2009; Ben-Nasr et al., 2015; Pan and Tian, 2016; Cai et al., 2016; Lin et al., 2016; Liu et al., 2015; Boateng and Huang, 2017; Fang et al., 2018; Jiang et al., 2020). Theoretically, this approach enhances mutual monitoring and avoids the consequences caused by individual large shareholder(s) abusing their power. Nevertheless, MLS may also lead to shareholder alliances and ultimately result in mutual corruption among these large shareholders (Faccio et al., 2001). In practice, MLS has positively affected the companies (mainly in Europe) where the Common Law is predominant (e.g., Maury and Pajuste, 2005; Jara-Bertin et al., 2008; Attig et al., 2008, 2009; Ben-Nasr et al., 2015; Boubaker et al., 2017). However, it is prone to negative effects in markets with weak legal environments (mainly in East Asia) (Faccio et al., 2001), particularly in China (e.g., Cai et al., 2016; Lin et al., 2016; Liu et al., 2015; Boateng and Huang, 2017; Fang et al., 2018; Jiang et al., 2020; Lin et al., 2020; Yuan et al., 2023; Wang et al., 2023), where two-thirds of the capital market is occupied by the SOEs (Jiang and Kim, 2020). The reason is, as compared to non-SOEs, factors such as concentrated ownership (Jiang and Kim, 2015, 2020), political affiliation (e.g., Zhu and Yoshikawa, 2016; Dong et al., 2021), policy-driven nature (e.g., Marquis and Qian, 2014; Jin et al., 2022), and SOE managers' political promotion and performance appraisal (e.g., Zhang and Liu, 2020) all impact the effectiveness of internal and external corporate governance (Jiang and Kim, 2020). Such inevitable political nature and ineffective monitoring form the root causes of the double-layered principal-principal conflicts in

Chinese SOEs, which are challenging to alleviate.

The above factors show that the political nature is likely to cause the negative effects of MLS in Chinese SOEs. Therefore, from the perspective of SOE managers' performance appraisal, this research will explore whether Deferred Executive Compensation (DEC) can be a potential incentive to shape SOE managers' behaviours on dividend policy and corporate social responsibility (CSR) disclosure, thereby mitigating the double-layered principal-principal conflicts. As the *CEO Inside Debt Theory* (Edmans and Liu, 2011) and its risk-moderating effect (Edmans and Liu, 2011; Cassell et al., 2012) show positive impacts on enhancing dividend pay-out ratios (Caliskan and Doukas, 2015; Borah et al., 2020) and corporate social performance (Mayberry, 2020).

On January 1st 2010, the *No. 22 Order*[3] announced by the State-owned Assets Supervision and Administration Commission (SASAC) required that key personnel in charge of the central SOEs must have 40% annual performance-based salary deferred within a three-year tenure. Implementing this 'salary restriction order' provides an appropriate opportunity for this study to design a quasi-natural experiment to examine the policy effect of the DEC.

For further information about this research, this introduction chapter will briefly overview the research background, statement of problem, research objectives, methodology, research contributions and the underlying empirical results.

[3] It is also well-known as the 'salary restriction order', section 1.5 will have a brief introduction.

1.2 Research Background

Research on *Agency Theor*y and relevant corporate governance theories originate from the Western market, such as the US and the UK. However, this limited study scope has narrowed the study area to only companies with separated ownership and control. In other words, previous corporate governance studies focus on the agency problems between the agents, who manipulate corporate daily operations and typically are granted short-term performance-based salaries, and the principals, who own the company and anticipate long-term returns. Consistently, corporate governance mechanisms around this traditional principal-agent structure emerge, such as the equity-based compensation for aligning interests between principals and agents (e.g., Jensen and Meckling, 1976; Low, 2009; Hofmann et al., 2022; Lovett et al., 2022), board of directors, board committees (e.g., Fama and Jensen, 1983; Ferris et al., 2003; Ye et al., 2019), foreign ownership (e.g., Lam et al., 2012; Chen et al., 2017), institutional ownership (e.g., Boone and White, 2015) and social capital (e.g., Hoi et al., 2019) for internal and external monitoring.

The problem is that besides the US and the UK, many countries and regions in the rest of the world maintain highly concentrated ownership structures (La Porta et al., 1999; Claessens et al., 2000). In this case, the traditional agency problems caused by information asymmetry would be avoided as the large/controlling shareholders own the shares and occupy the most significant voting rights for corporate key decision-making. Meanwhile, the relevant corporate governance mechanisms developed for alleviating traditional agency problems would be less applicable (Feng, 2004). A new challenging agency problem emerges because large/controlling shareholders' absolute power and natural opportunism have intimidated the interests of minority shareholders.

In other words, companies with concentrated ownership structures have developed another horizontal agency problem between large/controlling shareholders and minority shareholders, also known as the *Type II Agency Problem* (La Porta et al., 1999; Claessens et al., 2000) or the *Principal-Principal Conflicts* (Young et al., 2008).

Companies within concentrated ownership structures are common in China. Statistics show that, up to 2018, over 99% of listed companies in China had at least one shareholder whose shareholding exceeded 10% (Jiang and Kim, 2020). Moreover, the average shareholding percentage of the top 5 shareholders remained about 51% to 60% over the past 20 years[4]. Large/controlling shareholders usually have two types of ownership: family business and state ownership (Jiang and Kim, 2020). Compare listed SOEs with non-SOEs in China, the number of non-SOEs has increased rapidly and reached almost twice as the number of listed SOEs since 2018; however, the market capitalisation of these non-SOEs only accounts for one-third, illustrating half of the market capitalisation of the SOEs (Jiang and Kim, 2020). Hence, the SOEs could be highly representative and influential research objects to investigate the agency problems in companies within concentrated ownership in China.

1.3 Statement of Problem

Chinese SOEs have occupied a prominent position in the capital market, and their business scope covers the core industries of people's livelihood, such as transportation, medical biochemistry, manufacturing, energy, construction and finance, insurance and banking. Unlike non-SOEs, which mainly focus on maximising profits, Chinese SOEs have two primary objectives: achieving national economic goals while carrying out

[4] Ownership data comes from CSMAR database. For more information, please see Chapter 2, Section 2.2.

governmental/political strategies (Jiang and Kim, 2020; Jin et al., 2022). In other words, preserving state-owned assets reflects SOE's commercial nature while stabilising the macroeconomy assists in ensuring social welfare. Therefore, compared to the US and UK companies, SOEs in China are not only facing *Type I* and *Type II* agency problems but more importantly, there are likely hidden social-level agency problems between society and the SOEs: the vertical agency problems between society and the SOE managers and the horizontal principal-principal conflicts between society and the large/controlling shareholders (the state).

The above vertical and horizontal agency problems in Chinese SOEs can be challenging to alleviate due to the following reasons. First, the board functions lack effectiveness (Jiang and Kim, 2015). Statistics found that the average number of independent directors and the average total number of directors on the board formed precisely to reach the minimum requirement of the '*Code of Corporate Governance for Listed Companies in China*' (Jiang and Kim, 2015). Moreover, the voting rights of the directors could be overridden due to the dominant number of insiders on the board (Jiang et al., 2016). Second, external monitors fail to play their roles (Jiang and Kim, 2020). External monitors, such as institutional investors and banks, because they own much lower shares than the large/controlling shareholders; thereby, they cannot influence any corporate decision (Jiang and Kim, 2020). Besides, most banks in China are also state-owned, which affects their judgment on lending to SOEs (Bailey et al., 2011). Monitoring from other external monitors, such as external auditors, analysts, and media, is also limited (e.g., Chan et al., 2006; Ke et al., 2015; You et al., 2018)[5].

[5] For more information about the ineffectiveness of both internal and external corporate governance in Chinese SOEs, please see Chapter 2, Section 2.2.3.

Briefly reviewing the agency problems in Chinese SOEs indicates how the status of state ownership can lead to entirely different economic and social corporate objectives and significantly affect the performance of internal and external corporate governance functions. Therefore, it is critical to first review previous literature on the development of the *Type I* and *Type II* agency problems and establish a proper theoretical structure tailored to study agency problems in companies within concentrated ownership. Then, this research will further explore whether there is an appropriate corporate governance mechanism to alleviate these agency problems in Chinese SOEs.

1.4 Research Objectives

The research objectives focus on arguing two main agency problems when companies are highly concentrated, especially when the ultimate owner is the state. The first is establishing an appropriate theoretical framework to identify the agency problems that concentrated firms face. The second is to explore whether any corporate governance mechanism would be practical to mitigate these agency problems.

Previous literature elaborates on the traditional *Agency Theory* mainly towards two directions. The first direction is the proposition of the *Double/Multiple Principal-Agency Theory* either to adopt a complex organisational structure or to include non-shareholders as the company's social-oriented principals and examine the social-layered agency problems challenged by the firms[6]. The second direction is the

[6] For instance, the *Double Agency Theory* defines the information barriers from the lower-level operational managers to the upper-level decision-making managers (Child and Rodrigues, 2003). The *Multiple Principal-Agent Theory* combines the perspective of the *Stakeholder Theory* and generally describes the concept of regarding a company's primary stakeholders as principals (Arthurs et al., 2008). Moreover, the *Double-Layered Agency Theory* expands the study area of the traditional *Agency Theory* from an economic-level agency problem between shareholders and managers to an overlooked social-level agency problem between society (the principal) and the shareholders (the agents) (Raelin and Bondy, 2013). For more information about the development of *Agency Theory*, please see Chapter 3,

proposition of the *Type II Agency Problem* (La Porta et al., 1999; Claessens et al., 2000), also known as the *Principal-Principal Conflicts* (Young et al., 2008) when companies are highly concentrated. To the best of my knowledge, current literature on the *Type II Agency Problem* focuses on arguing economic-layered principal-principal conflicts, such as wealth expropriation (Faccio et al., 2001) and tunnelling behaviours (Johnson et al., 2000) caused by large shareholders towards minority shareholders. The problem is that this theoretical framework has overlooked the societal-layered principal-principal conflicts.

According to the *Stakeholder Theory*, societal-layered conflicts may arise between the enterprises and their primary non-financial participants, such as the government, employees, local communities, and the environment. For example, in Section 1.3, I illustrate that the Chinese SOEs should achieve national economic goals while carrying out governmental/political strategies to improve social welfare (Jiang and Kim, 2020; Jin et al., 2022). Thereby, the societal-layered conflicts lie in whether the principal (the state) could precisely consider the interests and needs of the other principals (social participants) when formulating corresponding policies. Otherwise, it could devolve into an unrealistic frontage by the officials who set the guidance to achieve political goals (Zhang and Liu, 2020).

Therefore, the first research objective is to establish an appropriate theoretical framework examining both economic-layered and societal-layered principal-principal conflicts in companies with highly concentrated ownership. To match the special characteristics of Chinese SOEs and other concentrated companies, this research selected the *Double-Layered Agency Theory* (Raelin and Bondy, 2013) as my seminal

Section 3.3.

theory, referring to the concept from the *Stakeholder Theory* (Freeman, 1984, 1994) to establish a double-layered principal-principal structure on the foundation of the *Type II Agency Problem*. The first layer reflects the traditional economic-layered principal-principal conflicts between large/controlling and minority shareholders (i.e., wealth expropriation) and the risk preference between large/controlling shareholders and the other economic-layered principal: the company's outside creditors (Laeven and Levine, 2009; Cassell et al., 2012). Referring to Raelin and Bondy (2013), the second layer reflects the overlooked societal-layered principal-principal conflicts between large/controlling shareholders and the company's primary social and environmental stakeholders. Compared to the *Double-Layered Agency Theory*, which is unclear in defining the scope of application, this double-layered principal-principal structure (also named *Double-Layered Principal-Principal Theory*) focuses on addressing the *Type II Agency Problem* from both economic and societal perspectives[7].

After establishing an appropriate theoretical framework, the second research objective is to explore whether any corporate governance mechanism would be practical to mitigate these principal-principal agency problems. This research will critically argue two potential mechanisms: Multiple Large Shareholders (MLS) [8] and Deferred Executive Compensation (DEC)[9].

The approach MLS is commonly applied to mitigate the *Type II* agency problems (e.g., Faccio et al., 2001; Attig et al., 2009; Ben-Nasr et al., 2015; Pan and Tian, 2016; Cai

[7] For more information on the proposition of the *Double-Layered Principal-Principal Theory*, please see Chapter 3, Section 3.3.3 and Section 3.4.
[8] Most commonly applied in the studies of *Type II Agency Problem.*
[9] Applied from a perspective of executive debt-based incentive schemes (Edmans and Liu, 2011). Because in SOEs, although the large shareholder is the state, it still would be the SOE managers who ultimately operate the firms and fulfil the political guidance.

et al., 2016; Lin et al., 2016; Liu et al., 2015; Boateng and Huang, 2017; Fang et al., 2018; Jiang et al., 2020). The dilemma is that this method may either enhance the contestability among these large shareholders, thereby improving the mutual monitoring or lead to an allied collusion effect that further weakens the voice of minority shareholders (Faccio et al., 2001). The problem is, in the context of Chinese SOEs, factors such as concentrated ownership (Jiang and Kim, 2015, 2020), political affiliation (e.g., Zhu and Yoshikawa, 2016; Dong et al., 2021), policy-driven nature (e.g., Marquis and Qian, 2014; Jin et al., 2022), and SOE managers' political promotion and performance appraisals (e.g., Zhang and Liu, 2020) impact the effectiveness of internal and external corporate governance (Jiang and Kim, 2020). Therefore, the effects of MLS on mitigating the *Type II* agency problems in these SOEs (e.g., Lin et al., 2020; Yuan et al., 2023) are not as positive as the markets exposed to the Common Law environments (e.g., Maury and Pajuste, 2005; Jara-Bertin et al., 2008; Attig et al., 2008, 2009; Ben-Nasr et al., 2015; Boubaker et al., 2017). Regarding the societal-layered conflicts, recent evidence shows that MLS is negatively associated with corporate ESG performance in China, collusively allied and protecting their interests through free-riding behaviours (Wang et al., 2023).

On the other hand, based on the view of *CEO Inside Debt* (Edmans and Liu, 2011), companies issue long-term deferred compensation and pension plans for executives to restrain their high-risky corporate decision-making. The reducing corporate risk-taking behaviours would mitigate the conflicts of risk preferences between shareholders and outside creditors (Jensen and Meckling, 1976; Edmans and Liu, 2011). Subsequently, it helps to optimise the company's dividend pay-out policy (Caliskan and Doukas, 2015; Borah et al., 2020), cash holdings and investment decisions (Cassell et al., 2012; Lee et al., 2021), and earnings management (Dhole et al., 2016). Therefore, this risk-moderating effect of CEO inside debt will ease the

economic-layered principal-principal conflicts.

Regarding the societal-layered conflicts, although several studies have shown positive associations between CEO inside debt and CSR in the US market (e.g., Wu and Lin, 2019; Kim et al., 2020; Boubaker et al., 2020; Sheikh, 2020; Benlemlih et al., 2022), they failed to explain the causality between these two variables. This research improves their studies by introducing evidence demonstrating the correlation between an increasing risk and negative CSR performance (Mayberry, 2020). Therefore, this research hypothesises that the risk-moderating effect of CEO inside debt will likely mitigate the societal-layered principal-principal conflicts.

In addition, from the perspective of long-run net social benefits, Kane (2002) extended the definition of deferred compensation by addressing the hiding concept of a social accounting long-term performance-based compensation to the current managerial incentive schemes. Following this view, previous documents found that deferred compensation is positively associated with corporate long-term prospects, especially in being accountable to a broader range of social stakeholders (e.g., Mahoney and Thorne, 2005, 2006; Rekker et al., 2014; Ji, 2015; Mehran and Tracy, 2016). According to theoretical and empirical evidence on DEC, this research hypothesises that DEC would help mitigate both economic-layered and societal-layered principal-principal conflicts in companies within highly concentrated ownership[10].

This section briefly argues two main research objectives contributing to the theoretical development of the *Type II Agency Problem* from the perspective of societal-layered

[10] For more information on the discussion of DEC and its associations with the double-layered principal-principal conflicts, please see Chapter 3, Section 3.5.3.

principal-principal conflicts and the research hypotheses on appropriate corporate governance mechanisms for these agency problems. Thereby, to test these hypotheses, the next section will illustrate the rationale of sample selection and the methods chosen.

1.5 Methodology

Based on the above-stated double-layered principal-principal agency problems in the Chinese SOEs, this study selects the listed subsidiaries controlled by the SASAC[11] central enterprises as the research sample. This sample was selected because the SASAC issued the '*SASAC Order No. 22: Interim Measures for the Performance Evaluation of the Persons in Charge of Central Enterprises*' on January 1st, 2010, which affected listed SOE executives' long-term performance-based payments. This 'salary restriction order' required that the executives and top management team (TMT) in charge of the enterprises should have '*60% of the performance salary encashed in the current period after the completion of the annual assessment; the remaining 40% must be deferred to the end of the tenure*' (*Chapter 4, Article 26, SASAC Order No. 22*). Moreover, the review of tenure is based on three-years performance (*Chapter 3, Article 14, SASAC Order No. 22*[12])[13].

This research applies this 'salary restriction order' as an external shock and designs a quasi-natural experiment to test the policy effects in mitigating double-layered principal-principal conflicts in Chinese SOEs. The examination period is from 2007 to 2015. The reasons are as follows: 1) the official CSR guidance released in China in

[11] SASAC is the abbreviation for the State-owned Assets Supervision and Administration Commission. It is a special institution directly under the State Council of China. At the ministerial level, it performs the investors' responsibility on behalf of the state.
[12] Accessible at: http://www.gov.cn/flfg/2010-01/22/content_1517096.htm.
[13] For more information on the rationale of sample selection, please see Chapter 4, Section 4.1.

2006[14]; 2) the shock began in 2010; therefore, the examined period would cover a 3-year prior period and a 3-year post period; in addition, a continued 3-year post period for observing the policy's long-term effect.

The sample companies are divided into two groups. Excluding the years from 2007 to 2009, companies that have implemented this 'salary restriction order' from 2010 to 2015 are defined as the treatment group. Correspondingly, from 2007 to 2015, companies that did not conduct this policy are defined as the control group.

Previous studies examining the policy effect of DEC in Chinese banking sectors (Deng et al., 2019; Jiang et al., 2019; Deng et al., 2021) and Chinese SOEs (Bae et al., 2020) applied the Difference-in-Difference (DID) method. It can better reduce the endogeneity caused by the unobserved variables or selection bias (Angrist and Pischke, 2009). To the best of my knowledge, many studies in DEC or CEO inside debt focused on the US market and examined the executives' post-behaviours on corporate decision-making after deferring their salary or pension plans by econometric methods, such as OLS, 2SLS, and IV (e.g., Cassell et al., 2012; Anantharaman et al., 2014; Liu et al., 2014; Bennett et al., 2015). Compared to these traditional empirical methods, DID may better eliminate interference from unobservable individual and time variables (Angrist and Pischke, 2009). Moreover, other tests, such as parallel trend tests and placebo tests, are applied as robustness checks to support the results of the DID tests[15].

[14] About the legitimate environment of CSR in China, please see Chapter 2, Section 2.3.2.

[15] DID method is a natural experiment that observes the differential effect of a treatment (i.e., an explanatory variable or an independent variable) on an outcome (i.e., a response variable or dependent variable) by comparing the average change over time in the outcome variable for the treatment group to the average change over time for the control group (Angrist and Pischke, 2009).

The DEC data is manually collected from sample companies' annual reports accessed via SSE, SZSE[16], and cninfo. Corporate social performance is measured by the Social and Environmental Disclosure Index (SEDI) referred to by Lu and Abeysekera (2017). CSR reports are accessible via SSE, SZSE, cninfo, and CSR-CHINA. The financial data and firm variables come from Compustat and S&P Capital IQ. Ownership information comes from S&P Capital IQ. Board variables and CEO variables come from CSMAR.

1.6 Significance of the Research

First, this research critically discusses the development of agency problems (e.g., Jensen and Meckling, 1976; Child and Rodrigues, 2003; Arthurs et al., 2008; La Porta et al., 1999; La Porta et al., 2000; Claessens et al., 2000; Claessens et al., 2002; Faccio et al., 2001; Young et al., 2008; Raelin and Bondy, 2013) and contributes to establishing a new theoretical framework to examine both economic and social layers of principal-principal conflicts for highly concentrated companies. Through exploring the roots of these principal-principal agency problems, this research focuses on arguing the dominant large/controlling shareholders and their relationships with other company principals. Based on the *Double-Layered Agency Theory* (Raelin and Bondy, 2013) and the multiple-principal perspective from the *Stakeholder Theory* (Freeman, 1984, 1994), this research contributes to propose a new *Double-Layered Principal-Principal Theory*, which elaborates on the study field of the *Type II Agency Problem* from a solely economic perspective to a broader societal scope, addressing the overlooked principal-principal conflicts between large/controlling shareholders

[16] Abbreviations for Shanghai Stock Exchange and Shenzhen Stock Exchange, two stock markets in the mainland of China.

towards company's primary social and environmental stakeholders. Besides, the *Double-Layered Principal-Principal Theory* highlights the importance of monitoring the behaviours of large/controlling shareholders or key managerial personnel who draft the key policies or strategies, as their proposals usually would not be voted against (Dressler, 2020). It is also likely to explain why MLS often shows collusive effects in China as mitigating principal-principal conflicts may need to shape managers' behaviours.

Moreover, one of the most important contributions of the *Double-Layered Principal-Principal Theory* is developing the concept of '*Societal-Layered Principal-Principal Conflicts*', which argues the disregarded social-level demands and disputes. To better address this new term, this research adds a subsection (i.e., Chapter 3, Section 3.4.2.2) to illustrate the conceptual differences and similarity between the *Societal-Layered Principal-Principal Conflicts* and CSR disclosure. This conceptual distinction also provides a theoretical foundation to define the 'societal-layered principal-principal conflicts' variable for further empirical tests.

Second, this research contributes to establishing a solid theoretical causality in examining the associations between DEC and corporate social performance (i.e., the societal-layered principal-principal conflicts). From the view of CEO inside debt (Edmans and Liu, 2011), some previous studies directly testified to the associations between the executives' debt-based incentives and CSR (e.g., Wu and Lin, 2019; Kim et al., 2020; Boubaker et al., 2020; Sheikh, 2020; Benlemlih et al., 2022) and failed to find the theoretical causality between these two variables. In order to improve this deficiency, this research found strong evidence that the risk-moderating effect of CEO inside debt (Edmans and Liu, 2011; Cassell et al., 2012) can be used as a mediator

variable to link the associations between DEC and corporate social performance because the increasing risk-taking incentives negatively affect CSR (Mayberry, 2020). Besides, this research also develops the hypothesis from the direct association between DEC and corporate social performance due to the perspective of the long-run net social benefits (Kane, 2002). Therefore, this research enhances the development of hypotheses on a more robust causality base.

Third, this research contributes to enriching the literature on the effectiveness of DEC in the emerging market. Most studies examine DEC in the US market. After the announcement of the 'salary restriction order' in China at the end of 2009, to the best of my knowledge, there are four papers focusing on DEC studies, and three of them examined the banking sectors (Deng et al., 2019; Jiang et al., 2019; Deng et al., 2021) as if the banks encounter risk problems, it would involve further macro-level crisis compared with other industries (Laeven and Levine, 2009). Only one working paper (Bae et al., 2020) examines the policy effect of DEC on Chinese central SOE performance[17], and it reveals the negative consequences of increasing the number of extra perks when the executives have limited pay. However, Bae et al. (2020) may face a challenging problem selecting central SOEs as the treatment group because the 'salary restriction order' directly affects them, and all of the central SOEs managed by the SASAC must follow the rule. It indicates that the control group they used (i.e., local government-controlled SOEs) is incomparable to the central SOEs in firm size,

[17] Previous studies examine factors that impact Chinese SOE performance, such as strong political affiliation (e.g., Chen et al., 2011; Li and Zhang, 2010; Zhu and Yoshikawa, 2016; and Dong et al., 2021); lacking of effective monitoring in board functions (e.g., Jiang and Kim, 2015, 2020; Jiang et al., 2016; Giannetti et al., 2015), external financing (e.g., Bailey et al., 2011), auditing (e.g., Ke et al., 2015; Guan et al., 2016), or public media (e.g., You et al., 2018); using multiple large shareholders (MLS) as the role of mutual monitoring (e.g., Cai et al., 2016; Lin et al., 2016; Liu et al., 2015; Boateng and Huang, 2017; Fang et al., 2018; Jiang et al., 2020; Lin et al., 2020; Yuan et al., 2023; Wang et al., 2023); and the role of institutions/policies in affecting the performance of Chinese SOEs, for example, the government policies, such as the 'Split-Share Reforms'(e.g., Firth et al., 2010; Liao et al., 2014), the '12th Five-Year Plan'(e.g., Li and Lu, 2020) or the 'Salary Restriction Order' (e.g., Bae et al., 2020).

ownership, administrative level, and organisational objectives (Song, 2018; Fan and Song, 2019). Moreover, Bae et al. (2020) did not apply any test for sample selection.

Consistent with Bae et al. (2020) and exploring the role of institutions/policies, this research selects the 'Salary Restriction Order' implemented since January 1st, 2010, as the exogenous shock and examines its policy effect on corporate decision-making of dividend pay-out, tunnelling and corporate social performance, so as to explain the influence of DEC on SOE's double-layered agency conflicts. Improving the sample selection deficiency of Bae et al. (2020), this study uses the listed subsidiaries of SASAC central enterprises as the research sample as they are random and comparable due to consistent firm characteristics and legitimate environments (Lin et al., 2020; Chen et al., 2008). This research also applies propensity score matching (PSM) to testify sample selection to ensure the treated and control groups are comparable. Moreover, because the policy did not directly affect the listed subsidiaries, the compliance of the sample companies is a self-selection process. It is a prerequisite for compliance with the use of quasi-natural experiments.

Fourth, in the methodology chapter, this research contributes to developing a new SEDI measurement for testing the proxy of the 'societal-layered principal-principal conflicts' in China. Because of the different concept from the CSR disclosure, to better capture the 'societal-layered principal-principal conflicts' in China, following Lu and Abeysekera (2017), this research establishes a Social and Environmental Disclosure Index (SEDI) from quantitative and qualitative perspectives selecting indicators from the CASS-CSR.[18] Unlike the third-party CSR database used by most previous Chinese

[18] CASS was initiated by the Chinese Academy of Social Sciences, the highest academic institution and comprehensive research centre of Chinese philosophy and social sciences. It is also under the direct leadership of the Central Committee of the Communist Party and the State Council of China. Companies

studies[19], this method exclusively focuses on the demands of primary non-investment stakeholders, excluding indicators designed for shareholders.

In addition, the research findings provide valuable evidence to enrich the CEO inside debt theory (Edmans and Liu, 2011) and to re-evaluate the 'salary restriction order' based on the consequences it may have brought. The findings are inconsistent with Edmans and Liu (2011) and most studies in the US, showing insignificant associations between DEC and corporate risk. Moreover, they suggest that, although DEC may enhance corporate social and environmental performance quality, it would intensify wealth expropriation and tunnelling behaviours through decreasing dividend pay-out ratios and increasing related-party transactions. Therefore, DEC in China may not help to mitigate corporate risk; however, it accelerates unexpected financial behaviours to make the financial performance look 'good'. Consequently, it leads to worse economic-layered principal-principal problems for the minority shareholders in China.

1.7 Organisation of the Thesis

The structure of this research is as follows. Chapter 2 indicates the institutional background of SOEs in China. It mainly addresses the agency problems these SOEs face and why traditional corporate governance approaches are ineffective. Chapter 3 presents the literature review showing how the theoretical contribution of this research is developed. It also argues two potential corporate governance mechanisms, MLS and

in China, especially those controlled by the government, would subconsciously follow this lead, which means the CASS-CSR shows a better outcome than the government-led CSR initiative. For more information about CASS-CSR and the indicators chosen for SEDI measurement, please see Chapter 4., Section 4.3.3.

[19] Such as RKS ratings (e.g., Li et al., 2021; Elmagrhi et al., 2019; Lau et al., 2016; Luo et al., 2017; Marquis and Qian, 2014; McGuinness et al., 2017) or Thomson Reuters ESG database (e.g., Garcia et al., 2017; Ho et al., 2021; Cheng et al., 2014; Wang et al., 2023).

DEC, to develop research hypotheses. Chapter 4 explains the sample selection process, the definitions of variables, the DID model used and the rationale. Chapter 5 presents the results and discussion. Chapter 6 concludes the main contributions, findings and implications, explains the potential research limitations and provides constructive suggestions for future studies.

Chapter 2. Institutional Background

2.1 Introduction

This chapter aims to provide relevant contextual knowledge regarding the Chinese market. It mainly argues the concentrated ownership, agency problems, corporate governance deficiencies, and corporate social performance in Chinese State-Owned Enterprises (SOEs). These arguments will help formulate research questions and explore potential corporate governance mechanisms. The given institutional background will also support structuring the theoretical framework in *Chapter 3 Literature Review and Hypotheses Development*. Additionally, it will contribute to defining the variables in *Chapter 4 Methodology*.

Section 2.2.1 provides an overview of the dominant phenomenon of concentrated ownership in China, especially highlighting the ownership reform of the SOEs. Section 2.2.2 addresses the inevitable political affiliation and the vertical and horizontal agency problems the SOEs confront. Regarding these issues, Section 2.2.3 thereby argues the internal and external monitoring deficiencies in corporate governance. From the social perspective, Section 2.3 discusses the importance of CSR disclosure in business, the legitimate environment and current CSR performance in China. Finally, Section 2.4 introduces a policy known as the '*Salary Restriction Order*' issued by the SASAC, which will respond to the agency problems, corporate governance deficiencies, and the above social performance challenges the Chinese SOEs face.

2.2 Ownership Concentration and State Ownership in China

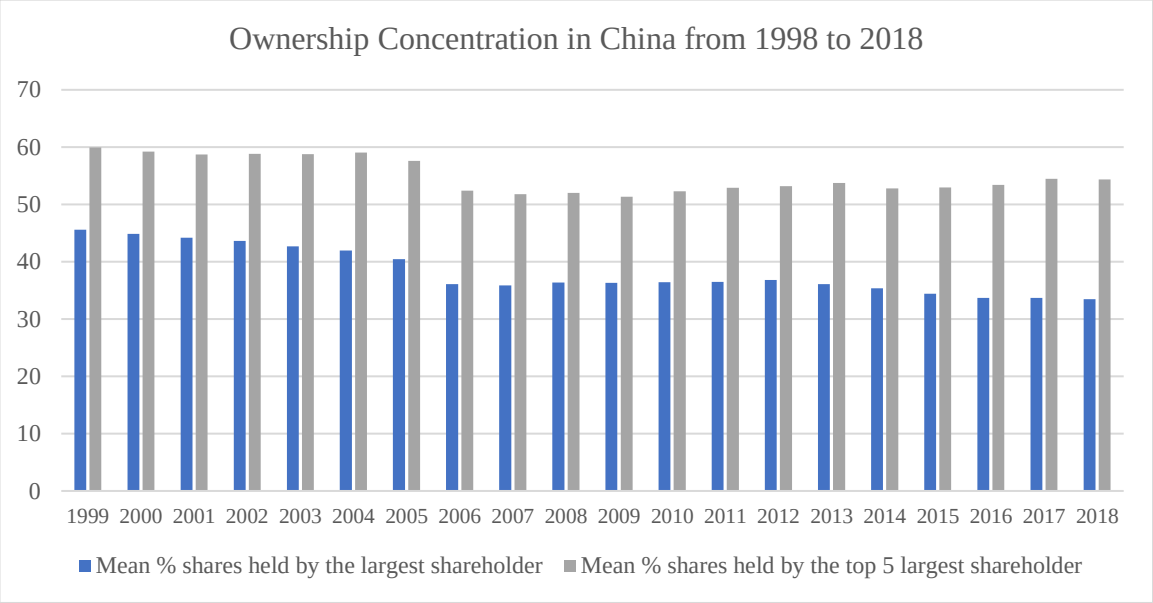
The agency problems have been argued for many years, particularly following the seminal work of Berle and Means (1932) on the ownership structure of modern corporations in the US. However, many regions in the rest of the world continue to maintain highly concentrated ownership structures (La Porta et al., 1999; Claessens et al., 2000). The applicability of agency problems and associated theories may be limited in highly concentrated firms where large/controlling shareholders undertake accountability and decision-making power, thereby reducing the agency costs resulting from information asymmetry (La Porta et al., 1999). China is one of them. Although China has developed as the second-largest global economy, many companies still maintain concentrated ownership structures, particularly state ownership (Jiang and Kim, 2015, 2020).

Figure 2.1 shows the statistics of ownership concentration of listed companies in China from 1999 to 2018[20]. The blue column indicates the mean percentage of shares held by the largest shareholder, while the grey column shows the mean rate of shares held by the top 5 largest shareholders. Despite a slight decrease over the past 20 years, the average shareholding percentage of the largest and top 5 shareholders remain substantial, approximately 35% and 55%, respectively. Moreover, statistical data until 2018 exhibits that more than 99% of the listed companies in China had at least one shareholder with a shareholding exceeding 10%. Additionally, when the threshold was raised to 20%, over 80% of these companies still met this criterion (Jiang and Kim, 2020). Although the Chinese government has announced various ownership reform

[20] Statistics from 1999 to 2012 were collected from Jiang and Kim (2015), Corporate Governance in China, A Modern Perspective, *Journal of Corporate Finance*. Statistics from 2013 to 2018 were collected by the author from the China Stock Market and Accounting Research (CSMAR) Database. SSE and SZSE are the only two national securities trading venues approved by the State Council and are under the supervision and management of the China Securities Regulatory Commission (CSRC) in mainland China.

policies (this will be further discussed in Section 2.2.1), the concentration phenomenon remains largely unaffected.

Figure 2.1 Ownership Concentration in China from 1998 to 2018
(data collected from CSMAR database)



Furthermore, while the number of listed non-SOEs in China experienced substantial growth from approximately 200 in 1999 to 2,700 in 2018, their overall magnitude remains significantly smaller than the SOEs. Statistics show that roughly one-third of SOEs have occupied two-thirds of the market capitalisation (Jiang and Kim, 2020). The value of these SOE assets has reached 151,711 billion RMB, with transactions worth 52,200 billion RMB in 2017 (Lin et al., 2020). Therefore, although the growth of SOEs may not have been as significant as that of non-SOEs in China, their economic value and impacts on the Chinese capital market have been of utmost importance.

To the best of my knowledge, China currently controls the world's largest state-owned asset system, encompassing core sectors such as transportation, biochemistry, energy, manufacturing, finance, and other essential industries (Jin et al., 2022). Generally,

SOEs are supervised by either central or local state-owned assets supervision and management institutions[21]. In contrast to non-SOEs, which primarily prioritise profit maximisation, Chinese SOEs have dual objectives: to attain the national economic goals and to carry out the governmental/political strategies to work towards socialist modernisation (Jiang and Kim, 2020; Jin et al., 2022). In other words, preserving the value of the state-owned assets reflects SOE's commercial nature. In contrast, the provision of social public welfare represents the establishment of governance aiming to harmonise the holistic advancement of the national economy. Therefore, due to the Chinese SOE's distinctive economic nature and organisational objectives, addressing agency problems is expected to be more complex than non-SOEs. For instance, despite the traditional vertical agency problems arising by the SOE managers (Jensen and Meckling, 1976) and the horizontal *Type II Agency Problem* (La Porta et al., 1999; Claessens et al., 2000) towards small and medium-sized investors because of the concentrated ownership, Chinese SOEs are also facing the social-layered conflicts of interest (Raelin and Bondy, 2013) if they fail on achieving social public welfare.

To further address these agency problems, Section 2.2.1 will first provide a brief review of the four important stages of Chinese SOE ownership reform. Then, Section 2.2.2 will critically argue the SOE's inevitable political affiliation and agency problems. To explore potential corporate governance mechanism(s), Section 2.2.3 will reveal the existing corporate governance deficiencies that these SOEs are facing.

2.2.1 The Ownership Reform of SOEs in China

Unlike other types of concentration, such as family-controlled firms, which prioritise

[21] For example, the central SOEs, also known as the central enterprises, are managed and supervised under the State-owned Assets Supervision and Administration Commission of the State Council (SASAC).

profit objectives, SOEs in China additionally adhere to national policies to promote social stability at the country level. With the aim of acknowledging the roles of state ownership in SOEs, this section will briefly review the development of Chinese SOEs from centralisation to partial privatisation in recent decades. This four-stage ownership structure transformation will help comprehend Chinese SOE's state-ownership concentration and inevitable political affiliation.

Before 1978, China remained in a highly planned economic environment, which forced SOEs to operate as fundamental units directly managed by the government (Wang, 2014). At that time, SOEs had not yet formed corporate governance roles, and all daily activities were overseen by the central government, also known as the Party Committee (Jin et al., 2022). Therefore, this very first stage indicates a completely centralised circumstance.

In 1978, a major economic opening-up policy was announced, representing the turning point in China's transition from a planned economy to an emerging market economy (Lin et al., 2020). From this initial decentralisation stage of the SOE reform, the central government began allocating authorities to local government and allowing SOEs to retain earnings for future operations and investment purposes (Jiang and Kim, 2020). Therefore, the Party Committee transitioned from predominantly directive to partial monitoring.

In 1993, the socialist market economy with Chinese characteristics was announced to encourage SOEs to engage in modern corporatisation[22]. Moreover, the Company Law was first issued on December 29th, 1993, followed by an early corporate governance

[22] Including modern business establishments, such as converting allocation funds into loans, the debt-to-equity swap, privatising small SOEs, corporatising large SOEs, and partial privatisation via initial public offerings (IPO).

framework in SOEs[23]. Nevertheless, this modern framework of partial privatisation has brought a series of problems, such as agency issues and ineffective board functions[24] (Qian, 1996; Hou and Moore, 2010; Jiang and Kim, 2015; 2020). To strengthen the external monitoring of SOEs, China established the SASAC in 2003 to perform the investors' obligations in guiding the SOE reform process and supervising the value preservation and appreciation of state-owned assets[25]. Meanwhile, the internal corporate governance mechanism emphasised the supervision role of the secretary of the Party committee as the board chairman. Hence, in the third stage, the Party members can participate in corporate decision-making rather than simply monitoring, implying institutional integration between political governance and modern corporate governance (Jin et al., 2022).

From 2013 to the present, SOEs in China have gradually completed partial privatisation, and the Party Committee has played a leadership role in SOEs. The SOEs have been required to embed political tasks in their corporate charters[26]. Therefore, the Party Committee, the board of directors, the board of supervisors, and the management team have formed a unique 'three boards and one management' structure in SOEs[27]. Party Committee must vote first on critical decisions[28] before meeting the dual board of directors (Lin et al., 2020; Jin et al., 2022).

The four-stage SOE ownership reform explains a clear evolution in ownership and control from completely centralised control to partial privatisation characterised by

[23] Accessible at: http://www.npc.gov.cn/npc/c12435/201811/68a85058b4c843d1a938420a77da14b4.shtml.
[24] These problems will be discussed in Section 2.2.2.
[25] Accessible at: http://www.hprc.org.cn/gsyj/jjs/jjtzggs/201205/t20120511_4026626.html.
[26] Accessible at: http://www.gov.cn/gongbao/content/2015/content_2937313.htm
[27] The board of supervisors is a unique two-tier board structure in China. Listed companies in China are required to have a dual board of directors. Please see Firth, Fung and Rui (2007), and Lu and Zhu (2020) for more information.
[28] The key decisions, such as the appointment and dismissal of important cadres, investment in major projects, and the use of large amounts of funds.

mixed ownership. However, unlike other privatised firms, SOEs in China are obligated to pursue political objectives. Therefore, they need to form a unique 'three boards and one management' structure and set the power of the Party Committee to override the two-tier boards. Due to this evolved partial centralised ownership structure and remained highly associated with the Party (i.e., political affiliation), SOEs in China have exhibited a range of agency problems (Jiang et al., 2010) and corporate governance deficiencies (Jiang and Kim, 2015; Lin et al., 2020). Therefore, the next subsections will comprehensively examine how political affiliation critically impacts agency problems and corporate governance in Chinese SOEs. Please see Table 2.1 for the outlined four-stage ownership reform of SOEs in China.

2.2.2 Political Affiliation and Agency Problems of SOEs in China

Following a brief review of the historical process of SOE ownership reform, this section identifies and analyses Chinese SOE's primary challenges. It will discuss SOE's political affiliation. Because of this close connection to political authority, the state uses SOEs to control a series of core national industrial sectors, ensuring that their activities align with governmental objectives, both economically and socially. Therefore, principal-agent conflicts can arise among shareholders and SOE managers, between the state and minority shareholders and between society and SOEs. This section will explore the potential vertical and horizontal agency problems the Chinese SOEs may encounter.

Table 2.1 The Four-Stage Ownership Reform of SOEs in China

Periods	**Economic Environment**	**State Ownership**	**Corporate Governance in SOEs**
First-Stage Before 1978	Highly planned economic environment (Wang, 2014).	Completely centralised. The central government oversees all daily activities of SOEs (Jin et al., 2022).	N/A
Second-Stage 1978-1993	Major economic opening up, turning into an emerging market economy (Lin et al., 2020).	Partial monitoring. The central government allocates authority to the local government, allowing SOEs to retain earnings for future operations and investment purposes (Jiang and Kim, 2020).	N/A
Third-Stage 1993-2013	Socialist market economy with Chinese characteristics.	Partial privatisation. The Central government can participate in SOE's decision-making rather than simply monitor it (Jin et al., 2022).	The supervision role of the secretary of the Party committee as the board chairman.
Fourth-Stage 2013-Present	Socialist market economy with Chinese characteristics.	Partial privatisation characterised by mixed ownership. The central government plays a leadership role and requires SOEs to embed political tasks in their corporate charters (Jin et al., 2022).	The Party Committee, the board of directors, the board of supervisors, and the management team form a unique 'three boards and one management' structure.

2.2.2.1 Political Affiliation

Research on state ownership in China posits that the most important feature of SOEs is their political or policy-driven nature. Many studies have examined the adverse effects of political affiliation (e.g., Chen et al., 2011; Li and Zhang, 2010; Zhu and Yoshikawa, 2016; Dong et al., 2021). Despite SOEs being China's economic foundation, a larger extent of state ownership is correlated with a higher possibility of law enforcement misconduct (Hou and Moore, 2010). It would result in weak external monitoring (Jiang and Kim, 2015; Zhu and Yoshikawa, 2016) and compromised internal corporate governance (Mutlu et al., 2018; Jiang and Kim, 2015, 2020). For example, the negative effect of SOE's political affiliation has raised critical information opacity, leading to a decline in the company's legitimacy and investors' trust (Chen et al., 2011; Greve and Zhang, 2017). Worse, weaker internal or external monitoring comes with more sensitivity to agency issues in SOEs (Jiang and Kim, 2020).

Furthermore, evidence found that the political interference of SOEs impairs firm value, threatening not only the interests of small and medium-sized investors (Hou and Moore, 2010) but also the company's sustainability (Bai et al., 2015). For example, Chinese SOEs are more inclined to use financial leases than non-SOEs, and the motivation for this preference is that SOE executives are more likely to receive higher performance-based salaries or administrative promotions provided by the government. Nevertheless, implementing such a decision could rapidly increase the company's financial risk due to the rising financial leverage, consequently affecting firm value (Zhang and Liu, 2020).

The challenging part is that political affiliation has been marked as the natural attribute of SOEs that is unlikely to be eliminated. Current research also demonstrates that both

internal and external monitors are limited due to this inevitable characteristic (e.g., Jiang and Kim, 2015, 2020; Jiang et al., 2016). Moreover, because of this unique political connection, different from other concentrated companies, SOEs also have to carry out governmental policies (Jiang and Kim, 2020; Jin et al., 2022). The Chinese SOEs may face both vertical and horizontal agency problems. The next subsection will elaborate on these two types of agency problems.

2.2.2.2 Vertical and Horizontal Agency Problems

When arguing about agency problems, most studies refer to the traditional *Agency Theory*, which reflects the conflicts of interest between shareholders and managers (Jensen and Meckling, 1976). The vertical agency problems emerge due to the inconsistent objectives of the lower-level managers (agents) and the upper-level shareholders (principals). To align the interests between these two parties, long-term equity-based incentives, such as shares and options, have been designed as one part of managers' performance compensation that serves to influence the agent's decision-making in daily operation, with due consideration given to the principal's long-term prospects (Jensen and Meckling, 1976). However, companies under highly concentrated ownership may have mitigated this agency problem as the large/controlling shareholder also acts as the company's decision-maker (Shleifer and Vishny, 1986). In many Chinese companies, particularly SOEs, their large/controlling shareholder dominates the power to allocate and resign the managers (Jin et al., 2022). Thereby, despite the traditional agency problems (Jensen and Meckling, 1976), companies under high concentration focus more on arguing the horizontal agency issues that large/controlling shareholders' wealth expropriation behaviours towards minority shareholders, also known as the *Type II Agency Problem* (La Porta et al., 1999; Claessens et al., 2000; Young et al., 2008), especially in countries or regions having

limited monitoring (La Porta et al., 1999; Johnson et al., 2000). This subsection will briefly illustrate these two types of agency problems in Chinese SOEs.

Regarding the reform stages of SOEs, the ownership structure reflects mixed ownership that combines state ownership and partial privatisation (Jin et al., 2022). Therefore, vertical agency problems between shareholders and SOE managers emerge consistent with those in the Western market. Unlike Western agents, whose annual payments are driven by the company's financial performance, SOE managers in China receive a yearly high income without being affected by the company's profit or loss (Jiang and Kim, 2020). For example, the Aluminium Corporation of China revealed a loss of 4.1 billion RMB in early 2014. Despite this unfavourable outcome, the chairman, Weiping Xiong, still received about 770k RMB in 2013[29]. This performance of SOE managers is utterly incompatible with their high payments. In some industries, particularly financial insurance and real estate, the directors and TMTs have exceeded multiple times the average salary of the employees. For example, ten directors and executives in Ping-An Insurance Company of China received over 5 million RMB in 2021; however, the average salary of their employees was only 240k RMB[30]. Therefore, to improve SOE's financial performance by restricting SOE managers' incompetent behaviours, the vertical agency problems mainly focus on examining the effects of limiting executive payments in Chinese SOEs (e.g., Deng et al., 2019; Deng et al., 2021; Bae et al., 2020).

The well-known horizontal agency problem mainly examines the principal-principal conflicts of interest between large/controlling shareholders and minority shareholders (La Porta et al., 1999; Claessens et al., 2000; Young et al., 2008). Wealth expropriation

[29] Accessible at: https://www.hxny.com/nd-8633-0-7.html
[30] Accessible at: https://finance.sina.com.cn/stock/hkstock/ggscyd/2022-04-08/docimcwipii3104472.shtml

occurs because large/controlling shareholders own absolute voting rights and make decisions based on their interests. As for the SOEs in China, the horizontal conflicts are more complex because they also have to carry out political policies/guidance (Jiang and Kim, 2020; Jin et al., 2022). Raelin and Bondy (2013) propose a second social-layered agency problem between society (the principal) and the company (the agent). In this case, there is likely a second layer of principal-principal conflicts between the social-oriented stakeholders and the state (or key SOE personnel who implement the policy on the governmental authority's behalf). Current principal-principal agency studies centre on the economic-level conflicts between large shareholders and minority investors, resulting in a research gap in exploring the social layer of principal-principal conflicts.

Previous literature proposes a potential agency relationship between society (principal) and company (agent), emphasising the importance of considering society as the second-layered societal-oriented principal from a broader stakeholder perspective (Raelin and Bondy, 2013; Freeman, 1984, 1994). Applying this concept to the context when companies are highly concentrated, this research finds a lack of a principal-principal agency framework to examine the social-level conflicts between large/controlling shareholders and other non-investment principals, such as creditors and other social and environmental stakeholders.

For instance, large/controlling shareholders emphasise the profitable objective and are inclined to pursue high risk-taking behaviours (e.g., García-Marco and Robles-Fernández, 2008; Dong et al., 2014). In China, the ultimate large shareholder with the most control and cash flow rights is more likely to increase corporate risk, even though this behaviour is detrimental to firm value (Su et al., 2017). Oppositely, considering the default risk, the company's outside creditors would prefer risk-averse strategies

(Laeven and Levine, 2009).

Moreover, social and environmental stakeholders are eager to see appropriate CSR investment for their benefit. Large/controlling shareholders, on the other hand, appear to be less concerned about corporate social performance, especially in family-owned businesses, which consider it only to reach the market's needs (Marques et al., 2014). Although SOEs show better corporate social performance than non-SOEs in China (Wei, 2021), academics have consistently criticised their political attributes as symbolic performances tailored to the state's objectives (Marquis and Qian, 2014). Moreover, Chinese SOEs are required to carry out state policies to realise socialism with Chinese characteristics. However, conflicts arise due to those national-level policies prioritising macroeconomic control, which may be less applicable to the concerns of non-investment stakeholders from the micro perspective.

To the best of my knowledge, no proper theoretical model/framework currently exists to address the social-level principal-principal conflicts between large/controlling shareholders and non-investment stakeholders under concentrated ownership. To fill this theoretical gap, *Chapter 3 Literature Review and Hypotheses Development* will critically review the development and challenges of traditional agency theory, therefore proposing a conceptual framework that highlights the second-layered societal principal-principal conflicts.

2.2.3 Monitoring of SOEs in China

The above section critically reviews Chinese SOE's political affiliation nature and agency problems. This section will address the ineffective corporate governance due to the political affiliation in Chinese SOEs. These corporate governance deficiencies

also reveal a monitoring failure that causes the above-stated agency problems.

2.2.3.1 Lack of Effective Board of Directors

Recent research findings show that the internal board of directors has lost its supervisory function in China (Jiang and Kim, 2015). For example, on January 7th, 2002, the China Securities Regulatory Commission (CSRC) formulated and promulgated the '*Code of Corporate Governance for Listed Companies in China*'[31], aiming to clarify the roles of the board of directors and board of supervisors of listed companies in China. The *Code* requires '*board size can range from 9 to 19 members, and one-third of the board members must be independent*'. According to the China Stock Market and Accounting Research (CSMAR) Database, from 2002 to 2018, the average number of board members in Chinese listed companies was around 9, and the average number of independent directors was around 3 (Jiang and Kim, 2015). The statistics indicate that the board characteristics of Chinese listed companies are formed to meet the *Code*'s minimum requirements rather than tailoring specific strategies based on the unique features of each company.

SOEs exhibit significant differences from non-SOEs across various dimensions, such as their primary tasks (Lin et al., 1998; Lin et al., 2020), financing and investment, and performance outcomes (Jiang et al., 2020). It causes the corporate governance functions in SOEs to be more easily overridden (Jiang and Kim, 2020). For instance, SOE directors monitor less effectively when examining their voting behaviours (Jiang et al., 2016). Using a sample of 859 proposals on 609 board meetings, Jiang et al. (2016) found that only 6% of independent directors who are less obliged to the

[31] In the following sections, this research will use the phrase 'the *Code*' to replace the term '*Code of Corporate Governance for Listed Companies in China*'.

large/controlling shareholders vote ‘against’. In addition, 92% of the proposals passed, ultimately despite the disagreement.

Other directors, such as emigrant directors and directors from the supervisory board, exhibit significantly limited monitoring (Giannetti et al., 2015; Jiang and Kim, 2020). For example, the emigrant directors, who have rich overseas experience but less political connection, were supposed to help improve SOE’s financial performance by engaging in international investment and M&A strategies. However, the researchers criticised that the financial outputs were likely due to the political strategy implemented rather than their monitoring effect (Giannetti et al., 2015).

The supervisory board in the two-tier board structure also appears impractical in Chinese SOEs (Jiang and Kim, 2020). Establishing a group of supervisory directors requires the company’s non-regular-board and non-management members. Usually, this supervisory board has at least one representative of the shareholders, and one-third of the members must be employees. They are in charge of monitoring the regular board of directors. The problem is, except for certain financial sectors that directly allocate the upper level of officials as the chair of the supervisory board, most chairs of the supervisory board in SOEs do not own the rights as powerful as the regular board chair (Jiang and Kim, 2020). Therefore, the two-tier board structure in Chinese SOEs is unfeasible.

2.2.3.2 Lack of Effective External Monitors

Many external monitors, such as institutional investors and banks, play influential supervision roles based on previous literature investigated in Western countries (e.g., Smith, 1996; Edmans and Holderness, 2017). However, SOEs in China are not

consistent with these theories. For example, the average shareholding proportion of institutional investors in each listed company in China is 6%, significantly lower than that of the controlling shareholders (36%) (Jiang and Kim, 2020). Consequently, institutional investors lack substantial influence over corporate decision-making. In addition, most banks in China are state-owned, which results in a tendency to prioritise lending to SOEs rather than private companies. One primary factor is that the banks know that the government would be a reliable guarantor and provide financial support to SOEs when facing financial constraints (Bailey et al., 2011).

Other domestic ownership, such as foreign ownership, may be challenging to fulfil the supervisory function because China has highly restrictive regulations on controlling foreign investment. For example, China currently caps total foreign ownership in locally listed companies at 30%, subjecting a single % foreign shareholder to a 10% limit (Bloomberg.com, 2023[32]). Therefore, foreign shareholders may find it difficult to significantly influence the listed companies compared to the domestic shareholders.

External monitors, such as external auditors, analysts, and media, have limited supervision (e.g., Chan et al., 2006; Ke et al., 2015; You et al., 2018). For instance, compared to cross-listed companies in Hong Kong, the Big 4 firms are compelled to allocate auditors with less experience to work for companies in mainland China due to the restricted institutional environment (Ke et al., 2015). The fairness of auditor opinions could be compromised when controlling shareholders are inclined to employ auditors with close affiliations with their interests (Guan et al., 2016). Moreover, when large shareholders plan to sell their restricted shares, analysts who previously had underwriting relations with listed SOEs would provide misleading information that

[32] Accessible at: https://www.bloomberg.com/news/articles/2023-09-22/china-mulls-easing-foreign-stake-limits-to-lure-global-funds

affects the price (Chan et al., 2019). Many media, especially those controlled by the state, report less critical or inaccurate news that causes information bias (You et al., 2018).

In summary, although many internal and external corporate governance mechanisms and monitoring may work effectively in Western countries or regions due to better legal and institutional protection, their influence is significantly constrained in China, particularly for the SOEs. As a result, these corporate governance deficiencies have left an empirical research gap to investigate if any mandatory mechanism or policy can help Chinese SOEs mitigate potential vertical and horizontal agency problems and sustain long-term corporate prospects[33]. After all, when functional internal and external monitoring is inefficient, only legal enforcement may offer a promising approach to making some changes (Jiang and Kim, 2020).

2.3 Corporate Social Responsibility (CSR) in China

Section 2.2 mainly addresses the potential vertical and horizontal agency problems in Chinese SOEs. Except for the widely noted *Type I* (i.e., *Principal-Agent*) and *Type II* (i.e., *Principal-Principal*) agency problems discussed from the traditional economic perspective, this research found that there may exist the social-layered principal-principal conflicts between the social and environmental stakeholders and the state (or SOE key personnel who deliver the policy on behalf) in the Chinese SOEs.

In addition, it reveals that because of the nature of political affiliation and the unique economic and political objectives, traditional corporate governance approaches

[33] The hypotheses development of further corporate governance mechanism exploration will be elaborated in Chapter 3.

applied in the Western market are unlikely to fit in the setting of SOEs in China. To keep investigating a proper mechanism for these agent problems of Chinese SOEs from both economic and social perspectives (this will be critically elaborated in Chapter 3), this section will first provide the background information about the development of CSR in China, as well as the current problems and performance of CSR in Chinese SOEs.

This section provides a brief overview of the development of CSR in China. First, it will argue why CSR disclosure is essential in business. Second, it will explain the legitimate environment of CSR disclosure in China. Finally, it will discuss the current issues of CSR performance in Chinese SOEs.

2.3.1 Why CSR Disclosure Is Important

Previous studies mainly focus on the economic level principal-principal agency conflicts between large shareholders and minority shareholders within highly concentrated companies (La Porta et al., 1999; Claessens et al., 2000; Young et al., 2008). On the other hand, the social level of agency problems between society and the firm has been disregarded (Realin and Bondy, 2013). It would lead to dissatisfaction among the company's primary social and environmental stakeholders, affecting the firm value (Jo and Harjoto, 2011; Buchanan et al., 2018) and ultimately spilling over shareholders' wealth. In practice, CSR disclosure allows these primary social and environmental stakeholders to focus most intuitively on how much a company cares for their interests. Therefore, this section will initially discuss why CSR disclosure is important to business from the perspectives of its associations with firm value, corporate legitimacy, and corporate innovation and sustainability.

First, as a critical corporate strategy, firms actively participate in social activities and improve the credibility of CSR disclosure to help maximise firm value (Jo and Harjoto, 2011). For example, investing in CSR can alleviate financial constraints (Yan, 2021); promote the reduction of debt financing costs under certain conditions (Ye and Zhang, 2011); reduce audit fees (Wang et al., 2020); and prevent the tunnelling behaviour from large shareholders to minority shareholders, thereby lowering agency costs between these two parties (Chen et al., 2018). Moreover, good and voluntary CSR disclosure attracts the favour of investors (Wang et al., 2011; Gong et al., 2018; Wang and Chen, 2017). For example, it sends bond investors a strong signal that the information asymmetry in the company is low, thereby reducing default risk (Gong et al., 2018). Also, detailed disclosure on fair employment and customer service attracts mutual funds, whereas CSR disclosure on energy conservation attracts qualified foreign institutional investors (QFIIs) (Wang and Chen, 2017).

From a legal viewpoint, CSR disclosure symbolises corporate legitimacy (Dowling and Pfeffer, 1975; Fernando and Lawrence, 2014). For example, according to *Signalling Theory* and *Institutional Theory*, CSR disclosure has been endowed with legitimacy in both business and political aspects. Especially when the external legal environment lacks efficiency, it strengthens corporate legitimacy, indirectly improving corporate financial performance (Wei et al., 2017).

In technology and environmental protection, companies with high-quality CSR performance pay attention to disclosing corporate sustainability and correlated R&D expenditure (Yang et al., 2016). Moreover, Hao and He (2022) found that reaching a higher standardised CSR disclosure motivates companies to invest more R&D in green patents. It formulates a positive loop because increased registered patents and innovative R&D would also enhance firm value and attract potential investors (Mishra,

2017).

In summary, this section demonstrates the benefits of high-quality CSR disclosure to a company's overall performance from the perspectives of firm value, corporate legitimacy, and corporate innovation and sustainability. Meanwhile, it implies that the second social-layered agency conflicts would likely intensify if companies fail to fulfil their CSR obligations.

2.3.2 Legitimate Environment of CSR Disclosure in China

Corporate social responsibility (CSR) originated in the Western market and has developed for over a century. Nevertheless, the official emergence of CSR in China was initiated in 2006. For the first time, the concept of CSR has been written in the Company Law[34]. This section will briefly review the legitimate environment of CSR disclosure and argue the current disclosure status of CSR reports in China.

The development of CSR in China can be historically categorised into three phases. The first phase (1978-1999) was establishing the legal and policy environment, which laid the groundwork for the emergence of CSR. The second phase (1999-2005) was the debate and development of the main ideas focusing on labour. The third phase (2006-present) denotes that China has officially achieved a basic consensus on CSR from the national laws and regulations, the Party's programme, and the supervision and guidance of the central government (Zhang et al., 2018). This section will focus on the third phase to avoid redundancy, illustrating the current legitimate environment of CSR disclosure in China.

[34] Accessible at: http://www.mofcom.gov.cn/article/swfg/swfgbl/201101/20110107349089.shtml

Since the third phase, China officially transitioned into the era of CSR. Relevant policies, guidance, laws, and regulations have been followed. January 1st, 2006, China formally promulgated the amendment to the Company Law, requiring Chinese companies to undertake social responsibilities[35]. Respectively, in 2006 and 2008, the Shenzhen Stock Exchange (SZSE) and Shanghai Stock Exchange (SSE) announced *Guidelines* to encourage listed companies to conduct CSR/Environmental Information disclosure[36]. December 29th, 2007, the SASAC initiated the '*Guiding Opinions on the Fulfilment of Social Responsibility by Central Enterprises*', requiring central enterprises to refer to the actual social practice and provide prompt feedback. In 2009 and 2011, the Corporate Social Responsibility Research Centre of the Chinese Academy of Social Sciences (CASS)[37] published the *CASS-CSR Blue Book 1.0* and *2.0*, providing the framework, guidelines, and case references to disclose CSR reports for Chinese companies[38]. In 2014 and 2018, the *CASS-CSR Blue Book* has been revised and updated to editions *3.0* and *4.0*. The standard designed specifically for Chinese companies has been widely applied. In its article, the Global Reporting Initiative (GRI) commented that '*the CASS-CSR Guidelines can provide information on issues of specific national importance and for addressing regional issues*' (p.3, GRI and CASS-CSR, 2019)[39]. Academia also considers it one of the main criteria to measure CSR performance in China as it captures the unique Chinese CSR characteristics and remains a consistent international reporting framework with the GRI (Dong and Xu, 2016; An, 2021).

[35] Accessible at: http://www.mofcom.gov.cn/article/swfg/swfgbl/201101/20110107349089.shtml
[36] Accessible at: http://www.gov.cn/banshi/2006-09/26/content_399213.htm and http://www.sse.com.cn/services/greensecurities/marketdate/.
[37] The Chinese Academy of Social Sciences (CASS) is the highest academic institution for philosophical and social science research in China, and it is directly under the management of the State Council.
[38] Accessible at: https://www.globalreporting.org/media/ukgpbiqx/linking-the-gri-standards-and-cass-csr-40-english.pdf.
[39] Accessible at: https://www.globalreporting.org/media/ukgpbiqx/linking-the-gri-standards-and-cass-csr-40-english.pdf

To sum up, influenced by domestic laws, political policies, and overseas capital market requirements, the development of the legitimate environment for CSR in China has gone from zero to ground, from ambiguity to detail in about one and a half decades. The number of CSR reports is increasing yearly (i.e., Figure 2.2)[40]. However, the figures seemed relatively low compared to the overall number of companies[41]. In addition, although the Company Law and the China Securities Regulatory Commission (CSRC) require listed companies in China to engage in CSR disclosure actively, the result is unsatisfactory. The engaging numbers are low, and the quality of disclosure is poor, criticised as form-over-substance (Marquis and Qian, 2014), especially in companies with strong political ties (Rauf et al., 2021). Similarly, although the SASAC has been exerting policy pressure on the SOEs to participate in CSR disclosure since the *No. 1 SASAC Document* was issued in 2008, such pressure with a 'political purpose' seemed not to facilitate Chinese SOEs to weigh CSR. This indicates that institutional pressure failed to make Chinese SOEs prioritise social welfare while balancing shareholder wealth (Li and Lu, 2020). Please see Table 2.2 for the outlined three-phase legitimate environment of CSR disclosure in China.

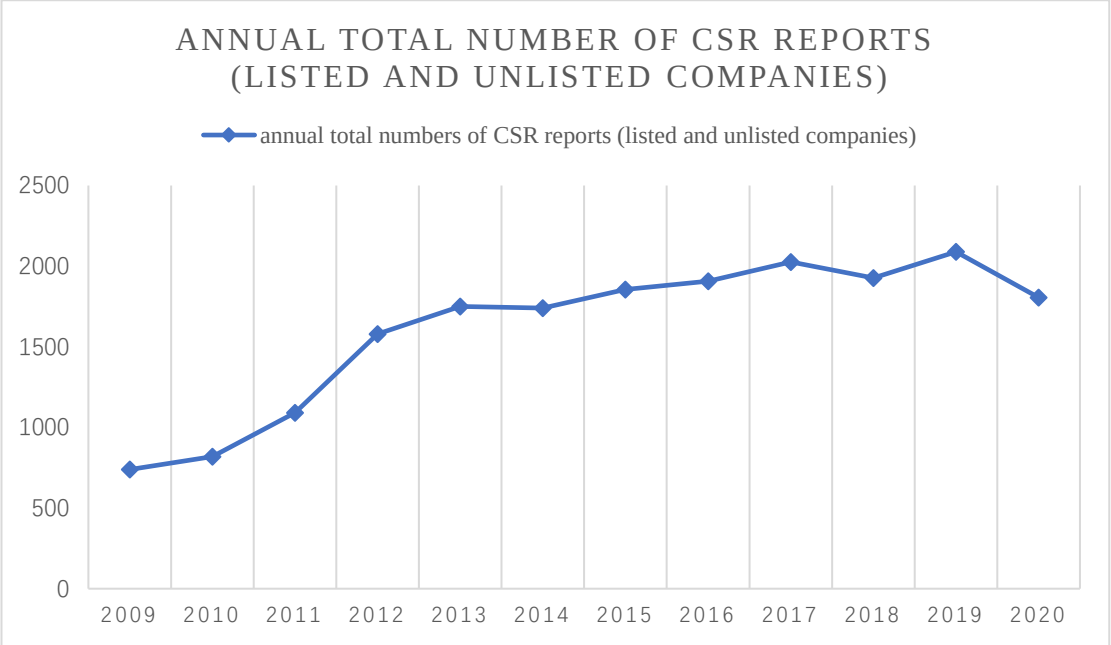
To further investigate the impacts of the current legitimate environment of CSR disclosure on Chinese SOEs, the next section will argue the CSR performance of the SOEs to gain an overall background knowledge on the second social-layered agency conflicts between the social and environmental stakeholders and the SOEs.

[40] CSR Data comes from GoldenBee (csr-china.net).
[41] As of September 2020, the number of A-share listed companies in China has exceeded 4,000. Accessible at: https://www.gov.cn/xinwen/2020-10/03/content_5549168.htm

Table 2.2 Legitimate Environment of CSR Disclosure in China

Periods	**Legitimate Environment**
First Phase 1978-1999	Initially establish the legal and policy environment for the emergence of the concept of CSR in China.
Second Phase 1999-2005	Focus on the main ideas of labour.
Third Phase 2006-Present	Officially achieve a basic consensus on CSR disclosure from the national laws and regulations, the Party's programme, and the supervision and guidance of the central government (Zhang et al., 2018). 1) 2006, Shenzhen Stock Exchange (SZSE); 2) 2007, The State-owned Assets Supervision and Administration Commission of the State Council (SASAC); 3) 2008, Shanghai Stock Exchange (SSE); 4) 2009, CASS-CSR 1.0; 5) 2011, CASS-CSR 2.0; 6) 2014, CASS-CSR 3.0; 7) 2018, CASS-CSR 4.0.

Figure 2.2 Annual Total Number of CSR Reports (GoldenBee)



2.3.3 CSR Performance of SOEs in China

Previous literature shows that SOEs in China contain a naturally strong policy-driven characteristic (Jiang and Kim, 2015, 2020). It would lead to a phenomenon that some officials in charge of the SOEs may 'actively' participate in CSR activities for personal aims, such as seeking political promotion (Chang et al., 2021). For example, Li and Lu (2020) apply a dual-agency model to investigate why agents respond to CSR performance differently, highlighted by the Chinese government's *12th Five-Year Plan*. The results show that both public agents (i.e., government officials) and private agents (i.e., corporate CEOs) have provided positive CSR-related feedback to the *12th Five-Year Plan*. However, the public agents are more motivated by seeking political promotion; the private agents, on the other hand, are driven by corporate legal compliance (Li and Lu, 2020).

The seeking for political promotion behaviour shows one big downside: once the SOE

managers lost their political rights or were disconnected from the government, they would probably behave negatively in CSR activities. For example, Li and Guo (2022) found that when SOE managers were under higher political pressure, this would result in better CSR performance. In contrast, when a politically associated director was forced to leave, this would negatively impact the company's CSR performance. In other words, the policy-oriented nature would result in involuntary corporate behaviour, affecting CSR disclosure quality (Li and Guo, 2022). What is worse, the involuntary CSR disclosure may cause wasteful CSR investment at the expense of shareholders' profitability (Carroll, 1991). From the perspective of *Stockholder Theory*[42], such an outcome may accelerate the conflicts between the company's shareholders and its primary social-oriented stakeholders.

In terms of the Party's programme (i.e. the *12th Five-Year Plan*), the formulation of SOE strategic policy should adhere to the principle of sustainable development, with the protection of people's welfare as a priority, therefore, to realise the values of the SOEs that highlight the benefits of socialism (Jin et al., 2022). However, many of the empirical studies on the CSR performance of SOEs in China have found negative results, revealing that the corporate behaviours of SOE managers are likely to be motivated by political promotion instead of considering the sustainable development of the enterprises (e.g., Marquis and Qian, 2014; Li and Guo, 2022; Li and Lu, 2020; Chang et al., 2021). Despite these inevitable political impacts, another reason the SOE managers fail to engage in CSR is likely due to the poor internal and external corporate governance monitoring argued in Section 2.2.3.

In addition, SOE managers receive performance-based bonuses that are much higher

[42] It is also known as the *Shareholder Theory*, which was proposed by Friedman (1970). It argues that a company has no social responsibility to the public or society; its only responsibility is to its shareholders. According to this theory, the business should always endeavour to maximise its revenues to increase returns for the shareholders.

than the salary of the employees in the company, regardless of their outcomes (Jiang and Kim, 2020). This unreasonable phenomenon has attracted the attention of the SASAC. To shape the corporate behaviours of the SOE managers, the SASAC issued the No. 22 'salary restriction order' for central SOE managers on January 1st, 2010, requiring 40% of annual performance-based compensation to be deferred in a 3-year tenure. According to the *CEO Inside Debt Theory* (Edmans and Liu, 2011) and its risk-reducing effect on dividend pay-out (Caliskan and Doukas, 2015; Borah et al., 2020), earning management (He, 2015; Dhole et al., 2016), and corporate social performance (Mayberry, 2020; Hossain et al., 2023), I find it would be feasible to examine the policy effect on shaping SOE managers' corporate behaviours. It provides an opportunity to testify whether deferred executive compensation (DEC) mitigates economic and social levels of agency problems in Chinese SOEs.

In summary, the reasons why the current environment of CSR disclosure in China is suitable to examine the social-layered agency conflicts using Chinese SOEs are: 1) SOEs in China are concentrated state-owned structures and self-contained dual economic and social agency problems. 2) The political affiliation of Chinese SOEs makes the adoption of CSR disclosure an involuntary behaviour that only aims to reach governmental/political objectives. 3) Corporate governance mechanisms are less effective in stimulating SOE managers to enhance the quality of CSR disclosure in China. 4) Currently, many SOEs in China focus on the form of CSR disclosure due to their political-driven characteristics rather than disclosing the substance of contents. 5) Limiting payment policy on SOE managers may motivate them to focus on the quality of CSR disclosure. Therefore, the current CSR disclosure environment in China provides a promising opportunity to examine the double-layered principal-principal conflicts in Chinese SOEs.

2.4 SASAC Order No. 22: The Salary Restriction Order

Responding to the overpaid SOE managers and their underwhelming performance, on January 1st, 2010, the SASAC officially announced and implemented the *'Interim Measures for the Performance Evaluation of the Persons in Charge of Central Enterprises*', namely the *SASAC Order No. 22*, also known as the 'salary restriction order'. It stipulates that executives/directors and TMT in charge of the enterprises have '*60% of the performance salary encashed in the current period after the completion of the annual assessment; the remaining 40% must be deferred to the end of the tenure review*' (*Chapter 4*, *Article 26*, *SASAC Order No. 22*[43]). Moreover, the tenure review is based on three-year performance (*Chapter 3*, *Article 14*, *SASAC Order No. 22*[44]).

According to the *CEO Inside Debt Theory* (Edmans and Liu, 2011), deferred executive compensation (DEC) can be regarded as a long-term liability the company owes to the managers based on their remaining operational behaviours over their tenure. Therefore, DEC is expected to mitigate executives' risk-taking behaviours by establishing debt-based alignment[45] between managers and outside creditors (Jensen and Meckling, 1976; Edmans and Liu, 2011). Jensen and Meckling (1976) suggested that DEC should be considered to add to the package of executives' remuneration plan to protect and balance both the interests of shareholders and debtholders, thereby contributing to easing the economic-level agency problems. Moreover, previous literature shows that companies with lower risk are willing to pay more dividends (Caliskan and Doukas, 2015; Borah et al., 2020), and this is a positive sign of alleviating economic-level principal-principal conflicts (i.e., wealth expropriation) between large shareholders and minority shareholders (Faccio et al., 2001). In addition, corporate risk aversion is

[43] Accessible at: http://www.gov.cn/flfg/2010-01/22/content_1517096.htm.
[44] Accessible at: http://www.gov.cn/flfg/2010-01/22/content_1517096.htm.
[45] The other one is the equity-based alignment between managers and shareholders, which has been highly argued since the birth of the agency theory (Jensen and Meckling, 1976).

positively associated with better CSR performance (Mayberry, 2020). Therefore, DEC may also help to reduce social-level principal-principal agency problems.

Overall, this 'salary restriction order' may open up new thinking and opportunities in response to both economic and social layers of agency problems confronted by the Chinese SOEs. The following *Chapter 3 Literature Review and Hypotheses Development,* will critically argue the effects of DEC on these agency problems and develop research hypotheses accordingly.

2.5 Chapter Summary

This chapter provides important background knowledge on examining agency problems in Chinese SOEs. It critically reviews both vertical and horizontal agency problems from bidimensional (economic and social) perspectives that these Chinese SOEs face due to their highly concentrated ownership structures and unique organisational objectives. From a widely discussed traditional agency perspective, this research reveals the vertical economic-layered agency conflicts between the state and the SOE managers and the horizontal economic-layered *Type II* agency problems (i.e., *Principal-Principal Conflicts*) between the state (the large shareholder of the SOEs) and the minority shareholders. There is little literature examining the social-layered agency problems, although the social participants represent a company's primary principals according to the *Stakeholder Theory*. The conflicts of interest from the social-layered principals towards the shareholders or the key personnel in charge of daily operations have left a promising research gap, extending the study edge of agency problems.

To precisely deliver the theoretical gap in *Chapter 3*, this chapter provides background

information on Chinese SOE's economic substance and political objectives. It found that Chinese SOEs emphasise the governmental tasks of stabilising the macroeconomy and protecting public welfare to achieve socialism. Moreover, to address the promising social-layered conflicts, this chapter examines current legitimate environment of CSR disclosure in China. It found that social-layered agency conflicts commonly exist because SOE managers are mainly motivated by political promotion and lack proper incentives to engage in corporate social activities voluntarily. To further identify and examine the social dimensional agency problems, therefore, the first main research question will explore:

How does this research establish a theoretical framework that identifies and examines both economic and societal layers of principal-principal agency conflicts for highly concentrated companies?

In order to answer the first main research question, this research will review the development of the principal-agent theories, compare the differences of each main branch of the agency issues and argue, from both economic and social layers, whether there is an effective principal-agent structure when companies are highly concentrated. If the structure is effective, who should be responsible for the principal and agent roles? What reason causes these agency conflicts? What impacts will these conflicts bring to the company financially and socially? Are there any appropriate mechanisms to mitigate these conflicts?

The first main research question is fundamental to this research. The establishing theoretical framework will clarify the agency relationships, identify the potential conflicts of interest between different layers of principals and agents and the likely influences on the SOEs. Moreover, the first main research question will lead this study

to explore appropriate mechanisms to alleviate these principal-principal agency issues further.

This chapter has revealed that, due to the internal and external corporate governance deficiencies caused by the inevitable political affiliation, most traditional corporate governance mechanisms developed based on Western scenarios seemed less effective in the Chinese market. Besides, the commonly used Multiple Large Shareholders (MLS) approach for mitigating the *Type II* agency problems raises negative collusion effects in Chinese SOEs. Hence, the second main research question will further explore:

Despite these ineffective traditional approaches, is there any other corporate governance mechanism mitigating both economic and social layers of principal-principal agency problems in Chinese SOEs?

In order to answer this second main research question, this research will empirically examine from the perspective of CEO incentives. According to the *CEO Inside Debt Theory* (Edmans and Liu, 2011) and its risk-moderating effect on dividend pay-out, earning management, and corporate social performance, this research finds that deferring executives' pay is likely to be a proper incentive to mitigate both economic and social layers principal-principal agency problems. Therefore, this chapter introduces the 'Salary Restriction Order' announced by the SASAC, which aims to provide the policy information for *Chapter 3* to develop research hypotheses further.

Chapter 3. Literature Review and Hypotheses Development

3.1 Introduction

China's rapid economic development has led to it becoming the second-largest economy in the world. However, many Chinese companies continue to operate under highly concentrated ownership structures, particularly those controlled by the state (i.e., SOEs). *Chapter 2 Institutional Background,* demonstrates that concentrated state ownership, because of its strong political affiliation, can result in economic and social levels of agency problems that may cause traditional corporate governance practices[46] to lose effectiveness (Jiang and Kim, 2015, 2020).

Previous studies are likely to apply corporate governance methods derived from the traditional *Agency Theory* to examine the above-stated problems commonly observed in highly concentrated companies in China (e.g., Conyon and He, 2011; Su et al., 2010; Giannetti et al., 2015; Chan et al., 2006; Ke et al., 2015; You et al., 2018; Guan et al., 2016; Dong et al., 2017). However, this theory originated in the US and would apply to situations where ownership and control are separated. Monitoring functions would be effective as the board and external corporate governance were independent and may not be overridden by the large shareholders' intimidating power compared to the highly concentrated firms (Giannetti et al., 2015; Jiang and Kim, 2020). Therefore, a promising research gap exists in developing a modified theoretical framework that addresses principal-agent problems exclusively for companies under concentrated ownership.

[46] Refers to the corporate governance methods that are generated based on the practices of the Western markets, such as equity-based incentives, board characteristics, institutional ownership, foreign investors, external audit, and other external monitoring etc.

The purpose of this chapter is to propose a new theoretical framework that builds upon the classic *Principal-Agent Theory* (Berle and Means, 1932; Jensen and Meckling, 1976), incorporating the *Principal-Principal Conflicts* (Young et al., 2008) in the context of highly concentrated firms. To the best of my knowledge, previous literature on principal-principal conflicts primarily focuses on examining the economic-level conflicts (i.e., wealth expropriation) between large/controlling shareholders and minority shareholders[47]. However, no framework currently examines conflicts of interest caused by large/controlling shareholders to a company's primary non-investment stakeholders, such as outside creditors and social and environmental stakeholders. Although several studies have explored the associations between ownership structures and CSR performance in European and East Asia markets (e.g., Dam and Scholtens, 2013; Lau et al., 2016; El Ghoul et al., 2016), their investigations focus more on the heterogeneity correlations than the theoretical structure and agency problems between these two parties. Hence, this research aims to build a new theoretical framework from a bi-dimensional perspective to examine economic and societal levels of principal-principal conflicts raised by large/controlling shareholders.

Firstly, Section 3.2 will explain why the traditional *Principal-Agent Theory*[48] no longer fits companies within concentrated ownership structures. Secondly, based on prior primary literature on the development of double (Child and Rodrigues, 2003, 2004; Raelin and Bondy, 2013) and multiple principal-agent relationships (Arthurs et al., 2008), Section 3.3 will critically argue: 1) If there exist any effective principal-agent relationship when large shareholders undertake absolute ownership and control? 2) Who plays the role of agent if the relationship is effective? 3) Which framework, double or multiple, is more appropriate to define this agency structure?

[47] Large/controlling shareholders are likely to abuse their absolute power and voting rights on corporate strategies for maximising their wealth, however detrimental to the interests of minority shareholders (Claessens et al., 1999, 2000; Faccio et al., 2001).
[48] It refers to the classic single level of principal-agent structure found by Berle and Means (1932).

In response to Raelin and Bondy's (2013) findings on an academically overlooked social alignment between society (the principal) and shareholders (the agent), Section 3.4 will highlight the disregarded social-level principal-principal-agency relationship between large shareholders (the principal) and society (the principal) within highly concentrated firms. Therefore, to elaborate on the widely discussed *Principal-Principal Conflicts*, which only focus on the traditional economic-level wealth expropriation between large shareholders and minority shareholders (e.g., La Porta et al., 2000; Claessens et al., 2002; Faccio et al., 2001; Young et al., 2008), Section 3.4 will address the theoretical research gap on the conflicts between large shareholders and non-investment principals. Hence, this theoretical finding shows that the study edge of *Agency Theory* has elaborated from a principal-agent to a principal-principal perspective examining both economic and social principal-principal agency problems exclusively trailed for firms under concentrated ownership.

The new theoretical framework (Section 3.4) is entitled *Double-Layered Principal-Principal Theory*. The first layer argues the well-known wealth expropriation between large shareholders and minority shareholders, which reflects the traditional principal-principal conflicts from the economic perspective. In addition, the outside creditors, also known as the primary economic-level principal (Freeman, 1994), show different risk preferences towards large shareholders (Laeven and Levine, 2009; Edmans and Liu, 2011). Therefore, this risk preference issue will supplement the other principal-principal conflict on the economic layer. Inspired by Raelin and Bondy (2013), the second layer argues the conflicts in corporate social concerns between large/controlling shareholders and the company's primary social and environmental stakeholders.

Previous literature suggests two potential corporate governance mechanisms that may mitigate the double-layered principal-principal problems under concentrated structures. Respectively, they are multiple large shareholders (MLS) and deferred executive compensation (DEC). Section 3.5 will review previous theoretical hypotheses and empirical results of these two methods and argue why DEC, rather than MLS, is likely more appropriate for alleviating the double-layered principal-principal conflicts, especially when the large/controlling shareholder is the state. Section 3.5.3 will also develop the research hypotheses accordingly.

3.2 Traditional Principal-Agent Theory

For decades, the *Principal-Agent Theory* has been one of the most critical parts of modern business theories. It also contributes to a solid theoretical foundation for corporate governance studies. The classic *Principal-Agent Theory* is based on two important assumptions: one is the separation of ownership and control, and the other is information asymmetry. The first assumption highlights that the company's owners are less accessible to corporate daily operations than the managers. The other highlights the inevitable problems of information asymmetry caused by conflicts of interest between the principal and the agent. As a result, the primary goal of applying the *Principal-Agent Theory* to corporate governance studies is to mitigate agency problems caused by conflicting aims of the principal and agent (Jensen and Meckling, 1976). First, this section will chronologically review the development of the traditional single-level principal-agent structure.

In 1776, Adam Smith initially proposed the likely conflicts between the owners and the managers. In his notable work, *The Wealth of Nations*, this great Scottish economist suggested that, unlike partners in private companies, managers in joint-stock

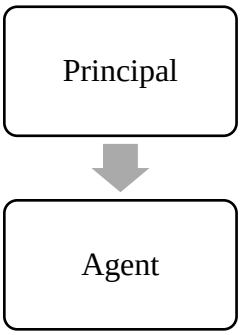
companies use investors' money to execute corporate daily operations. It would be difficult to assess whether the managers have the same perceptions as the owners when claiming investment returns. Therefore, he was concerned that the behaviour of joint-stock companies would cause a depreciation of firm value (Smith, 1937). It means that although hiring professional agents may improve production efficiency, the waste of production resources could be inevitable. Consistent with Adam Smith, Berle and Means (1932) observed 200 large corporations in the US and published their book, *The Modern Corporation and Private Property*, in which they found that many of these companies were controlled by senior managers who hardly owned any equity holdings. They claimed that the likely form of dispersed ownership and control has occurred in modern companies (Berle and Means, 1932). Mutually, the development of modern corporations also accelerates the separation of ownership and control due to the rising effectiveness of the agent markets (Grossman and Hart, 1983). In other words, managers monopolising firms' information will likely gain substantial control power.

From the 1960s to 1990s, most literature on the *Principal-Agent Theory* argues about single-level agency problems (see Figure 3.1). For example, Ross (1973) described the principal-agent relationship as one party performing on behalf of the other party's will. The key criterion for determining a principal-agent relationship is whether the principal has transferred his (or her) right to the agent. Zeckhauser (1985) claimed that as long as one party acts dependably on the other, the principal-agent relationship exists. Besides, Grossman and Hart (1983) believed that the principal-agent relationship emerges from the appearance of specialisation. When faced with a highly competitive business climate, agents with professional management experience would compel the owners to relinquish their controlling rights. From an economic perspective, Jensen and Meckling (1976) developed their notable theory on *Agency Costs*, which addresses the expenditures companies must endure when incentive mechanism(s) are

designed to align the principal's interests with the agent. They characterised the principal-to-agent as a contractual relationship that explains each party's rights and obligations while constructing an appropriate long-term compensation package for the agent based on the amount and quality of the service.

Figure 3.1 Traditional Principal-Agent Theory

(Berle and Means, 1932; Jensen and Meckling, 1976)



Ever since, the *Agency Theory* (Jensen and Meckling, 1976) has been applied as one of the most important theories in corporate governance studies, especially in the US and the UK. The essence of Jensen and Meckling (1976) is to highlight the relevant agency costs when companies set up long-term incentive plans to align shareholders' interests with the company's agents. It is well-known as the optimal incentive mechanism, ensuring the agent performs in the principal's best interests. The problem is that many companies in the rest of the world maintain different extents of concentrated ownership structures (La Porta et al., 1999; Shleifer and Vishny, 1986; Claessens et al., 2000; Faccio and Lang, 2002)[49]; however, this traditional *Agency Theory* only applies when firms are separated from ownership and control.

When companies are dispersed from ownership and control, the critical conflict between the principal and agent is that these two parties may have different business

[49] For instance, La Porta et al. (1999) examined 27 wealthy economies, including Argentina, Australia, Canada, Hong Kong, Ireland, Japan, New Zealand, Norway, Singapore, Spain, UK, US, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Israel, Italy, South Korea, Mexico, Netherlands, Portugal, Sweden, and Switzerland. They found, except the regions where shareholders received good protections, most large firms are highly controlled by families or government. Moreover, by observing 2,980 listed companies in 9 East Asian countries and regions, including Hong Kong, Taiwan, Japan, South Korea, Singapore, Thailand, Indonesia, Malaysia and Philippines, Claessens et al. (2000) found that two-thirds of the observations have been controlled by one large shareholder who remains absolute power of the company. In addition, through analysing 5,232 companies in 13 Western European countries, Faccio and Lang (2002) found that apart from the companies in the UK and Ireland, ownership structures in Western Europe are concentrated, with 44.29% of the family-control business.

objectives. Then the inevitable information asymmetry would accelerate their conflict of interests. For example, when shareholders pursue long-term value, executives are likely to boost short-term performance for personal benefits and reputation. Thus, issuing equity-based compensation to the agent to align their interests with shareholders would help to alleviate this agency problem (Jensen and Meckling, 1976).

However, it would be ineffective to directly apply this equity-based compensation mechanism when the company is highly concentrated. Since large shareholders have ownership and control, any information barriers would unlikely exist. Therefore, the equity-based alignment would be ineffective and meaningless. In this case, this traditional *Agency Theory* and corporate governance theories derived from it would be impractical to apply either. For example, the judgement of board of directors may be threatened by the absolute power of the large shareholders (Jiang and Kim, 2015). These critical issues make this research to consider: Is any effective principal-agent relationship(s) existing when a company is highly concentrated? When traditional corporate governance mechanisms fail to work on the companies under concentrated ownership, is there any new method(s) that may affect a company's strategic level regardless of the absolute power of large shareholders? Hence, the modified theoretical framework that defines the principal-agent issues under concentrated ownership is urgently needed to fill the research gap.

3.3 Development of Double/Multiple Principal-Agent Theory

The abovementioned highly concentrated ownership structures between large and minority shareholders refer to the classic principal-principal relationship. It is also known as the dual principal-principal agency problem or the *Type II Agency Problem* (Claessens et al., 2000; La Porta et al., 1999, 2000; Shleifer and Vishny, 1997; Faccio et al., 2001). Besides the US and the UK, many other countries have gone beyond the

scope of application of the traditional *Agency Theory* based on a single-tier principal-agent structure. Therefore, the concept of a principal-agent structure with two or more tiers is born.

At the same time, the increasingly complex business scales and organisational forms have accelerated the emergence of studies on double and multiple-tier principal-agent structures. This section mainly argues three theories in this study area. First, Section 3.3.1 illustrates two different views of the double-tier principal-agent structures. The first view focuses on the extra agency cost caused by the complexity of organisational forms (Child and Rodrigues, 2003). They argued that the second tier of the agency problem may arise because of the information barriers between the strategic and operational agents (Child and Rodrigues, 2003). Differently, the second view explains the second tier of agency relationship from the perspective of corporate social concern. Raelin and Bondy (2013) emphasised the overlooked but critical alignment between society (principal) and shareholders (agent). Then, Section 3.3.2 explains the main view on multiple principal-agent structures (Arthurs et al., 2008), and Section 3.3.3 critically compares the above three theories.

Hence, in response to the importance of corporate social concern and poor CSR performance in Chinese SOEs addressed in Chapter 2, section 3.3.4 critically argues why this research opts for the *Double-Layered Agency Theory* (Raelin and Bondy, 2013) as a seminal approach to exploring principal-principal conflicts from both economic and societal perspectives, and to contribute a new double-layered principal-principal structure as a theoretical model, therefore, fill the research gap.

3.3.1 Double Principal-Agent Theory

The advancement of modern practices continually drives the academic expansion of

traditional *Agency Theory*. Since the 1990s, the concept of the single-tier principal-agent relationship has evolved to encompass double or multiple structures. The *Double Principal-Agent Theory*[50] has been widely applied in both corporate and non-corporate studies, with examples including conceptual corporate governance studies (Child and Rodrigues, 2003, 2004; Raelin and Bondy, 2013), empirical business scenarios (Arthurs et al., 2008; Chrisman et al., 2012; Golez and Marin, 2015; Zellweger and Kammerlander, 2015; Venkatesh et al., 2020), macro-national level of governance in certain industries, such as agricultural (Hillman, 1992) and tuna fishing (Bailey et al., 2016), and bureaucratic roles in national labour unions (Bellante and Porter, 1992) and Europe political negotiations (Delreux and Laloux, 2018). This section focuses on two critical views on the *Double Principal-Agent Theory* commonly applied in business studies. The one is on a bureaucratic style of vertical dual-agency relationships within corporations (Child and Rodrigues, 2003). The other elaborates on the overlooked social alignment between companies and society (Raelin and Bondy, 2013).

3.3.1.1 Double Agency Theory: Organisation-Structure Perspective

Child and Rodrigues (2003) published a conceptual paper that critiques the double and multiple agency problems that can arise when strategic-level managers engage in partnerships. They focus on the second tier of the principal-agent relationship[51] between upper-level managers and their subordinates, specifically, those managers who own shares and become junior partners. They believed these second-tier agency problems appeared due to the separation of strategic management and operations (see Figure 3.2). Child and Rodrigues (2003) criticised the hierarchical corporate

[50] In order to distinguish the concept of traditional single-tier *Principal-Agent Theory* (Berle and Means, 1932; Jensen and Meckling, 1976), this chapter will refer to relevant double or dual-level principal-agent structures as the *Double Principal-Agent Theory*, for example, the *Double Agency Theory* (Child and Rodrigues, 2003, 2004), the *Double-Layered Agency Theory* (Raelin and Bondy, 2013), and the *Dual Agency View* (Deutsch and Laamanen, 2011), etc.

[51] The first tier of principal-agent relationship is between shareholders and managers referring to the traditional *Agency Theory* (Berle and Means, 1932; Jensen and Meckling, 1976).

governance theory for its difficulty accommodating practical organisational forms because information distortion from lower-level employees to upper-level managers is unavoidable, particularly in large corporations with complex organisational structures and personnel. Neilson et al. (2003) also posited that while policymaker may have developed a suitable strategy and planned a clear operational direction, practical execution by lower-level management can be far from satisfactory. Lower-level employees may prioritise personal interests, such as competing for a promotion, which can result in information bias when the rivalry spreads (Milgrom and Roberts, 1988).

Figure 3.2 Double Agency Theory

(Child and Rodrigues, 2003)

The *Double Agency Theory* (Child and Rodrigues, 2003) has been a seminal framework for analysing double agency problems in certain types of concentrated ownership structures. Chrisman et al. (2012) applied this theory in examining management buy-outs (MBOs) in family businesses, where non-family managers become owners and, thus, face a double agency dilemma. Additionally, Gökçen et al. (2020) found that the unusual institutional structures in which banks own large stakes in private pension funds and asset management firms would likely endanger retail

investors to distorted capital allocation and asset prices.

Accordingly, this research found that the proposed structure outlined by Child and Rodrigues (2003) for examining the vertical structure of a top-down bureaucratic hierarchy of second-tier agency relationships does not apply to the above cases (i.e., Chrisman et al., 2012 and Gökçen et al., 2020). This is due to the absence of a clear vertical structure in each case. In the first case, the new second tier formed by the post-MBO non-family owners parallels the original family owners. In the second case, the analogy drawn between banks that own large stakes and retail investors is more aligned with the well-known principal-principal agency problem. However, this 'agency' relationship between large/controlling shareholders and minority shareholders is unlikely to be effective due to the self-interest-centred nature of large shareholders, which would hardly allow them to act on behalf of the will of minority shareholders[52] (Liu and Lu, 2007). The *Double Agency Theory* defines a top-down bureaucratic vertical principal-agent structure; however, companies with high concentration face primarily horizontal principal-principal conflicts. Therefore, applying this theory to examine agency issues in highly concentrated companies would be inappropriate.

3.3.1.2 Double-Layered Agency Theory: Societal Perspective

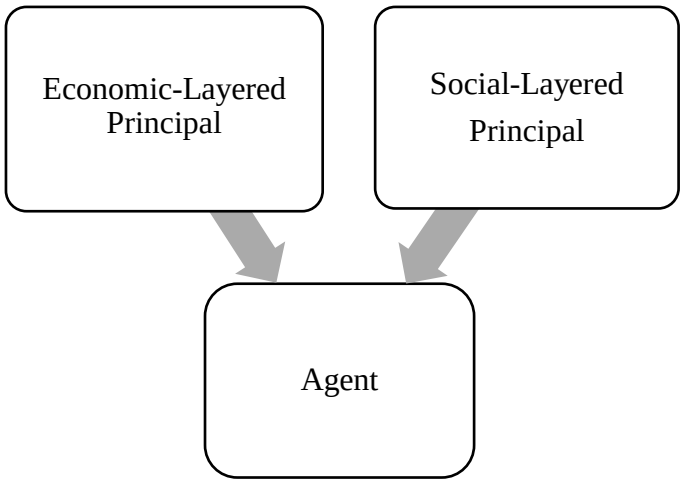
The *Double-Layered Agency Theory* proposed by Raelin and Bondy (2013) differs from the framework of Child and Rodrigues (2003) by emphasising the dual roles of shareholders as both the economic-level principals and the agents of society. This theory categorises the principal-agent relationship into two layers; the first layer refers to the traditional *Agency Theory,* which focuses on the economic-level disputes between shareholders and managers, while the second layer emphasises the academically overlooked shareholders' responsibility to society (see Figure 3.3).

[52] This argument will be elaborated in detail in section 3.3.3.

Raelin and Bondy (2013) argued that when maximising firm value, shareholders should actively seek out societal expectations and uphold societal rights, as the effectiveness of the first layer depends on the second layer being given due consideration. By aligning the interests of shareholders with those of society, companies can generate long-term benefits and become more sustainable (Jensen, 2012). Additionally, this alignment can minimise the risk of managerialism and decrease agency costs by enabling companies to engage in social resources actively (Cheng et al., 2014).

Figure 3.3 Double-Layered Agency Theory

(Raelin and Bondy, 2013)



In response to the *Double-Layered Agency Theory*, academia acts differently. Some researchers supported and commended Raelin and Bondy (2013) for broadening the definition of corporate governance and extending the agency model integrated with a social dimension (e.g., Pindado and Requejo, 2015; Devinney et al., 2013; Levillain and Segrestin, 2019). Incorporating the social perspective is important because as businesses expand globally, long-term corporate prospects increasingly depend on responsible leadership and CSR activities (Waldman and Siegel, 2008). Good and

sustainable operations provide an opportunity to convert business resources and managerial knowledge into products, goods, and services that increase wealth for their investors and wider stakeholders (Filatotchev and Nakajima, 2014).

The criticism, on the other hand, questions whether shareholders can fulfil the fiduciary duty of the agent role and take societal interests into account in day-to-day operations (Sandberg, 2011). Additionally, there is uncertainty about how society can effectively monitor shareholders' actions as agents and by what measuring (Raelin and Bondy, 2013). Although Raelin and Bondy (2013) suggested the establishment of a new oversight board for monitoring the second-layered society-shareholders agency relationship and having all relevant foundational documents prepared at the beginning, the efficiency of this board and the behaviours of the board members are still challenging to presume (Boivie et al., 2016). Additionally, the foundational documents established may be problematic to keep updated with evolving societal demands. The problem highlights the need for continuous monitoring and review of these documents to ensure they are aligned with current societal expectations and can effectively guide the actions of shareholders as agents of society.

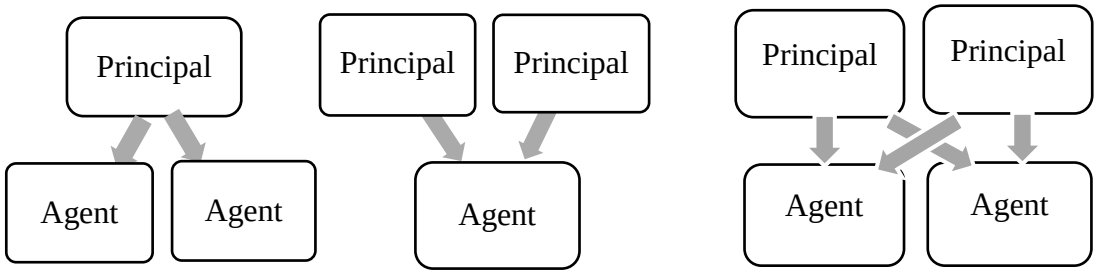
3.3.2 Multiple Principal-Agent Theory

In addition to the double principal-agent theories, the *Multiple Principal-Agent Theory* is another widely discussed concept in corporate governance studies. This section will provide an overview of one of the critical theories, the *Multiple Agency Theory* (Arthurs et al., 2008). Then, from the perspective of the *Stakeholder Theory* v.s. *Shareholder Theory* argues whether firms have obligations to be accountable to their primary non-investment stakeholders.

3.3.2.1 Multiple Agency Theory: Contrast to One-to-One Structure

One of the main references in multiple principal-agent theories is the work of Arthurs et al. (2008), who have applied the *Multiple Agency Theory* to examine cases in which companies face multiple groups of principals or agents. The core idea of this theory is derived from the traditional single-tier *Principal-Agent Theory*, but it '*examines conflicts of interests among more than one agent group when at least one of those agents is connected to a different principal. Instead of addressing a one-to-one relationship, multiple agency theory examines a many-to-many relationship to explain outcome*' (Arthurs et al., 2008, p.277). Arthurs et al. (2008) have extended the work of Child and Rodrigues (2003) by examining the case of firms when making initial public offerings (IPOs). They revealed multiple agency conflicts in IPO firms, where the managerial agents appointed by the capital ventures and the investment bank agents have different goals for underwriting the stock price. In comparison with Child and Rodrigues (2003), Arthurs et al. (2008) have weakened the concept of the double/multiple agency problems emerging only within the firm, suggesting that the *Multiple Agency Theory* applies when organisations involve more than one-to-one principal-agent conflicts of interest (see Figure 3.4).

Figure 3.4 Multiple Agency Theory
(Arthurs, Hoskisson, Busenitz and Johnson, 2008)



3.3.2.2 Multiple Principals: The Stakeholder Perspective

The second main reference demonstrates a different point of view based on the *Stakeholder Theory* (Freeman, 1984). In contrast to the point view of the *Shareholder Theory* (Friedman, 1970), the *Stakeholder Theory* posits that the primary non-investment stakeholders can be considered the principals of the firm. However, Goodpaster (1991) argued that managers have a fiduciary duty solely to shareholders and that any obligations to non-investment stakeholders should be viewed as morally required rather than legally binding. While this view may suggest that non-investment stakeholders cannot act as principals due to potential conflicts with the company's financial objectives, empirical evidence has shown a positive correlation between corporate social performance and corporate financial performance (Orlitzky et al., 2003; Jo and Harjoto, 2011; Lins et al., 2017; Awaysheh et al., 2020).

Furthermore, firms have legal obligations to non-investment stakeholders, such as paying corporate taxes, providing a safe working environment for employees and compliance with laws and regulations related to environmental protection. These obligations indicate that firms have a fiduciary duty to non-investment stakeholders, and their needs are equally as important as those of shareholders, both morally and legally. Raelin and Bondy (2013) claim that failing to meet these obligations can negatively impact a firm's CSR performance and economic efficiency, ultimately resulting in costs borne by shareholders.

In conclusion, the *Stakeholder Theory* expands upon the *Multiple Agency Theory* by recognising the roles and rights of non-investment stakeholders as firm principals. The evidence suggests that fulfilling obligations to non-investment stakeholders is morally required and economically beneficial for the firm and its shareholders.

3.3.3 Compare Double-Layered Agency Theory to Double/Multiple Agency Theory

This section aims to compare the *Double-Layered Agency Theory* (Raelin and Bondy) to the *Double/Multiple Agency Theory* (Child and Rodrigues, 2003; Arthurs et al., 2008). The comparison explains why this study selects the *Double-Layered Agency Theory* to establish the theoretical framework, examining the economic and social levels of principal-principal agency conflicts in companies within highly concentrated ownership, primarily when the enterprises are controlled by the government/state.

Compared to the *Double/Multiple Agency Theory* (Child and Rodrigues, 2003; Arthurs et al., 2008), the direction of *Double-Layered Agency Theory* (Raelin and Bondy, 2013) is more appropriate to further establish the double-layered structure and to explore economic and social principal-principal agency problems in Chinese SOEs. The previous views of Child and Rodrigues (2003) and Arthurs et al., (2008) are originated from the traditional single-tier agency structure, focusing on the *Type I* economic level of principal-agent conflicts when the control and ownership is separated. Therefore, these two theories may not be fully applicable when the companies are concentrated ownership structures. There may not be significant information barriers arguing in the *Type I* agency problems between the principal and the agent because when one or a few large shareholder(s) not only own the largest shareholdings but also take over the firm, they own absolute power to make critical strategic-level decisions without having to delegate management rights to an agent.

Moreover, although *Multiple Agency Theory* (Arthurs et al., 2008) is relatively easy to comprehend, the framework is quite general, making it challenging to apply specifically within a particular study field. For example, when social participants are

involved, this theory cannot pinpoint the principal and agent relationship, responsibilities and obligations (Shapiro, 2005). As a result, it may be challenging to identify appropriate corporate governance mechanisms to assess correspondent agency costs as unlimited structures that this conceptual framework can drive.

Instead, companies within highly concentrated ownership face the principal-principal conflicts that these large shareholders may act opportunistically and expropriate wealth towards minority shareholders, these principal-principal conflicts are also known as the *Type II* agency problems. Although *Type I* and *Type II* all focus on the principal-agent issues from the economic-layered perspective, the differences in their study objects and application scenarios lead to the heterogeneity of the radiating agency problems, which results in the inability of the corporate governance mechanisms derived based on the *Type I Agency Theory* to be adapted to the *Type II* agency problems.

Most of the extending literature on *Double/Multiple Agency Theory* examine the agency problems is because of the complexity of corporate structures and business scenarios causing several levels of economic agency conflicts (e.g., Conroy et al., 2017; Rivera-Santos et al., 2017; Batt and Appelbaum, 2021; Purkayastha et al., 2022). For instance, Conroy et al. (2017) argued the principal-principal conflicts set up the scenario where the multinational corporate headquarters (CHQ) establishes subsidiaries with regional headquarters (RHQ). Their research still illustrates the economic-layered principal-principal conflicts (*Type II*), neglecting the discussion of the social level of principal-principal conflicts that Chinese SOEs confront.

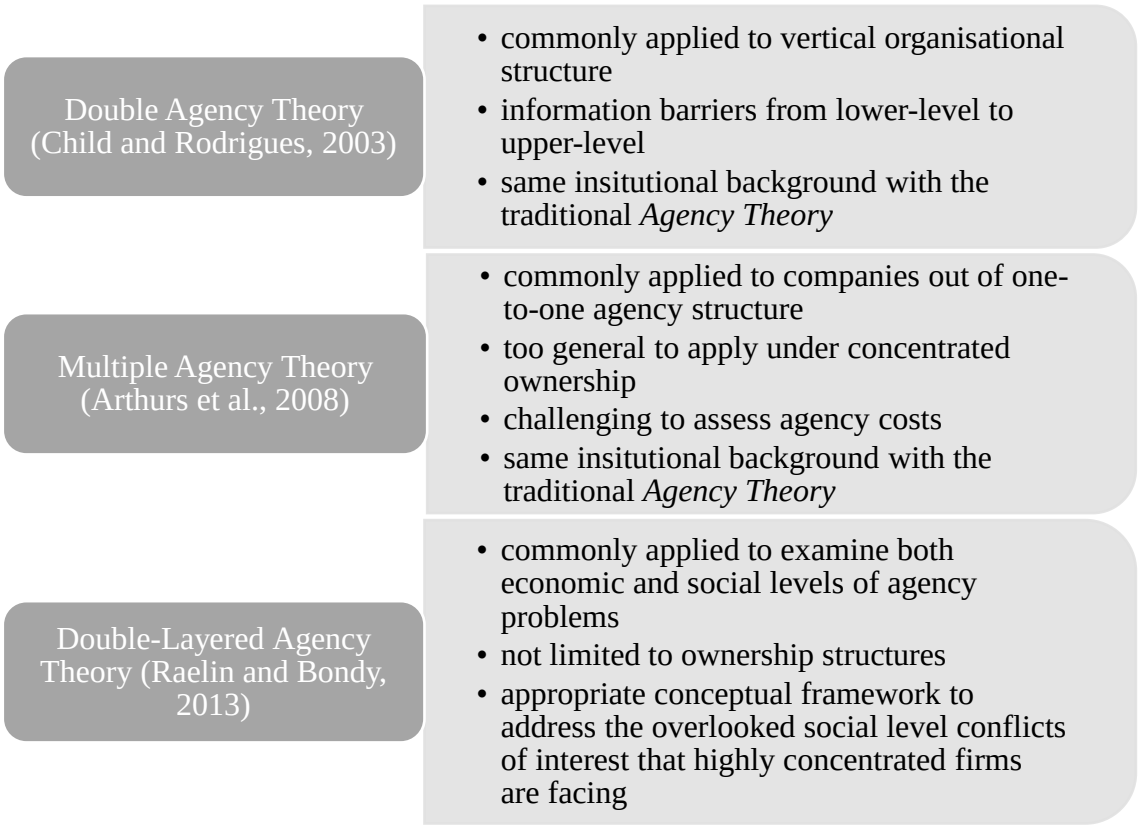
The second reason the *Double-Layered Agency Theor*y is more appropriate is that it

has a broader scope of application than the *Double/Multiple Agency Theory* (Child and Rodrigues, 2003; Arthurs et al., 2008). It examines the agency problems from the economic and social perspectives regardless it is *Type I* or *Type II* agency problems, thus it is not limited by either information asymmetry or ownership constructures. For instance, the *Double-Layered Agency Theor*y addresses more on the social aspect of agency conflicts between society (the principal) and the company's shareholders (the agent). The analogy to the context of SOEs, they are highly concentrated by the state ownership, thereby automatically self-contained political goal of stabilising domestic macroeconomic control while safeguarding the public welfare of the people. Therefore, regarding the *Double-Layered Agency Theory*, it not only explains the agency conflicts between the state and the SOE managers from the economic aspect but also emphasises the social-layered demands generated by the non-investment stakeholders.

The only problem with the *Double-Layered Agency Theory* (Raelin and Bondy, 2013) and its extended literature is that no specific theoretical framework to examine the principal-principal conflicts from the economic-social bi-dimensional aspects. As for the *Type II* agency problems, most literature argues from the traditional economic perspective regarding large shareholders' wealth expropriation towards small and medium sized shareholders. However, the SOEs also struggle with the principal-principal conflicts in social level. In the context of Chinese SOEs, the social level principal-principal conflicts between the public/taxpayers and the SOEs may override the traditional *Type II* agency problems because of their special political objectives (Jiang and Kim, 2020). Therefore, this research will elaborate on the current *Double-Layered Agency Theory* (Raelin and Bondy, 2013) and establish a new concept of *Double-Layered Principal-Principal Theory* contributing to examining the economic and societal layers of principal-principal agency conflicts that the highly concentrated firms, especially the SOEs.

In summary, the application of *Double-Layered Agency Theory* (Raelin and Bondy, 2013) is not limited by the ownership structures, and it includes the society as the non-economic level principals and examines the agency problems from traditional economic level to the neglecting social level. The characteristics fit the agency problems that the Chinese SOEs confront. The only issue is that current literature related to the *Double-Layered Agency Theory* has not extend one specific theoretical framework to examine the economic and social principal-principal conflicts in concentrated firms. Therefore, section 3.4 will address this research gap in details. In addition, figure 3.5 compares the three main double and multiple principal-agent theories argued above.

Figure 3.5 Comparisons of the Double and Multiple Principal-Agent Theories (drawn by the author)



3.3.4 Key Issues in Applying Double-Layered Agency Theory to Firms within Concentrated Ownership

The *Double-Layered Agency Theory* (Raelin and Bondy, 2013) is appropriate for defining the principal-agent structure under concentrated ownership through a critical review of the development of double and multiple principal-agent theories. However, given the unique characteristics of concentrated ownership, this section will further investigate the following key issues: 1) The effectiveness of the double-layered agency relationship when large shareholders hold absolute ownership and control. 2) If effective, identify the agent's role in this double-layered agency relationship. 3) Examine the potential social-layered principal-principal conflicts, in addition to the well-established economic-level conflicts (referred to as *Principal-Principal Conflicts* in concentrated firms), thereby addressing the theoretical contribution in this research.

Using the *Double-layered Agency Theory*, I suggest categorising the principal-agent relationship under concentration into two layers. The first layer is between the well-known economic-level principals (i.e., large/controlling shareholders, minority shareholders and outside creditors) and the agent, and the second layer is between the overlooked societal principals (i.e., social and environmental stakeholders) and the agent. However, there is a lack of consensus among scholars regarding identifying the agent for these double-layered principals. For instance, some scholars argue that large shareholders act as agents for minority shareholders due to their absolute power and control over daily operations (Claessens and Fan, 2002). Others propose that board members, particularly independent directors (Feng, 2004), should represent the interests of minority shareholders in an agent role.

Regarding the controversial opinions on the agent role under concentrated ownership,

this research believes the statement about large shareholders acting as 'the agent' for minority shareholders is a paradox. Large shareholders and minority shareholders cannot form an effective principal-agent relationship because they are two distinct groups of principals.

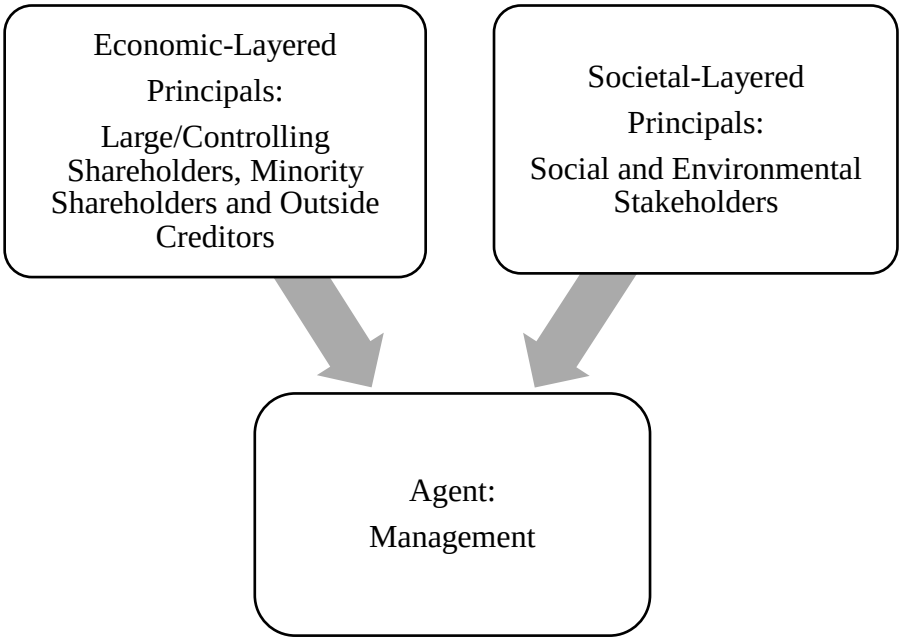
The first reason is that the *Principal-Agent Theory* is based on two assumptions: separation of ownership and control and information asymmetry (Jensen and Meckling, 1976). While there is most likely information asymmetry between these two, separated ownership and control may be unlikely when one party has absolute voting rights. Furthermore, even if it were reasonable to assume that large shareholders could act as 'the agent' on behalf of the minority shareholders, their opportunistic nature would drive them to engage in tunnelling behaviours (Johnson et al., 2000; Claessens et al., 2002; Liu and Lu, 2007; Solarino and Boyd, 2020), resulting in wealth expropriation for minority shareholders.

The second reason is that minority shareholders, as a group of retail investors, find it challenging to act in a union when expressing their demands to large shareholders (Zhan and Yan, 2007). In other words, even if minority shareholders could serve as one unified principal, they must appoint a representative to deliver their demands to the large shareholders. Typically, the one who communicates has the most significant proportion of shares among all minority shareholders. However, because of the intimidating power of the large shareholders, the appointed one would be very likely to act passively as a 'free ride'. It leads to the failure to represent the wills of minority shareholders and reinforces the tunnelling behaviours (Grossman and Hart, 1980). As a result, the person appointed would no longer be accountable for defending the interests of minority shareholders, necessitating a new round of selection. The subsequent outcomes, however, would be repeated because the intimidating power and tunnelling behaviours are difficult to stop.

In addition, this research remains sceptical that independent directors can act as agents for minority shareholders. The functions of the board of directors are ineffective, mainly when the external monitoring environment is poor (Jiang and Kim, 2015, 2020). For example, as stated in Chapter 2, the average number of independent directors assigned only aims to meet the minimum requirement of the '*Codes of Corporate Governance for Listed Companies in China*', regardless of the practical demands or different characteristics of each firm (Jiang and Kim, 2015). Less empirical evidence supports that independent directors can effectively serve on behalf of the minority shareholders. Therefore, I believe that the board of directors may be inappropriate to act as 'the agent' for minority shareholders.

In concentrated ownership, I argue that managers should serve as agents for economic-layered principals (i.e., large/controlling shareholders, minority shareholders and outside creditors) and societal-layered principals (i.e., social and environmental stakeholders). According to the definition of insiders and outsiders (Fama and Jensen, 1983), both managers and large/controlling shareholders play the roles of firms' insiders. As minority shareholders have less information accessibility and limited voting rights in corporate decision-making, it is logical for them to have an insider, such as a manager, act on their behalf. Further, recent research suggests that large shareholders may not actively participate in daily operations and are unlikely to vote against management decisions (Dressler, 2020). In other words, the managers' proposal may act as the primary mechanism for minority shareholders to voice their concerns to large shareholders. As a result, managers are the most suitable agents in double-layered principal-agent relationships when firms are highly concentrated (see Figure 3.6).

Figure 3.6 Apply Double-Layered Agency Theory to Concentrated Firms (drawn by the author)



Overall, the *Double-Layered Agency Theory* proposed by Raelin and Bondy (2013) expands upon the traditional *Agency Theory* by considering the social dimension of corporate governance. Unlike other commonly examined double and multiple agency theories (Child and Rodrigues, 2003; Arthurs et al., 2008), this theory emphasises the role of social participants in achieving long-term firm value maximisation (Waldman and Siegel, 2008; Jo and Harjoto, 2011; Pekovic and Vogt, 2021). Furthermore, the *Double-Layered Agency Theory* is more inclusive in its applicability, as it does not impose limitations based on ownership structures. While some studies have regarded the relationship between large/controlling shareholders and minority shareholders as a dual agency relationship (e.g., Claessens and Fan, 2002), it may not always be feasible for these large shareholders to act as agents for other principals as they lack effective monitoring and unlikely to represent multiple demands (Jiang et al., 2018).

The interesting part is that although controlling shareholders own absolute voting rights, they are unlikely to vote against management proposals (Dressler, 2020) unless

the proposal does not serve the firm's best interest (Dressler and Mugerman, 2023). Given these considerations, this research suggests applying Raelin and Bondy (2013) as a practical double-layered agency framework for examining vertical agency issues in economic and social aspects for companies within concentrated ownership.

3.3.5 Advanced Development of Principal-Agent/Agency Theory

Since 2013, most literature has extended Child and Rodrigues (2003, 2004) and Arthurs et al. (2008), focusing on the economic level of agency conflicts within the complexity of corporate structures and business scenarios. For instance, extending the *Multiple Agency Theory* (Arthurs et al., 2008), Rivera-Santos et al. (2017) explore the multiple and behavioural agency problems in alliances between firms and non-profit organisations. Batt and Appelbaum (2021) found that when private equity funds play a principal role, there are three types of asymmetries that may undermine the interest alignment of general partners and limited partner investors: asymmetries of power, information, and incentives. Moreover, Purkayastha et al. (2022) found multiple agency problems, such as inefficient capital investment and tunnelling in affiliated firms in India.

The boundary of multiple agency conflicts has been extended in the context of SOEs in recent studies, when political officials engage in managing firms. For example, Li and Lu (2020) established a dual agency model in firms with public agents (government officials) and private agents (corporate CEOs). They found that, regarding responding to the national policy, public agents were more motivated to seek promotion to the central government or when private agents had greater concerns for legitimacy (Li and Lu, 2020). Moreover, Pang and Wang (2021) found that political connections, as the public agents, have positive impacts on corporate decision-making, such as helping the firm to reduce the policy risk and access to more critical resources.

Focusing on the multiple principals' demands (i.e., commercial, social, and private) of the SOEs in emerging markets, Apriliyanti et al. (2023) examine how these three types of multiple principals pressure the SOE agents and how the latter respond.

The addressing of social level of agency conflicts in the *Double-Layered Agency Theory* (Raelin and Bondy, 2013) and the recent extending of *Multiple Agency Theory* in the SOE context (Li and Lu, 2020; Pang and Wang, 2021; Apriliyanti et al., 2023) have laid a solid foundation of this study. They provide evidence of the existence of both economic and social principal-principal agency conflicts in the context of SOEs. Besides, their findings highlight the importance of establishing the double/multiple layers of agency structures, specifically when concentrated ownership is authorised by the government-linked principals, because of the political connections and incompatible mechanisms in traditional agency dilemmas.

3.4 Theoretical Contribution: Double-Layered Principal-Principal Theory

Reviewing previous literature on *Principal-Principal Conflicts*, most studies focus on examining the economic-level conflicts of interest between large/controlling shareholders and minority shareholders (e.g., La Porta et al., 2000; Johnson et al., 2000; Faccio et al., 2001; Claessens et al., 2000, 2002; Young et al., 2008; Jia et al., 2020; Li, 2021), also known as the *Type II Agency Problem*. The conflicts arise because the priorities and goals of these two groups are different. Large shareholders who own absolute voting rights tend to have a similar business goal: to maximise their wealth; thus, they may deliberately undervalue the voting rights and ignore the multiple demands from the minority shareholders (Shleifer and Vishny, 1997). For example, through unethical or illegal misconducts, such as tunnelling behaviour (Johnson et al., 2000), misleading dividend policy (Adjaoud and Ben-Amar, 2010; De Cesari, 2012),

and risk-seeking strategy (García-Marco and Robles-Fernández, 2008; Dong et al., 2014; Su et al., 2017), large/controlling shareholders expand their wealth by expropriating interests from minority shareholders against their wills and demands. In addition, the opportunistic large shareholders may engage in practices such as insider trading (Reese and Weisbach, 2002; Ali and Hirshleifer, 2017), which could further benefit themselves at the expense of minority shareholders.

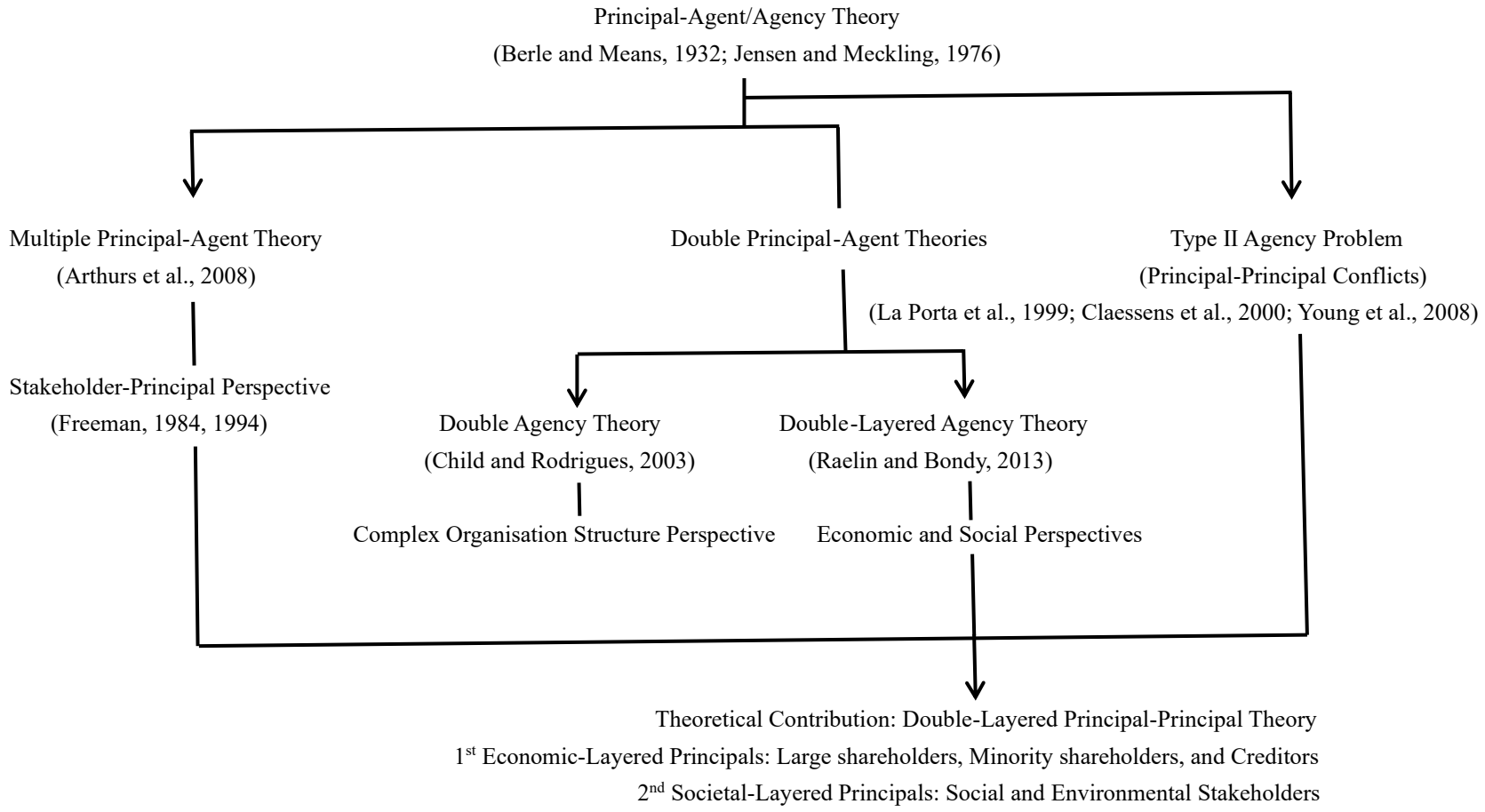
According to Raelin and Bondy (2013), the above misconducts of wealth expropriation should be regarded as the first-layered principal-principal conflicts that reflect the economic-level conflicts of interest. In addition, based on the stakeholder perspective (Freeman, 1984), other non-investment primary stakeholders, such as creditors and social and environmental stakeholders, should also be regarded as the principal roles. In addition, the different attitudes towards corporate risk-taking behaviours between large shareholders and outside creditors (Laeven and Levine, 2009; Edmans and Liu, 2011) also reflect these economic-level principal-principal conflicts. Moreover, in an analogy to the overlooked social-level agency problem between shareholders and society (Raelin and Bondy, 2013), I found there is also a disregarded second-layered societal conflict of interest between large/controlling shareholders and the company's primary social and environmental stakeholders.

As the social-level principals, these primary non-investment stakeholders may have multiple demands and pursues that differ from the first-layered economic-focused principals. For example, the social and environmental stakeholders, including employees, customers, suppliers, and the local community, are more likely to be concerned with job security, product quality, fair competition, and environmental sustainability. However, large shareholders prioritise their financial objectives in concentrated firms over other stakeholders. They will likely make strategies based on earnings boosting, such as investment, growth, leverage, and executive incentives,

rather than considering the company's long-term sustainability (Guthrie and Sokolowsky, 2010). These self-interested behaviours of large shareholders may ultimately affect the company's overall performance, affecting the interests of societal stakeholders.

Reviewing the development of the *Principal-Agent/Agency Theory* (see Figure 3.7), to the best of my knowledge, there is no theoretical model in the previous literature that categorised both economic and social dimensions of principal-principal conflicts in the context of concentrated ownership. Filling this research gap emphasises the consistency of the *Stakeholder Theory* in developing a double-layered agency structure concerning social-level stakeholders as the company's principals. Therefore, it will lead future corporate governance studies to focus more on corporate social performance and investigate appropriate corporate governance approaches towards these societal-layered principal-principal conflicts. Currently, the related research in China is centred on applying Multiple Large Shareholders (MLS), expecting to reduce the power of the large/controlling shareholders via their mutual monitoring effect, thereby protecting the interests of minority investors (e.g., Pan and Tian, 2016; Lin et al., 2016; Jiang et al., 2018; Boateng and Huang, 2017; Fang et al., 2018; Jiang et al., 2020). However, the MLS approach shows inconsistent results with the mutual monitoring hypothesis, revealing the large shareholders' dark side when they play as a collusive alliance (Section 3.5.1. will critically argue the associations between MLS and double-layered principal-principal conflicts). Hence, the double-layered principal-principal conflicts in highly concentrated companies; the commonly applied, however ineffective corporate governance approaches (e.g., Chapter 2, Section 2.2.3 and Chapter 3, Section 3.5.1) and the 'salary restriction order' announced by the SASAC (see Chapter 2, Section 2.4) have intensified the motivation of this study to investigate the policy effect of DEC on these double-layered problems.

Figure 3.7 Development of Principal-Agent/Agency Theory
(drawn by the author)

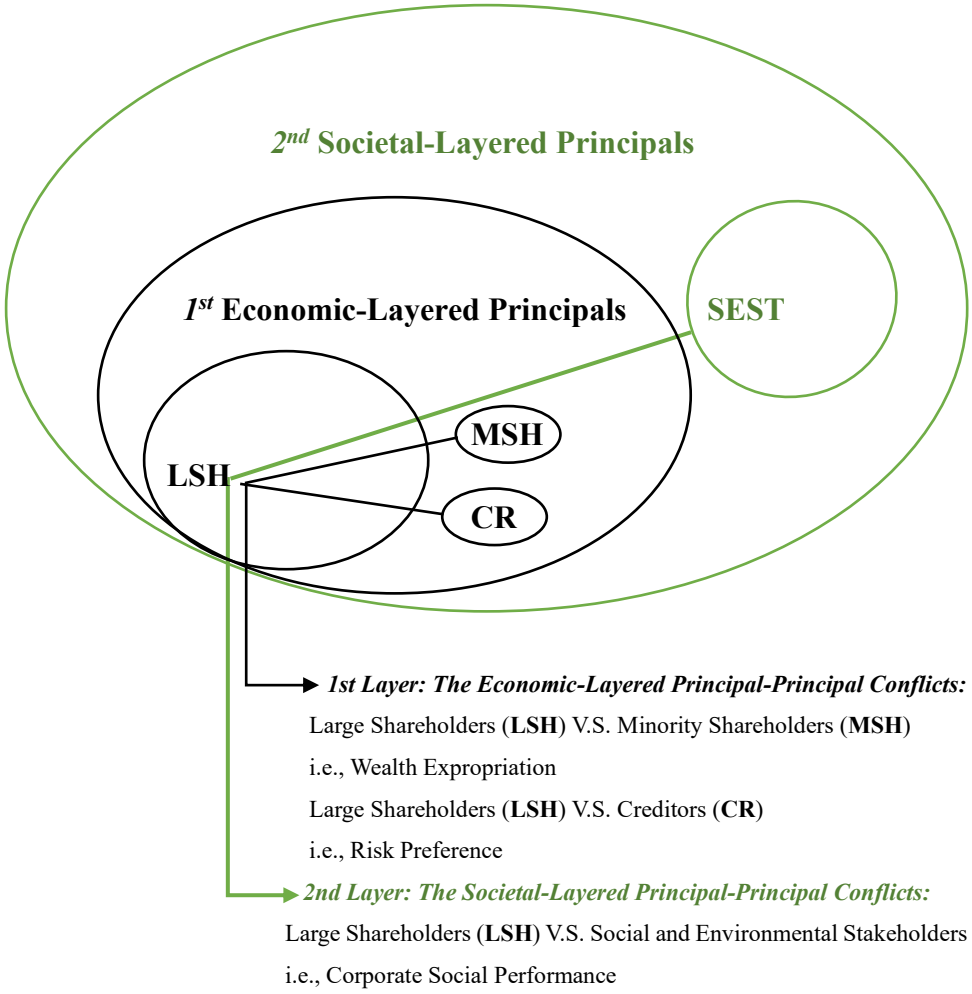


To fill the theoretical gap, this research elaborates on the *Principal-Principal Conflicts* from both economic and societal perspectives and emphasise the overlooked second layer of the principal-principal relationship between large/controlling shareholders and the social and environmental stakeholders, entitled the *Double-Layered Principal-Principal Theory*. Specifically, the first layer, referred to as the economic-layered principal-principal conflicts, argues the widely recognised wealth expropriation of minority shareholders by large shareholders, particularly in regions or countries with weak legal monitoring (e.g., La Porta et al., 1999, 2000; Young et al., 2008; Faccio et al.. 2001; Claessens et al., 2000; Claessens et al., 2002). In addition, as the other part of the capital provider, outside creditors always show much lower corporate risk preference than higher risk-and-return shareholders (Laeven and Levine, 2009; Edmans and Liu, 2011). The second layer, referring to the societal-layered principal-principal conflicts, encompasses the underexplored concerns arising when large shareholders prioritise their interests, resulting in corporate strategies that detriment the interests and sustainability of the company's social and environmental stakeholders.

In addition, it is different from the *Double-Layered Agency Theory* (Raelin and Bondy, 2013), which assumes all types of shareholders as a whole regardless of the proportions of shareholdings and only highlights the second-layered social alignment between society (principal) and shareholders (agent). The theoretical model (see Figure 3.8) focuses on specific principal-principal levels of conflicts of interest that mainly arise due to large/controlling shareholders' characteristics of self-interest claims and risk-seeking preference, which have been detrimental to the interests of non-controlling stakeholders (i.e., minority shareholders, creditors, and social and environmental stakeholders) respectively on both economic and societal levels. The following Figure 3.8 shows the conceptual model of the *Double-Layered Principal-Principal Theory*. Sections 3.4.1 and 3.4.2 will detail these two layers of principal-principal conflicts.

Figure 3.8 Double-Layered Principal-Principal Theory
(drawn by the author)

Double-Layered Principal-Principal Theory



3.4.1 Economic-Layered Principal-Principal Conflicts

This section reviews the commonly known economic-level principal-principal conflicts caused by large/controlling shareholders. The conflicts include the widely discussed wealth expropriation from large shareholders to minority shareholders (e.g., La Porta et al., 1999, 2000; Young et al., 2008; Faccio et al., 2001; Claessens et al., 2000; Claessens et al., 2002; Jia et al., 2020; Li, 2021), also known as the *Type II Agency Problem*; and the different risk-taking attitudes between large/controlling shareholders and outside creditors (Laeven and Levine, 2009; Edmans and Liu, 2011).

The absolute voting rights held by large shareholders, a weak legal environment, and a lack of effective corporate governance (Jiang and Kim, 2015, 2020) can lead to the minority shareholders failing to express their demands (Shleifer and Vishny, 1997). Large shareholders not only hold the most shares but also make essential decisions for the operations; thereby, they intend to act greedily to encroach monetary interests from minority shareholders and regard it as a 'compensation' to their 'agent role' (Liu and Lu, 2007; Jiang et al., 2010). These unethical behaviours include insider trading (Reese and Weisbach, 2002; Ali and Hirshleifer, 2017), tunnelling (Johnson et al., 2000; Claessens and Fan, 2002; Liu and Lu, 2007; Jiang et al., 2010), and reducing dividend pay-out (Faccio et al., 2001). Due to the intimidating power, minority shareholders would likely suffer from regular wealth claims or shareholding diluted (Yan and Zhan, 2005). These widely examined phenomena that emerged in the first layered principal-principal relationship are also known as wealth expropriation. Section 3.4.1.1 will explore the rising reasons, global empirical evidence, and current wealth expropriation studies in Chinese SOEs.

In addition, as a standard economic-level principal and the company's primary stakeholder, the outside creditors have been less mentioned when discussing principal-principal conflicts. Compared to the large shareholders, who are likely to pursue higher

risk and return, the company's outside creditors prefer lower risky decision-making (Edmans and Liu, 2011) because of the concerns about corporate default risk and bankruptcy risk (Laeven and Levine, 2009). To make a supplement, Section 3.4.1.2 will argue this economic-layered principal-principal risk preference between large shareholders and outside creditors.

3.4.1.1 Wealth Expropriation

Wealth expropriation occurs when large/controlling shareholders aggressively acquire shareholdings or other financial benefits, such as cash dividends, from minority shareholders. This phenomenon is often observed in companies with concentrated ownership and has been referred to as the *Principal-Principal Conflict* in previous literature (Young et al., 2008). According to Raelin and Bondy (2013), I characterise it as the economic-layered principal-principal wealth expropriation faced by minority shareholders from large/controlling shareholders.

When a company has dispersed ownership, the interest claims of shareholders may be more aligned or vary significantly; however, when a company has concentrated ownership, large shareholders are likely to be united, different from those of minority shareholders. More importantly, no single shareholder in a company with dispersed ownership has enough voting rights to control the entire group, thus reducing the likelihood of encroachments from one shareholder to the other (Shleifer and Vishny, 1997). On the contrary, when a firm's ownership is concentrated, large shareholders may be motivated by their opportunistic nature to expropriate more interests from the minority shareholders. They may justify this unethical behaviour by claiming it compensates them for their costs and efforts in playing an 'agency role' for the minority shareholders (Liu and Lu, 2007; Jiang et al., 2010). Due to the increasing monetary loss, minority shareholders may force themselves to transfer their rights to

large shareholders to mitigate the economic risk rather than seek legal protection (La Porta et al., 1999).

On the other hand, Gomes (2000) raised a different opinion, arguing that large shareholders would treat minority shareholders in good deeds to enhance their reputation, thereby attracting venture capital. If the large shareholders' goodwill is eroded, the stock price will suffer due to the impairment accrued. Theoretically, Gomes (2000) may have posited a valid statement. However, Johnson et al. (2000) found that during the Asian financial crisis period from 1997 to 1998, companies with high reputations continued to expropriate the interests of minority shareholders.

Empirical evidence shows that wealth expropriation is relatively common in most regions, including East Asia (e.g., Claessens et al., 2002; Mitton, 2002; Jiang and Peng, 2011; Wu et al., 2020), Europe (e.g., Faccio and Lang, 2002; Kim et al., 2007), and Latin America (e.g., Gonzalez et al., 2017), where the interests of minority shareholders may not be effectively protected by law or proper corporate governance monitoring. For example, Mitton (2002) found that '*the expropriation of minority shareholders was frequent*' (p.216) after investigating 398 companies in Southeast Asia. Results show a significant capital depreciation due to large shareholders' wealth expropriation. For example, the large shareholders of United Engineers Malaysia (UEM) suddenly purchased 32.6% of its parent company's shares, which has raised concerns among minority shareholders. They suspected it to be a bailout by the parent company at an overstated price. As a result, the stock price of UEM fell by 38% once the transaction was revealed. Moreover, Kim et al. (2007) found that in regions with weak legal systems for minority shareholder protection, large shareholders are more likely to act in their interests. For example, family-owned businesses appoint less qualified family members, friends, and cronies in the company's key positions (Faccio and Lang, 2002). In addition, large shareholders tend to engage in illicit insider trading,

such as purchasing raw materials at above-market prices or selling products at below-market prices to their affiliated companies (Khanna and Rivkin, 2001).

Further, underwhelmed practical board functions intensify the difficulties of minority shareholder protection. Intimidated by the large shareholders, some crucial board characteristics, such as independent directors (Mitton, 2002), nomination committee (Eulaiwi et al., 2016), and internal auditors (Amin et al., 2018), have lost their monitoring roles.

Impacted by the unique national situation, poor legal environment and weak corporate governance (see Chapter 2, Section 2.2), empirical evidence suggests that wealth expropriation occurs in various forms in Chinese SOEs, such as large/controlling shareholders tunnelling (e.g., Liu and Lu, 2006; Berkman et al., 2009), and manipulating earnings management, dividend pay-out, and related party transactions (e.g., Berkman et al., 2009; Huyghebaert and Wang, 2012; Wang, 2015; Jiang and Kim, 2020). For example, Berkman et al. (2009) examined the cash-flow rights of non-controlling shareholders and found less tunnelling emerged when more incentives to monitor the large/controlling shareholders' behaviour. However, Chinese listed firms have specific implications when it comes to SOEs. Such as, a more significant fraction of directors affiliated with the dominant owner enlarges related-party transactions (Berkman et al., 2009), and the number of directors in SOEs increases labour redundancy, which leads to internal board functions can hardly protect the best interests of minority investors (Jiang and Kim, 2020).

The board of directors in Chinese SOEs is also ineffective because of their political affiliation (see Chapter 2, Section 2.2.2.1 and Section 2.2.3.1). For example, Wang (2015) found that having government officials as independent directors does not help to add value to listed SOEs, mainly when firms are controlled by the local government,

due to the expropriation of minority shareholders via more related-party transactions and over-investment problems.

Furthermore, the external legal environment has limited influence on protecting minority shareholders (see Chapter 2, Section 2.2.3.2). For instance, Huyghebaert and Wang (2012) examined whether implementing securities-market regulations to improve minority shareholder protection in China (i.e., a civil-law transitional economy with underdeveloped institutions) would be effective. Their results suggest a positive answer; however, it is based on the condition that the firms should not have close ties to the government.

In summary, wealth expropriation from large/controlling shareholders to minority shareholders is a commonly seen economic-layered conflict when companies are highly concentrated. Moreover, due to the unique national conditions, weak legal environment, ineffective corporate governance, and political affiliation nature, wealth expropriation is a challenging principal-principal conflict faced by the Chinese SOEs. Thinking differently, the political attribute of the SOEs may provide this study a perfect opportunity to examine the policy effect of the 'salary restriction order'.

3.4.1.2 Risk Preference

The *Optimal Equity-to-Debt Incentives Theory* (Jensen and Meckling, 1976) suggests that capital supporters, shareholders and debtholders have contradictory attitudes toward corporate risk-taking behaviours. For example, the concentration of shareholdings increases shareholders' risk appetite; those with greater cash flow or voting rights are more likely to get involved in decision-making to ensure larger returns (Shleifer and Vishny, 1986).

Inconsistent with Shleifer and Vishny (1986), empirical documents show different results in shareholders' risk preference when firms are family-owned. For example, Gürsoy and Aydoğan (2002) found that family-owned companies in Turkey tend to be risk-averse, resulting in constrained financial performance. Whereas Nguyen (2011) found that listed family-owned companies in Japan show better financial performance due to their risk-hedging techniques.

In contrast, the association between risk preference and state ownership is consistent with Shleifer and Vishny (1986). Empirical evidence from several developing countries such as Vietnam (Tran and Le, 2020), Indonesia (Agusman et al., 2014), and India (Haque and Shahid, 2016) show that the greater extent of state ownership concentration is associated with higher corporate risk-taking behaviours. Moreover, Zhang et al. (2018) found similar results in China, indicating that state ownership increases stock return volatility. Decentralisation, on the contrary, has been shown to help stabilise volatility risk.

Based on *Portfolio Theory* (Markowitz, 1952), large shareholders with diverse investments may exhibit a higher risk-seeking behaviour as they are familiar with the principles of risk diversification (Laeven and Levine, 2009). This phenomenon may explain the more significant risk tolerance among state owners compared to other types of ownership. For example, private family-owned firms in China may be unlikely to invest diversely due to capital constraints (Masulis et al., 2011) and, therefore, adopt a more conservative risk-taking approach. On the other hand, SOEs have fewer concerns about funding and risk because the owner (the state) has a diversified investment portfolio across various business domains. Moreover, the government commonly appoints senior directors and executives in SOEs, especially the central SOEs (Jiang and Kim, 2020). While their fixed annual salary may be reasonable, their performance-based pay can be extremely substantial, owing to a focus on short-term financial

performance[53]. Hence, the diversified investment portfolio and the high performance-based incentives have further driven SOEs in China to pursue risk-taking activities.

However, the behaviour of large shareholders in adopting high-risk strategies may irritate outside creditors, who are concerned about the increased default risk (Laeven and Levine, 2009). Therefore, the economic-layered principal-principal conflicts between these two parties on risk preference emerge at this point.

It is common knowledge that financial institutions, mainly banks, provide a company's long-term debt-based capital. As a company's primary debtholders, financial institutions significantly differ from other industries regarding the external regulatory framework, the difficulty of internal risk control, and the degree of information opacity (Laeven, 2013). For example, a single bank might substantially impact the price of capital and assets as banks and other financial institutions may have extremely high cost of capital and leverage ratios, which can be more than ten times higher than non-financial industries (Laeven and Valencia, 2012). Furthermore, these institutions may also have to absorb internal problems such as asset allocations caused by opaque information (Jones et al., 2013) or high bankruptcy risk due to disposing of non-performing loans (Zhang et al., 2016).

In summary, the outside creditors (commonly known as banks or other financial institutions) may cause significant impacts on the macroeconomic variance, and they are more likely to expect their debtors (i.e., companies) to adopt a moderate approach in decision-making to minimise the risk of bankruptcy. However, excessive risk-taking behaviours are frequently investigated in companies with concentrated ownership

[53] For instance, in 2012, statistics show that among 192 central enterprises, there are 15 members from the top management team (TMT) have been paid over 2 million RMB. Among them, Mai Boliang, from China International Marine Containers (Group) Co., Ltd (CIMC), ranked first with an annual salary of 9.98 million RMB, followed by Tan Wenyun and Zheng Guorong, both under China Electronics Co., Ltd (CEC), with an annual salary of 6.079 million RMB and 4.589 million RMB respectively. For more information, please see https://finance.ifeng.com/news/special/yangqixc/.

structures, particularly the SOEs in China, due to these enterprises' unique state-owned characteristics, political promotion and performance-based incentive policy. These contradictory demands have resulted in economic-layered conflicts of risk preferences between the outside creditors and large/controlling shareholders.

3.4.2 Societal-Layered Principal-Principal Conflicts

Societal-layered principal-principal conflicts are commonly seen when large shareholders prioritise their wealth over the interests of the company's social and environmental stakeholders. For instance, societal-layered stakeholders anticipate a high-quality corporate social performance, which may lead to an overinvestment in corporate resources (Barnea and Rubin, 2010). Therefore, large shareholders may sacrifice the demands of the social and environmental stakeholders to avoid resource waste because they are more motivated for self-interest-centred investments and returns (Fan and Wong, 2002). This section will argue the critical societal-layered principal-principal conflicts faced by firms with highly concentrated ownership.

3.4.2.1 Corporate Social Performance

The classic debate between Berle (1931) and Dodd (1932) has provided a framework to argue the disputes between shareholder wealth and corporate social responsibility (CSR) (Dmytriyev et al., 2021). According to the *Overinvestment Hypothesis* (Barnea and Rubin, 2010), if corporate governance fails to monitor managerial behaviours, there is a risk that managers may engage in unethical overinvestment in CSR activities in an attempt to improve personal images for the labour market. However, this unethical behaviour may eventually result in the waste of business resources at the expense of firm value, misleading shareholders into believing that investment in CSR negatively impacts the company's financial performance (Surroca and Tribó, 2008). In

this case, when companies are under concentrated control, potential conflicts of interest may emerge between large shareholders and societal-oriented stakeholders. It occurs due to inadequate oversight of the large shareholders or key personnel who execute decision-making on behalf of the large shareholder (i.e., in the SOEs), leading to a decline in financial performance and social credibility (Jiang and Kim, 2020). As a result, the ineffective investment in corporate social activities may exacerbate the societal-layered principal-principal conflicts.

Besides the *Overinvestment Hypothesis* (Barnea and Rubin, 2010), it remains challenging for large shareholders and societal participants to agree on the scope and extent of engagement in corporate social performance and the quality of CSR disclosure (Kavadis and Thomsen, 2023). Despite large shareholders' greedy nature of interest claims, the fact is that these social and environmental stakeholders are unlikely to participate in strategic corporate decision-making to express their expectations. Therefore, the lack of an effective communication channel (i.e. agent or representative) potentially accelerates the societal-layered principal-principal conflicts.

Empirical evidence suggests a negative relationship between concentrated ownership structures and corporate social performance. For example, Dam and Scholtens (2013) analysed 691 European companies, categorising the shareholdings into 5%, 10%, and 20% groups and found that a higher level of concentrated ownership significantly negatively impacted corporate social performance. Le Breton-Miller et al. (2011) found that family-owned companies in the Fortune 1000 exhibit conservative corporate strategies and resource extraction in catering to family self-interest, disregarding the interests of a broader range of stakeholders. The findings are supported by El Ghoul et al. (2016), who conducted another similar family business study in East Asia.

Moreover, as *Chapter 2 Institutional Background* has indicated the current corporate social performance in Chinese SOEs, it is clear that the formulation of SOEs' strategic policy should adhere to the principle of sustainable development, with the protection of social welfare as a priority, therefore, to highlight the benefits of socialism (Jin et al., 2022). However, many empirical studies on the CSR performance of SOEs in China have found negative results. For instance, compared to private companies, the motivation of SOEs to participate in social activities is driven by political promotion instead of voluntary or legal compliance (Li and Lu, 2020). This politically-driven behaviour results in a CSR underperforming when the key SOE personnel are disconnected from the political authority (Li and Guo, 2022). To avoid redundancy, please see *Chapter 2, Section 2.3.3 CSR Performance of SOEs in China* for more information.

In summary, the evidence shows that societal-layered principal-principal conflicts in highly concentrated companies are likely due to the lack of effective monitoring mechanisms, the divergent demands between large/controlling shareholders and the societal-oriented stakeholders, and the inadequate communication channels for the societal-layered stakeholders to express their expectations. Moreover, these principal-principal conflicts are challenging to alleviate in Chinese SOEs due to the ineffective internal and external monitoring (Jiang and Kim, 2020) and the politically-driven nature of SOE key personnel (Jiang and Kim, 2020; Li and Lu, 2020; Li and Guo, 2022). As such, exploring whether there is an effective corporate governance approach to mitigate the societal-layered conflict when companies are highly concentrated is crucial.

3.4.2.2 The Concept between Societal-Layered Principal-Principal Conflicts and Corporate Social Responsibility (CSR) Disclosure: Differences and Similarity

Corporate Social Responsibility (CSR) disclosure refers to a company's public information about its non-financial performance, initiatives, and achievements regarding social and environmental responsibilities. The contents of CSR disclosure typically include both qualitative and quantitative metrics and outcomes guided by specific authorities such as the Global Reporting Initiative (GRI), United Nations Global Compact (UNGC), and International Integrated Reporting Council (IIRC), providing a comprehensive overview of the company's commitment to all of its stakeholders. The application of CSR disclosure, either voluntary or mandatory, has no limit to the company's ownership structures.

CSR disclosure has been widely acknowledged as a critical instrument for assessing corporate social performance and its associations with corporate financial performance (Andrew and Baker, 2020). Its quality of completion, truth, and fairness are of utmost significance to all primary stakeholders, including investors, creditors, government, customers, employees, local communities, and the environment, as the disclosed non-financial information serves as crucial criteria in determining the scope to which a company has fulfilled or/and will continue to fulfil its responsibilities to shareholders and society. By this means, the quality ranks of CSR disclosure also reflect the extent of the company's emphasis on corporate long-run prospects (Brower and Mahajan, 2013). Therefore, although CSR disclosure is established through a social-environmental-oriented approach, its institutional role remains as a corporate institutional strategy (Campbell, 2007).

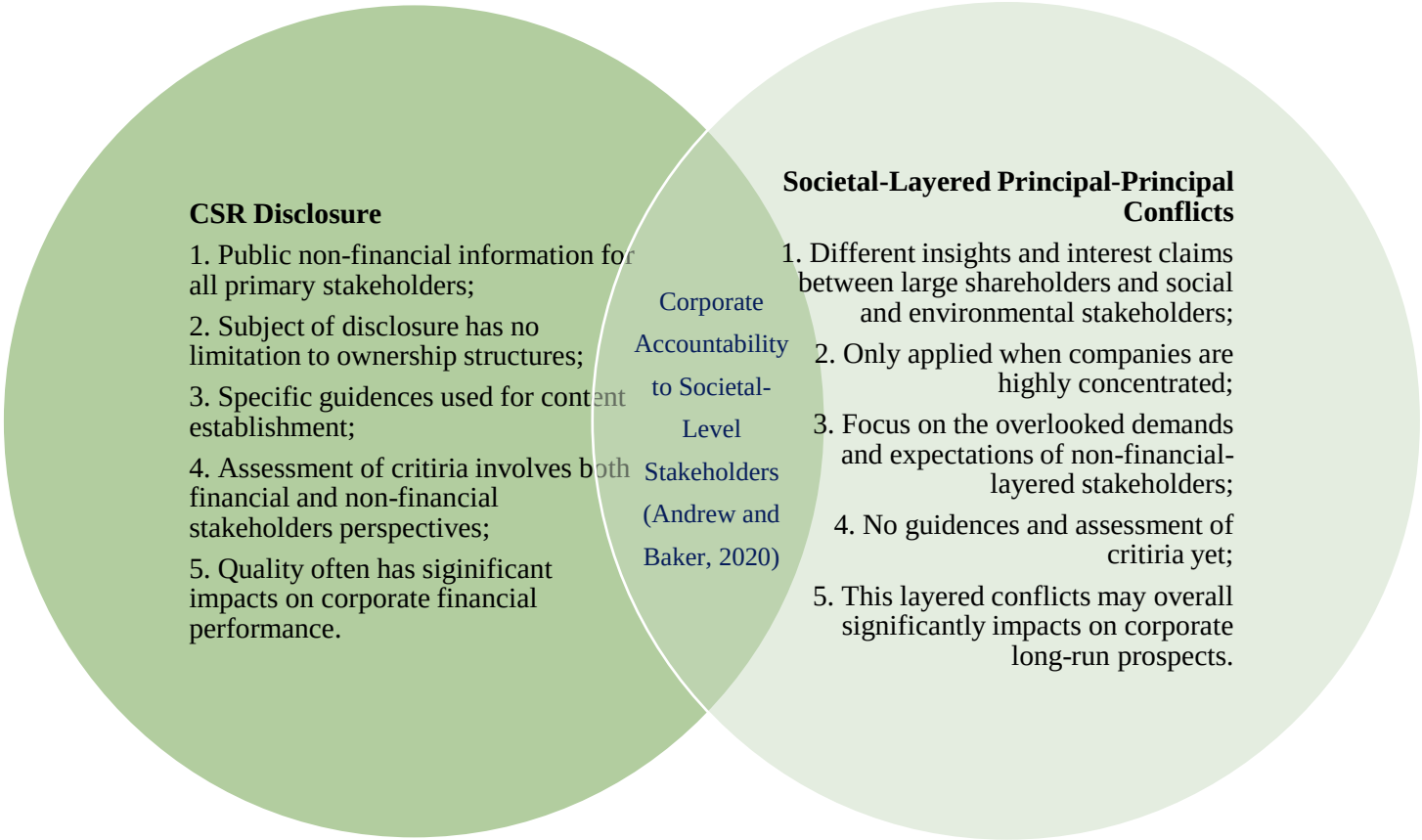
Studies on CSR disclosure is typically exhibited in the following three styles: descriptive, instrumental, and normative. The descriptive studies investigate the CSR disclosure content, the impact of different contexts on disclosure practice, and

disclosure quality. The instrumental studies explore the investment in CSR disclosure and the economic return it may generate. The normative studies highlight CSR disclosure from a social level and examine corporate accountability to stakeholders (Andrew and Baker, 2020).

On the other hand, societal-layered principal-principal conflicts refer to the divergent insights and interest claims between large/controlling shareholders and the company's primary non-financial stakeholders (i.e., social and environmental stakeholders), particularly within highly concentrated companies. The above analysis shows that societal-layered conflicts arise due to large shareholders' absolute voting rights and the inevitable differences in interest claims between these two groups of principals (Le Breton-Miller et al., 2011; El Ghoul et al., 2016). In addition, the weak external legal environment and a lack of effective corporate governance monitoring have accelerated the self-interest attribute of the key personnel who acts on behalf of the large shareholder in SOEs (Jiang and Kim, 2015, 2020). Moreover, these non-financial stakeholders are also limited by inadequate communication channels to express their demands and expectations (Kavadis and Thomsen, 2023). Triggered by these triple-dimensional deficiencies, the societal-layered principal-principal conflicts emerge. If these conflicts cannot be effectively mitigated, they may eventually negatively impact a company's financial performance, reputation, and overall sustainability (Wiseman and Cuevas-Rodriguez, 2012).

Figure 3.9 Conceptual Differences and Similarity between CSR Disclosure and Societal-Layered Principal-Principal Conflicts

(drawn by the author)



Based on the *Stakeholder Theory*, which suggests that strategic policy-makers must balance the interests of the primary stakeholders, regardless of their economic or social status. This principle applies to both the concept of CSR disclosure and societal-layered principal-principal conflicts, which share a fundamental similarity. Moreover, the normative style of CSR disclosure aims to address corporate accountability to social-level stakeholders and provide non-financial information that meets their expectations (Andrew and Baker, 2020).

Therefore, given the causes of societal-layered principal-principal conflicts, the normative contents and indicators of CSR disclosure can be a valuable instrument to evaluate the extent to which a company's decision-maker has addressed the demands of societal-layered principals, as well as to predict the potential social and environmental risks faced by the large shareholders. Please see Figure 3.9 briefly highlighting the conceptual differences and similarity between CSR disclosure and societal-layered principal-principal conflicts.

3.5 Potential Corporate Governance Mechanisms to Mitigate Double-Layered Principal-Principal Conflicts

This section will argue two common corporate governance mechanisms that may mitigate double-layered principal-principal conflicts when companies are highly concentrated. The first is Multiple Large Shareholders (MLS), a widely used approach in resolving traditional economic-layered principal-principal conflicts caused by large shareholders towards small and medium-sized investors (e.g., Faccio et al., 2001). The second one is Deferred Executive Compensation (DEC), which origins from the *Optimal Equity-to-Debt Incentives Theory* (Jensen and Meckling, 1976) and its derived *CEO Inside Debt Theory* (Edmans and Liu, 2011), addressing its impacts on

moderating corporate risk and shaping decision-maker behaviours by issuing executive long-term debt-based compensations (i.e., deferred compensation and pension plans). In addition, from the corporate long-run net social benefits perspective (Kane, 2002), DEC is also testified as a practical approach that positively affects the company's social performance.

Section 3.5.1 reviews previous literature on MLS, including both its positive (i.e., contestability) and negative (i.e., collusion) effects on the indicators of wealth expropriation (e.g., dividend pay-out ratios, Faccio et al., 2001). Due to inadequate evidence on its impacts on corporate social performance, MLS may not be an appropriate approach to mitigate the societal-layered principal-principal conflicts. Furthermore, section 3.5.2 argues the impacts of DEC from corporate governance (Edmans and Liu, 2011) and corporate long-term strategy perspectives (Kane, 2002). Based on previous evidence that exhibits the CEO inside debt positively reduces corporate risk-taking behaviours and increases dividend pay-out ratios (Caliskan and Doukas, 2015; Borah et al., 2020), this study hypothesises that DEC is significantly associated with the economic-layered principal-principal conflicts. In addition, based on the significant associations between corporate risk and corporate social performance (Mayberry, 2020; Hossain et al., 2023) and the corporate long-run net social benefits view (Kane, 2002), this study hypothesises that DEC is significantly associated with the societal-layered principal-principal conflicts.

3.5.1. Multiple Large Shareholders (MLS) and Traditional Economic-Layered Principal-Principal Conflicts

Previous studies on alleviating *Principal-Principal Conflicts* focused on the traditional economic layer, resolving the wealth expropriation issues between large shareholders

and minority shareholders. The studies applied MLS because it is assumed to create a mutual supervision effect from one large shareholder to the other, thus reducing the voting power of the controlling shareholder (Faccio et al., 2001).

Shleifer and Vishny (1997) and Claessens et al. (2000) revealed that large shareholders frequently encroach on the wealth of minority shareholders in regions with poor shareholder protection laws. According to their findings, Faccio et al. (2001) claimed two opposite conclusions, testing the data of listed companies from 9 East Asia and 5 European countries and regions. In Europe, introducing MLS increased dividend pay-out ratios, thus lowering wealth expropriation. On the contrary, in East Asia, the dividend ratios became lower, exacerbating the conflicts between large shareholders and minority shareholders. As a result, the fundamental hypotheses of MLS have been classified into two categories: positive and negative effects. The positive effect highlights the contestability generated by the mutual monitoring of MLS, while the negative effect implies the likely collusion resulting from the long-term alliance of interests (Faccio et al., 2001). While MLS may potentially mitigate the traditional economic-layered principal-principal conflicts, the impact of this mechanism varies significantly depending on the region and context in where it is applied.

3.5.1.1 Positive Contestability Effect of MLS on Traditional Economic-Layered Principal-Principal Conflicts

Empirical evidence shows that the positive effect of MLS mainly occurred in countries and regions influenced by the Common Law. For example, in Finland, Maury and Pajuste (2005) indicated that MLS with substantial power can form a supervisory effect to reduce the possibility of wealth transfer by the largest shareholder, thereby increasing firm value. Further, Jara-Bertin et al. (2008) examined 1208 family-owned

firms in Europe. They found that where external legal conditions are not favourable to protecting minority shareholders, the MLS can increase the contestability effect, especially when the identity of large shareholders remain independent from each other.

Consistent with Maury and Pajuste (2005) and Jara-Bertin et al. (2008), many studies provide evidence from different perspectives to support the mutual monitoring effect of MLS. For example, MLS reduces the cost of capital (Attig et al., 2008) and enhances the quality of earnings information (Boubaker and Sami, 2011). The interesting part is that by re-testing the data of 9 East Asian countries (Faccio et al., 2001), Attig et al. (2009) explained different implications, claiming that MLS enhances the value of corporate cash holdings.

The problem is that the lack of robust research methods may also fail to solve the endogeneity. To improve this problem, followed studies diversified the methods, using Heckman (Sacristán-Navarro et al., 2015), Instrumental Variable (Ben-Nasr et al., 2015; Boubaker et al., 2017), or the propensity score matching (PSM) approach (Boubaker et al., 2016) to provide more robust evidence supporting the positive impact of MLS on the mutual monitoring hypothesis.

3.5.1.2 Negative Collusion Effect of MLS on Traditional Economic-Layered Principal-Principal Conflicts

In contrast, the negative effect of MLS is based on the hypothesis of long-term alliances that result in collusive behaviours among large shareholders (Faccio et al., 2001). The evidence consistent with the negative effect is found mainly in the Chinese market (e.g., Luo et al., 2013; Cai et al., 2016; Lin et al., 2016; Liu et al., 2015; Jiang et al., 2018; Boateng and Huang, 2017; Fang et al., 2018; Jiang et al., 2020).

First, some scholars found that the impact of MLS is a non-linear inverted U-shaped rather than a linear correlation (Luo et al., 2013; Cai et al., 2016). For example, Cai et al. (2016) claimed that the monitoring effect of MLS will first enhance with the increase of the largest shareholdings, yet decline and convert into the collusion effect at a tipping point. Moreover, MLS shows the same non-linear impact on firm value. Therefore, scholars believe that the key to keeping MLS exerting its monitoring effect depends on the ownership wedge of the largest shareholder. If the ownership wedge captures a strong exceeding voting right to cash flow rights of the largest shareholder, the mutual monitoring effect will collapse (Cai et al., 2016).

Second, some scholars focus on the collusion effect, thereby only providing dark side evidence to criticise the effectiveness of MLS in China (Boateng and Huang, 2017; Fang et al., 2018; Jiang et al., 2020). For example, using 2,341 Chinese firms from 2001 to 2013, Boateng and Huang (2017) revealed that when the government is the largest shareholder, their holdings have a significantly negative association with the effectiveness of MLS. Further, Fang et al. (2018) found that MLS significantly increases excess cash and cash-based executive compensation. Moreover, Jiang et al. (2020) proposed a cost-sharing hypothesis from the perspective of earnings manipulation. They revealed that when the large shareholders have the same or similar identity or when the largest shareholdings also own the highest controlling rights, regardless of whether the company is state-owned or private, the emergence of MLS would lead to higher earnings manipulated in accounting (Jiang et al., 2020). These studies failed to examine the positive contestability effect of MLS, which leads to a theoretical bias for offering inadequate evidence to support how MLS works.

Third, there is an inconsistent hypothesis on using proxies to measure the traditional

economic-layered principal-principal conflicts. For example, Lin et al. (2016) believed that MLS enhances the companies' cash holdings, demonstrating the monitoring role in moderating wealth expropriation, and this finding is consistent with Attig et al. (2009). On the contrary, Liu et al. (2015) and Jiang et al. (2018) argued that MLS improves the effectiveness of company investment decisions, which embodies a positive effect.

Luckily, the literature has reached a consensus to use dividend pay-out ratios to measure wealth expropriation (e.g., Faccio et al., 2001; Setia-Atmaja et al., 2009; Pindado et al., 2012; Pan and Tian, 2016; Jiang et al., 2019). They believed that more dividend pay-out may offset the higher risk of wealth expropriation to outside investors (Faccio et al., 2001). Consistent with the above evidence, Pan and Tian (2016) found that MLS helps family-owned businesses in China increase dividend pay-out and mitigate large shareholders' control via wealth expropriation. Jiang et al. (2019) found consistent findings testing Chinese listed companies. On the contrary, companies paying less dividends are associated with more related-party transactions (Berkman et al., 2009; Su et al., 2014), accelerating the traditional economic-layered principal-principal conflicts between large and minority shareholders.

3.5.2 MLS and Societal-Layered Principal-Principal Conflicts: A Lack of Effective Empirical Evidence

Little evidence examines the associations between MLS and the societal-layered principal-principal conflicts. To the best of my knowledge, this research found two empirical papers showing that MLS positively affects CSR disclosure (Cao et al., 2019, Wang et al., 2021).

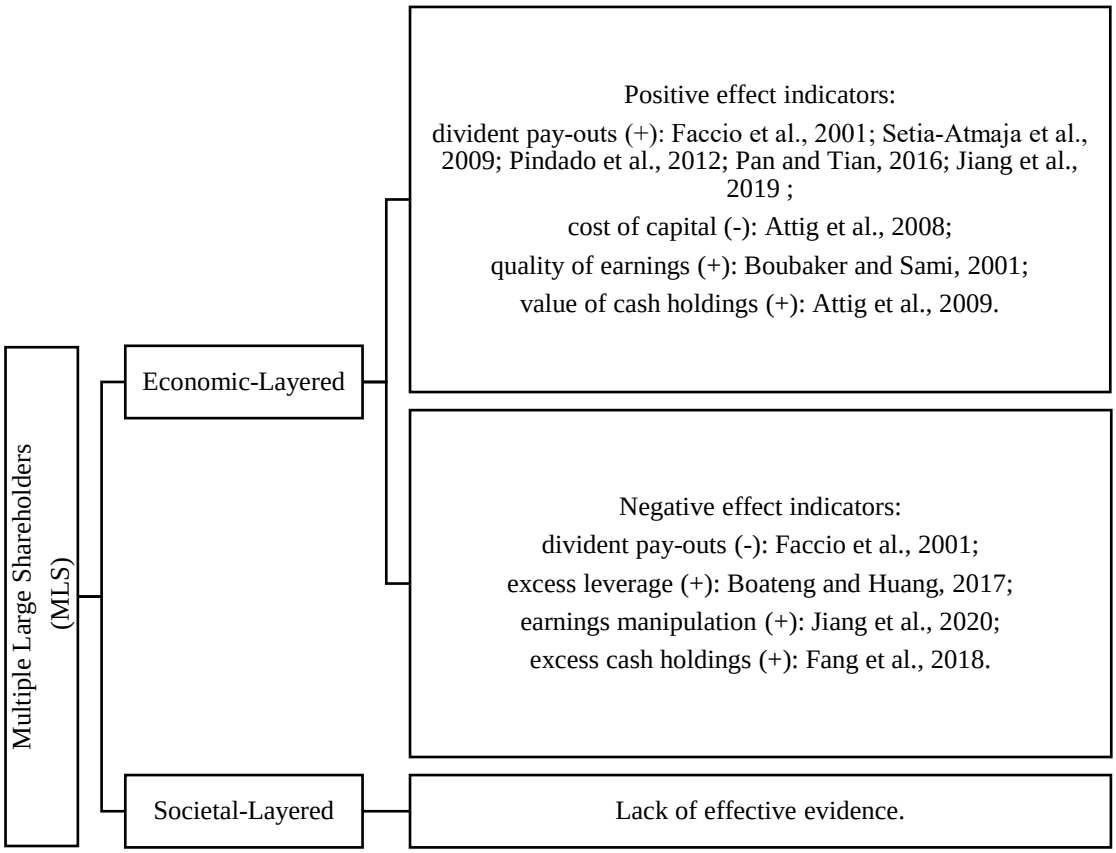
In these two papers, Cao et al. (2019) examined the Chinese listed firms from 2008 to 2015, while Wang et al. (2021) examined those from 2009 to 2017. However, these two papers have completely different statements on CSR data accessibility. Cao et al. (2019) did not use CSR scores from any third-party database and claimed the Rankins CSR Ratings (RKS)[54] as '*no longer available in China*' (p. 292). On the contrary, Wang et al. (2021) directly used the CSR data from RKS. As this research fails to find any further evidence, it would be imprudent to form any hypothesis on the effect of MLS on the societal-layered principal-principal conflicts.

To sum up, although previous studies in many regions and countries examined MLS may have positive mutual monitoring effects on large shareholders' behaviours (Faccio et al., 2001; Maury and Pajuste, 2005; Jara-Bertin et al., 2008; Attig et al., 2008; Sacristán-Navarro et al., 2015; Ben-Nasr et al., 2015; Boubaker et al., 2017; Boubaker et al., 2016), evidence in China focuses more on MLS's dark side (e.g., Boateng and Huang, 2017; Fang et al., 2018; Jiang et al., 2020). Moreover, the non-linear results (Luo et al., 2013; Cai et al., 2016) and contradictory proxies used for measuring the indicator of wealth expropriation (Lin et al., 2016; Liu et al., 2015; Jiang et al., 2018) are inconsistent with previous seminal studies (i.e., Faccio et al., 2001). Regarding the societal-layered principal-principal conflicts, it is unclear whether MLS would work effectively due to a lack of robust evidence. Therefore, this research finds MLS may be theoretically ambiguous in developing hypotheses examining its effects on the double-layered principal-principal conflicts (see Figure 3.10). The only bright side is, through arguing the mutual monitoring effect of MLS via the indicator of corporate dividend pay-out ratios, findings in China can reach a consensus with previous seminal studies and provide robust evidence to show that increasing dividend pay-out is a

[54] One of the leading CSR/ESG database in China. It has been used for many academic research based on the context of China (e.g., McGuinness et al., 2017; Lv et al., 2022). Accessible at: http://www.rksratings.cn/.

positive sign to mitigate wealth expropriation from large/controlling shareholders towards minority shareholders (Pan and Tian, 2016; Jiang et al., 2019).

Figure 3.10 Theoretical Framework of Multiple Large Shareholders (MLS) and Double-Layered Principal-Principal Conflicts



3.5.3 Deferred Executive Compensation (DEC) and Double-Layered Principal-Principal Conflicts

Although Section 3.5.1 has provided several documents showing that MLS have significant associations with the indicators of wealth expropriation (i.e., dividend pay-out ratios, Faccio et al., 2001), the lack of adequate evidence on its impacts on the societal-layered principal-principal conflicts and the dark side revealing based on the Chinese market make MLS less appropriate to play as the corporate governance mechanism to mitigate the double-layered principal-principal conflicts in Chinese SOEs. The good thing is that previous literature on MLS has clarified the consistency of using dividend pay-out ratios (Faccio et al., 2001; Setia-Atmaja et al., 2009; Pindado et al., 2012; Pan and Tian, 2016; Jiang et al., 2019) as indicators to identify wealth expropriation from large shareholders towards minority shareholders. Therefore, this research assumes dividend pay-out ratios as one of the main proxies for wealth expropriation to explore whether Deferred Executive Compensation (DEC) has any associations with them, potentially helping mitigate the traditional economic-layered principal-principal conflicts.

In Chapter 2, this study reveals that traditional corporate governance, such as the board functions, equity-based incentives, and external monitoring, has extremely limited impacts on Chinese SOE's practical performance due to the national conditions and SOE's natural attribute of political affiliation (Jiang and Kim, 2020). The worst part is that decision-makers still received high levels of annual payments regardless of the performance of the SOEs[55]. To limit the SOE managers' pay, thereby motivating them to focus on enterprises' performance, on January 1st, 2010, the SASAC officially announced and implemented the *SASAC Order No. 22*, also known as the 'salary

[55] Accessible at: https://www.hxny.com/nd-8633-0-7.html.

restriction order'[56]. This Order required personnel in charge of the SASAC central enterprises to defer 40% of their performance-based compensation in a three-year tenure. Therefore, this section will critically argue how DEC can act as a potential corporate governance mechanism to mitigate double-layered principal-principal conflicts from two different views respectively, the CEO inside debt view (Edmans and Liu, 2011) and the long-run net social benefits view (Kane, 2002). In addition, this research will develop the hypotheses accordingly.

3.5.3.1 DEC and Economic-Layered Principal-Principal Conflicts: The CEO Inside Debt View

The main arguments for DEC are based on the *Optimal Equity-to-Debt Incentives Theory* (Jensen and Meckling, 1976) and its derived concept of *CEO Inside Debt* (Edmans and Liu, 2011). Jensen and Meckling (1976) suggested that both equity-based and debt-based compensation should be considered when designing executive remuneration schemes, as combining them values the firm entire agency cost of capital. Furthermore, Edmans and Liu (2011) extended Jensen and Meckling (1976) by suggesting that CEO inside debt aligns the interest of debtholders with executives, constraining the executives to pursue risk-seeking strategies because they are likely to face the same level of bankruptcy risk as the outside debtholders. Thereby, the CEO inside debt helps to reduce executives' risk-taking behaviours, hence alleviating the risk preference between shareholders and outside creditors. Edmans and Liu (2011) also applied a mathematical theorem to challenge Jensen and Meckling's (1976) assumption of granting an equivalent proportion of equity-based and debt-based compensation. They found that a growing debt-to-equity ratio motivates managers to

[56] Please see Chapter 2, Section 2.4 for more information.

work harder, therefore declining agency cost of debt and avoiding the risk of bankruptcy.

Most empirical research applied this theoretical framework (Jensen and Meckling, 1976; Edmans and Liu, 2011) based on the US context because the Securities and Exchange Commission (SEC) mandated that listed companies fully disclose the executives deferred compensation since 2006. By observing 237 CEOs' pension plans, Sundaram and Yermack (2007) initially discovered that older CEOs intend to be rewarded with a higher proportion of deferred compensation because it ensures they would be paid more after successfully completing their tenure or retiring. Further, Wei and Yermack (2011) suggested that the excessive amount granted to CEOs assists in reducing the volatility of the firm risk. Their findings are consistent with Edmans and Liu (2011) and indicate that debt-based incentives drive CEOs to make more conservative decisions. As to inadequate data, these first two empirical studies (Sundaram and Yermack, 2007; Wei and Yermack, 2011) roughly examined the sample of pension plans and/or deferred compensation. However, they have neglected the characteristics of subdividing pensions and other types of debt-based payments, such as rank-and-file (RAF) plans, supplemental executive retirement plans (SERPs), and other deferred compensation (ODC) with debt-like payoffs (Anantharaman et al., 2014).

Consistent with previous pioneering research (Edmans and Liu, 2011; Sundaram and Yermack, 2007; Wei and Yermack, 2011), further empirical studies examine the associations between the CEO inside debt and executive risk-taking behaviours. For example, from the perspective of firms' investment and financial strategies, Cassell et al. (2012) found that the CEO inside debt has significantly negative correlations with the volatility of future stock returns, R&D expenditures, and financial leverage.

Therefore, DEC helps moderate financial risk and shapes executives to make decisions that are lower risky without affecting daily operations (Cassell et al., 2012). It is worth mentioning that they created two critical measurements of CEO inside debt holdings[57] , which have been applied as the seminal reference as the variable measurement. Following this method, Lee et al. (2021), consistent with Cassell et al. (2012) examining corporate investment; Phan (2014) found evidence when firms engage in mergers and acquisitions; Belkhir and Boubaker (2013) and Van Bekkum (2016) found evidence in banking sectors where banks contain the inherent characteristics of extremely high risk and broader economic effects to macro market (Laeven, 2013). Therefore, current evidence demonstrates that DEC plays an important role in reducing executive risk-taking behaviours.

On the other hand, some studies show negative views on the association between the risk-moderating effect and DEC. For instance, one conceptual study on dynamic risk-taking believes that DEC will '*increase risk-taking for all realised asset values above a threshold*' (Leisen, 2015, p.1593). Therefore, challenging adding another debt-based compensation to the current incentive scheme may result in a wealth effect that increases the corporate risk (Leisen, 2015). Moreover, from the perspective of the black box effect[58], Ma et al. (2019) stated that bank managers may learn to adjust their strategy from the brink of bankruptcy time after time to protect their wealth, which raises the uncertainty of bankruptcy risk. These two studies analyse theorems using sophisticated mathematical models, yet hardly any empirical documents support their

[57] The *CEO to firm debt/equity ratio* and the *CEO relative incentive ratio*, see Cassell, C.A., Huang, S.X., Sanchez, J.M. and Stuart, M.D., 2012. Seeking safety: The relation between CEO inside debt holdings and the riskiness of firm investment and financial policies. *Journal of Financial Economics*, *103*(3), pp.588-610.

[58] In general, the black box effect refers to the undiscovered principles of the occurrence of a thing or event. The authors believe that the underlying rules or methods that cause bankruptcy risk are unclear for bank executives, although they are fully aware of the risk. Please see Ma, T., Jiang, M. and Yuan, X., 2019. Pay me later is not always positively associated with bank risk reduction—From the perspective of long-term compensation and black box effect. *Sustainability*, 12(1), p.35.

theories.

Therefore, although DEC may be positively associated with corporate risk or bankruptcy risk from the perspectives of the wealth effect (Leisen, 2015) and the black box effect (Ma et al., 2019), from the CEO inside debt perspective, extensive previous studies suggest that DEC plays as a functional corporate governance mechanism to mitigate corporate risk (Edmans and Liu, 2011; Wei and Yermack, 2011; Cassell et al., 2012; Phan, 2014; Belkhir and Boubaker, 2013; Van Bekkum, 2016; Jiang et al., 2019; Lee et al., 2021). Link this risk-moderating attribute of DEC to current risk preference issues that emerged in Chinese SOEs (i.e., Section 3.4.1.2); this research hypothesises *H1a and H1b* as follows.

H1a. Deferred Executive Compensation (DEC) significantly decreases corporate risk.
H1b. Deferred Executive Compensation (DEC) significantly increases corporate risk.

Further, some studies use this risk-moderating effect as a mediator variable to examine the associations of CEO inside debt with corporate accounting-related behaviours. For example, He (2015) found that CEO inside debt is positively associated with the quality of corporate annual reports on abnormal accruals, earnings, and internal control. Consistent with the findings on annual report quality, Dhole et al. (2016) found that adding debt-based incentives drives executives to adopt less risky strategies for earnings management. Chi et al. (2017) found that corporate tax shelters are declining. Also, Bhandari et al. (2018) found an enhancement in the accuracy of outside financial analyst forecasts.

In addition, some studies focus on examining DEC's risk-moderating effect on corporate dividend policy. For instance, Caliskan and Doukas (2015) and Borah et al.

(2020) found that executive debt-based compensation is associated with more dividend pay-out. The increasing dividends indicate a reduction in agency costs of debt and agency costs of equity (Borah et al., 2020). Moreover, according to the *Signalling Hypothesis*, the enhancing dividend pay-out also reflects that a company is sending a positive signal to the retail investors that the insiders are less likely to encroach on corporate wealth (Faccio et al., 2001). They believe that the positive signal sent to the market is linked to company risk and liquidity, for example, effectively reducing a company's financing risk and demonstrating a certain degree of solvency. Therefore, CEOs with higher deferred compensation are likely to form positive dividend policy.

According to the discussion between MLS and its positive and negative effects on the traditional economic-layered principal-principal conflicts (i.e., Section 3.5.1), dividend pay-out ratios are designated as the key indicators to explain the level of wealth expropriation. Faccio et al. (2001) stated that corporations pay more dividends, reducing the risk of wealth expropriation, because, as the outsiders of the company who have inadequate voting rights to participate in corporate key decision-making, the priority of minority shareholders is to guarantee their dividend claims. Consistent with their findings, Pan and Tian (2016) and Jiang et al. (2019) used Chinese data to demonstrate that increasing dividend pay-out reduces large shareholders' control by wealth movement. Therefore, by linking the associations between DEC and dividend pay-out ratios (e.g., Caliskan and Doukas, 2015; Borah et al., 2020), this research assumes that the risk-moderating effect of DEC (i.e., *H1a*) significantly reduces wealth expropriation via increasing corporate dividend pay-out. Thus, to examine the traditional economic-layered principal-principal conflicts in Chinese SOEs, this research hypothesises *H2* as follows.

H2. Deferred Executive Compensation (DEC) mitigates traditional economic-layered

principal-principal conflicts (i.e., wealth expropriation) via DEC's risk-moderating effect.

3.5.3.2 DEC and Economic-Layered Principal-Principal Conflicts: The Tunnelling View

When performance-based payments are limited, managers are likely to act as opportunists to conduct the accounting practices that allow them to maximise their compensation (Bae et al., 2020; Li and Zhao, 2020). In other words, the managers would boost the company's financial performance through unethical behaviours, such as related-party transactions (Jiang et al., 2010; Firth et al., 2019) and increasing perk consumption (Bae et al., 2020) in exchange for compensating themselves for the pay cuts. Bae et al. (2020) found a significant increase in executives' perk consumption after the announcement of the 'salary restriction order' in Chinese central enterprises. Moreover, Li and Zhao (2020) also found consistent evidence by observing the differences in executives' income tax before and after the pension reform in the UK. The increasing income taxes associated with declining CEO pensions imply a probable 'secret' cash income for the executives to compensate themselves (Li and Zhao, 2020).

Different from the *CEO Optimal Equity-to-Debt Incentives Theory* (Jensen and Meckling) and its derivative *CEO Inside Debt Theory* (Edmans and Liu, 2011), the studies of unintended consequences when limiting CEO pay (e.g., Dittmann et al., 2011; Murphy and Jensen, 2018; Kleymenova and Tuna, 2021; Bae et al., 2020; Li and Zhao, 2020) found that cut CEO pay may result in increasing of tunnelling behaviours. Therefore, to examine the traditional economic-layered principal-principal conflicts in Chinese SOEs from the tunnelling perspective, this research hypothesises *H3* as follows.

H3. Deferred Executive Compensation (DEC) increases traditional economic-layered principal-principal conflicts (i.e., tunnelling).

To sum up, the development of *H1a*, *H1b*, and *H2* examines the economic-layered principal-principal conflicts caused by large/controlling shareholders towards outside creditors and minority shareholders from the perspective of CEO inside debt and its risk-moderating effect (Edmans and Liu, 2011). More precisely, *H1a* and *H1b* are the direct hypotheses developed via the CEO inside debt theory to testify to the risk-moderating effect of DEC (Edmans and Liu, 2011; Cassell et al., 2012). *H2* is developed due to the association between DEC's risk-moderating effect (will be tested in *H1a* and *H1b*) and the primary indicators of wealth expropriation: corporate dividend pay-outs (Faccio et al., 2001; Caliskan and Doukas, 2015; Borah et al., 2020). Hence, the testified variable, corporate risk in *H1a* and *H1b*, will be the mediator variable in testing *H2* (see Figure 3.11a).

In addition, the development of *H3* is to examine the traditional economic-layered principal-principal conflicts between large/controlling shareholders and minority shareholders from the perspective of tunnelling behaviours when executive pay is limited (Bae et al., 2020; Jiang et al., 2010) (see Figure 3.11a). Without considering the corporate risk as a mediator variable, hypothesis *H3* aims to testify to a direct effect between DEC and the traditional economic-layered principal-principal conflicts.

3.5.3.3 DEC and Societal-Layered Principal-Principal Conflicts: The CEO Inside Debt Incentives View

Regarding the societal-layered principal-principal conflicts (i.e., corporate social

performance), recent empirical studies directly test the correlations between DEC/CEO inside debt and corporate social performance. They focused on the US market, using different research methods. For example, Wu and Lin (2019) used a data envelopment analysis approach; Kim et al. (2020) used univariate analysis; Boubaker et al. (2020) and Benlemlih et al. (2022) applied OLS regression, Sheikh (2020) applied the IV-GMM model. Although these papers are innovative in research methods, their literature arguments and theoretical development seem ambiguous and implausible. They failed to find a rationale to form a mediator variable that supports the causality between risk reduction and CSR. For example, Boubaker et al. (2020) tried to link DEC's risk-moderating effect on CSR; however, the literature provided solely nexus evidence that CSR acted as an explanatory variable to reduce the risk. Moreover, Benlemlih et al. (2022) showed weak associations when arguing previously examined corporate risk-taking behaviours to environmental and legal risks that their study addressed.

Currently, many studies argue how CSR performance is associated with corporate risk rather than the reverse causality of the two (e.g., Jo and Na, 2012; Harjoto and Laksmana, 2018; Jia et al., 2020). To fill this gap, this research finds two pieces of evidence using risk-taking behaviours as the explanatory variable to indicate the other side of the nexus between reducing corporate risk and its effects on corporate social performance (Mayberry, 2020) or carbon emission (Hossain et al., 2023). These two pieces of evidence show different results. Mayberry (2020) found that an increasing corporate risk would be negatively associated with CSR performance; however, Hossain et al. (2023) suggested that this risk aversion may stimulate CEOs' immoral decisions on increasing corporate greenhouse gas emissions. Although these two studies show contradictory results, they provided robust evidence that the risk-reducing effect of DEC can be used as a mediator variable that theoretically connects

DEC and CSR. To compare, Mayberry (2020) tested CSR performance more comprehensively than Hossain et al. (2023), who only examined carbon emissions. Hence, from the perspective of the CEO inside debt and its risk-moderating effect (i.e., *H1a* and *H1b*) to examine the societal-layered principal-principal conflicts in Chinese SOEs, this research hypothesises *H4* as follows.

H4. Deferred Executive Compensation (DEC) mitigates societal-layered principal-principal conflicts (i.e., corporate social performance) via DEC's risk-moderating effect.

3.5.3.4 DEC and Societal-Layered Principal-Principal Conflicts: The Long-Run Net Social Benefits View

To the best of my knowledge, the CEO inside debt is the most examined theory when testifying about DEC's impacts on corporate risk and its related corporate strategic decisions and behaviours. Despite this well-acknowledged theory, this section highlights another DEC approach as a corporate long-term strategy, which shapes the decision-makers to focus more on the company's more comprehensive ranges of social stakeholders, thereby maximising corporate net social benefits (Kane, 2002). From this perspective, this section will argue the potential direct associations between DEC and the societal-layered principal-principal conflicts in Chinese SOEs (i.e., corporate social performance).

From a perspective of corporate long-run prospects, Kane (2002) initially claimed that deferred compensation effectively drives decision-makers to focus on corporate long-term strategies, especially on being accountable to a broader range of social stakeholders and avoiding unethical or illegal misconduct (Kane, 2002; Mehran and

Tracy, 2016). Kane (2002) observed that deferred compensation was associated with corporate governance deficiencies in government-controlled financial institutions, and instant performance-based incentives may easily breach the responsibilities of regulatory CEOs on public stewardship.

Moreover, Kane (2002) extended the definition of deferred compensation by addressing the hiding concept of a social accounting long-term performance-based compensation to the current managerial incentives scheme. According to Murphy (1999, p. 3), '*executive pay packages in private corporations contain four basic components: a base salary, an annual bonus tied to accounting performance, stock options, and long-term incentive plans (including restricted stock plans and multiyear accounting-based performance plans)*'. Although these packages seemed sufficient to encompass agency problems, Kane (2002) emphasised Murphy's (1999) concept of 'multiyear accounting-based performance plans' by considering the taxpayers as the socially related principal role. He also highlighted the agency conflicts between society and corporate decision-makers. Therefore, Kane (2002) suggested that completing a social accounting long-term performance-based compensation to the current deferred compensation plan against managerial manipulation would achieve the company's long-term prospects.

The institutional background of these government-controlled financial institutions (Kane, 2002) is similar to SOEs in China. For example, Kane (2002) referred to this deferred compensation as a contract between the taxpayers in society and the regulatory CEOs. In contrast, this research suggests that the second-layered principal-agent relationship in firms with concentrated ownership is an invisible but significant contractual association between social-layered stakeholders and corporate decision-makers when applying Raelin and Bondy's (2013) *Double-Layered Agency Theory*

(i.e., Section 3.3.3 and Figure 3.6). In both contexts, they all indicate that long-term-based executive incentives are associated with social participation demands.

However, the problem is that current empirical evidence misunderstands measuring deferred compensation when applying Kane's (2002) theory (e.g., Mahoney and Thorne, 2005, 2006; Rekker et al., 2014; Ji, 2015). They defined deferred compensation as executive long-term compensation, considering only the total long-term amount and equity-based payments, neglecting the value of executive debt-based compensation. For example, although Mahoney and Thorne (2005, 2006) assumed Kane's (2002) theory as a long-term contingent executive compensation, they only calculated the equity-based compensation using the percentage of stock option grants to total executive compensation to measure this variable. In addition, Rekker et al. (2014) and Ji (2015) examined similarly by only considering total long-term and equity-based compensation. Therefore, current empirical evidence has failed to express the essence of Kane's approach, overlooking the value of executive long-term-debt performance-based compensation or long-term social performance-based incentives. In order to fill this gap, this research will obtain long-term debt-based compensation data (DEC) according to Kane's (2002) approach. It will contribute to generating diverse empirical evidence examining the effect of DEC on corporate long-run prospects.

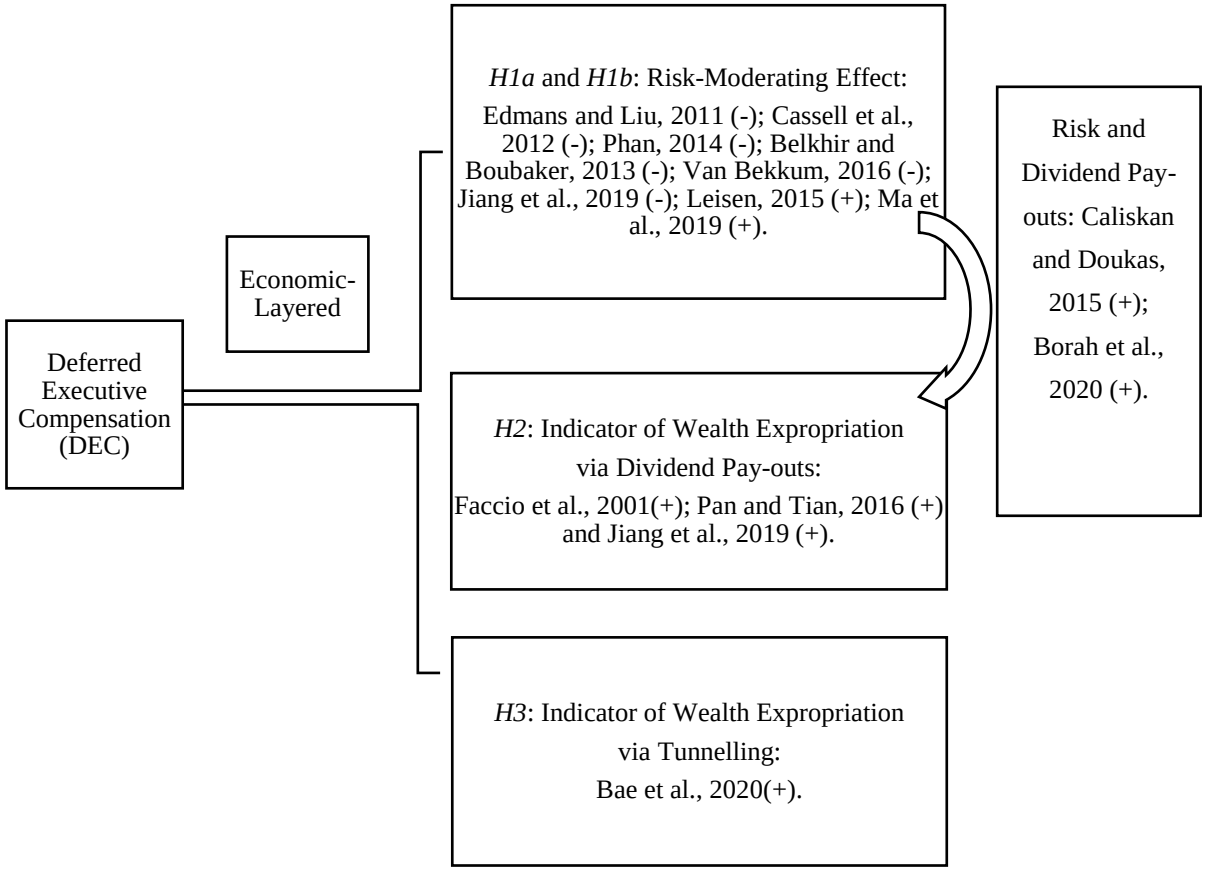
Based on the long-run net social benefits view proposed by Kane (2002), there should be a direct association between DEC and corporate social performance. Hence, to examine the societal-layered principal-principal conflicts in Chinese SOEs, this research hypothesises *H5* as follows.

H5. Deferred Executive Compensation (DEC) mitigates societal-layered principal-

principal conflicts (i.e., corporate social performance).

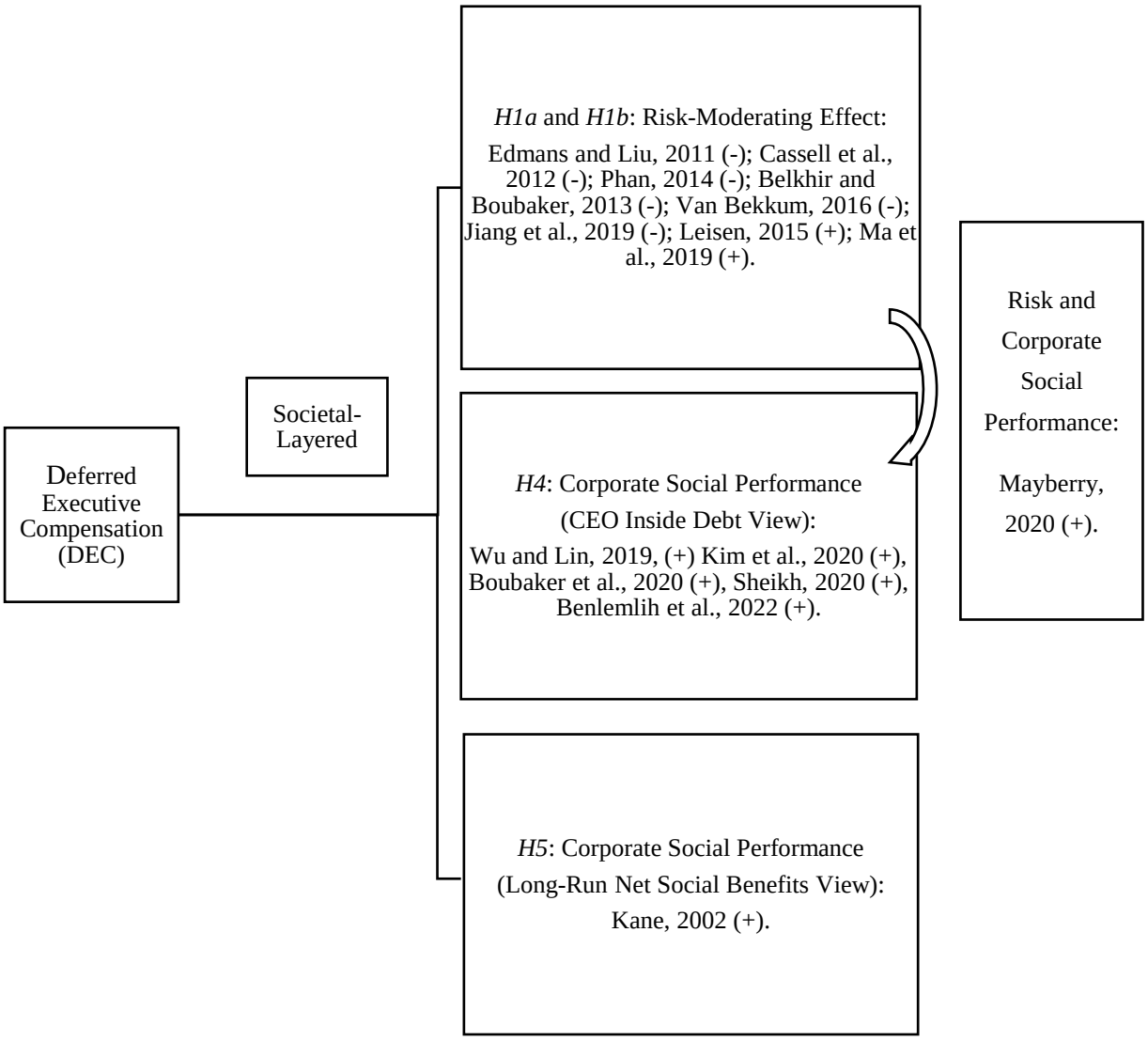
To summarise, *H4* and *H5* testify to the associations between DEC and societal-layered principal-principal conflicts between large/controlling shareholders and the company's primary social and environmental stakeholders. The difference is that the development of *H4* is based on the CEO inside debt view (Edmans and Liu, 2011) and its risk-moderating effect that *H1a* and *H1b* will examine first. Hence, the testified variable, corporate risk in *H1a* and *H1b*, will be the mediator variable in testing *H4*. In addition, the development of *H5* is based on the long-run net social benefits view (Kane, 2002). Without using corporate risk as a mediator variable, this theory provides a solid theoretical foundation to examine the direct association between DEC and societal-layered principal-principal conflicts (see Figure 3.11b).

Figure 3.11a Hypotheses Development of Deferred Executive Compensation (DEC) and Double-Layered Principal-Principal Conflicts[59]



[59] According to Faccio et al., 2001(+); Pan and Tian, 2016 (+) and Jiang et al., 2019 (+), DEC will increase dividend pay-out by decreasing corporate risk (Caliskan and Doukas, 2015; Borah et al., 2020). The increasing dividend pay-out indicates that DEC helps mitigate the traditional economic-layered principal-principal conflicts between large shareholders and minority shareholders (i.e., *H2*). Moreover, according to Bae et al., 2020 (+), DEC increases tunnelling behaviours by increasing related-party transactions. The increasing related-party transactions indicate that DEC may accelerate wealth expropriation between large and minority shareholders, thus upsurging the traditional economic-layered principal-principal conflicts (i.e., *H3*).

Figure 3.11b Hypotheses Development of Deferred Executive Compensation (DEC) and Societal-Layered Principal-Principal Conflicts



3.6. Chapter Summary

In summary, this chapter contributes to establishing a novel theoretical framework to examine the double-layered principal-principal conflicts from both economic and societal perspectives exclusively for companies under highly concentrated ownership. Based on this new theoretical framework, this chapter further argues the potential corporate governance mechanisms, Multiple Large Shareholders (MLS) and Deferred Executive Compensation (DEC) and how they would affect specific corporate behaviours/indicators, thereby alleviating double-layered principal-principal conflicts. Finally, this chapter develops research hypotheses through critical arguments to testify to the associations between DEC and double-layered principal-principal conflicts in Chinese SOEs.

This chapter develops the hypotheses (i.e., *H1a*, *H1b*, *H2*, *H3*, *H4*, and *H5*) using the following rationales. Based on the widely applied CEO inside debt view (Edmans and Liu, 2011) and its risk-moderating effect (Edmans and Liu, 2011; Cassell et al., 2012), Section 3.5.3.1 hypothesises a significant association between DEC and corporate risk, therefore developing *H1a* and *H1b*.

According to DEC's risk-moderating effect on enhancing corporate dividend pay-out (Caliskan and Doukas, 2015; Borah et al., 2020) and corporate social performance (Mayberry, 2020), Section 3.5.3.1 and Section 3.5.3.3 thereby develops *H2* and *H4* respectively. Therefore, the risk-moderating effect (i.e., *H1a* and *H1b*) serves as a mediator variable that links the association between DEC and the economic-layered wealth expropriation proxied by dividend pay-out (i.e., *H2*), as well as the societal-layered principal-principal conflicts proxied by corporate social performance (i.e., *H4*).

Based on the perspective of unintended consequences after limiting executive pay

(Dittmann et al., 2011; Bae et al., 2020), Section 3.5.3.2 hypothesises a significantly negative effect between DEC and economic-layered wealth expropriation via tunnelling, developing *H3*.

Moreover, based on the long-run net social benefits view (Kane, 2002), Section 3.5.3.4 hypothesises a significantly positive effect between DEC and societal-layered principal-principal conflicts proxied by corporate social performance, developing *H5*.

Chapter 4. Methodology

4.1 Introduction

This chapter explains the rationale of sample selection and the empirical models applied. In addition, it provides information about the definitions of variables and data sources. The practical objective of this research is to examine the policy effects of 'salary restriction order' on double-layered principal-principal conflicts in Chinese SOEs. Therefore, this research applies panel data, focusing on 74 listed subsidiaries of the SASAC[60] central enterprises from 2007 to 2015, using a quasi-natural experiment (i.e., DID models) to testify whether DEC is associated with corporate risk, dividend pay-outs, related-party transactions, and corporate social performance. The details will be illustrated as follows.

4.2 Sample and Data

4.2.1 Rationale

This research applies panel data, focusing on 74 listed subsidiaries of the SASAC central enterprises from 2007 to 2015. Here are the reasons.

First, the sample selected aligns with the characteristics of concentrated ownership structures and the political affiliation nature, reflecting the inevitable double-layered principal-principal conflicts that emerged in Chinese SOEs in the less effective corporate governance and legitimacy environment (Jiang and Kim, 2020; Jin et al.,

[60] SASAC is the abbreviation for the State-owned Assets Supervision and Administration Commission. It is a special institution directly under the State Council of China. It is at the ministerial level performing the responsibilities of the investor on behalf of the state.

2022). In addition, in terms of concentrated ownership (i.e., state-owned or family-owned), the market influence of the listed SOEs is much stronger than that of the listed family business in China. Statistics show that roughly one-third of listed SOEs have occupied two-thirds of the market capitalisation (Jiang and Kim, 2020), especially in vital industries such as transportation, biochemistry, energy, manufacturing, and finance (Jin et al., 2022). However, the listed family business is about 17% (Cheng et al., 2021). Moreover, it is more pressing to mitigate the societal-layered conflicts in the SOEs because they must achieve the national economic goals while carrying out official policy/guidance to ensure social welfare (Jin et al., 2022).

Second, the sample selected is randomly and comparably affected by the 'salary restriction order' announced by the SASAC. The 'salary restriction order' provides an appropriate opportunity to testify to the policy effects by conducting a quasi-natural experiment (e.g., Deng et al., 2019; Jiang et al., 2019; Deng et al., 2021; Bae et al., 2020). According to Chapter 2, Section 2.4, this 'salary restriction order' directly affected the executives and TMTs in charge of the SASAC central enterprises since January 1st, 2010, requiring a 40% performance-based salary deferred to the end of the 3-year tenure. Accordingly, Bae et al. (2020) used this exogenous shock and applied DID models to examine the financial performance and executives' perk behaviours in the SASAC central SOEs. However, they face challenging problems selecting these central SOEs as the treatment group because the 'salary restriction order' directly affects them, and all of the central SOEs managed by the SASAC must follow the rule. It indicates that, first, the treatment group (i.e., the SASAC central SOEs) and the control group they used (i.e., local government-controlled SOEs) are not randomly assigned by this exogenous shock. Second, these government-controlled SOEs are also incomparable to the central

SOEs in terms of firm size, ownership, administrative level, and organisational objectives (Song, 2018; Fan and Song, 2019). Therefore, there may be significant differences between the control and treatment groups before the 'salary restriction order' was announced. This would violate the parallel trends assumption when applying the quasi-natural experimental studies.

To improve this deficiency, this research selects the listed subsidiaries of the SASAC central enterprises as research sample. They are random and comparable due to consistent firm characteristics and legitimate environments (Lin et al., 2020; Chen et al., 2008). Although the 'salary restriction order' directly affects the SASAC central enterprises, several listed subsidiaries followed this rule as their parent companies have been required[61]. Some actively deferred before the year the policy was announced[62], some implemented since 2010[63], and some followed in a certain year after 2011[64], yet some companies have not implemented this policy at all. Therefore, how these listed subsidiaries reacted to this 'salary restriction order' is likely to be a self-selection process, which meets the basic assumption of conducting a natural or quasi-natural experiment.

Besides, there are several tricky problems if using the SASAC central enterprises as the sample. First, it is difficult to ensure the accessibility, completeness and accuracy of the data as only a small number of these central enterprises have accomplished overall listed or core business listed. For instance, China Youth Daily reported that, as of the end of 2019, only 27 central enterprises have achieved their main business

[61] For example, China National Nuclear Technology (000777) is owned by China National Nuclear Corporation, Huadian Energy (600726) is owned by China Huadian Group, and Dongfeng Motor (600006) is owned by Dongfeng Motor Group, etc.
[62] For example, Jiangling Motors (000550), China National Petroleum Corporation (601857), China Industry International (002051), etc.
[63] For example, China National Nuclear Technology (000777).
[64] For example, Shenzhen Tianma (000050), a subsidiary of the Aviation Industry Corporation of China (AVIC), started implementing corresponding documents in 2012.

listed[65]. Moreover, only information disclosed from 2016 to 2019 can be found on the SASAC official website. However, the 'salary restriction order' started in 2010. Second, the firm-year dataset of SASAC central enterprises lacks consistency and comparability as those companies have frequently gone through reorganisations, mergers and acquisitions since 2003. For instance, in 2009, China National Packaging Corporation was still under the management of SASAC; however, in February 2010, it merged into China Chengtong Holdings Group (CCT)[66] as its wholly-owned subsidiary[67].

4.2.2 Sample Selection

This paper focuses on firm-year panel data of 74 A-share listed subsidiaries controlled by the SASAC central enterprises from 2007 to 2015. This paper uses the *No. 22 Order* issued by SASAC, the '*Interim Measures for the Performance Evaluation of the Persons in Charge of Central Enterprises*'[68], as an exogenous shock to design a quasi-natural experiment to examine the effectiveness of DEC on double-layered principal-principal conflicts in Chinese SOEs. This exogenous shock started on January 1st, 2010. Therefore, this research divides these 74 companies into two groups according to their reactions to the policy. Excluding the years from 2007 to 2009, companies that have implemented this 'salary restriction order' and deferred the executives' performance-based compensation[69] from 2010 to 2015 are defined as the treatment group. Correspondingly, from 2007 to 2015, companies that did not conduct this policy are defined as the control group. After sample selection, there are 20 companies in the treatment group and 54 in the control

[65] Accessible at: http://www.sasac.gov.cn/n2588025/n2588139/c16017789/content.html
[66] Please see Appendix B for the names and abbreviations of the SASAC central enterprises.
[67] Accessible at: http://www.sasac.gov.cn/n2588025/n2588124/c3925870/content.html
[68] This research simplifies the name as the 'Salary Restriction Order'.
[69] This paper defines DEC as executives' partial performance compensation being deferred in the next 3-year tenure. It is a long-term debt rather than a next-year short-term deferral.

group. The process of sample selection is as follows.

First, this research organised the list of the SASAC central enterprises from 2007 to 2015. The SASAC was established in 2003 and initially managed 196 central enterprises in China[70]. The reasons for this examination period chosen are 1) the official CSR guidance released in China in 2006[71]; 2) the effect of the 'salary restriction order' began in 2010. Therefore, this examined period would cover a 3-year prior period, a 3-year post period, and a continued 3-year post period for observing the policy's long-term effect.

As of June 24th, 2021, the SASAC has accomplished reorganising into 96 Chinese central enterprises through internal mergers, acquisitions, and newly joining[72]. For example, as of the end of 2009, there were 129 SASAC central enterprises. Due to internal reorganisations and mergers, in 2010 it reduced to 125[73]. Similarly, there are situations such as newly-established SOEs. From 2009 to June 24th, 2021, the number of newly joined SASAC central enterprises was 8[74]. China Hualiang Logistics Group was newly added; however, it merged into the COFCO Group[75] the next year in March 2013 as its wholly-owned subsidiary. Therefore, as of June 24th, 2021, 7 SASAC central enterprises do not meet the examination period required by this research. The remaining 89 have become the primary source to trace their

[70] Accessible at: http://www.sasac.gov.cn/2008rdzt/2008rdzt_0003/gzw5zn.htm.
[71] Please see Chapter 2, Section 2.3.2 for more information.
[72] Up to June 27th 2023, the list of SASAC central enterprises updated to 98. Accessible at: http://www.sasac.gov.cn/n2588045/n27271785/n27271792/index.html
[73] For example, in February 2010, China National Packaging Corporation, which used to be an individual SASAC central enterprise, merged into China Chengtong Holding Group and became its wholly-owned subsidiary. Accessible at: http://www.sasac.gov.cn/n2588025/n2588124/c3925870/content.html
[74] They are: 2010, China Guoxin Holdings; 2012, China Hualiang Logistics; 2016, China Aviation Engine; 2019, China Aneng Construction; 2020, China Rongtong Asset Management, National Oil and Gas Pipeline, and China Inspection and Certification; 2021, China Satellite Network.
[75] Please see Appendix B for the names and abbreviations of the SASAC central enterprises.

controlled A-share listed subsidiaries[76].

Second, this research selects listed A-share subsidiaries according to the official websites of the parent companies. Search for contents or keywords such as '*Investor Relations*', '*Listed Companies*', '*Group Network*', '*Group Profile*' and '*Organisation Structure*', this research manually sorted and verified 293 A-share listed subsidiaries controlled by the SASAC central enterprises.

From these 293 listed subsidiaries, this research focuses on the sample companies that meet the research design and divide them into treatment and control groups. The examination period is from 2007 to 2015. Exclude 76 listed after 2007; 4 belong to the SASAC central enterprises newly established or reorganised after 2007. Thus, 213 listed subsidiaries remained controlled by the SASAC central enterprises from 2007 to 2015. Among them, 75 cannot find any information on deferred compensation policy[77]; 39 have been specially treated (ST companies); 2 belong to the financial sector, and 1 were delisted; thereby, the remaining 96 subsidiaries have found relevant disclosure or corporate policy showing how they have reacted to the 'salary restriction order'. Among them, 7 have been implementing deferred executive compensation before 2009, 15 began after 2010, 20 followed the 'salary restriction order' and promptly reacted since 2010, and the remaining 54 companies have not followed from 2007 to 2015 (see Table 4.1).

In summary, the observations of this research are 666, focusing on 74 listed subsidiaries of the SASAC central enterprises from 2007 to 2015. The reasons these

[76] Note: China Hualiang Logistics was not integrated into COFCO until 2013. Therefore, any listed subsidiary wholly-owned or major controlled by COFCO, yet related to China Hualiang Logistics, must be excluded.

[77] Through searching for annual reports, other disclosures or documents published on baidu.com, sse.com.cn, szse.cn, and cninfo.com.cn. There is no evidence found whether these companies have implemented the 'salary restriction order' on their executives or TMTs.

observations are selected are: 1) The sample companies are controlled by the central government, reflecting the characteristics of concentrated ownership and political affiliation; thereby, they are appropriate for observing the double-layered principal-principal conflicts that this research proposes. 2) The sample is randomly selected, and the treated and control groups are comparable in terms of firm size, ownership, administrative level, and organisational objectives. 3) The industry distribution of the sample selection varies compared to previous studies focusing on the banking sector (Deng et al., 2019; Deng et al., 2021), including transportation, retail, real estate, national defence and equipment, mining, medical biochemistry, IT, energy, construction, business service, and agriculture, forestry, husbandry and fishery. The observations are the leading industries of SOEs and are representative of current state of economic development in China. Table 4.1 shows the process of sample selection. Table 4.2 shows the list of stock codes of the sample selected and the corresponding abbreviations of their parent SASAC central enterprises[78]. Table 4.3 shows the list of the treatment group and the control group. Figure 4.1 shows the industry distribution of sample selection.

[78] Please see Appendix B for the list of abbreviations of the SASAC central enterprises.

Table 4.1 Process of Sample Selection

Population: 293 listed A-share subsidiaries controlled by the 89 SASAC central enterprises.
Less: 76 listed after the year 2007; 4 belongs to the SASAC central enterprises newly established or reorganised after the year 2007;
Thus, 213 remained controlled by the SASAC central enterprises from 2007 to 2015. Less: 39 ST (Special Treated) companies[79]; 75 cannot find any document showing the status of this 'salary restriction order' implementation; 2 belongs to the financial sector; 1 delisted;
Thus, 96 have been found with relevant disclosure or corporate policy showing how they have reacted to the 'salary restriction order'. Less: 7 implemented the salary restriction order before the year 2009; 15 implemented the salary restriction order after the year 2010.
Lastly, 74 listed subsidiaries fulfil the requirements of this research. Include 20 did not implement the salary restriction order from 2007 to 2009; however, they started to implement it from 2010 to 2015, and 54 did not implement it from 2007 to 2015.

[79] The ST companies are a number of listed firms that are experiencing financial distress and have had a *Special Treated* 'cap' imposed on them by the China Securities Regulatory Commission. The ST 'cap' can be removed if the firms survive financial distress by becoming profitable. Alternatively, an ST firm which goes bankrupt is delisted from the market (Kim et al., 2016).

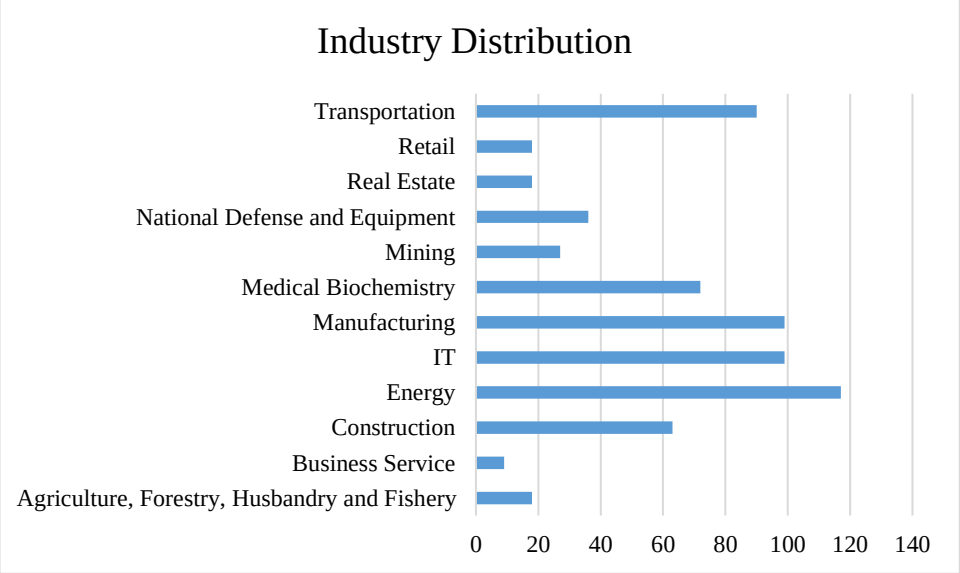
Table 4.2 List of Sample Companies (Stock Code) Selected

STOCK CODE	PARENT CORP. (GROUP)	STOCK CODE	PARENT CORP. (GROUP)
000777	CNNC	600026	COSCO
600118	CASC	601111	AIRCHINA
600151	CASC	600029	CSAIR
600855	CASIC	000031	COFCO
002025	CASIC	000410	GENERTEC
000547	CASIC	600056	GENERTEC
002179	AVIC	600886	SDIC
002190	AVIC	600428	COSCO
600038	AVIC	000022	CMHK
600316	AVIC	000043	CMHK
600523	AVIC	600963	CCT
600765	AVIC	601918	CHINACOAL
600482	CSSC	002057	SINOSTEEL
600764	CSSC	600378	SINOCHEM
600495	NORINCO	600560	CISRI
000625	CSGC	000877	CNBM
601808	CNOOC	000786	CNBM
600312	SGCC	002080	CNBM
600863	CHNG	600970	CNBM
600744	CDT	002066	CNBM
600027	CHD	600449	CNBM
600726	CHD	000758	CNMC
600268	CHD	601390	CRECG
002039	CHD	002017	CICT
000875	SPIC	600498	CICT
002128	SPIC	000851	CICT
600292	SPIC	000798	CNADC
600795	CHN ENERGY	600195	CNADC
600050	CHINA UNICOM	600511	SINOPHARM
600171	CEC	000028	SINOPHARM
000021	CEC	600420	SINOPHARM
000032	CEC	002037	POLY
600006	DFMC	000566	XXCIG
600081	DFMC	600068	CEEC
002046	SINOMACH	000069	OCT
000878	CHINALCO	002059	OCT
000862	CHINALCO	600379	XD

Table 4.3 Quasi-Experiment Groups

Treat	Control		
000021	000022	600026	600498
000028	000031	600027	600511
000032	000410	600038	600523
000043	000547	600050	600560
000069	000566	600056	600744
000625	000758	600081	600764
000777	000786	600118	600795
000798	000851	600151	600855
002037	000862	600171	600863
002046	000875	600195	600886
002179	000877	600268	600963
002190	000878	600292	600970
600006	002017	600312	601808
600029	002025	600316	601918
600068	002039	600378	
600428	002057	600379	
600726	002059	600420	
600765	002066	600449	
601111	002080	600482	
601390	002128	600495	

Figure 4.1 The Industry Distribution of Sample Selection



4.2.3 Propensity Score Matching (PSM) for Sample Selection

As this research is a quasi-natural experiment, the randomness of sample selection is essential. Due to the proxy of the independent variable (i.e., DEC) being a dummy, which will be illustrated in Section 4.4, the Heckman two-step model is not appropriate to estimate the sample selection bias because it requires the dependent variable to be a dummy for the first-step Probit test. Hence, following Deng et al. (2019) and Deng et al. (2021), this study uses propensity score matching (PSM) to test the sample selection of the treatment group and control group.

According to the risk-moderating effect of DEC (e.g., Edmans and Liu, 2011; Cassell et al., 2012; Bennett et al., 2015; Deng et al., 2019; Deng et al., 2021) and the state-owned characteristic of each sample companies, the research uses variables of firm characteristics (i.e., *FIRM_SIZE*, *ROA*, *GROWTH*, *CAPEX*, *LEV*, *MTB*, *ZSCORE*), the ultimate state-ownership (*TOP1*) and corporate risk (i.e., *RISK_INV*, *RISK_FIN*, *VOL_STR_3, VOL_STR_5*)[80] to test the randomness of sample selection.

The 20 sample companies that complied with the 'salary restriction order' from 2010 to 2015 are the treatment group; the remaining 54, which have not complied from 2007 to 2015, are the control group. Table 4.4 shows the summary of PSM results. It is clear that, after matching, except *RISK_FIN* (12.34%) and *RISK_INV* (10.97%), both absolute values of the standard deviation of variables of the firm characteristics, state-ownership, and corporate risk are under 10%[81]. In addition, the *p*-value of *RISK_FIN* (t=1.957, p=0.052<0.1), *VOL_STR_3* (t=-4.68, p=0.000<0.01), *VOL_STR_5* (t=-3.752, p=0.000<0.01), *FIRM_SIZE* (t=4.624, p=0.000<0.01), *CAPEX* (t=-2.465, p=0.014<0.05), and *LEV* (t=2.703, p=0.008<0.01) are all statistically significant before matching; however, all the *p*-value of observed variables are insignificant after PSM. It indicates that the after-matching treatment group had no significant differences to the control group before the year the 'salary

[80] Please see Section 4.3.1 the measurement of corporate risk and Section 4.5 for the definitions of firm characteristics.
[81] According to Rosenbaum and Rubin (1983), the reduction of absolute values of the standard deviation are under 20% shows an effective propensity matching.

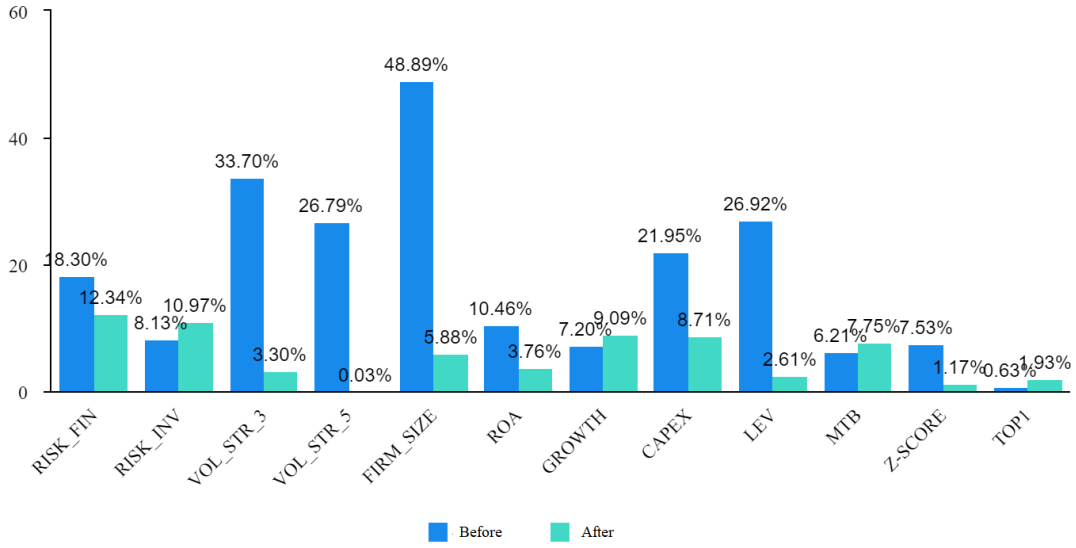
restriction order' was announced. Therefore, the PSM test is effective. The firm characteristics, state ownership and corporate risk of the treated companies and the controls are consistent and comparable. Figure 4.2 shows a bar chart of the absolute standard deviation (%) value before and after PSM.

Table 4.4 Summary of PSM Results

		Treat (Mean)	Control (Mean)	Std Dev (%)	Reduction of Std Dev (%)	*p*-value
RISK_FIN	Before	0.61	0.574	18.30%	32.56%	0.052*
	After	0.61	0.586	12.34%		0.340
RISK_INV	Before	0.195	0.230	-8.13%	-34.87%	0.288
	After	0.195	0.249	-10.97%-		0.397
VOL_STR_3	Before	0.501	0.720	-33.70%	90.22%	0.000***
	After	0.501	0.480	3.30%		0.799
VOL_STR_5	Before	0.529	0.657	-26.79%	99.87%	0.000***
	After	0.529	0.529	-0.03%		0.998
FIRM_SIZE	Before	9.569	8.76	48.89%	87.98%	0.000***
	After	9.569	9.468	5.88%		0.649
ROA	Before	0.028	0.032	-10.46%	64.08%	0.289
	After	0.028	0.027	3.76%		0.771
GROWTH	Before	1.156	1.176	-7.20%	-26.33%	0.432
	After	1.156	1.132	9.09%		0.482
CAPEX	Before	0.053	0.064	-21.95%	60.31%	0.014**
	After	0.053	0.057	-8.71%		0.500
LEV	Before	0.594	0.542	26.92%	90.31%	0.008**
	After	0.594	0.589	2.61%		0.84
MTB	Before	0.819	1.101	-6.21%	-24.82%	0.306
	After	0.819	0.809	7.75%		0.549
ZSCORE	Before	1.515	1.762	-7.53%	84.52%	0.247
	After	1.515	1.502	1.17%		0.928
TOP1	Before	0.418	0.417	0.63%	-208.16%	0.947
	After	0.418	0.42	-1.93%		0.881

This table shows the PSM results testing variables of corporate risk, firm characteristics and state ownership of the treatment and control groups before and after matching. *RISK_INV*, *RISK_FIN*, *VOL_STR_3, VOL_STR_5* are variables measuring corporate risk; *FIRM_SIZE*, *ROA*, *GROWTH*, *CAPEX*, *LEV*, *MTB*, *ZSCORE* are variables measuring firm characteristics; and *TOP1* is the variable to measure state ownership. All definitions of these variables are shown in Appendix A.

Figure 4.2 The Absolute Value of Standard Deviation (%) Before and After PSM



4.2.4 Data Source

The data of the DEC are manually collected from the sample companies' annual reports, accessed via the official websites of SSE (i.e., sse.com.cn), SZSE (i.e., szse.cn), and cninfo (i.e., cninfo.com.cn/new/index). The financial data to measure corporate risk and wealth expropriation come from Compustat and S&P Capital IQ. CSR reports/disclosure is accessible from the official websites of SSE (i.e., sse.com.cn), SZSE (i.e., szse.cn), cninfo (i.e., cninfo.com.cn/new/index), and CSR-CHINA (i.e., csr-china.net/vXGUrk). Firm characteristics come from Compustat and S&P Capital IQ. Ownership information comes from S&P Capital IQ. Board variables and CEO variables come from CSMAR. Any data omitted are manually collected from the sample companies' annual reports accessible at SSE (i.e., sse.com.cn), SZSE (i.e., szse.cn), and cninfo (i.e., cninfo.com.cn/new/index).

4.3 Dependent Variables

This section indicates the measurements for dependent variables. The empirical research objective is to examine the policy effects of 'salary restriction order' on the double-layered principal-principal conflicts in Chinese SOEs. Therefore, the

dependent variables are the economic-layered and the societal-layered principal-principal conflicts. The economic-layered principal-principal conflicts emerge between large/controlling shareholders and the other economic-layered stakeholders (i.e., outside creditors and minority shareholders). This research uses proxies of corporate risk (i.e., financial risk, investment risk, and volatility of stock return) to define the risk preferences between large/controlling shareholders and outside creditors. This research uses indicators of wealth expropriation (i.e., dividend pay-out ratios and related-party transactions) to define the traditional principal-principal conflicts between large/controlling shareholders and minority shareholders. In addition, this research uses proxies of corporate social performance (i.e. SEDI) to define the societal-layered principal-principal conflicts between large/controlling shareholders and social and environmental stakeholders. The measurement details are as follows.

4.3.1 Corporate Risk

This research managed to categorise the proxies to measure corporate risk into two parts. First, according to the shareholder-agent alignment of the *Agency Theory* (Jensen and Meckling, 1976), many studies use the *CEO equity-based pay sensitivity*/*CEO risk tolerance* to measure executive risk-taking behaviours. A higher *CEO Delta* indicates that the company tends to be conservative in risk, and the CEO is encouraged to pursue lower-risk decisions. On the contrary, a higher *CEO Vega* suggests that the company tends to formulate high-risk policies, which means the CEO has a higher risk tolerance (e.g., Core and Guay, 2002; Caliskan and Doukas, 2015; Cen and Doukas, 2017).

Second, according to a firm's financial performance, indicators that reflect outcomes of corporate investment, finance, and financial returns are commonly used as proxies to measure corporate risk. For example, *long-term debt/leverage* is used to measure the financial risk (e.g., Cassell et al., 2012; Faccio et al., 2016; Yung and Chen, 2018); *R&D expenditure* and *capital expenditure* are applied to measure the investment risk (e.g., Cassell et al., 2012; Koirala et al., 2020); and *volatility of*

earnings or *volatility of stock returns* are applied to measure the profitability risk (e.g., Faccio et al., 2011, 2016; Boubakri et al., 2013; Yung and Chen, 2017).

Based on the sample selection, proxies such as *long-term debt/leverage*, *capital expenditure,* and *volatility of stock returns* can better illustrate the effect of DEC on executive risk-taking behaviour via corporate finance and investment decision-making and the company's future volatility of corporate profitability. The selected SASAC subsidiaries are large-scale industrial SOEs; although there is a data omitting problem on *R&D expenditure*, they have invested a large proportion of heavy assets in tangible expenditures and are commonly associated with excessive leverage issues (Liu and Tian, 2012). Besides, equity-based compensation seemed less issued to executives in Chinese SOEs (Firth et al., 2006; Cao et al., 2011), and my sample companies are not privately held; therefore, I focus on the *volatility of stock returns* rather than the *volatility of accounting earnings* or *returns* for the main tests.

Therefore, following Koirala et al. (2020) on *capital expenditure*, Cassell et al. (2012) and Faccio et al. (2016) on *long-term debt/leverage,* and Faccio et al. (2016) on *volatility of stock returns*, this article uses these three proxies to measure corporate risk from perspectives of finance and investment decision-making and corporate profitability. *Capital expenditure* (*RISK_INV*) captures the size of a firm's spending on long-term investment, and it is calculated as the difference between long-term assets for year 't' and year 't-1' scaled by long-term assets for year 't-1'. *Long-term debt/leverage* (*RISK_FIN*) is measured as the ratio of financial debt divided by the sum of financial debt plus equity. Financial debt is the sum of long-term debt and short-term loans minus other non-current liabilities. *Volatility of stock returns* (*VOL_STR_3*) is measured as the standard deviation of the stock returns over 3-year overlapping windows.

4.3.2 Wealth Expropriation

This research defines traditional economic-layered principal-principal conflicts as

wealth expropriation (Faccio et al., 2001), reflecting the monetary interest entrenchment from large shareholders to minority shareholders. Based on CEO inside debt and its risk-moderating effect (Edmans and Liu, 2011), decreasing corporate risk by issuing DEC is likely to increase dividend pay-out ratios (Caliskan and Doukas, 2015; Borah et al., 2020), which indicates a positive signal of reducing wealth expropriation and protecting minority shareholders' monetary interests (Faccio et al., 2001).

Previous literature applies two methods to measure wealth expropriation. They are first using the company's dividend pay-out ratios as the key indicators to reveal the possibility of wealth expropriation (Faccio et al., 2001; Pan and Tian, 2016). There are two views on the types of dividends calculating the ratios: apply all dividends (e.g., Sakawa and Watanabel, 2019) or cash dividends only (e.g., Faccio et al., 2001). Second, use large shareholders' tunnelling behaviours to measure wealth expropriation (Johnson et al., 2000). The related-party receivables/loans are commonly used as a proxy to measure the tunnelling behaviours (e.g., Jiang et al., 2010; Aharony et al., 2010). The higher related-party receivables accounted means that large shareholders show stronger wealth expropriation towards minority shareholders.

Following Faccio et al. (2001) and Berkman et al. (2009), this research defines dividends as total cash dividends paid to common and preferred shareholders. As a diverse measurement of dividend pay-out ratios should help insulate overall conclusions from biases, this research applies three commonly used ratios: (1) The *dividend/earnings ratio* (*DIV_NP*), where the net profit is measured as year-end accounting net profit plus noncash depreciation and amortisation minus noncash income. (2) The *dividend/sales ratio* (*DIV_SA*), where sales are net sales, defined as gross sales minus returns, discounts, and allowances. (3) The *dividend/market-capitalisation ratio* (*DIV_MV*), where market capitalisation is the total market value of common and preferred stocks. According to Faccio et al. (2001) and Pan and Tian (2016), the higher dividend pay-out ratios indicate that large shareholders are more willing to pay cash dividends, which means a lower possibility of wealth

expropriation.

This study uses prior studies, which observe the company's tunnelling behaviours (Jiang et al., 2010; Aharony et al., 2010; Boateng and Huang, 2017) as the alternative measurement for wealth expropriation. Johnson et al. (2000) and La Porta et al. (1999) argued that dominant owners are likely to appropriate value from minority investors through related-party transactions at manipulated transfer prices. Moreover, when performance-based payment is limited, managers may act opportunistically and select accounting practices to maximise their benefits (Bae et al., 2020; Li and Zhao, 2020). Bae et al. (2020) used the logarithm of the outstanding related-party corporate loans as the proxy for tunnelling. The higher value of the related-party receivables indicates the greater possibility of large shareholders committing fund misappropriation, leading to a higher likelihood of wealth expropriation. Based on Bae et al. (2020), this research uses the percentage of the related-party receivables on total assets (*REC_AS*) to measure tunnelling.

4.3.3 Corporate Social Performance

One theoretical contribution of this research is to propose the term 'societal-layered principal-principal conflicts' and explain the conceptual differences and similarity compared to CSR disclosure (i.e., Chapter 3, Section 3.4.2.2). Hence, the contents of CSR disclosure that describe corporate responses to non-investment stakeholders should be eligible to represent corporate accountability to the societal-oriented stakeholders (Andrew and Baker, 2020).

Many studies examining CSR disclosure in China use third-party databases, such as RKS ratings (e.g., Li et al., 2021; Elmagrhi et al., 2019; Lau et al., 2016; Luo et al., 2017; Marquis and Qian, 2014; McGuinness et al., 2017) or Thomson Reuters ESG database (e.g., Garcia et al., 2017; Ho et al., 2021; Cheng et al., 2014; Wang et al., 2023). The advantage is that obtaining CSR data via third-party databases is convenient and easy to apply. However, it would only be accurate if the third parties' standards were inconsistent with how individual research theoretically defines CSR.

Therefore, it would lead to measurement deviations if they did not match with a specific CSR study, affecting the research findings ultimately (Galant and Cadez, 2017).

4.3.3.1 Social and Environmental Disclosure Index (SEDI)

In order to address the above-mentioned third-party data issue, this paper follows Lu and Abeysekera (2017) to establish a Social and Environmental Disclosure Index (SEDI) approach based on CASS-CSR indicators to measure corporate social performance in Chinese SOEs. The higher SEDI shows better corporate social performance, reflecting lower societal-layered principal-principal conflicts.

Based on GRI Guidelines, Lu and Abeysekera (2017) created a SEDI approach to measure CSR disclosure quality for Chinese listed companies. The GRI Guidelines have provided an authorised and professional appraisal framework for social and environmental disclosure (Frost et al., 2005). However, it is too general to apply in specific circumstances, such as the lack of flexibility to fit in different regional or national industries (Sherman, 2009). Moreover, Lu and Abeysekera (2017) only focus on *Social* and *Environmental* indicators, while the societal-layered principal-principal conflicts consider the entire group of primary non-investment stakeholders, such as clients, suppliers, competitors, government, employees, and eco-environment. Therefore, based on the traditional SEDI approach (Lu and Abeysekera, 2017), this research use indicators from CASS-CSR[82] rather than GRI, which provides precise guidance for CSR disclosure with Chinese characteristics, including industrial and regional, while maintaining a consistent international reporting framework with the GRI (GRI and CASS-CSR, 2019[83]; Dong and Xu, 2016; An, 2021).

[82] The abbreviation is Social Responsibility Research Centre of China Academy of Social Sciences (CASS-CSR). It aims to provide constructive guidance for Chinese companies to participate in CSR and disclose CSR reports.

[83] Accessible at: https://www.globalreporting.org/media/ukgpbiqx/linking-the-gri-standards-and-cass-csr-40-english.pdf.

4.3.3.2 CASS-CSR: The Fundamental Framework for CSR Reporting in China

In 2009, CASS-CSR 1.0 (the 1st edition) was initially introduced by the Corporate Social Responsibility Research Centre of China Academy of Social Sciences (CASS-CSR). It aims to provide constructive guidance for Chinese companies to participate in CSR activities and disclose CSR reports. Because the concept of CSR originated in Western countries, the preparation of CASS-CSR not only refers to the classic CSR theories (such as the *Triple Bottom Line* and *Stakeholder Theory*) but also combines the current domestic environment and the status of CSR development in China.

CASS-CSR has been upgraded from 1.0 to 4.0 (Zhong et al., 2018) and renamed CASS-ESG 5.0 in 2022 to respond to the global development of ESG reporting (Zhong and Zhang, 2022). The initial versions of CASS-CSR (i.e., 1.0 and 2.0) focus on providing specific guidance, indicators, and practical examples to guide CSR reporting in China. Version 3.0 optimises the process of CSR report preparation, and version 4.0 emphasises the value of report preparation (Zhong et al., 2018). The framework of CASS-CSR includes six sections: report preface (Section P), responsibility governance (Section G), market performance (Section M), social performance (Section S), environmental performance (Section E), and report appendix (Section A).

4.3.3.3 Compare CASS-CSR to GRI

This subsection illustrates why this research selects indicators from CASS-CSR instead of GRI to measure SEDI. First, scholars found that GRI cannot effectively guide Chinese companies in disclosing CSR reports (Chang et al., 2016). GRI suggests that companies conduct CSR disclosure from a long-term strategic perspective and incorporate it into internal and external management. In contrast, CASS-CSR emphasises the fundamental indicators and detailed instructions to help Chinese companies establish the CSR reporting framework appropriately corresponding to the progress of CSR in China (Deng et al., 2014). It would be difficult for Chinese companies to follow GRI because of its sophisticated and complex indicators and lack of knowledge exchange of different terms (Chang et al.,

2016).

On the other hand, companies in China are likely to actively respond to governmental/political signals for corporate social activity (Marquis and Qian, 2014). CASS-CSR is more in line with the political guidance representing the national conditions as it was initiated by the Chinese Academy of Social Sciences (CASS), the highest academic institution and comprehensive research centre of Chinese philosophy and social sciences, under the State Council's direct leadership. In contrast, GRI may better apply to Western scenarios, focusing more on investors' privilege.

In practice, Dong and Xu (2016) believe that CASS-CSR is a useful tool for preparing CSR disclosure in China, as its standards are formulated based on GRI Guidelines while considering the unique Chinese characteristics. An (2021) suggested that CASS-CSR 3.0, as a comprehensive guidance, highlights feasible ways to instruct practical CSR disclosure in daily operations.

4.3.3.4 Apply CASS-CSR Indicators to Form SEDI Measurement

According to the subsections above, this research applies the fundamental indicators from CASS-CSR 2.0 to form the SEDI for quantitative and qualitative measurements of 'societal-layered principal-principal conflicts' in Chinese SOEs. This approach is consistent with sample companies' Chinese characteristics and avoids measurement deviations and misleading findings when directly applying a third-party CSR database without considering its theoretical definition (Galant and Cadez, 2017). Although CASS-CSR is tailored according to Chinese characteristics, I only found one piece of evidence applying it to evaluate CSR performance in China (Dong et al., 2020). Therefore, by establishing SEDI via CASS-CSR indicators, this research contributes to a new approach to measuring the societal-layered performance, exclusively representing the demands of the company's societal-layered principals in China.

This research uses indicators in CASS-CSR 2.0 to form the SEDI. Although both

versions of 1.0 and 2.0 provide specific indicators, version 2.0 has been improved based on practical feedback from companies that applied version 1.0 (Peng et al., 2011). Therefore, indicators in version 2.0 are complete and feasible, linking to the practical circumstances in China. After all, version 1.0 was a trial stage followed by an upsurge of criticisms on the accuracy of the results—for example, the unclear outlook, missing contents, or overlapping indicators. On the contrary, CASS-CSR 2.0 has made a rapid reaction to these criticisms and revised by integrating more than 30 elements from ISO26000, which has improved the omitted issues by the 1.0, such as customer information protection, corporate legitimacy, human rights, and bio-diversity protection (Guan and Noronha, 2013).

Following the three-dimensional stakeholder disclosure measurement (Lu and Abeysekera 2017)[84], this research selects quality and quantity measures to define SEDI. All indicators selected must reflect the demands of the company's societal-layered principals[85]. Firstly, 70 indicators from the main performance assessment[86] of CASS-CSR 2.0 are used to conduct SEDI quantity measurement (*SEDI_QUAN*). It Includes 9 in *M2 Customer and Product*, 7 in *M3 Partners*, 3 in *S1 Government*, 22 in *S2 Employee*, 4 in *S3 Safety Production*, 7 in *S4 Social Community*, 6 in *E1 Environment Protection*, 5 in *E2 Resource and Energy Saving*, and 7 in *E3 Pollution Reduction*. Each indicator stands for 1 score. The highest score that each company's *SEDI_QUAN* can get is 70, and the lowest is 0. Table 4.5 details these 70 indicators for the SEDI quantity measurement (*SEDI_QUAN*).

For the quality measure of SEDI (*SEDI_QUA*), I integrate these 70 indicators into 27 categories. For instance, the 9 indicators in *M2* describe 3 categories.

[84] Lu and Abeysekera's (2017) three-dimensional stakeholder disclosure measurement includes quantity measures, quality measures for disclosure types and quality measures for disclosure items. In which the quality measure for disclosure items is a two-hour questionnaire designed for the company's key stakeholders to obtain information on what the company needs to pay attention to on S and E disclosure according to stakeholders' perspectives. The quality measure for disclosure types uses a common CSRI (CSR Index) (Clarkson et al., 2008; Toms, 2002) to measure the quality of S and E disclosure based on standards from GRI.

[85] CASS-CSR 2.0 has 168 indicators, including 20 in Section P, 21 in Section G, 29 in Section M, 60 in Section S, 34 in Section E, and 4 in Section A.

[86] The main performance assessment means sections exclude the P section (report preface), the G section (responsibility governance) and the last A section (report appendix).

Respectively, *M2.1* to *M2.4* belong to the category of customer service; *M2.5* and *M2.6* belong to product quality; and *M2.7* to *M2.9* belong to product (service) innovation. Moreover, this research follows Lu and Abeysekera (2017) to apply content analysis to manually score each sample company's *SEDI_QUA* via the following five requirements: (1) general narrative; (2) specific endeavour communicated in non-quantitative terms; (3) quantified performance data; (4) quantified performance data relative to benchmarks (e.g., targets, industry, previous periods); and (5) quantified performance data at a disaggregate level (e.g., plant, business unit, geographic segment). Hence, the highest score that each company's *SEDI_QUA* can get is 135, and the lowest is 0. Table 4.6 shows the 27 categories integrated for the SEDI quality measurement (*SEDI_QUA*).

Table 4.5 The 70 Indicators Selected from CASS-CSR 2.0 for Quantity Measure of SEDI[87]

MARKET PERFORMANCE	
M1 SHAREHOLDERS	N/A
M2 CUSTOMER AND PRODUCT	
M2.1	Customer relationship management system
M2.2	Customer service system
M2.3	Customer information protection
M2.4	Customer satisfaction survey
M2.5	Product quality management system
M2.6	Rate of qualified product
M2.7	R&D or innovation support for product and service
M2.8	Number or proportion of R&D personnel
M2.9	Number of new patents
M3 PARTNERS	
M3.1	Assessment of social responsibility of supply chain
M3.2	Responsible procurement policy
M3.3	Responsible procurement ratio
M3.4	The concept or system for integrity management
M3.5	Integrity management training
M3.6	Credit rating
M3.7	The concept or system for fair competition
SOCIAL PERFORMANCE	
S1 GOVERNMENT	
S1.1	Corporate compliance policy
S1.2	Compliance training
S1.3	Tax
S2 EMPLOYEE	
S2.1	Compliance with national labour laws and regulations
S2.2	Labour contract signing rate
S2.3	The proportion or number of employees participating in the labor union
S2.4	Protect employees' personal information

[87] Note: The order number of each indicator selected is not consistent with the one issued in CASS-CSR 2.0.

S2.5	Protect rights and interests of part-time, temporary employees and subcontractors
S2.6	Social insurance coverage
S2.7	Competitive salaries provided to employees
S2.8	Days of annual paid leave
S2.9	Equal and non-discriminatory employment policy
S2.10	Wage ratio between male and female employees
S2.11	Proportion or number of female managers
S2.12	Proportion or number of employees with disabilities
S2.13	Occupational disease prevention system
S2.14	Occupational safety and health training
S2.15	Number of employees with occupational disease
S2.16	Medical examination and health file coverage
S2.17	Employee mental health system
S2.18	Employee training and career development
S2.19	Employee turnover rate
S2.20	Channels that employees' opinions can be communicated to senior management
S2.21	Help employees with difficulties
S2.22	Protection for special groups (such as pregnant and breastfeeding employees)
S3 SAFETY PRODUCTION	
S3.1	Safety production management and emergency system
S3.2	Safety production investment
S3.3	Number of employee casualties
S3.4	Safety production education and training
S4 SOCIAL COMMUNITY	
S4.1	Education support for community members
S4.2	Localised employment policy
S4.3	Localised employment number or rate
S4.4	Corporate charity or volunteer service policy
S4.5	Total donation
S4.6	Employees participate in local charity or volunteer activity
S4.7	Overseas charity or volunteer activity
ENVIRONMENTAL PERFORMANCE E1 ENVIRONMENT PROTECTION	

E1.1	Environmental protection and emergency system
E1.2	Total investment for environmental protection
E1.3	Protect biodiversity
E1.4	Environment assessment for the new project
E1.5	Development or application of technical equipment for environmental protection
E1.6	Environmental protection training
E2 RESOURCE AND ENERGY SAVING	
E2.1	Energy, water and renewable resource conservation policy
E2.2	Energy consumption and energy saved per unit output value
E2.3	Water consumption and water saved per unit output value
E2.4	Renewable resource usage or recycling rate
E2.5	Green Office
E3 POLLUTION REDUCTION	
E3.1	Policy or technology to reduce three-waste (waste gas, wastewater and waste)
E3.2	The volume of waste gas emissions and reduction
E3.3	The capacity of wastewater discharge and reduction
E3.4	The capacity for waste emissions and reduction
E3.5	Actively respond to climate change
E3.6	The volume of greenhouse gas emissions and reduction
E3.7	Noise control

Table 4.6 The 27 Categories Integrated for Quality Measure of SEDI

Market Performance
M1 Shareholders: N/A
M2 Customers
1) Customer service: M2.1 – M2.4
2) Product quality: M2.5 – M2.6
3) R&D and innovation support: M2.7 – M2.9
M3 Partners
1) Suppliers: M3.1 – M3.5
2) Distributers: M3.4 – M3.6
3) Competitors: M3.4 – M3.5, M3.7

Social Performance
S1 Government
1) Corporate compliance: S1.1 – S1.2
2) Tax: S1.3
S2 Employees
1) Protect employees' legal rights: S2.1 – S2.5
2) Employees' salary and benefits: S2.6 – S2.8
3) Equal and non-discriminatory employment: S2.9 – S2.12
4) Employee occupational safety and health: S2.13 – S2.17
5) Employee training and career development: S2.18 – S2.19
6) Channels that employees' opinions can be communicated to senior management: S2.20
7) Special treatment for employees in difficulties and special groups: S2.21 – S2.22
S3 Safety Production
1) Safety production: S3.1 – S3.3
2) Safety production education and training: S3.4
S4 Community Involvement
1) Localisation impact: S4.1 – S4.3
2) Volunteer and charity activity: S4.4 – S4.7

Environment Performance
E1 Environment
1) Environmental protection management: E1.1 – E1.4
2) R&D and technical application for environmental protection: E1.5
3) Environmental protection training: E1.6
E2 Resource and Energy Savings
1) Energy, water and renewable resource conservation: E2.1 – E2.4
2) Green office: E2.5
E3 Pollution Reduction
1) Reduce waste, waste gas, and wastewater emission: E3.1 – E3.4
2) Reduce greenhouse gas emissions: E3.5 – E3.6
3) Noise control: E3.7

4.4 Independent Variables

The independent variable is DEC (*EXECOM_DEF*). Following Deng et al. (2019) and Deng et al. (2021), this research defines the independent variable as a dummy variable. It equals 1 if the sample company has implemented the 'salary restriction order' in the current period. It equals 0 if not. Moreover, this research follows Deng et al. (2019), Deng et al. (2021), Li and Zhao (2020) and Bae et al. (2020) to conduct a quasi-natural experiment testing the effects of the 'salary restriction order' on alleviating double-layered principal-principal conflicts in Chinese SOEs. The variable *TREAT* is a dummy; it equals 1 when the treated companies comply with the policy from 2010 to 2015; otherwise, it equals 0, representing the control group which did not comply with the policy from 2007 to 2015. The time variable is a dummy measured as *POST*; it equals 1 when the year is from 2010 to 2015; otherwise, it equals 0.

4.5 Control Variables

This research follows Huyghebaert and Wang (2012), Huang and Wang (2015), Khaw et al. (2016) and Jiang et al. (2021) to control concentrated ownership (*TOP1*), as it is significantly associated with corporate volatility of return on assets (Faccio et al., 2016) and CSR performance (Li and Zhang, 2010). *TOP1* is defined as the percentage of the common share held by state ownership.

This research follows Huyghebaert and Wang (2012), Huang and Wang (2015), Khaw et al. (2016), Faccio et al. (2016), Berkman et al. (2010), Jiang et al. (2021), and Dunbar et al. (2020) to control board characteristics. Although documents in China show insignificant influences between several board characteristics and corporate risk (e.g., Khaw et al., 2016; Dong et al., 2017; Huang and Wang, 2015), the traditional corporate governance theories suggest that board characteristics enhance monitoring and provide constructive advice to improve CEO's decision making (Hillman and Dalziel, 2003; Hoskisson et al., 2017). Moreover, board diversity also significantly impacts a company's CSR performance, such as female

directors on the board (Harjoto et al., 2015), independent directors (Johnson and Greening, 1999), duality (Adams et al., 2005) and board size (Lau et al., 2016). Therefore, in this research, the board size (*BOARD_SIZE*) is the number of directors serving on the board. The independent director (*PCT_IND*) is measured as the percentage of independent directors serving on board. The female director (*PCT_FEM*) is calculated as the percentage of female directors serving on board. The duality (*DUAL*) is a dummy variable that equals 1 if the company's CEO and board chairman are the same person and 0 otherwise.

Previous literature shows that CEO characteristics, such as CEO cash compensation (Guay, 1999), CEO's age and new CEO (Sundaram and Yermack, 2007), CEO gender (Faccio et al., 2016; Khaw et al., 2016) are significantly associated with executives' risk-taking behaviours, thereby affecting corporate financial and investment risk. Moreover, CEO characteristics are closely linked to a company's CSR performance (Manner, 2010; Harjoto et al., 2015; Oh et al., 2018; Mahoney and Thorn, 2006). In this research, *CEO_AGE* measures the age of the CEO. *CEO_FEM* is a dummy variable that equals 1 if the company's CEO is female and 0 otherwise. *CEO_NEW* is a dummy variable that equals 1 if the company's CEO's tenure started in year *t* and 0 otherwise. The cash payment of CEO (*EXECOM_CASH*) is calculated as the natural logarithm of the CEO's cash compensation, which is the sum of salary and bonus in year *t*.

In addition, this research follows Cassell et al. (2012), Huyghebaert and Wang (2012), Faccio et al. (2001), Berkman et al. (2010), Jiang et al. (2021), and Dunbar et al. (2020) to control firm characteristics. The firm size (*FIRM_SIZE*) is calculated as the natural logarithm of total assets. The company's growth ratio (*GROWTH*) is calculated as total sales in year *t* to total sales in year *t -1*. The company's market-to-book value (*MTB*) is the company's market value of equity plus the book value of total liabilities divided by the book value of total assets. *ROA* is measured as the ratio of EBIT to total sales. Capital expenditure (*CAPEX*) is calculated as the book value of tangible fixed assets scaled by total assets. Leverage (*LEV*) is measured as the book value of total liabilities divided by the book value of total assets. Moreover,

this research uses Altman's Z-score to estimate the firm bankruptcy risk (*Z-SCORE*). It is measured as 1.2(working capital/total assets) + 1.4(retained earnings/total assets) + 3.3(earnings before interest and taxes/total assets) + 0.6(market value of equity/book value of total liabilities) + 0.999(sales/total assets).

Tables 4.7, 4.8 and 4.9 show the definitions and references of the main control variables for testing the policy effects of the 'salary restriction order' on the double-layered principal-principal conflicts in Chinese SOEs.

Table 4.7 Control Variables for Testing DEC and Corporate Risk

Variables		Definition	Reference
Ownership Characteristics	*TOP1*	The percentage of the common share held by state ownership.	Huang and Wang, 2015; Khaw et al., 2016
Board Characteristics	*BOARD_SIZE*	The number of directors serving on a company's board in the year t.	Huang and Wang, 2015
	PCT_IND	The percentage of independent directors on the board in the year t.	Huang and Wang, 2015; Khaw et al., 2016
	PCT_FEM	The percentage of female directors on the board in the year t.	Faccio et al., 2016; Khaw et al., 2016
CEO Characteristics	*CEO_AGE*	CEO's age.	Sundaram and Yermack, 2007
	CEO_FEM	A dummy variable that equals 1 if the company's CEO is female and 0 otherwise.	Faccio et al., 2016; Khaw et al., 2016
	CEO_NEW	A dummy variable that equals 1 if the company's CEO's tenure started in year t and 0 otherwise.	Sundaram and Yermack, 2007
	EXECOM_CASH	The natural logarithm of the CEO's cash compensation which is the sum of salary and bonus.	Cassell et al., 2012; Guay, 1999
Firm Characteristics	*FIRM_SIZE*	The natural logarithm of total assets.	Cassell et al., 2012
	GROWTH	The ratio of total sales in year t to total sales in year t -1.	Cassell et al., 2012
	MTB	The ratio of the market value of equity plus the book value of total liabilities divided by the book value of total assets.	Cassell et al., 2012; Huyghebaert and Wang, 2012

Table 4.8 Control Variables for Testing DEC and Wealth Expropriation

Variables		Definition	Reference
Ownership Characteristics	*TOP1*	The percentage of the common share held by state ownership.	Huyghebaert and Wang, 2012; Faccio et al., 2001
Board Characteristics	*BOARD_SIZE*	The number of directors serving on a company's board in the year t.	Huyghebaert and Wang, 2012
	PCT_IND	The percentage of independent directors on the board in the year t.	Huyghebaert and Wang, 2012
	DUAL	A dummy variable that equals 1 if the company's CEO and board chair are the same person and 0 otherwise.	Berkman et al., 2010
Firm Characteristics	*FIRM_SIZE*	The natural logarithm of total assets.	Faccio et al., 2001; Huyghebaert and Wang, 2012
	GROWTH	The ratio of total sales in year t to total sales in year t -1.	Faccio et al., 2001; Huyghebaert and Wang, 2012
	MTB	The ratio of the market value of equity plus the book value of total liabilities divided by the book value of total assets.	Huyghebaert and Wang, 2012
	ROA	The ratio of EBIT to total sales	Huyghebaert and Wang, 2012
	CAPEX	The book value of tangible fixed assets scaled by total assets.	Huyghebaert and Wang, 2012
	LEV	The book value of total liabilities divided by the book value of total assets.	Faccio et al., 2001; Berkman et al., 2010

Table 4.9 Control Variables for Testing DEC and Corporate Social Performance

Variables		Definition	Reference
Ownership Characteristics	*TOP1*	The percentage of the common share held by state ownership.	Jiang et al., 2021
Board Characteristics	*BOARD_SIZE*	The number of directors serving on a company's board in the year t.	Dunbar et al., 2020
	PCT_IND	The percentage of independent directors on the board in the year t.	Jiang et al., 2021
	PCT_FEM	The percentage of female directors on the board in the year t.	Dunbar et al., 2020
	DUAL	A dummy variable that equals 1 if the company's CEO and board chair are the same person and 0 otherwise.	Jiang et al., 2021
CEO Characteristics	*CEO_AGE*	CEO's age.	Dunbar et al., 2020
	CEO_FEM	A dummy variable that equals 1 if the company's CEO is female and 0 otherwise.	Dunbar et al., 2020
	EXECOM_CASH	The natural logarithm of the CEO's cash compensation.	Dunbar et al., 2020
Firm Characteristics	*FIRM_SIZE*	The natural logarithm of total assets.	Jiang et al., 2021; Dunbar et al., 2020
	ROA	The ratio of EBIT to total sales	Jiang et al., 2021; Dunbar et al., 2020
	LEV	The book value of total liabilities divided by the book value of total assets.	Jiang et al., 2021; Dunbar et al., 2020
	CAPEX	The book value of tangible fixed assets scaled by total assets.	Dunbar et al., 2020
	Z-SCORE	Altman's Z score = 1.2 (working capital/total assets) + 1.4(retained earnings/total assets) + 3.3 (earnings before interest and taxes/total assets) + 0.6(market value of equity/book value of total liabilities) + 0.999(sales/total assets)	Dunbar et al., 2020

4.6 Difference-in-Difference (DID) Model

This section indicates the rationale and process for applying the DID models to examine the policy effects of 'salary restriction order' on mitigating the double-layered principal-principal conflicts in Chinese SOEs.

4.6.1 Rationale

Consistent with the rationale stated in sample selection (i.e., Section 4.2.1), because of the exogenous shock (i.e., the 'salary restriction order' implemented in 2010) and the self-selection process of the sample companies[88], this research follows Deng et al. (2019), Deng et al. (2021), Li and Zhao (2020) and Bae et al. (2020) to estimate the effects of DEC on the double-layered principal-principal conflicts using quasi-natural experiment via DID models. This research sets the sample companies that started implementing the 'salary restriction order' from 2010 to 2015 as the treatment group; in contrast, the remaining did not implement the policy from 2009 to 2015 as the control group. Therefore, 74 sample companies were selected, including 24 treatments and 50 controls[89].

Previous research on DEC or CEO inside debt mainly examined the US market, as the SEC required the US-listed companies to disclose CEO pension plans and other deferred compensation in 2006 (Li and Zhao, 2020). Following Cassell et al. (2012), many studies apply the proxies, such as CEO-to-firm debt/equity ratio, CEO relative incentive ratio, or CEO relative incentive ratio calculated plus cash, to assign values to the CEO inside debt. In addition, they chose the baseline OLS regression, followed by 2SLS regression or IV method to test endogeneity as their research approaches (e.g., Cassell et al., 2012; Anantharaman et al., 2014; Dang and Phan,

[88] The self-selection process means whether or when the listed subsidiary SOE chose to comply with the policy.

[89] This research aims to examine the policy effect of restricting executives' compensation on the double-layered principal-principal conflicts in Chinese SOEs, and the '*Salary Restriction Order*' was announced at the end of 2009 and was implemented on Jan 1st 2010. Thus, the choice of this time point helps distinguish the changes in these observed treated and control groups before and after the policy took effect. It can estimate whether these changes were brought about by the implementation of the policy. The robustness check for the timing is shown in Chapter 5, Section 5.5.1.

2016; Campbell et al., 2016; Shen and Zhang, 2020).

Although the causality of conventional OLS regression is clear and easy to understand, in practice, it is likely to trap in a dilemma whether any major but unobservable variable(s) still exists interfering with the causality. In this case, using instrumental variable(s) combined with 2SLS regressions may provide an appropriate solution. However, good instrumental variable(s) are difficult to find (Angrist and Pischke, 2009).

On the contrary, a natural or quasi-natural experiment will likely avoid this inevitable endogeneity because the DID model is a robust method that uses a control group to deal with both observable and unobservable factors (Angrist and Pischke, 2009). It examines data characteristics in time or cohort dimension to control unobservable but fixed variables (Angrist and Pischke, 2009). This model starts from the characteristics of the sample data as a whole, considering the trendy factors of individuals when they do not interfere. Then, control these trendy factors in both the treatment and control groups. Finally, compare the level of differences between these two groups. The parameters belonging to these differences are what the model needs to focus on: the changes in the variable before and after the intervention. It is worth mentioning that, in the study of Shen and Zhang (2020), besides the above-mentioned conventional regression models, they applied an extra DID approach. The results were significant and robust.

To the best of my knowledge, relevant DEC studies in China were initiated by Deng et al. (2019), who applied a quasi-natural experiment to test the effectiveness of DEC in reducing bank risk-taking behaviours in the Chinese banking sector[90]. Ever since, DEC studies in China have focused more on the banking sector as its natural industrial attribute of high risk and influence (Jiang et al., 2019; Deng et al., 2021). Combined with PSM tests, they found significant and robust results linking the causality between DEC policy and risk-moderating effect, consistent with Edmans

[90] China Banking Regulatory Commission announced '*Issuing the Guidelines for the Supervision of Steady Salary in Commercial Banks*' in early 2010. Thereby, this police can be applied as an exogenous shock.

and Liu (2011). In addition, one working paper (Bae et al., 2020) examined the SASAC 'salary restriction order' directly on the performance of central SOEs. Therefore, theoretically and contextually, the DID model is appropriate to test my research hypotheses.

4.6.2 The Difference-in-Difference (DID) Model

This paper uses the implementation date of the 'salary restriction order', January 1st, 2010, as the intervention point and sets the observation period from 2007 to 2015[91]. By applying the DID model with both individual and time-fixed effects, this research examines how DEC is associated with the economic-layered principal-principal conflicts on risk preference (*H1a*, *H1b*) and wealth expropriation (*H2*, *H3*) and the societal-layered principal-principal conflicts on corporate social performance (*H4*, *H5*).

$$RISK_{it} = \beta_0 + \beta_1 TREAT_i + \beta_2 POST_t + \beta_3 (TREAT_i \times POST_t) + \beta Controls_{it} + c_i + c_t + \varepsilon_{it} \quad (1)$$

Equation (1) tests the effect of DEC (i.e., the 'salary restriction order') on mitigating economic-layered principal-principal risk preference (i.e., proxied by variables that measure corporate risk (*RISK*), including *RISK_FIN*, *RISK_INV*, and *VOL_STR_3*) between large/controlling shareholders and outside creditors. For the control group (i.e., *TREAT* = 0), the coefficients of corporate risk (*RISK*) before (*POST* = 0) and after (*POST* = 1) implementing the 'salary restriction order' are β_0 and $\beta_0 + \beta_2$. Therefore, for the control group, the difference in the impacts on corporate risk (*RISK*) before and after the implementation year of the 'salary restriction order' is $diff_0 = \beta_2$. This difference can be regarded as a fixed-time effect when testing the effects of DEC on corporate risk (*RISK*). In the same way, for the treatment group (i.e., *TREAT* = 1), the coefficients of corporate risk (*RISK*) before (*POST* = 0) and

[91] The term of appointment of senior management personnel of central enterprises is three years. Therefore, 2007-2009 is the firm term, 2010-2012 is the second term, and 2013-2015 is the third term. From 2007 to 2012, these two terms have made a perfect DID model, and the extended inspection period is to test the continuity of the policy.

after (*POST* = 1) implementing the 'salary restriction order' are $\beta_0 + \beta_1$ and $\beta_0 + \beta_1 + \beta_2 + \beta_3$. The difference is $diff_1 = \beta_2 + \beta_3$. By comparing the coefficient difference between the treatment group and the control group, the net impact of DEC on corporate risk (*RISK*) is $diff_1 - diff_0 = \beta_3$. Hence, β_3 is the key parameter for this research. If *H1a* was true, the coefficient β_3 should be significantly negative. If *H1b* was true, the coefficient β_3 should be significantly positive.

$$WEALTH\_EXP_{it} = \beta_0 + \beta_1 TREAT_i + \beta_2 POST_t + \beta_3 (TREAT_i \times POST_t) + \beta Controls_{it} + c_i + c_t + \varepsilon_{it} \quad (2)$$

Equation (2) tests the effects of DEC on mitigating traditional economic-layered principal-principal conflicts (i.e., wealth expropriation (*WEALTH_EXP*), proxied by the following variables: *DIV_NP*, *DIV_SA*, *DIV_MV*, and *REC_AS*) between large shareholders and minority shareholders. As the same analysis as the above equation (1), therefore, β_3 is the key parameter in this research. If *H2* was valid, when testing the dividend pay-out ratios (*DIV_NP*, *DIV_SA*, and *DIV_MV*), the coefficient of β_3 should be significantly positive. In addition, if *H3* was valid when testing the related-party transaction through other receivables (*REC_AS*), the coefficient of β_3 should be significantly positive.

$$SEDI_{it} = \beta_0 + \beta_1 TREAT_i + \beta_2 POST_t + \beta_3 (TREAT_i \times POST_t) + \beta Controls_{it} + c_i + c_t + + \varepsilon_{it} \quad (3)$$

Equation (3) tests the effects of DEC on mitigating the societal-layered principal-principal conflicts (i.e., corporate social performance, measured as *SEDI_QUAN* and *SEDI_QUA*). As the same analysis as the above equation (1) and (2), therefore, β_3 is the key parameter in this research. If *H4* and *H5* were true, based on Mayberry (2020), the coefficient β_3 should be significantly positive.

4.6.3 The Mediation Effect of Corporate Risk

$$DIV_{it} = cEXECOM\_DEF_{it} + Controls_{it} + \varepsilon_{it} \quad (4)$$

$$RISK_{it} = aEXECOM\_DEF_{it} + Controls_{it} + \varepsilon_{it} \quad (5)$$

$$DIV_{it} = c'EXECOM\_DEF_{it} + bRISK_{it} + Controls_{it} + \varepsilon_{it} \quad (6)$$

$$SEDI_{it} = cEXECOM\_DEF_{it} + Controls_{it} + \varepsilon_{it} \quad (7)$$

$$RISK_{it} = aEXECOM\_DEF_{it} + Controls_{it} + \varepsilon_{it} \quad (8)$$

$$SEDI_{it} = c'EXECOM\_DEF_{it} + bRISK_{it} + Controls_{it} + \varepsilon_{it} \quad (9)$$

Equations (4), (5), and (6) are the traditional 3-step regressions to test the mediation effect (Baron and Kenny, 1986). In this case, they examine the effects of the mediator variable, corporate risk (*RISK*, proxied by *RISK_FIN*, *RISK_INV*, and *VOL_STR_3*), on the associations between DEC (*EXECOM_DEF*) and dividend pay-out ratios (*DIV*, proxied by *DIV_NP*, *DIV_SA*, and *DIV_MV*). The coefficient c' in equation (6) means the direct effect of DEC (*EXECOM_DEF*) on dividend pay-out ratios (*DIV*), and the value of coefficient *a* in equation (5) times the coefficient *b* in equation (6), *ab*, means the indirect effect of DEC (*EXECOM_DEF*) through corporate risk (*RISK*) to dividend pay-out ratios (*DIV*). Thereby, the coefficient of the total effect of DEC (*EXECOM_DEF*) on dividend pay-out ratios (*DIV*) is (c'+ *ab*).

Similarly, equations (7), (8), and (9) test the mediation effect of corporate risk (*RISK*, proxied by *RISK_FIN*, *RISK_INV*, and *VOL_STR_3*) on the associations between DEC (*EXECOM_DEF*) and corporate social performance (*SEDI*, proxied by *SEDI_QUAN* and *SEDI_QUA*). The coefficient c' in equation (9) means the direct effect of DEC (*EXECOM_DEF*) on corporate social performance (*SEDI*). The value of coefficient *a* in equation (8) times the coefficient *b* in equation (9), *ab*, means the indirect effect of DEC (*EXECOM_DEF*) through corporate risk (*RISK*) to corporate social performance (*SEDI*). Thereby, the coefficient of the total effect of DEC (*EXECOM_DEF*) on corporate social performance (*SEDI*) is (c'+ *ab*).

This research selects Sobel tests and Bootstrap tests to explore the mediation effect of corporate risk, as the traditional 3-step regressions (Baron and Kenny, 1986) may be invalid when the coefficient is insignificant (Fritz and Mackinnon, 2007). Sobel tests and Bootstrap tests have avoided this flaw, as their null hypothesis only

requires that the coefficient of the indirect effect $ab \neq 0$ (Sobel, 1982; Preacher and Hayes, 2008; Preacher et al., 2007). Hence, if $ab \neq 0$, it indicates consistency with Edmans and Liu (2011) that corporate risk acts as a mediator variable on the associations between DEC and wealth expropriation via dividend pay-outs (corporate social performance), which supports hypotheses *H2* (*H4*). Otherwise, it is consistent with Bae et al. (2020) (Kane (2002)) that DEC directly affects wealth expropriation via tunnelling (corporate social performance), which supports hypotheses *H3* (*H5*).

4.7 Chapter Summary

This research selects 74 A-share listed SOEs from 293 SASAC subsidiaries from 2007 to 2015, forming a panel dataset. By applying the 'salary restriction order' implemented in 2010 as an exogenous shock, this research set a quasi-natural experiment (i.e., DID model) to test the policy effect of DEC on the double-layered principal-principal conflicts in these Chinese SOEs.

The independent variable is DEC, and the dependent variables are the economic and societal layers of principal-principal conflicts. Following Cassell et al. (2012), Faccio et al. (2016), Koirala et al. (2020), and Yung and Chen (2017), corporate risk (calculated by *RISK_FIN*, *RISK_INV*, and *VOL_STR_3*) is the proxy for measuring the economic-layered principal-principal risk preference between large shareholders and outside creditors. Following Faccio et al. (2001), Caliskan and Doukas (2015), and Borah et al. (2020), dividend pay-out ratios (calculated by *DIV_NP*, *DIV_SA*, and *DIV_MV*) are the proxies for measuring the traditional economic-layered principal-principal wealth expropriation between large shareholders and minority shareholders. Alternatively, following Jiang et al. (2010), Aharony et al. (2010), and Boateng and Huang (2017), related-party transactions (calculated by *REC_AS*) are also examined as the dependent variable from the perspective of the traditional economic-layered principal-principal wealth expropriation via tunnelling.

Regarding the dependent variable, the societal-layered principal-principal conflicts

(proxied by corporate social performance, calculated by *SEDI_QUAN* and *SEDI_QUA*), this chapter follows Lu and Abeysekera (2017) and contributes to establishing a measurement for this new term. It applies indicators from the CASS-CSR 2.0 and forms both quantitative and qualitative SEDI exclusively for measuring the societal-layered principal-principal conflicts in China.

In addition, this chapter explains the traditional 3-step regressions (Baron and Kenny, 1986) and the derived Sobel tests and Bootstrap tests for examining the mediation effect of corporate risk. These methods help to explore further causality between DEC and the double-layered principal-principal conflicts.

Chapter 5. Results and Discussion

5.1 Introduction

This chapter presents the empirical results and explains the findings referring to the hypotheses developed in Chapter 3. Section 5.2 provides the descriptive statistics of the main variables. Section 5.3 shows the results and discussion using baseline Two-Way Fixed Effect regressions. To estimate the coefficients more accurately, Section 5.4 presents the results and discussion using DID tests with clustering robust standard errors to examine the policy effects of 'salary restriction order' on economic and societal layers of principal-principal conflicts. Section 5.5 provides four robustness checks to support the empirical results. To testify to the feasibility of using DID tests, subsections 5.5.1 and 5.5.2 show the results of Parallel Trend tests and Placebo tests. To argue the risk-moderating effect of DEC derived by the *CEO Inside Debt Theory* (Edmans and Liu, 2011), which demonstrates as a key theory in the literature chapter developing *H1a*, *H1b*, *H2*, and *H4*, subsections 5.5.3 and 5.5.4 indicate the findings of 2SLS regressions using the CEO's age as IV (Sundaram and Yermack, 2007; Cassell et al., 2012) and two mediation effect tests, Sobel tests and Bootstrap tests. The results of the robustness checks are consistent with the main DID tests.

5.2 Descriptive Statistics

Tables 5.1a, 5.1b, and 5.1c present the descriptive statistics of the main independent, dependent, and control variables. All non-dummy variables have been winsorised at the 1% and 99% levels, thereby reducing the impact of extreme values on the estimation of parameters.

Table 5.1a shows the descriptive statistics of the independent variables, deferred executive compensation (DEC). *TREAT* and *POST* are the dummy variables used in DID tests to estimate the policy effects of the 'salary restriction order' implemented since 2010. *EXECOM_DEF* is also a dummy variable used for the baseline Two-Way Fixed Effect regressions. *TREAT* equals 1 when the treated companies comply with the policy from 2010 to 2015; otherwise, it equals 0, representing the control group

which did not comply with the policy from 2007 to 2015. *POST* equals 1 when the year is from 2010 to 2015; otherwise, it equals 0, representing the year from 2007 to 2009. *EXECOM_DEF* is the interaction term calculated by *TREAT***POST*. It equals 1 if the sample company has implemented the 'salary restriction order' in the current period. It equals 0 if not.

There are 74 sample companies, 20 are treated, and 54 are controlled. The mean of *EXECOM_DEF* (*0.180*) is a product of the mean of *TREAT* and *POST* (0.270*0.667). The larger number of sample companies in the control group leads to this relatively low figure of the mean of *EXECOM_DEF*. The previous PSM tests, selecting risk-taking variables, state ownership and firm characteristics, indicate that the treated and control groups are consistent and comparable (*Chapter 4, Section 4.2.3*). Then, the difference in numbers (i.e., 20 are treated and 54 are controlled) may not have a significant impact (Conley and Taber, 2011).

Table 5.1a Descriptive Statistics of Independent Variables

Independent Variables	(1) N	(2) mean	(3) SD	(4) min	(5) max
TREAT	666	0.270	0.444	0	1
POST	666	0.667	0.472	0	1
EXECOM_DEF	666	0.180	0.385	0	1

This table presents the descriptive statistics of the independent variables: *TREAT, POST* and *EXECOM_DEF*. All variables are defined in Chapter 4 and Appendix A.

Table 5.1b shows the descriptive statistics of the main dependent variables: economic and societal layered principal-principal conflicts. Panels A, B, and C indicate that the main proxies for the economic-layered principal-principal conflicts emerge from large/controlling shareholders towards outside creditors and minority shareholders.

Specifically, Panel A presents the dependent variables of risk preference between large

shareholders and outside creditors (Edmans and Liu, 2011; Laeven and Levine, 2009; Cassell et al., 2012), proxied by corporate risk (i.e., *RISK_INV*, *RISK_FIN*, and *VOL_STR_3*). *RISK_INV* measures the risk of corporate long-term investment, *RISK_FIN* measures the risk of corporate leverage, and *VOL_STR_3* measures the volatility of corporate stock return in 3 years (Cassell et al., 2012; Faccio et al., 2016; Yung and Chen, 2018; Koirala et al., 2020).

The mean of *RISK_INV*, *RISK_FIN*, and *VOL_STR_3* is 0.208, 0.580, and 0.645, respectively. The figure 0.208 (mean of *RISK_INV*) suggests that Chinese SOEs increase averagely 20.8% long-term assets for investment activities per year compared to the previous year. The proportion of investment activities by Chinese SOEs is usually guided by government policies, and these enterprises play a leading and driving role in key national sectors and strategic industries. As a result, the proportion of their investment activities may be relatively high (Lin et al., 2020). The minimum negative figure (-0.350) indicates a decline of long-term investment in current period compared to the previous period. The figure 0.580 (mean of *RISK_INV*) implies that average long-term debt of Chinese SOE accounts for 58% of the total ratio between it and equity. The concentration of Chinese SOEs in high-asset industries, such as petroleum and petrochemical, coal, chemical, iron and steel, and their weak capacity for returns on investment is the direct cause of the high leverage ratio (Firth et al., 2008). The mean of stock volatility (0.645) is the highest among the proxies of corporate risk in this research. Refer to the previous literature (Jiang and Kim, 2020), it reflects the uncertainty and instability of current emerging capital market in China. Besides, the excessive volatility also indicates that certain SOEs may remain in a monopoly position supported by the government, which enables them to make higher profits in the market (Lin et al., 2020).

Table 5.1b, Panels B and C show the proxies for the traditional economic-layered principal-principal conflicts (i.e., wealth expropriation) between large shareholders and minority shareholders. Panel B presents the proxies of wealth expropriation via dividend pay-out ratios, *DIV_NP*, *DIV_SA*, and *DIV_MV*, respectively measures the

cash dividend play-out scaled by the net profits, sales, and market capitalisation, according to the associations of wealth expropriation and dividend (Faccio et al., 2001). Panel C presents the alternative proxies of wealth expropriation via tunnelling behaviours (Johnson et al., 2000; Jiang et al., 2010); *REC_AS* measures the ratio of other receivables scaled by total assets.

The mean of *DIV_NP*, *DIV_SA*, *DIV_MV* and *REC_AS* is 2.550, 0.0636, 0.0455 and 0.0157 respectively. The mean of *DIV_NP* is abnormal; it (2.550) shows that the average cash dividend pay-out is 2.55 times higher than the accounting earnings. The excessive cash dividend pay-out indicates that SOEs may be intent to pander to shareholders to attract more investment. However, their actual financial performance is poor, showing the mean of *DIV_SA* is 0.0636, caused by deficiencies on cost and expense controls. These two figures (2.550 and 0.0636) reflect the waste of human resources and operating costs due to excessive bureaucracy prevalent in Chinese SOEs (Jin et al., 2022).

Table 5.1b, Panel D shows the proxies for the societal-layered principal-principal conflicts (i.e., corporate social performance) between large shareholders and the company's primary social and environmental stakeholders defined in *Chapter 3*. The proxies are measured by SEDI (Lu and Abeysekera, 2017). Variables *SEDI_QUA* and *SEDI_QUAN* are the quantitative and qualitative scores calculated according to each company's CSR/environmental/integrated report or disclosure.

The mean of *SEDI_QUA* and *SEDI_QUAN* is 38.70 and 25.16, and the standard deviation is 16.33 and 10.11 respectively. Although the standard deviation varies, the coefficient of variation of *SEDI_QUA* and *SEDI_QUAN*, calculated as the ratio of the standard deviation to its mean, is 0.422 and 0.402, suggests the similarity of the degree of dispersion in the quality and quantity of social and environmental performance of each sample SOE firm.

Table 5.1b Descriptive Statistics of Main Dependent Variables

Dependent Variables	(1) N	(2) mean	(3) SD	(4) min	(5) max
Panel A: Proxies for Corporate Risk					
RISK_INV	666	0.208	0.355	-0.350	2.356
RISK_FIN	666	0.580	0.209	0.0879	0.990
VOL_STR_3	666	0.645	0.513	0.0371	3.275
Panel B: Proxies for Wealth Expropriation via Dividend Pay-out					
DIV_NP	663	2.550	7.070	-2.679	46.30
DIV_SA	663	0.0636	0.0764	0.00129	0.430
DIV_MV	663	0.0455	0.0794	0.000414	0.544
Panel C: Proxies for Wealth Expropriation via Tunnelling					
REC_AS	666	0.0157	0.0200	0.000164	0.107
Panel D: Proxies for Corporate Social Performance					
SEDI_QUA	666	38.70	16.33	14	96
SEDI_QUAN	666	25.16	10.11	9	55

This table presents the descriptive statistics of the main dependent variables. Panel A, B, C, and D show the dependent variables: *RISK_INV, RISK_FIN,* and *VOL_STR_3* are proxies for corporate risk, *DIV_NP*, *DIV_SA*, *DIV_MV* and *REC_AS* are proxies for wealth expropriation, and *SEDI_QUA* and *SEDI_QUAN* are proxies for corporate social performance. All variables are defined in Chapter 4 and Appendix A. All non-dummy variables have been winsorised at the 1% and 99% levels.

Table 5.1c presents the descriptive statistics of the main control variables. Respectively, Panels A, B, and C show the characteristics of ownership and board, CEO, and firm.

The overall degree of distribution from each variable's mean to the standard deviation is normal. The interesting part is that although this research only focuses on 74 Chinese-listed SOEs, the board variables of *BOARD_SIZE* and *PCT_IND* show consistency with the corporate governance studies in China (Jiang and Kim, 2015, 2020). The mean of board size and percentage of independent directors is 9.617 (standard deviation is 1.889) and 0.364 (standard deviation is 0.0584), respectively, which is slightly above the minimum number of board of directors and almost the same minimum percentage of independent directors required by the *Code of Corporate Governance* in China (Jiang and Kim, 2015). Moreover, female directors and CEOs are less common in China; the mean is 0.0839 and 0.012, respectively. These results indicate that the board function in China is less effective via internal corporate governance monitoring (Jiang and Kim, 2015, 2020) or the gender diversity perspective (Francoeur et al., 2008).

Furthermore, although after the natural logarithm, the value of executive cash compensation (*EXECOM_CASH*) shows quite a low standard deviation (0.694), the actual standard deviation of executive cash compensation is around 405k RMB compared to the mean value (around 620k RMB)[92]. It indicates that there are certain differences among the executive cash payments during the study period. It may also be assumed that there is a possibility that this deviation is caused by the effect of the 'salary restriction order', limiting the performance-based pay.

The overall statistics of firm characteristics are normal, except the data of Altman Z-score (*ZSCORE*). The mean of the Altman Z-score is 1.555 indicating that the sample

[92] The mean and standard deviation of executive cash compensation are 619,865 and 404,851, respectively. They are not shown in Table 5.1c because they are not used for empirical tests.

SOEs are averagely in a poor financial position with a high percentage of bankruptcies[93]. The mean of return on total assets (*ROA*) is 0.0318 also showing a low profitability. However, the calculation of Altman Z-score is based on the original bankruptcy model which predicts mature capital market, mainly the manufacturing industries (Altman et al., 2017). Therefore, the standard of zones is different when examining the emerging markets. According to studies in the emerging markets, especially in the context of China, the mean of the Altman Z-score (1.555) is in the middle of 'grey zone', reflecting poor financial performance of the SOEs as previous literature described (e.g., Jiang and Kim, 2015, 2020; Tolikas, 2016).

[93] Zones of discrimination in original Altman Z-score: $Z>2.99$ is safe zone, indicates the company is very unlikely to become insolvent; $1.81<Z<2.99$ is grey zone, indicates the company is 95% likely to become insolvent within one year and 70% likely to become insolvent within two years; $Z<1.81$ is distress zone, indicates the company is very likely to become insolvent. However, in the emerging markets, $Z>2.6$ is safe zone; $1.1<Z<2.6$ is grey zone; and $Z<1.1$ is distress zone (Altman et al., 2017).

Table 5.1c Descriptive Statistics of Main Control Variables

Control Variables	(1) N	(2) mean	(3) SD	(4) min	(5) max
Panel A: Ownership and Board Characteristics					
TOP1	666	41.72	13.47	13.04	70.54
BOARD_SIZE	666	9.617	1.889	5	15
PCT_IND	666	0.364	0.0584	0.300	0.625
PCT_FEM	666	0.0839	0.0907	0	0.375
DUAL	666	0.126	0.332	0	1
Panel B: CEO Characteristics					
CEO_AGE	666	48.84	5.276	35	60
CEO_FEM	666	0.0120	0.109	0	1
CEO_NEW	666	0.213	0.410	0	1
EXECOM_CASH	666	13.13	0.694	11.00	14.72
Panel C: Firm Characteristics					
FIRM_SIZE	666	8.906	1.591	6.176	13.18
GROWTH	666	1.167	0.270	0.595	2.194
MTB	666	3.402	2.189	0.573	11.39
ROA	666	0.0318	0.0378	-0.0841	0.193
CAPEX	666	0.0621	0.0558	0.00119	0.281
LEV	666	0.551	0.197	0.108	0.894
ZSCORE	666	1.555	1.005	0.0240	5.214

This table presents the descriptive statistics of the main control variables. Variables in Panel A, *TOP1*, *BOARD_SIZE*, *PCT_IND*, *PCT_FEM*, and *DUAL* measure the ownership and board characteristics. Panel B, *CEO_AGE*, *CEO_FEM*, *CEO_NEW* and *EXECOM_CASH*, measures the CEO characteristics. Panel C, *FIRM_SIZE*, *GROWTH*, *MTB*, *ROA*, *CAPEX*, *LEV* and *ZSCORE*, measures the firm characteristics. All variables are defined in Chapter 4 and Appendix A. All non-dummy variables have been winsorised at the 1% and 99% levels.

5.3 Baseline Two-Way Fixed Effect Regressions

The sample set is a firm-year panel data. Therefore, after the Hausman tests[94], the results reject the null hypothesis, which means the random effect is not applicable (Torres-Reyna, 2007). Following Cassell et al. (2012), Anatharaman et al. (2014), Phan (2014), Dang and Phan (2016) and Borah et al. (2020), this study initially applies the baseline Two-Way Fixed Effect regressions to estimate the associations between DEC and double-layered principal-principal conflicts. Tables 5.2, 5.3, and 5.4 show the regression results.

Table 5.2 presents the results of the Two-Way Fixed Effect regressions testing the associations between DEC and corporate risk. It reflects the economic-layered risk preference between large shareholders and outside creditors derived from the *CEO Inside Debt Theory* (Edmans and Liu, 2011; Cassell et al., 2012) and the risk-averse nature of the debtholders (Laeven and Levine, 2009). As shown in all columns, the results are statistically insignificant. It indicates that DEC is insignificantly associated with corporate risk on the levels of corporate long-term investment, financial, and stock return volatility. This research also uses the alternative proxies for corporate risk, such as extending the volatility of stock return in 5 years (*VOL_STR_5*) and examining the volatility of ROA (*VOL_ROA*) following Faccio et al. (2016), the results still are statistically insignificant.

Therefore, the results are inconsistent with Edmans and Liu (2011) and many related studies examined in the US (e.g., Cassell et al., 2012; Bennett et al., 2015; Van Bekkum, 2016; Srivastav et al., 2018), which believed that issuing long-term debt-based compensation to CEOs would encourage them to make less risky strategies. This research found insignificant associations between DEC and corporate risk. It indicates that implementing the 'salary restriction order' is unlikely to alleviate the risk preference between large shareholders and outside creditors in Chinese SOEs. The research finding is consistent with Li and Zhao (2020), who found an insignificant

[94] Please see Appendix D for the results of the Hausman tests.

change in firm risk-taking when declining CEO pensions in the UK. Overall, the results in Table 5.2 cannot support either hypotheses *H1a* or *H1b*.

Table 5.3 presents the results of the Two-Way Fixed Effect regressions testing associations between DEC and the traditional economic-layered principal-principal conflicts (i.e., wealth expropriation). Most of the results are statistically significant except for the proxy *DIV_MV*, which measures a company's annual dividend pay-out divided by market capitalisation. The reason why this proxy is statistically insignificant may be because of the less mature capital market in China (Jiang and Kim, 2020). The measurement of this proxy originated from the Western market (Faccio et al., 2001); the emerging stock market in China is incomparable to those in the developed regions (Jiang and Kim, 2020).

The results in Table 5.3 also reveal the dark side of limiting executives' pay. It shows that DEC significantly accelerates wealth expropriation between large shareholders and minority shareholders by decreasing dividend pay-out ratios and increasing tunnelling behaviours.

Table 5.3, Columns 1, 2, and 4 show a significantly negative impact after limiting executive pay as the reducing dividend pay-out ratios (*DIV_NP* and *DIV_SA*) indicate a higher level of wealth expropriation (Faccio et al., 2001; Pan and Tian, 2016; Jiang et al., 2019). The rate at which corporations pay dividends provides a perspective on insider expropriation because dividends transfer wealth from the discretion of the controlling shareholder to all shareholders on a pro-rata basis. By contrast, the balance sheet items above the dividend line can be manipulated in favour of the large/controlling shareholders. These results indicate that large/controlling shareholders intend to keep the wealth to themselves rather than pay minority shareholders (Faccio et al., 2001). Meanwhile, according to the *Signalling Hypothesis* (Spence, 1973), these irregular dividend pay-out behaviours also send a negative signal to outside investors, thereby decreasing the possibility of further capital inflow, which

purposely avoids diluting the shareholding of large/controlling shareholders (Pan and Tian, 2016). This negative signal may also be a creditability challenge for the outside investors and minority shareholders towards the large/controlling shareholders, intensifying the economic-layered principal-principal conflicts among them.

Table 5.3, Columns 7 and 8 show consistent negative results from the perspective of tunnelling behaviour (Johnson et al., 2000; Jiang et al., 2010; Bae et al., 2020). It indicates that deferred executive payment stimulates SOE managers to increase corporate financial performance by manipulating the related-party loans (*REC_AS*). Through this behaviour, SOE managers may desire to raise their performance-based payment to compensate for the loss because of the implementation of the 'salary restriction order' (Jiang et al., 2010).

This finding is consistent with Li and Zhao (2020), who found an increase in executives' income tax when the UK pension reform declined their pensions. Also, it is consistent with Bae et al. (2020), who found an increase in executives' daily perks. These findings demonstrate that limiting executives' pay would result in unexpected monetary outflows (Dittmann et al., 2011). Consequently, these increasing tunnelling behaviours (proxied by *REC_AS*) negatively affect the interests of minority shareholders.

Therefore, inconsistent with the view of CEO debt-to-equity incentives (Jensen and Meckling, 1976) and its derived CEO inside debt view (Edmans and Liu, 2011), findings on testing the policy effects of DEC on the traditional economic-layered principal-principal conflicts are consistent with the negative consequences view when limiting executive pay (Dittmann et al., 2011; Deng et al., 2021; Bae et al., 2020; Li and Zhao, 2020). The negative associations between DEC and wealth expropriation indicate that the 'salary restriction order' is unlikely to mitigate the traditional economic-layered principal-principal conflicts between large shareholders and minority shareholders. The results in Table 5.3 support hypothesis *H3* but not *H2*.

Table 5.4 presents the results of the associations between DEC and societal-layered principal-principal conflicts (i.e., corporate social performance) defined in this study. As shown in the columns, the results are statistically significant. It indicates that DEC is significantly associated with corporate social performance in terms of quantitative and qualitative measurements. Moreover, the coefficients of both proxies are positive, which means deferred compensation may encourage executives to consider corporate long-run prospects (Kane, 2002). Therefore, consistent with Kane (2002), Wu and Lin (2019), Kim et al. (2020), Boubaker et al. (2020), Sheikh (2020), and Benlemlih et al. (2022), I find a positive and significant association between DEC and corporate social performance. It indicates that the 'salary restriction order' may act as a promising corporate governance mechanism that eases the societal-layered principal-principal conflicts between large shareholders and the company's primary social and environmental stakeholders. The results in Table 5.4 support hypotheses *H4* and *H5*.

Table 5.2 Two-Way Fixed Effect: Deferred Executive Compensation and Corporate Risk

	RISK_INV		*RISK_FIN*		*VOL_STR_3*	
	(1)	(2)	(3)	(4)	(5)	(6)
EXECOM_DEF	0.0522	0.0113	0.0600	0.0497	-0.1840	-0.1846
	(0.75)	(0.18)	(1.54)	(1.31)	(-1.26)	(-1.42)
TOP1		0.0002		0.0008		0.0037
		(0.07)		(0.49)		(1.43)
BOARD_SIZE		0.0228		0.0015		-0.0058
		(1.20)		(0.27)		(-0.27)
PCT_IND		-0.4433		-0.0284		-1.5418**
		(-0.77)		(-0.19)		(-2.41)
PCT_FEM		0.0543		-0.0637		-0.1209
		(0.23)		(-0.70)		(-0.41)
CEO_AGE		-0.0026		0.0003		0.0023
		(-0.61)		(0.12)		(0.48)
CEO_FEM		-0.0073		0.0667*		-0.1798*
		(-0.15)		(1.69)		(-1.96)
CEO_NEW		0.0401		0.0028		0.0614*
		(1.16)		(0.31)		(1.78)
EXECOM_CASH		-0.0000		0.0080		-0.0125
		(-0.54)		(0.91)		(-0.30)
FIRM_SIZE		0.2298***		0.0478		0.1248
		(2.84)		(1.45)		(1.58)
GROWTH		0.3724***		-0.0106		-0.0412
		(4.01)		(-0.72)		(-0.71)
MTB		-0.0046		0.0132***		-0.0480***

		(-0.42)		(3.19)		(-3.03)
Constant	0.2424***	-2.0448**	0.5353***	0.0404	1.3804***	1.8189*
	(5.80)	(-2.54)	(40.97)	(-0.14)	(20.53)	(1.80)
Observations	666	666	666	666	666	666
R-squared	0.024	0.148	0.071	0.129	0.485	0.500
Number of id	74	74	74	74	74	74
Firm FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES

This table presents the two-way fixed effect test results for the associations between deferred executive compensation and corporate risk. The dependent variables are *RISK_INV*, *RISK_FIN*, and *VOL_STR_3*. *RISK_INV* captures the size of a firm's spending on long-term investment, and it is calculated as the difference between long-term assets for year 't' and year 't-1' scaled by long-term assets for year 't-1'. *RISK_FIN* is measured as the ratio of financial debt divided by the sum of financial debt plus equity. Financial debt is the sum of long-term debt and short-term loans less other non-current liabilities. *VOL_STR_3* measures the standard deviation of the stock returns over 3-year overlapping windows. *EXECOM_DEF* is a dummy variable equal to 1 if the firm adopted the 'Salary Restriction Order' at year t. All other variables are defined in Chapter 4 and Appendix A. All regressions include firm and year fixed effects. T-statistics are in parentheses. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Table 5.3 Two-Way Fixed Effect: Deferred Executive Compensation and Wealth Expropriation

	DIV_NP		*DIV_SA*		*DIV_MV*		*REC_AS*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
EXECOM_DEF	-1.6627**	-1.7724**	-0.0152	-0.0177*	-0.0083	-0.0130	0.0080**	0.0084**
	(-2.04)	(-2.05)	(-1.46)	(-1.78)	(-0.96)	(-1.50)	(2.45)	(2.53)
TOP1		-0.0170		0.0009		0.0007		-0.0000
		(-0.39)		(1.44)		(1.57)		(-0.50)
BOARD_SIZE		-0.3159		0.0021		0.0020		-0.0008
		(-1.33)		(1.16)		(1.04)		(-1.27)
PCT_IND		-1.2349		-0.1040		-0.0434		-0.0093
		(-0.17)		(-1.34)		(-0.68)		(-0.74)
DUAL		-0.5736		-0.0005		-0.0011		0.0009
		(-1.12)		(-0.08)		(-0.29)		(0.36)
FIRM_SIZE		-0.5282		0.0188*		0.0200**		-0.0065**
		(-0.59)		(1.84)		(2.50)		(-2.10)
GROWTH		-0.8730		-0.0312***		-0.0091**		0.0022
		(-0.97)		(-5.23)		(-2.05)		(0.93)
MTB		-0.5664***		-0.0006		-0.0007		0.0002
		(-2.67)		(-0.38)		(-0.71)		(0.35)
ROA		10.6288		0.0497		0.0121		-0.0308
		(1.16)		(0.75)		(0.28)		(-1.56)
CAPEX		-5.1702		-0.0680		-0.1226**		-0.0129
		(-0.85)		(-0.99)		(-2.18)		(-1.38)
LEV		7.2206**		-0.0014		0.0377*		0.0045
		(2.37)		(-0.05)		(1.70)		(0.45)
Constant	1.5547***	10.0865	0.0662***	-0.0689	0.0292***	-0.1666*	0.0172***	0.0811**

	(3.49)	(1.02)	(13.05)	(-0.63)	(8.04)	(-1.75)	(10.45)	(2.61)
Observations	663	663	663	663	663	663	666	666
R-squared	0.026	0.044	0.041	0.163	0.203	0.299	0.034	0.064
Number of id	74	74	74	74	74	74	74	74
Firm FE	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES

This table presents the two-way fixed effect test results for the associations between deferred executive compensation and wealth expropriation. The dependent variables are *DIV_NP*, *DIV_SA*, *DIV_MV* and *REC_AS*. Dividend pay-out ratios such as *DIV_NP*, *DIV_SA*, and *DIV_MV* are measured as year-end total cash dividends paid to common and preferred shareholders scaled by net income to common excluded extra items, net sales, and total market value of common and preferred stocks, respectively. Tunnelling behaviour is measured as *REC_AS*, calculated as other receivables scaled by total assets. *EXECOM_DEF* is a dummy variable equal to 1 if the firm adopted the 'Salary Restriction Order' at year t. All other variables are defined in Chapter 4 and Appendix A. All regressions include firm and year fixed effects. T-statistics are in parentheses. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Table 5.4 Two-Way Fixed Effect: Deferred Executive Compensation and Corporate Social Performance

	SEDI_QUAN		*SEDI_QUA*	
	(1)	(2)	(3)	(4)
EXECOM_DEF	5.3735***	4.8347***	8.9617***	8.6570***
	(3.78)	(3.57)	(4.70)	(4.61)
TOP1		-0.0348		-0.0734
		(-0.56)		(-0.97)
BOARD_SIZE		-0.4773		-0.7290
		(-1.20)		(-1.17)
PCT_IND		-10.9422		3.0700
		(-0.99)		(0.22)
PCT_FEM		0.1882		-1.8965
		(0.04)		(-0.29)
CEO_AGE		0.0301		0.0959
		(0.43)		(0.88)
CEO_FEM		3.7581		3.4899
		(0.68)		(0.47)
FIRM_SIZE		-0.0083		-0.2925
		(-0.01)		(-0.15)
GROWTH		-0.8388		-0.0741
		(-0.90)		(-0.06)
MTB		-0.0492		-0.4612
		(-0.19)		(-1.21)
LEV		7.9523		15.9391*
		(1.45)		(1.79)
CAPEX		0.2244		-7.9914

		(0.03)		(-0.59)
ZSCORE		-0.5163		0.6383
		(-0.91)		(0.75)
Constant	16.7027***	23.5763*	26.8378***	27.7394*
	(20.48)	(1.93)	(21.56)	(1.72)
Observations	666	666	666	666
R-squared	0.400	0.425	0.422	0.444
Number of id	74	74	74	74
Firm FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES

This table presents the two-way fixed effect test results for the associations between deferred executive compensation and corporate social performance. The dependent variables are *SEDI_QUAN* and *SEDI_QUA*. *SEDI_QUAN* and *SEDI_QUA* are the accumulated quantity and quality scores measured based on the indicators from CASS-CSR2.0. *EXECOM_DEF* is a dummy variable equal to 1 if the firm adopted the 'Salary Restriction Order' at year t. All other variables are defined in Chapter 4 and Appendix A. All regressions include firm and year fixed effects. T-statistics are in parentheses. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

5.4 Main DID Tests

As relevant announcements of restricting payments on executives and TMTs in central SOEs[95] and banking sectors[96] in China, studies on the policy effect of these payment restrictions on corporate financial performance (Bae et al., 2020), executives' perk behaviours (Bae et al., 2020), executives' risk-taking behaviours (Jiang et al., 2019; Deng et al., 2019), shadow banking behaviours (Deng et al., 2021), and corporate social performance (Jiang et al., 2021) focus on using DID tests. This method effectively reduces the endogeneity caused by the unobserved variables by establishing a treatment group and a control group, comparing their differences before and after the exogenous shock (Angrist and Pischke, 2009).

Therefore, to improve the accuracy in estimating the coefficients generated by the baseline Two-Way Fixed Effect regressions, following Deng et al. (2019), Jiang et al. (2019), Deng et al. (2021), Jiang et al. (2021) and Bae et al. (2020), this section uses DID tests to examine the policy effect of the 'salary restriction order' on the economic-layered and societal-layered principal-principal conflicts in Chinese SOEs.

This research selects the SASAC 'salary restriction order' implemented since January 1st, 2010, as the exogenous shock. The listed SOEs, which have followed this policy and started to defer executives' performance-based payment since 2010 (i.e., 2010 to 2015), were assigned as the treatment group (*TREAT*=1); on the contrary, the SOEs that did not follow this policy during the entire testing period (2007 to 2015) were assigned as the control group (*TREAT*=0). Moreover, the time variables are also fixed.

[95] Please see Bae, K.H., Gong, Z. and Tong, W., 2020. Restricting CEO pay backfires: Evidence from China. *European Corporate Governance Institute–Finance Working Paper*, (670); and Jiang, H., Hu, Y., Su, K. and Zhu, Y., 2021. Do government say-on-pay policies distort managers' engagement in corporate social responsibility? Quasi-experimental evidence from China. *Journal of Contemporary Accounting & Economics*, 17(2), p.100259 for more information.

[96] Please see Jiang, W., Liu, Y., Lobo, G.J. and Xu, Y., 2019. Deferred cash compensation and risk-taking: Evidence from the Chinese banking industry. *Pacific-Basin Finance Journal*, 53, pp.432-448; Deng, K., He, J., Kong, D. and Zhang, J., 2019. Does inside debt alleviate banks' risk-taking? Evidence from a quasi-natural experiment in the Chinese banking industry. *Emerging Markets Review*, 40, p.100622; and Deng, K., Ge, W. and He, J., 2021. Inside debt and shadow banking. *Journal of Corporate Finance*, 69, p.102038 for more information.

The time variable *POST*=1 when the year is greater than or equal to 2010 (i.e., year = 2010 to 2015), and *POST*=0 when the year is less than 2010 (i.e., year = 2007 to 2009). The interaction term coefficients (i.e., *TREAT*POST*) are the key outcomes to explain how this 'salary restriction order' impacts the double-layered principal-principal conflicts in Chinese SOEs.

The subsections 5.4.1., 5.4.2 and 5.4.3 show the results and discussion of the policy effects of the 'salary restriction order' on the economic-layered principal-principal conflicts, respectively, between large shareholders and outside creditors (i.e., risk preference, proxied by corporate risk) and the traditional ownership-level between large shareholders and minority shareholders (i.e., wealth expropriation, proxied by dividend pay-out ratios and related-party transactions). In addition, subsection 5.4.4 presents the results and discussion of the policy effects of 'salary restriction order' on the societal-layered principal-principal conflicts between large shareholders and the company's primary social and environmental stakeholders (i.e., corporate social performance, proxied by SEDI).

5.4.1 The 'Salary Restriction Order' and Economic-Layered Principal-Principal Conflicts on Risk Preference

Table 5.5 presents the results of the DID tests examining the associations between DEC and corporate risk. As shown in this table, all coefficients of the interactions (i.e., *TREAT*POST*) are statistically insignificant. It indicates that the treated group shows an insignificant difference from the control group after announcing the 'salary restriction order' on corporate risk, measured by long-term investment and financial levels and 3-year stock return volatility.

The main reason for these insignificant differences may be caused by the significant differences in the policy effects before the period it was announced. It means that the treatment and control groups may not fulfil the precondition to maintain a parallel trend without significantly differing from each other. Table 5.5 shows that the

coefficients of *TREAT* are significant in columns 4 and 6. It indicates that, during the pre-period of the 'salary restriction order' announced, the treated companies were significantly affected by certain unobserved factors and differently from the control group, either negatively (shown in *RISK_FIN*) or positively (shown in *VOL_STR_3*). Although the coefficients of *POST* are statistically significant in columns 1, 2, 3, 5, and 6, it would be inappropriate to determine the changes in the outcome variables (i.e., proxies for corporate risk) solely to the announcement of the 'salary restriction order' because there were pre-existing differences between the treated and control groups before the shock intervention.

To further explore the effects of the 'salary restriction order' on corporate risk, this research follows Faccio et al. (2016) and uses an alternative method measuring corporate risk as the volatility of ROA and stock return volatility in 5-year windows. The results are statistically insignificant. The reason why this research applies the measurement of the volatility of ROA as an alternative rather than the main tests is that the samples observed are listed rather than privately owned (Faccio et al., 2016). However, the stock market in China may not be as mature as the markets in developed regions, and the financial performance of SOEs has always been a concern to academia (Jiang and Kim, 2020). Therefore, although this section applies a more accurate estimation via DID tests, the results are consistent with the previous Two-Way Fixed Effect regressions, showing that DEC is insignificantly associated with economic-layered principal-principal conflicts on risk preference between large shareholders and outside creditors.

In summary, inconsistent with the risk-moderating effect of *CEO Inside Debt Theory* (Edmans and Liu, 2011; Cassell et al., 2012), I find statistically insignificant differences comparing the treated group to the control group before and after implementing the 'salary restriction order' in corporate financial risk, investment risk, and stock return volatility in Chinese SOEs. This finding is consistent with Li and Zhao (2020), who claimed that declining pensions of executives in the UK are unlikely to moderate firm risk. As the *CEO Inside Debt Theory* and its supporting evidence are

based on observing the US market (e.g., Cassell et al., 2012; Bennett et al., 2015; Van Bekkum, 2016; Srivastav et al., 2018), the different institutional backgrounds and definitions of deferred compensation or pension plans may lead to dissimilar results (Li and Zhao, 2020; He, 2020). Hence, this research finds insignificant associations between DEC and corporate risk, indicating DEC cannot act as a potential corporate governance mechanism alleviating economic-layered principal-principal conflicts on risk preference. The findings neither support hypotheses *H1a* nor *H1b*.

5.4.2 The 'Salary Restriction Order' and Economic-Layered Principal-Principal Conflicts on Wealth Expropriation via Dividend Pay-Out

Table 5.6, Columns 1 to 6, presents the results of the DID tests examining the associations between DEC and wealth expropriation via dividend pay-out. As shown in the table, coefficients of the interactions (i.e., *TREAT*POST*) in columns 1, 2, and 4 show statistically significant results. It indicates that the treated group shows a significant difference from the control group after announcing the 'salary restriction order' on wealth expropriation, measured by cash dividend paid scaled by net income to common excluded extra items and net sales (Faccio et al., 2001). Moreover, these significantly reducing dividend pay-out ratios after the policy indicate that there may be an increase in wealth expropriation, especially for large shareholders, who intend to keep the wealth personal rather than paying to minority shareholders (Faccio et al., 2001).

These results are consistent with the previous baseline Two-Way Fixed effect regressions. Except for the slight change in coefficients because of the method chosen, this research found the DID models with robust standard errors clustered estimates more robust results. For example, the t-statistics of *DIV_NP* drops from -2.05 (in Table 5.3, p-value < 0.05, using baseline Two-Way Fixed Effect regression) to -1.93 (in Table 5.6, p-value < 0.1, using DID model) after considering unobserved factors that may affect endogeneity.

However, the above results cannot demonstrate that the statistically significant differences between the treated and control groups on the dividend pay-out ratios are caused by adopting the 'salary restriction order'. To observe the coefficients of *TREAT* and *POST* individually, Columns 1, 2 (measured by *DIV_NP*) and 4 (measured by *DIV_SA*) present that the coefficients of *TREAT* are significant; however, the ones of *POST* are insignificant. It indicates that, during the pre-period of the 'salary restriction order' announced, the treated companies have been significantly affected by some unobservable variable(s) compared to the control group. These pre-period differences have existed between these two groups. The parallel trend tests (in Section 5.5.1, Table 5.9) will show the evidence that these two groups are not eligible to compare during the pre-period (i.e., 2007 to 2009).

Besides, the only dividend pay-out ratio, *DIV_MV*, shows insignificant differences after the 'salary restriction order' was announced. Because its coefficient of *TREAT* is also insignificant after adding control variables, except for the immature capital market in China (Jiang and Kim, 2020) discussed in the previous Two-Way Fixed Effect regression in Section 5.3, the insignificance may be caused by the different measurements selected[97].

In summary, the significant effects of the 'salary restriction order' on wealth expropriation via dividend pay-out ratios are consistent with the unintended consequences when limiting CEO pay (Dittmann et al., 2011; Jiang and Zhang, 2017; Bae et al., 2020), indicating that restricting CEO payment is likely to accelerate the insiders to take wealth from the company and to compensate for their pay shortfalls (La Porta et al., 2000; Faccio et al., 2001). The decline in dividend pay-out will undoubtedly exacerbate minority shareholder dissatisfaction, intensifying their conflicts of interest towards large shareholders.

[97] This study selects 3 different proxies to measure the variable dividend pay-out ratios; respectively, they are annual total cash dividends divided by earnings (*DIV_NP*), sales (*DIV_SA*) and market value (*DIV_MV*) (Please see Appendix A for details). Therefore, the inconsistency of the results may be caused by different calculations.

From the view of *CEO Inside Debt Theory* (Edmans and Liu, 2011), previous evidence shows that DEC would shape executives to make less risky decisions, thereby enhancing dividend pay-out to attract retail investors (Caliskan and Doukas, 2015; Borah et al., 2020). Theoretically, corporate risk would be negatively affected by the DEC; further, the risk-moderating effect of the DEC would result in a higher level of dividend pay-out, which shows less extent of wealth expropriation. However, results in both Tables 5.5 and 5.6 indicate that adopting the 'salary restriction order' is directly associated with corporate dividend pay-out without the risk-moderating effect of DEC working as a mediator variable because DEC shows no significant impacts on corporate risk (examined in Table 5.5). Therefore, this finding is not consistent with Edmans and Liu (2011), Caliskan and Doukas (2015), and Borah et al. (2020).

Hence, this research found statistically significant differences comparing the treated group to the control group after implementing the 'salary restriction order' in corporate dividend pay-out ratios. Nevertheless, this result is inconsistent with Caliskan and Doukas (2015) and Borah et al. (2020), who believe that the dividend pay-out should increase because of the reduced risk caused by DEC (Edmans and Liu, 2011). Therefore, the findings show that DEC may not act as a potential corporate governance mechanism to mitigate the traditional economic-layered principal-principal conflicts, as it would increase wealth expropriation by reducing dividend pay-out. The results do not support hypothesis *H2*.

Meanwhile, the findings show significant differences between the treated and control groups before announcing the policy. Therefore, the significant results on the policy effects of DEC on dividend pay-out ratios may not be applicable based on the Parallel Trend assumption of DID (Roth, 2022). Section 5.5.1, Table 5.9 will further show the results and discussion.

To additionally test the policy effects of DEC on wealth expropriation, Section 5.4.3

selects tunnelling behaviour (the variable is *REC_AS*, measured by the percentage of the related-party receivables on total assets[98]) as an alternative proxy as it has been widely used for wealth expropriation studies (e.g., Johnson et al., 2000; Jiang et al., 2010; Aharony et al., 2010; Boateng and Huang, 2017).

5.4.3 The 'Salary Restriction Order' and Economic-Layered Principal-Principal Conflicts on Wealth Expropriation via Tunnelling

Table 5.6, Columns 7 and 8, presents the results of the DID tests examining the associations between DEC and wealth expropriation via tunnelling. As shown in the table, the coefficients of the interactions (i.e., *TREAT*POST)* show statistically significant results. It indicates that the treated group significantly differs from the control group after announcing the 'salary restriction order' on wealth expropriation proxied by tunnelling (measured by *REC_AS*). Moreover, the positive coefficient of *TREAT*POST* in column 8 indicates that, compared to the control group, the treated firms have generated more outstanding related-party corporate loans after the announcement of the policy. In addition, the coefficients of *TREAT* are insignificant. It means no significant differences between the treated and the control groups during the pre-period. This can also be found in the parallel trend tests in Section 5.5.1, Table 5.9. Therefore, the results of the DID tests examining the associations between DEC and wealth expropriation via related-party loans are valid. It indicates that implementing the 'salary restriction order' would accelerate tunnelling as related-party transactions increase. Consistent with the findings in Section 5.4.2 (i.e., use dividend pay-out ratios as proxies for wealth expropriation), DEC may not be a potential corporate governance mechanism to mitigate the traditional economic-layered principal-principal conflicts between large shareholders and minority shareholders.

In summary, consistent with the view of negative consequences when limiting CEO pay (Dittmann et al., 2011; Jiang and Zhang, 2017; Bae et al., 2020), this research found that the 'salary restriction order' increases the company's insiders to conduct

[98] For more information on the definitions and references of the variables, please see Appendix A.

related-party transactions. Bae et al., 2020 explained that the limited payment may stimulate SOE managers to achieve better financial performance by manipulating related-party transactions; thus, the increasing performance-based payments would compensate for their loss. Overall, this research found that implementing the 'salary restriction order' is likely to decline corporate dividend pay-out, meanwhile increasing tunnelling through unethical related-party transactions. The findings are consistent with the previous baseline Two-Way Fixed Effect regressions and support hypothesis *H3* but not *H2*.

5.4.4 The 'Salary Restriction Order' and Societal-Layered Principal-Principal Conflicts on Corporate Social Performance

Based on the risk-moderating effects of DEC (Edmans and Liu, 2011) and the associations between executive risk-averse behaviours and corporate social performance (Mayberry, 2020), there may be a significant association between DEC and corporate social performance, as proposed in *H4*. In addition, based on the net long-run benefits view of the deferred compensation (Kane, 2002), the significant association between these two variables may continue and be represented as a direct effect, as proposed in *H5*. Therefore, this subsection applies the DID tests to examine hypotheses *H4* and *H5*. Table 5.7 presents the results.

As shown in Table 5.7, all coefficients of the interactions (i.e., *TREAT*POST)* are statistically significant. It indicates that the treated group significantly differs from the control group after announcing the 'salary restriction order' on corporate social performance, measured by the SEDI (Lu and Abeysekera, 2017). Moreover, both positive coefficients of *TREAT*POST* in columns 2 and 4 indicate that, compared to the control group, the announcement of the 'salary restriction order' has a more significant effect on the treated firms on improving SEDI from both quantitative and qualitative perspectives.

The problem is that the coefficients of *TREAT* in columns 1 and 2 are significant. It

means the treated and control groups may have had significant differences in quantity-based SEDI before the policy was announced. The parallel trend tests in Section 5.5.1 and Table 5.10 also show the same results. Therefore, the results indicate that implementing the 'salary restriction order' effectively increases corporate social performance on its disclosure quality. Although the number of indicators disclosed also enhanced, the results may not be valid. The findings are consistent with the net long-run benefits view of deferred compensation (Kane, 2002); however, they are inconsistent with Jiang et al. (2021), who believed that government intervention in executive pay would lead to distorted SOE managers' behaviours on CSR performance.

The results from the Two-Way Fixed Effect regressions (Table 5.2, 5.3, and 5.4) and the DID tests (Table 5.5, 5.6, and 5.7) found most control variables are insignificant, especially the board and CEO characteristics. These insignificant results aptly corroborate what this research observed in the context of China (i.e., *Chapter 2, Section 2.2.3*), reflecting the dilemma of applying the Western corporate governance theories on *Type I* and *Type II* agency problems in companies with highly concentrated state ownership.

Tables 5.2 to 5.4 and Tables 5.5 to 5.7, respectively, show the results of the Two-Way Fixed Effect regressions and the DID tests. The dependent variable varies according to different testing methods used. The dependent variable *EXECOM_DEF* in the Two-Way Fixed Effect regressions is calculated by the result of multiplication of the dependent variables *TREAT* and *POST* in the DID tests. The Two-Way Fixed Effect regressions only provide the basic associations between DEC and Chinese SOE's double-layered principal-principal conflicts. Furthermore, the DID tests can observe the differences of policy effect brought about by the 'Salary Restriction Order' before and after its implementation by comparing the treated group and the control group. For example, in Table 5.5, the coefficients on the variable *TREAT* imply the differences of corporate risk (proxied by *RISK_INV*, *RISK_FIN*, and *VOL_STR_3*) between the treated group and control group before the implementation of the 'Salary Restriction Order'; while the coefficients on the variable *POST* imply the impacts of DEC on

corporate risk after the implementation. From the significance of the coefficient of the variable *TREAT*, it can be predicted whether there was a statistically significant difference between the treated group and the control group before the policy was implemented.

In summary, the results in Table 5.7 are consistent with the net long-run benefits view of deferred compensation (Kane, 2002). In addition, based on the CEO inside debt view (Edmans and Liu, 2011), because of DEC's risk-moderating effect, it would indirectly enhance corporate social performance as there is a positive association between risk-reducing and CSR (Mayberry, 2020). However, this research failed to find a significant association between DEC and corporate risk. It indicates that the results in Table 5.7 are inconsistent with Mayberry (2020) due to the inconsistency of the CEO inside debt theory (Edmans and Liu, 2011). Therefore, the findings reveal a direct positive association between DEC and SEDI, implying that DEC may be a potential corporate governance mechanism to mitigate the societal-layered principal-principal conflicts between large shareholders and the company's social and environmental stakeholders. This finding supports hypothesis *H5* but not *H4*.

Table 5.5 Effects of the 'Salary Restriction Order' on Corporate Risk

	RISK_INV		*RISK_FIN*		*VOL_STR_3*	
	(1)	(2)	(3)	(4)	(5)	(6)
*TREAT*POST*	0.0522	0.0113	0.0600	0.0497	-0.1840	-0.1846
	(0.71)	(0.17)	(1.46)	(1.24)	(-1.18)	(-1.34)
TREAT	-0.0826*	0.1985	-0.2346***	-0.1967***	0.5505***	0.8389***
	(-1.68)	(1.60)	(-8.54)	(-2.77)	(5.32)	(3.68)
POST	-0.1466***	-0.3029***	0.0384*	0.0006	-0.9243***	-0.9492***
	(-3.36)	(-2.70)	(1.84)	(0.01)	(-10.22)	(-7.74)
TOP1		0.0002		0.0008		0.0037
		(0.06)		(0.46)		(1.34)
BOARD_SIZE		0.0228		0.0015		-0.0058
		(1.13)		(0.25)		(-0.25)
PCT_IND		-0.4433		-0.0284		-1.5418**
		(-0.72)		(-0.18)		(-2.27)
PCT_FEM		0.0543		-0.0637		-0.1209
		(0.22)		(-0.65)		(-0.39)
CEO_AGE		-0.0026		0.0003		0.0023
		(-0.57)		(0.11)		(0.45)
CEO_FEM		-0.0073		0.0667		-0.1798*
		(-0.15)		(1.59)		(-1.85)
CEO_NEW		0.0401		0.0028		0.0614*
		(1.09)		(0.29)		(1.67)
EXECOM_CASH		0.0119		0.0007		-0.0350
		(0.34)		(0.06)		(-0.79)
FIRM_SIZE		0.2298***		0.0478		0.1248
		(2.67)		(1.37)		(1.49)

GROWTH		0.3724***		-0.0106		-0.0412
		(3.78)		(-0.68)		(-0.67)
MTB		-0.0046		0.0132***		0.0480***
		(-0.40)		(3.00)		(2.85)
Constant	0.2004***	-2.2904**	0.6266***	0.0797	1.3342***	0.4704
	(4.50)	(-2.51)	(47.76)	(0.23)	(18.80)	(0.49)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	666	666	666	666	666	666
R-squared	0.120	0.233	0.848	0.857	0.568	0.597

This table presents the difference-in-difference test results for the effects of the 'Salary Restriction Order' on corporate risk. The dependent variables are *RISK_INV*, *RISK_FIN*, and *VOL_STR_3*. *RISK_INV* captures the size of a firm's spending on long-term investment, and it is calculated as the difference between long-term assets for year 't' and year 't-1' scaled by long-term assets for year 't-1'. *RISK_FIN* is measured as the ratio of financial debt divided by the sum of financial debt plus equity. Financial debt is the sum of long-term debt and short-term loans less other non-current liabilities. *VOL_STR_3* is measured as the standard deviation of the stock returns over 3-year overlapping windows. *TREAT* equals 1 for firms adopting 'the order' from 2010 to 2015 and 0 otherwise. *POST* equals 1 for years after 'the order' was announced (2010-2015) and 0 otherwise. All other variables are defined in Chapter 4 and Appendix A. All regressions include firm and year fixed effects. Standard errors are clustered at the firm levels, and robust t-statistics are in parentheses. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Table 5.6 Effects of the 'Salary Restriction Order' on Wealth Expropriation

	DIV_NP		*DIV_SA*		*DIV_MV*		*REC_AS*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
*TREAT*POST*	-1.6627*	-1.7724*	-0.0152	-0.0177*	-0.0083	-0.0130	0.0080**	0.0084**
	(-1.92)	(-1.93)	(-1.38)	(-1.68)	(-0.91)	(-1.41)	(2.31)	(2.38)
TREAT	-3.4365***	-3.0455***	-0.0942***	-0.0887***	-0.0120*	0.0038	0.0030	-0.0021
	(-5.95)	(-2.87)	(-12.77)	(-8.74)	(-1.96)	(0.39)	(1.31)	(-0.48)
POST	0.5859	-0.1906	0.0096	-0.0117	0.0189***	-0.0063	-0.0050*	0.0010
	(0.77)	(-0.13)	(1.07)	(-0.87)	(3.31)	(-0.77)	(-1.83)	(0.24)
TOP1		-0.0170		0.0009		0.0012		-0.0000
		(-0.37)		(1.36)		(1.10)		(-0.47)
BOARD_SIZE		-0.3159		0.0021		-0.0005		-0.0008
		(-1.26)		(1.09)		(-0.10)		(-1.20)
PCT_IND		-1.2349		-0.1040		-0.0143		-0.0093
		(-0.16)		(-1.27)		(-0.09)		(-0.70)
DUAL		-0.5736		-0.0005		-0.0348*		0.0009
		(-1.06)		(-0.08)		(-1.85)		(0.34)
FIRM_SIZE		-0.5282		0.0188*		0.0577**		-0.0065*
		(-0.55)		(1.74)		(2.04)		(-1.98)
GROWTH		-0.8730		-0.0312***		-0.0471***		0.0022
		(-0.91)		(-4.93)		(-3.40)		(0.87)
MTB		-0.5664**		-0.0006		-0.4093***		0.0002
		(-2.52)		(-0.35)		(-2.66)		(0.33)
ROA		10.6288		0.0497		0.5932***		-0.0308
		(1.09)		(0.70)		(2.69)		(-1.47)

CAPEX		-5.1702		-0.0680		0.0177		-0.0129
		(-0.80)		(-0.93)		(0.16)		(-1.30)
LEV		7.2206**		-0.0014		0.3964***		0.0045
		(2.23)		(-0.05)		(4.33)		(0.42)
Constant	4.2158***	12.1430	0.1186***	-0.0370	0.1428***	-0.2909	0.0109***	0.0808**
	(7.71)	(1.09)	(22.94)	(-0.30)	(9.09)	(-1.04)	(5.87)	(2.27)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	663	663	663	663	666	666	666	666
R-squared	0.310	0.323	0.850	0.869	0.731	0.782	0.695	0.705

This table presents the difference-in-difference test results for the effects of the 'Salary Restriction Order' on wealth expropriation via dividend pay-out and tunnelling behaviour. The dependent variables are *DIV_NP*, *DIV_SA*, *DIV_MV* and *REC_AS*. Dividend pay-out ratios such as *DIV_NP*, *DIV_SA*, and *DIV_MV* are measured as year-end total cash dividends paid to common and preferred shareholders scaled by net income to common excluded extra items, net sales, and total market value of common and preferred stocks, respectively. *REC_AS* is the proxy for tunnelling and is measured as the percentage of the other receivables on total assets. *TREAT* equals 1 for firms adopting 'the order' from 2010 to 2015 and 0 otherwise. *POST* equals 1 for years after 'the order' was announced (2010-2015) and 0 otherwise. All other variables are defined in Chapter 4 and Appendix A. All regressions include firm and year fixed effects. Standard errors are clustered at the firm levels, and robust t-statistics are in parentheses. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

Table 5.7 Effects of the 'Salary Restriction Order' on Corporate Social Performance

	SEDI_QUAN		*SEDI_QUA*	
	(1)	(2)	(3)	(4)
*TREAT*POST*	5.3735***	4.8347***	8.9617***	8.6570***
	(3.56)	(3.36)	(4.43)	(4.34)
TREAT	2.4177**	5.6174***	-1.8634	-1.2147
	(2.41)	(2.72)	(-1.38)	(-0.38)
POST	11.5883***	10.4889***	16.3076***	14.0696***
	(8.67)	(4.85)	(7.65)	(4.52)
TOP1		-0.0348		-0.0734
		(-0.52)		(-0.91)
BOARD_SIZE		-0.4773		-0.7290
		(-1.13)		(-1.10)
PCT_IND		-10.9422		3.0700
		(-0.93)		(0.21)
PCT_FEM		0.1882		-1.8965
		(0.04)		(-0.27)
CEO_AGE		0.0301		0.0959
		(0.41)		(0.83)
CEO_FEM		3.7581		3.4899
		(0.64)		(0.44)
FIRM_SIZE		-0.0083		-0.2925
		(-0.01)		(-0.14)
GROWTH		-0.8388		-0.0741
		(-0.85)		(-0.05)
MTB		-0.0492		-0.4612
		(-0.18)		(-1.14)

LEV		7.9523		15.9391*
		(1.37)		(1.69)
CAPEX		0.2244		-7.9914
		(0.02)		(-0.55)
ZSCORE		-0.5163		0.6383
		(-0.86)		(0.71)
Constant	18.0643***	22.6794	29.2003***	28.8112
	(20.01)	(1.63)	(21.87)	(1.56)
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	666	666	666	666
R-squared	0.765	0.774	0.801	0.808

This table presents the difference-in-difference test results for the effects of the 'Salary Restriction Order' on corporate social performance. The dependent variables are *SEDI_QUAN* and *SEDI_QUA*. *SEDI_QUAN* and *SEDI_QUA* are the accumulated quantity and quality scores measured based on the indicators from CASS-CSR2.0. *TREAT* equals 1 for firms adopting 'the order' from 2010 to 2015 and 0 otherwise. *POST* equals 1 for years after 'the order' was announced (2010-2015) and 0 otherwise. All other variables are defined in Chapter 4 and Appendix A. All regressions include firm and year fixed effects. Standard errors are clustered at the firm levels, and robust t-statistics are in parentheses. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

5.5 Robustness Checks

5.5.1 Parallel Trend Tests

The parallel trend hypothesis is a prerequisite for applying the DID tests (Angrist and Pischke, 2009; Roth, 2022). This method can justify if there is/are other unobserved exogenous variable(s) that affect the difference between the treated group and control group in which particular year. The parallel trend hypothesis requires the treated and control groups to have no significant differences before the exogenous shock. Otherwise, the results from the DID tests would be invalid (Angrist and Pischke, 2009).

Following Deng et al. (2021)[99] and Bae et al. (2020), this research set 9 new variables to examine the parallel trends of the treated and control groups. Respectively, they are *pre_3*, *pre_2*, *pre_1*, *current*, and *post_1* to *post_5*. Each variable is calculated using the interaction terms *TREAT*YEAR*. For example, *pre_3* is measured as the interaction of the year 2007 and *TREAT*; *current* is measured as the interaction of the year 2010 (which is the year that the policy was applied) and *TREAT*; and *post_1* is measured as the interaction of year 2011 and *TREAT*. The setting of these new 9 variables aims to observe the differences between the treated and control groups in each individual year. It focuses on observing any significant difference during the pre-period (i.e., *pre_3*, *pre_2*, and *pre_1*) before announcing the 'salary restriction order'. If the results of the interaction terms *pre_3*, *pre_2*, and *pre_1*, are insignificant, these two groups have no significant differences during the pre-period. In this case, the necessary prerequisite of the DID tests is valid, and the parallel trends tests help to testify to the robustness of the results from the previous DID tests.

Consistent with previous main DID tests (Section 5.4, Tables 5.5, 5.6, and 5.7), Tables 5.8, 5.9, and 5.10 present the parallel trend tests of the effects of 'salary restriction order' on corporate risk, wealth expropriation, and corporate social performance.

[99] In their paper, they referred the parallel trends test as the dynamic long-run impact. Similar to this research, it shows the effect of the interaction terms *TREAT*YEAR* based on each yearly examination.

As shown in Table 5.8, only the key dependent variable (Column 1), *RISK_INV*, shows a parallel trend before the policy started in 2010. The policy effect was statistically insignificant from *pre_3* to *pre_1* but significant at a *p*-value < 10% level in the *current* period (2010) and increased to a *p*-value < 1% level in the *post_1* period (2011). It indicates that there may be a lag between the announcement of the 'salary restriction order' and its effect on corporate long-term investment risk. Moreover, the long-run effects of this policy are insignificant, as shown from *post_2* to *post_5*. On the other hand, Columns 2 and 3, presenting *RISK_FIN* and *VOL_STR_3*, reveal statistically significant differences between treated and control groups before the policy was announced. This means their results from the previous main DID tests (Section 5.4, Table 5.5, Columns 3-6) are invalid (Angrist and Pischke, 2009). Therefore, the parallel trends result of *RISK_INV* supports its finding generated from the previous main DID test. This robust result addresses the inconsistency of the *CEO Inside Debt Theory* (Edmans and Liu, 2011) and its risk-moderating effect examined in the US (e.g., Cassell et al., 2012; Bennett et al., 2015; Van Bekkum, 2016; Srivastav et al., 2018).

Table 5.8 Parallel Trend Tests for Effects of the 'Salary Restriction Order' on Corporate Risk

	RISK_INV	*RISK_FIN*	*VOL_STR_3*
	(1)	(2)	(3)
pre_3	0.1944	-0.1966***	0.9152***
	(1.64)	(-3.04)	(4.27)
pre_2	0.0665	-0.1912***	0.4777**
	(0.45)	(-2.92)	(2.58)
pre_1	0.2045	-0.1527***	0.5570***
	(1.36)	(-2.74)	(3.46)
current	0.2149*	-0.1465***	0.5623***
	(1.73)	(-2.94)	(4.75)
post_1	0.3667***	-0.1456***	0.4432***
	(2.74)	(-2.84)	(4.21)
post_2	0.1321	-0.1270***	0.4669***
	(1.20)	(-2.80)	(4.07)
post_3	0.0321	-0.1257**	0.4302***
	(0.32)	(-2.53)	(3.60)
post_4	0.0761	-0.1156**	0.4347***
	(0.62)	(-2.39)	(3.43)
post_5	0.1666	-0.1167**	0.3492***
	(1.47)	(-2.26)	(2.69)
TOP1	0.0005	0.0007	0.0045
	(0.14)	(0.39)	(1.64)
BOARD_SIZE	0.0188	0.0019	-0.0101
	(0.94)	(0.31)	(-0.42)
PCT_IND	-0.4744	-0.0439	-1.4233**
	(-0.75)	(-0.27)	(-2.19)
PCT_FEM	0.1042	-0.0731	-0.0263
	(0.43)	(-0.74)	(-0.08)
CEO_AGE	-0.0031	0.0004	0.0016
	(-0.68)	(0.17)	(0.30)
CEO_FEM	-0.0172	0.0645	-0.1616*
	(-0.36)	(1.49)	(-1.72)
CEO_NEW	0.0364	0.0035	0.0536
	(1.01)	(0.36)	(1.50)
EXECOM_CASH	0.0121	-0.0022	-0.0230
	(0.35)	(-0.22)	(-0.54)
FIRM_SIZE	0.2194**	0.0513	0.0938
	(2.51)	(1.45)	(1.10)
GROWTH	0.3766***	-0.0110	-0.0285
	(3.79)	(-0.72)	(-0.46)
MTB	-0.0056	0.0137***	0.0440**
	(-0.47)	(3.16)	(2.64)

Constant	-2.3318**	0.0919	0.8347
	(-2.62)	(0.27)	(0.72)
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	666	666	666
R-squared	0.247	0.858	0.600

This table presents the parallel trend test results for the effects of the 'Salary Restriction Order' on corporate risk. The dependent variables are *RISK_INV, RISK_FIN,* and *VOL_STR_3*. *RISK_INV* captures the size of a firm's spending on long-term investment, and it is calculated as the difference between long-term assets for year 't' and year 't-1' scaled by long-term assets for year 't-1'. *RISK_FIN* is measured as the ratio of financial debt divided by the sum of financial debt plus equity. Financial debt is the sum of long-term debt and short-term loans less other non-current liabilities. *VOL_STR_3* is measured as the standard deviation of the stock returns over 3-year overlapping windows. *TREAT* equals 1 for firms adopting 'the order' from 2010 to 2015 and 0 otherwise. The variables p*re_3* to *pre*_1 and *post_1* to *post_5* measure the interactions of *TREAT* and each period before and after the *current* shock year 2010. All other control variables are defined in Chapter 4 and Appendix A. All regressions include firm and year fixed effects. Standard errors are clustered at the firm levels, and robust t-statistics are in parentheses. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

As shown in Table 5.9, the robustness tests are consistent with the findings in previous DID tests (Section 5.4, Table 5.6). Columns 1 and 2, *DIV_NP* and *DIV_SA*, show statistically significant differences between treated and control groups before announcing the 'salary restriction order'. It indicates that unobserved factors significantly affected the treated and control groups before the exogenous shock. Although DEC is significantly associated with *DIV_NP* and *DIV_SA* (Section 5.4, Table 5.6), the results may be invalid.

Moreover, dependent variables (Columns 3 and 4), *DIV_MV* and *REC_AS*, show parallel trends before the policy started in 2010. Respectively, the policy effect on *DIV_MV* was statistically insignificant from *pre_3* to *pre_1* but only significant at a *p*-value < 10% level in the *post_1* period (2011). It indicates that there may be a lag between the announcement of the policy and its effect on the cash dividend paid scaled by market capitalisation. However, the long-run effect is insignificant. Moreover, although the differences in policy effect on *REC_AS* before the *current* period (2010) support the parallel trend test, the difference in the policy effect after the *current* period (2010) gradually enhances, presenting robust *t*-statistics from 1.32 to 2.87 from *current* to *post_3*, which means their corresponding *p*-values gradually increase to significant, showing *p*-value < 1% in *post_3*. Combine with the previous DID test (Section 5.4, Table 5.6, the coefficient of *TREAT*POST* on *REC_AS* is positively significant at the 5% level), it indicates that DEC significantly increases the tunnelling behaviours through corporate related-party transactions, and these unfavourable circumstances last on a long-run effect.

Therefore, the parallel trend tests provide robust evidence that implementing the 'salary restriction order' may accelerate wealth expropriation through tunnelling, directly intensifying the traditional economic-layered principal-principal conflicts between large and minority shareholders. Consistent with previous findings in DID tests, the parallel trend results support the view of unintended consequences when limiting executive pay (Dittmann et al., 2011; Jiang and Zhang, 2017; Bae et al., 2020).

Table 5.9 Parallel Trend Tests for Effects of the 'Salary Restriction Order' on Wealth Expropriation

	DIV_NP	*DIV_SA*	*DIV_MV*	*REC_AS*
	(1)	(2)	(3)	(4)
pre_3	-4.4189***	-0.0824***	0.0028	-0.0059
	(-3.31)	(-6.00)	(0.24)	(-1.18)
pre_2	-0.3334	-0.0924***	0.0092	-0.0037
	(-0.17)	(-6.86)	(0.82)	(-0.70)
pre_1	-4.3634**	-0.0912***	0.0004	0.0036
	(-2.59)	(-8.74)	(0.04)	(0.72)
current	-5.1946***	-0.1034***	-0.0042	0.0069
	(-5.23)	(-9.81)	(-0.58)	(1.32)
post_1	-4.0432**	-0.1090***	-0.0129*	0.0049
	(-2.22)	(-9.63)	(-1.81)	(1.43)
post_2	-6.1791***	-0.1081***	-0.0122	0.0058
	(-2.96)	(-10.68)	(-1.28)	(1.44)
post_3	-4.8066**	-0.1032***	-0.0096	0.0121***
	(-2.33)	(-8.50)	(-0.79)	(2.87)
post_4	-5.9250***	-0.1055***	-0.0083	0.0051
	(-3.35)	(-7.18)	(-0.84)	(1.01)
post_5	-2.6804**	-0.1092***	-0.0057	0.0038
	(-2.00)	(-7.59)	(-0.61)	(0.92)
TOP1	-0.0198	0.0009	0.0006	-0.0000
	(-0.43)	(1.34)	(1.46)	(-0.48)
BOARD_SIZE	-0.2821	0.0021	0.0022	-0.0009
	(-1.18)	(1.05)	(1.00)	(-1.37)
PCT_IND	-1.6374	-0.1003	-0.0430	-0.0096
	(-0.22)	(-1.23)	(-0.62)	(-0.78)
DUAL	-0.6529	-0.0004	-0.0013	0.0008
	(-1.14)	(-0.06)	(-0.32)	(0.30)
FIRM_SIZE	-0.5008	0.0188*	0.0203**	-0.0065*
	(-0.51)	(1.72)	(2.38)	(-1.94)
GROWTH	-1.0141	-0.0309***	-0.0097**	0.0022
	(-1.03)	(-4.94)	(-2.04)	(0.83)
MTB	-0.5714**	-0.0006	-0.0007	0.0002
	(-2.57)	(-0.33)	(-0.63)	(0.32)
ROA	12.0927	0.0437	0.0128	-0.0279
	(1.19)	(0.62)	(0.27)	(-1.26)
CAPEX	-5.3678	-0.0679	-0.1223**	-0.0125
	(-0.83)	(-0.91)	(-2.04)	(-1.25)
LEV	7.2611**	-0.0020	0.0376	0.0049
	(2.28)	(-0.07)	(1.60)	(0.45)
Constant	12.3113	-0.0407	-0.1956*	0.0827**
	(1.11)	(-0.33)	(-1.80)	(2.31)
Firm FE	Yes	Yes	Yes	Yes

Year FE	Yes	Yes	Yes	Yes
Observations	663	663	663	666
R-squared	0.332	0.869	0.894	0.710

This table presents the parallel trend test results for the effects of the 'Salary Restriction Order' on wealth expropriation via dividend pay-out. The dependent variables are *DIV_NP*, *DIV_SA*, DIV*_MV* and *REC_AS*. Dividend pay-out ratios such as *DIV_NP*, *DIV_SA* and *DIV_MV* are measured as year-end total cash dividends paid to common and preferred shareholders scaled by net income to common excluded extra items, net sales, and total market value of common and preferred stocks, respectively. *REC_AS* is measured as the percentage of the other receivables on total assets. *TREAT* equals 1 for firms adopting 'the order' from 2010 to 2015 and 0 otherwise. The variables p*re_3* to *pre*_1 and *post_1* to *post_5* measure the interactions of *TREAT* and each period before and after the *current* shock year 2010. All other control variables are defined in Chapter 4 and Appendix A. All regressions include firm and year fixed effects. Standard errors are clustered at the firm levels, and robust t-statistics are in parentheses. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

As shown in Table 5.10, the robustness tests are consistent with the findings in previous DID tests (Section 5.4, Table 5.7). The dependent variable (column 2), *SEDI_QUA*, shows a parallel trend before the policy started in 2010. It presents the policy effect on *SEDI_QUA* was statistically insignificant from *pre_3* to *pre_1*, but the differences begin to be significant since the *current* period (2010) when the 'salary restriction order' was announced and the long-run effect is statistically significant, showing continuous positive effects from *post_1* to *post_5*. On the other hand, Column 1 in Table 5.9, presenting *SEDI_QUAN*, shows a statistically significant difference between treated and control groups before the policy announcement. This means that the results of the *SEDI_QUAN* from the DID tests are invalid.

The previous main DID tests (the coefficient of *TREAT*POST* on *SEDI_QUA* is positively significant at the *p*-value < 1% level) indicate that DEC significantly enhanced the quality-based corporate social performance, and the effect lasts long-term. Therefore, the parallel trend tests provide further robust evidence to support the significant association between DEC and qualitative SEDI. This result is inconsistent with Jiang et al. (2021), who believed that governmental say-on-pay would distort SOE managers to engage in CSR but consistent with the long-run net social benefits view that deferred compensation motivates corporate long-term prospects (Kane, 2002).

Table 5.10 Parallel Trend Tests for Effects of the ‘Salary Restriction Order’ on Corporate Social Performance

	SEDI_QUAN	*SEDI_QUA*
	(1)	(2)
pre_3	5.5475*	-4.1889
	(1.91)	(-0.88)
pre_2	4.6368**	-1.4252
	(2.13)	(-0.41)
pre_1	6.3646***	2.4344
	(2.90)	(0.76)
current	9.2540***	7.0602**
	(4.50)	(2.44)
post_1	8.8065***	6.3523**
	(4.66)	(2.53)
post_2	10.4747***	9.5676***
	(5.01)	(3.56)
post_3	11.7947***	8.5583***
	(6.75)	(3.03)
post_4	10.6721***	7.4948**
	(4.91)	(2.18)
post_5	11.2505***	6.5723*
	(5.49)	(1.88)
TOP1	-0.0393	-0.0740
	(-0.59)	(-0.89)
BOARD_SIZE	-0.4532	-0.7880
	(-1.06)	(-1.16)
PCT_IND	-10.7032	1.9737
	(-0.90)	(0.14)
PCT_FEM	-0.0521	-2.1101
	(-0.01)	(-0.30)
CEO_AGE	0.0354	0.1004
	(0.47)	(0.87)
CEO_FEM	3.6410	3.5172
	(0.59)	(0.44)
FIRM_SIZE	-0.0241	-0.2910
	(-0.02)	(-0.14)
GROWTH	-0.8325	-0.0931
	(-0.85)	(-0.07)
MTB	-0.0455	-0.4621
	(-0.17)	(-1.11)
LEV	7.9574	15.5873
	(1.34)	(1.64)
CAPEX	0.4684	-7.5819
	(0.05)	(-0.51)
ZSCORE	-0.4866	0.5404

	(-0.79)	(0.56)
Constant	22.4021	30.6716
	(1.58)	(1.60)
Firm FE	Yes	Yes
Year FE	Yes	Yes
Observations	666	666
R-squared	0.776	0.811

This table presents the parallel trend test results for the effects of the 'Salary Restriction Order' on corporate social performance. The dependent variables are *SEDI_QUAN* and *SEDI_QUA. SEDI_QUAN* and *SEDI_QUA* are the accumulated quantity and quality scores measured based on the indicators from CASS-CSR2.0. *TREAT* equals 1 for firms adopting 'the order' from 2010 to 2015 and 0 otherwise. The variables p*re_3* to *pre_*1 and *post_1* to *post_5* measure the interactions of *TREAT* and each period before and after the *current* shock year 2010. All other control variables are defined in Chapter 4 and Appendix A. All regressions include firm and year fixed effects. Standard errors are clustered at the firm levels, and robust t-statistics are in parentheses. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

5.5.2 Placebo Tests

Except for the parallel trend test, the placebo test is the alternative method to estimate the effects of previous DID tests by randomly creating a 'fake' treatment group or policy time[100]. Following Deng et al. (2021), this research applies the placebo test, *Monte Carlo Permutation*[101], using '*permute*' command in Stata17 for 500 times repeated permutations.

The core idea of this placebo test is to randomly resample the interaction term 500 times to observe if the coefficient of this resampling significantly differs from the previous DID estimation. For example, the previous coefficient of the interaction term (*TREAT*POST*) in the DID test (see Table 5.6) on *DIV_NP* is -1.7724. After 500 times of random sampling, only 2 times of the resampling deviated from the previous DID coefficient (see Table 5.11, *p*-value=0.0040); the remaining 498 times of the resampling are on the upper side of the previous DID coefficient, showing statistically insignificant (see Table 5.11, *p*-value=0.9960). It suggests that the previous DID estimate is unlikely to be the result of chance. Therefore, the possibility of the DID result being influenced by other policies or randomness is insignificant. This deviation is a small probability event, and the placebo test is valid. Table 5.11 presents the results of the placebo tests.

As shown in Table 5.11, except the dependent variable, *RISK_INV*, showing statistically insignificant results (190 out of 500 times deviate from the previous DID coefficient with the *p*-value=0.3800), all other dependent variables pass the permutation tests. The placebo results of *RISK_INV* indicate that unobserved factors may affect the association between the effects of 'salary restriction order' on corporate long-term investment decision-making.

[100] The core idea of the placebo test is to fictionalise the treatment group or policy time for estimation. If the regression results of the estimators under different fictions are still significant, it indicates that the original estimation is likely to be biased and that the change in the explanatory variable is likely to be affected by other policy changes or unobserved factors (Bailey, 2008).

[101] For more information about this permutation testing, please see Pesarin, F. and Salmaso, L., 2010. *Permutation tests for complex data: theory, applications and software*. John Wiley & Sons.

Considering the placebo test results with previous DID tests and parallel trend tests, this research summarises the following findings: 1) The 'salary restriction order' shows insignificant impacts on corporate investment, financial risks (i.e., *RISK_INV* and *RISK_FIN*) and stock return volatility (i.e., *VOL_STR_3*) (Section 5.4.1, Table 5.5). However, these findings may be affected by unobserved or random factors. The results from the parallel trend tests (Section 5.5.1, Table 5.8) indicate that the treated and control groups may have significant differences before announcing the 'salary restriction order' when examining the dependent variables *RISK_FIN* and *VOL_STR_3*. Moreover, the results from the placebo test (Section 5.5.2, Table 5.11) show that the DID estimation of the dependent variable *RISK_INV* may be biased and be affected by other unobserved factors.

2) The 'salary restriction order' significantly impacts wealth expropriation through declining dividend pay-out (i.e., *DIV_NP* and *DIV_SA*) and increasing related-party transactions (i.e., *REC_AS*). The results of the DID tests on the dependent variable *REC_AS* (Section 5.4.3, Table 5.6) are robust and consistent with its corresponding parallel trend tests (Section 5.5.1, Table 5.9) and placebo tests (Section 5.5.2, Table 5.11). However, the results of *DIV_NP* and *DIV_SA* (Section 5.4.2, Table 5.6) are only robust and consistent with their placebo tests (Section 5.5.2, Table 5.11). The findings examining the dependent variables *DIV_NP* and *DIV_SA* call for a cautious conclusion because the results from the parallel trend tests indicate the possibility of significant differences in treated and control groups before the 'salary restriction order' was announced.

3) The 'salary restriction order' significantly impacts corporate social performance as the growing SEDI on quantity and quality (i.e., *SEDI_QUAN* and *SEDI_QUA*). The results of the DID tests on the dependent variable *SEDI_QUA* (Section 5.4.4, Table 5.7) are robust and consistent with its corresponding parallel trend tests (Section 5.5.1, Table 5.10) and placebo tests (Section 5.5.2, Table 5.11). However, the results of

SEDI_QUAN are only robust and consistent with its placebo tests. The findings suggest that unobserved factors may affect the treated and control groups before the 'salary restriction order' was announced.

Overall, the findings from the main DID tests and its robustness checks via parallel trend tests and placebo tests demonstrate that DEC is unlikely to act as an effective corporate governance mechanism to mitigate the traditional economic-layered wealth expropriation between the company's large/controlling shareholders and small and medium-sized investors. Because the decreasing dividend pay-out ratios would impair the interests of minority shareholders and send negative signals to outside retail investors (Faccio et al., 2001; Pan and Tian, 2016), and the increasing related-party transactions would accelerate the monetary outflows to insiders, intensifying wealth expropriation towards minority shareholders (La Porta et al., 2000; Jiang et al., 2010; Jian and Wong, 2010). The findings are consistent with Dittmann et al. (2011), Jiang and Zhang (2017) and Bae et al. (2020), suggesting that policymakers should be aware of the unintended consequences of limiting executive pay. It may not be a conservative policy that shapes executive risk-taking behaviours through paying out dividends, and this finding is inconsistent with Edmans and Liu (2011), Caliskan and Doukas (2015), and Borah et al. (2020). Moreover, if the company declines dividend pay-out but invests in risky projects, it would result in higher stock return volatility and increase its market leverage. This situation would push the managers into a harsh position to raise external capital, causing financial distress (Hoberg and Prabhala, 2009).

In addition, the findings from the DID tests and its robustness checks via parallel trend tests and placebo tests demonstrate that DEC may be a potentially effective corporate governance mechanism to mitigate the societal-layered principal-principal conflicts between large/controlling shareholders and the company's social and environmental stakeholders, especially through enhancing the quality of the CSR disclosure. The robustness checks are consistent with the results of the main DID tests, and this finding is consistent with Kane (2002) and Mahoney and Thorne (2005, 2006), who believed that long-term deferred compensation improves corporate long-run prospects.

However, this finding is inconsistent with Jiang et al. (2021), who criticised that policies mandated by the government would distort corporate social performance.

Nevertheless, disagreements emerge between the DID tests and the corresponding robustness checks when examining the economic-layered principal-principal risk preference between large shareholders and outside creditors (proxied by corporate risk). The results from the main DID tests show that DEC has insignificant impacts on corporate risk, measured by financial risk, investment risk and volatility of stock return. However, the parallel trend tests show inconsistent results when corporate risk is measured by financial risk and volatility of stock return, and the placebo tests show inconsistent results when corporate risk is measured by investment risk. These inconsistencies indicate that the DID estimation is likely to be biased; there still are unobserved factors that affect the endogeneity (Angrist and Pischke, 2009). Therefore, findings on the association between DEC and corporate risk must be summarised cautiously.

Based on the DID tests, parallel trend tests and placebo tests, this research has failed to find robust evidence to respond to the risk-moderating effect of DEC derived from the *CEO Inside Debt Theory* (Edmans and Liu, 2011). To further test the endogeneity issue, following Cassell et al. (2012), Anantharaman et al. (2014), Liu et al. (2014), Eisdorfer et al. (2015) and Bennett et al. (2015), the next subsection will present the results using the 2SLS regressions with the instrumental variable as the alternative robustness check for the association between DEC and corporate risk.

Table 5.11 Placebo Test Results of Main Variables tested in the DID Model

	Coefficient	Test	c	n	*p*	SE(*p*)
RISK_INV						
*TREAT*POST*	0.0112	lower	310	500	0.6200	0.0217
		upper	190	500	0.3800	0.0217
		two-sided			0.7600	0.0191
RISK_FIN						
*TREAT*POST*	0.0503	lower	500	500	1.0000	0.0000
		upper	0	500	0.0000	0.0000
		two-sided			0.0000	0.0000
VOL_STR_3						
*TREAT*POST*	-0.2007	lower	0	500	0.0000	0.0000
		upper	500	500	1.0000	0.0000
		two-sided			0.0000	0.0000
DIV_NP						
*TREAT*POST*	-1.7724	lower	2	500	0.0040	0.0028
		upper	498	500	0.9960	0.0028
		two-sided			0.0080	0.0040
DIV_SA						
*TREAT*POST*	-0.0177	lower	0	500	0.0000	0.0000
		upper	500	500	1.0000	0.0000
		two-sided			0.0000	0.0000
DIV_MV						
*TREAT*POST*	-0.0130	lower	0	500	0.0000	0.0000
		upper	500	500	1.0000	0.0000
		two-sided			0.0000	0.0000
REC_AS						
*TREAT*POST*	0.0084	lower	500	500	1.0000	0.0000
		upper	0	500	0.0000	0.0000
		two-sided			0.0000	0.0000
SEDI_QUAN						
*TREAT*POST*	4.9263	lower	500	500	1.0000	0.0000
		upper	0	500	0.0000	0.0000
		two-sided			0.0000	0.0000
SEDI_QUA						
*TREAT*POST*	9.9110	lower	500	500	1.0000	0.0000
		upper	0	500	0.0000	0.0000
		two-sided			0.0000	0.0000

This table presents the placebo test results of the main variables tested in the previous DID model. Column ‘n’ means the sample has been randomly conducted 500 times permutations. Column ‘c’ means the time(s) that each sample result is lower or upper the coefficient. All variables are defined in Chapter 4 and Appendix A. All regressions include firm and year fixed effects. Standard errors are clustered at the firm levels.

5.5.3 2SLS Regressions to Test the Effect of the 'Salary Restriction Order' on Corporate Risk

According to the results examining the associations between DEC and the economic-layered principal-principal risk preference (proxied by corporate risk) in the Two-Way Fixed Effect regressions (Section 5.3, Table 5.2), I found insignificant correlations which show inconsistency with the *CEO Inside Debt Theory* (Edmans and Liu, 2011) and its risk-moderating effect (e.g., Cassell et al., 2012; Bennett et al., 2015; Van Bekkum, 2016; Srivastav et al., 2018). However, the results testified by the main DID model failed to be consistent with its robustness checks (i.e., parallel trend tests and placebo tests). To further test the causality between DEC and corporate risk as well as mitigate the endogeneity issue caused by unobserved factors, this research follows previous studies (e.g., Cassell et al., 2012; Anantharaman et al., 2014; Liu et al., 2014; Eisdorfer et al., 2015; Bennett et al., 2015; Li and Zhao, 2020) to apply 2SLS regressions to provide additional robustness checks for the associations between DEC and corporate risk. The 2SLS regressions use the CEO's age (*AGE*[102]) as the instrumental variable because Sundaram and Yermack (2007) found that older CEOs tend to hold larger pensions and deferred compensation and act more conservatively on risky decision-making.

Table 5.12 shows the results of 2SLS regressions on the effect of the 'salary restriction order' on corporate risk. Column 1 shows the results of the first stage, and columns 2, 3, and 4 show the results of the second stage using different proxies for corporate risk. It shows in column 1 that the instrumental variable CEO's age (*AGE*) is relatively strong, showing *F*-value=15.58>10. In the first-stage regression, the instrumental variable *AGE* is significantly associated with DEC (*EXECOM_DEF*) (presenting *t*=-2.87, *p*-value<1%). In the second-stage regressions, the DEC (*EXECOM_DEF*) shows no significant associations with these three proxies of corporate risk (i.e., *RISK_INV*, *RISK_FIN*, and *VOL_STR_3*). These results are consistent with the previous estimation by the Two-Way Fixed Effect regressions (Section 5.3) and the DID tests

[102] The instrumental variable *AGE* is measured as the natural logarithm of the CEO's age to distinguish the control variable *CEO_AGE* applied in this research (Bennett et al., 2015).

(Section 5.4.1). Hence, inconsistent with the *CEO Inside Debt Theory* (Edmans and Liu, 2011) and the correlated studies in the US market (e.g., Cassell et al., 2012; Bennett et al., 2015; Van Bekkum, 2016; Srivastav et al., 2018) and in the Chinese banking sectors (Deng et al., 2019; Jiang et al., 2019), this research only finds evidence that the 'salary restriction order' has no significant effects on corporate financial risk, investment risk, and volatility of stock return. This insignificant finding, however, is consistent with Li and Zhao (2020) examining pension reform in the UK.

Table 5.12 2SLS Regression to Test the Effect of the 'Salary Restriction Order' on Corporate Risk

	EXECOM_DEF	*RISK_INV*	*RISK_FIN*	*VOL_STR_3*
	(1)	(2)	(3)	(4)
TOP1	0.0008	0.0002	0.0008	0.0045
	(0.44)	(0.09)	(1.20)	(1.56)
BOARD_SIZE	0.0024	0.0216	0.0021	-0.0078
	(0.22)	(1.40)	(0.52)	(-0.46)
PCT_IND	-0.3001	-0.3473	-0.0744	-1.6606***
	(-0.89)	(-0.69)	(-0.56)	(-3.00)
PCT_FEM	0.2629*	0.0210	-0.0436	0.0294
	(1.76)	(0.09)	(-0.70)	(0.11)
CEO_AGE	0.0844***	-0.0016	-0.0004	-0.0007
	(2.68)	(-0.35)	(-0.30)	(-0.15)
CEO_FEM	0.2305**	-0.0504	0.0897**	-0.0826
	(2.48)	(-0.31)	(2.10)	(-0.46)
CEO_NEW	0.0084	0.0343	0.0054	0.0613*
	(0.38)	(1.05)	(0.62)	(1.71)
EXECOM_CASH	-0.0284	0.0207	-0.0063	-0.0399
	(-1.32)	(0.59)	(-0.69)	(-1.04)
FIRM_SIZE	0.1067***	0.1984***	0.0630 ***	0.1462*
	(3.06)	(2.84)	(3.42)	(1.91)
GROWTH	-0.0071	0.3727***	-0.0111	-0.0389
	(-0.19)	(7.11)	(-0.80)	(-0.68)
MTB	0.0091	-0.0073	0.0145 ***	0.0485***
	(1.25)	(-0.66)	(4.95)	(3.97)
AGE	-4.3823***			
	(-2.87)			
EXECOM_DEF		0.2245	-0.0671	-0.7003
		(0.45)	(-0.51)	(-1.28)
Constant	12.8712***	-2.3313***	-0.0394	1.7675**
	(2.95)	(-3.43)	(-0.22)	(2.37)
Firm FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	666	666	666	666
R-squared	0.718	0.217	0.844	0.549
F(92, 573)=15.58				

This table presents the 2SLS regression results for the effects of the 'salary restriction order' on corporate risk. Column 1 shows the results of the first stage, and columns 2, 3, and 4 show the results of the second stage. The independent variable *EXECOM_DEF* is a dummy variable; it equals 1 if the firm adopted the 'salary restriction order' at year t. The dependent variables are *RISK_INV, RISK_FIN,* and *VOL_STR_3*. *RISK_INV* captures the size of a firm's spending on long-term investment, and it is calculated as the difference between long-term assets for year 't' and year 't-1' scaled by long-term assets for year 't-1'. *RISK_FIN* is measured as the ratio of financial debt divided by the sum of

financial debt plus equity. Financial debt is the sum of long-term debt and short-term loans less other non-current liabilities. *VOL_STR_3* is measured as the standard deviation of the stock returns over 3-year overlapping windows. *AGE* is the instrumental variable, measured as the natural logarithm of the CEO's age. All other control variables are defined in Chapter 4 and Appendix A. All regressions include firm and year fixed effects, and robust t-statistics are in parentheses. ***, **, and * denote statistical significance at the 1%, 5% and 10% levels, respectively.

5.5.4 The Mediation Effect of Corporate Risk

From previous Two-Way Fixed Effect regressions, DID tests and 2SLS regressions on the associations between DEC and corporate risk, this research finds the 'salary restriction order' has no significant effects on mitigating the economic-layered risk preference between large shareholders and outside creditors. This result is inconsistent with the view of the CEO inside debt and its risk-moderating effect (Edmans and Liu, 2011). Therefore, this research is unlikely to support the hypotheses *H2* and *H4* testing the risk-moderating effect of the DEC as a mediator variable.

Moreover, previous literature examining the association between DEC or CEO inside debt and corporate social performance failed to argue the causality between the risk-moderating effect and CSR (e.g., Wu and Lin, 2019; Kim et al., 2020; Boubaker et al., 2020; Sheikh, 2020). This research fills this gap regarding corporate risk as a mediator variable to link the association between DEC and corporate social performance and develops hypothesis *H4*. To further testify this mediation effect of corporate risk and make it more robust, this section conducts two mediation effect tests, the Sobel tests and Bootstrap tests, to explore whether the corporate risk directly or indirectly plays as a mediator variable in impacting the correlations between DEC and the traditional economic-layered (in hypothesis *H2*) and societal-layered (in hypothesis *H4*) principal-principal conflicts.

$$Y = cX + CONTROLS + e_1 \qquad (1)$$

$$M = aX + CONTROLS + e_2 \qquad (2)$$

$$Y = c'X + bM + CONTROLS + e_3 \qquad (3)$$

Equations (1), (2) and (3) are applied for the mediation effect tests using 3-step regressions (Baron and Kenny, 1986). The coefficient c' in equation (3) means the direct effect of *X* to *Y*, and the value of coefficient *a* in equation (2) times the coefficient *b* in equation (3), *ab*, means the indirect effect of *X* through *M* to *Y*. Thereby,

the coefficient of the total effect of *X* to *Y* is ($c'+ ab$). However, the effect would be difficult to explain only by observing the coefficients when they are not significant (Fritz and Mackinnon, 2007). Therefore, the Sobel tests and Bootstrap tests are the most commonly applied methods to examine the mediation effect because they make fewer challenging assumptions (Manly,1997). The null hypothesis of these two methods is $ab = 0$. The mediation effect is significant if the null hypothesis is rejected (Sobel, 1982; Preacher and Hayes, 2008; Preacher et al., 2007).

This research uses the Stata17 commands, *sgmediation* and *bootstrap,* to conduct Sobel tests and Bootstrap tests. The sample selection is randomly repeated 500 times in Bootstrap tests. All tests include consistent control variables with the previous DID tests. Table 5.13 and Table 5.14 present the results of the Sobel tests and Bootstrap tests, respectively.

The Sobel test results (Table 5.13) present that, except for the dependent variable *DIV_NP*, other dependent variables measuring the corporate risk (*DIV_SA* and *DIV_MV*) and corporate social performance (*SEDI_QUAN* and *SEDI_QUA*) are significantly and directly affected by the independent variable DEC (measured by the interaction term *TREAT*POST*). Moreover, the dependent variable *DIV_NP* shows both insignificant results in a direct effect and indirect effect by the independent variable either or not via the impact of the mediator variables *RISK_INV*, *RISK_FIN*, and *VOL_STR_3*. Therefore, the results from the Sobel tests cannot provide evidence to support the risk-moderating effect of CEO inside debt.

Consistent with the Sobel tests, the Bootstrap tests shown in Table 5.14 find similar results. Except for the dependent variable *DIV_NP*, showing both insignificant results in direct and indirect effects, other dependent variables (*DIV_SA* and *DIV_MV*) are significantly and directly affected by the independent variable DEC (measured by the interaction term *TREAT*POST*).

Regarding the Bootstrap tests on corporate social performance, the results are slightly different from the Sobel tests. The direct effect and indirect effect, either or not through the corporate risk proxied by *VOL_STR_3*, are both statistically significant. However, according to the relevant coefficients, the total impacts of *SEDI_QUAN* and *SEDI_QUA* mainly come from the direct effects (*SEDI_QUAN* shows a direct coefficient of 4.1269 and the total coefficient of 4.5662, and *SEDI_QUA* shows a direct coefficient of 9.0825 and the total coefficient of 9.6040). Hence, consistent with the Sobel tests, the Bootstrap test results cannot support the hypothesis of the risk-moderating effect of CEO inside debt.

Both Sobel tests and Bootstrap tests indicate that the effects of DEC on corporate dividend pay-out ratios and corporate social performance mainly come from the direct effect. The results are consistent with previous Two-Way Fixed Effect regressions, DID tests and 2SLS regressions on testing the associations between DEC and corporate risk. Therefore, the findings in this research are inconsistent with the *CEO Inside Debt Theory* (Edmans and Liu, 2011) and cannot support hypotheses *H2* and *H4*.

Table 5.13 Sobel Mediation Tests

Panel A: The risk-moderating effect on deferred executive compensation and dividend pay-out					
Y	*M*	*X*	Coeff	Std Err	*p*-value
DIV_NP	*RISK_INV*	*TREAT*POST*	-0.0135	0.0292	0.6431
Indirect effect			-0.0135	0.0292	0.6431
Direct effect			-0.8881	0.6935	0.2003
Total effect			-0.9017	0.6933	0.1934
DIV_SA	*RISK_INV*	*TREAT*POST*	0.0000	0.0002	0.8798
Indirect effect			0.0000	0.0002	0.8798
Direct effect			-0.0392	0.0072	0.0000
Total effect			-0.0392	0.0072	0.0000
DIV_MV	*RISK_INV*	*TREAT*POST*	-0.0001	0.0004	0.7617
Indirect effect			-0.0001	0.0004	0.7617
Direct effect			-0.0630	0.0151	0.0000
Total effect			-0.0631	0.0150	0.0000
DIV_NP	*RISK_FIN*	*TREAT*POST*	-0.0150	0.0287	0.6019
Indirect effect			-0.0150	0.0287	0.6019
Direct effect			-0.8867	0.6937	0.2012
Total effect			-0.9017	0.6933	0.1934
DIV_SA	*RISK_FIN*	*TREAT*POST*	-0.0005	0.0008	0.5091
Indirect effect			-0.0005	0.0008	0.5091
Direct effect			-0.0387	0.0071	0.0000
Total effect			-0.0392	0.0072	0.0000
DIV_MV	*RISK_FIN*	*TREAT*POST*	-0.0003	0.0006	0.6325
Indirect effect			-0.0003	0.0006	0.6325
Direct effect			-0.0628	0.0151	0.0000
Total effect			-0.0631	0.0150	0.0000
DIV_NP	*VOL_STR_3*	*TREAT*POST*	0.1166	0.0889	0.1895
Indirect effect			0.1166	0.0889	0.1895
Direct effect			-1.0183	0.6972	0.1442
Total effect			-0.9017	0.6933	0.1934
DIV_SA	*VOL_STR_3*	*TREAT*POST*	-0.0001	0.0008	0.9013
Indirect effect			-0.0001	0.0008	0.9013
Direct effect			-0.0391	0.0072	0.0000
Total effect			-0.0392	0.0072	0.0000
DIV_MV	*VOL_STR_3*	*TREAT*POST*	-0.0010	0.0018	0.5678
Indirect effect			-0.0010	0.0018	0.5678
Direct effect			-0.0621	0.0152	0.0000
Total effect			-0.0631	0.0150	0.0000

Panel B: The risk-moderating effect on deferred executive compensation and corporate social performance

Y	*M*	*X*	Coeff	Std Err	*p*-value
SEDI_QUAN	*RISK_INV*	*TREAT*POST*	-0.0550	0.0692	0.4271
Indirect effect			-0.0550	0.0692	0.4271
Direct effect			4.6211	0.8307	0.0000
Total effect			4.5662	0.8319	0.0000
SEDI_QUA	*RISK_INV*	*TREAT*POST*	-0.1163	0.1395	0.4046
Indirect effect			-0.1163	0.1395	0.4046
Direct effect			9.7203	1.1802	0.0000
Total effect			9.6040	1.1862	0.0000
SEDI_QUAN	*RISK_FIN*	*TREAT*POST*	0.0060	0.0388	0.8778
Indirect effect			0.0060	0.0388	0.8778
Direct effect			4.5602	0.8317	0.0000
Total effect			4.5662	0.8319	0.0000
SEDI_QUA	*RISK_FIN*	*TREAT*POST*	0.0070	0.0457	0.8783
Indirect effect			0.0070	0.0457	0.8783
Direct effect			9.5970	1.1862	0.0000
Total effect			9.6040	1.1862	0.0000
SEDI_QUAN	*VOL_STR_3*	*TREAT*POST*	0.4393	0.1808	0.0151
Indirect effect			0.4393	0.1808	0.0151
Direct effect			4.1269	0.8225	0.0000
Total effect			4.5662	0.8319	0.0000
SEDI_QUA	*VOL_STR_3*	*TREAT*POST*	0.5214	0.2264	0.0213
Indirect effect			0.5214	0.2264	0.0213
Direct effect			9.0825	1.1793	0.0000
Total effect			9.6040	1.1862	0.0000

This is the Sobel mediation test results on the mediator corporate risk, measured by *RISK_INV, RISK_FIN* and *VOL_STR_3*. Panel A and Panel B present the risk-moderating effect on deferred executive compensation and dividend pay-out and deferred executive compensation and corporate social performance, respectively.

Table 5.14 Bootstrap Tests (replications 500 times)

Panel A: The risk-moderating effect on deferred executive compensation and dividend pay-out					
Y	*M*	*X*	Coeff	Std Err	*p*-value
DIV_NP	*RISK_INV*	*TREAT*POST*			
Indirect effect			-0.0135	0.0289	0.6400
Direct effect			-0.8881	0.7155	0.2150
DIV_SA	*RISK_INV*	TREAT*POST			
Indirect effect			0.0000	0.0004	0.9550
Direct effect			-0.0392	0.0058	0.0000
DIV_MV	*RISK_INV*	*TREAT*POST*			
Indirect effect			-0.0001	0.0008	0.8850
Direct effect			-0.0630	0.0155	0.0000
DIV_NP	*RISK_FIN*	*TREAT*POST*			
Indirect effect			-0.0150	0.0347	0.6660
Direct effect			-0.8867	0.7183	0.2170
DIV_SA	*RISK_FIN*	*TREAT*POST*			
Indirect effect			-0.0005	0.0008	0.5390
Direct effect			-0.0387	0.0059	0.0000
DIV_MV	*RISK_FIN*	*TREAT*POST*			
Indirect effect			-0.0003	0.0007	0.6940
Direct effect			-0.0628	0.0159	0.0000
DIV_NP	*VOL_STR_3*	*TREAT*POST*			
Indirect effect			0.1166	0.0846	0.1680
Direct effect			-1.0183	0.7207	0.1580
DIV_SA	*VOL_STR_3*	*TREAT*POST*			
Indirect effect			-0.0001	-0.0008	0.9020
Direct effect			-0.0391	0.0058	0.0000
DIV_MV	*VOL_STR_3*	*TREAT*POST*			
Indirect effect			-0.0010	0.0016	0.5400
Direct effect			-0.0621	0.0156	0.0000
Panel B: The risk-moderating effect on deferred executive compensation and corporate social performance					
Y	*M*	*X*	Coeff	Std Err	*p*-value
SEDI_QUAN	*RISK_INV*	*TREAT*POST*			
Indirect effect			-0.0550	0.0701	0.4330
Direct effect			4.6211	0.8782	0.0000
SEDI_QUA	*RISK_INV*	*TREAT*POST*			
Indirect effect			-0.1163	0.1399	0.4060
Direct effect			9.7203	1.3201	0.0000
SEDI_QUAN	*RISK_FIN*	*TREAT*POST*			

Indirect effect			0.0060	0.0479	0.9010
Direct effect			4.5602	0.9101	0.0000
SEDI_QUA	*RISK_FIN*	*TREAT*POST*			
Indirect effect			0.0070	0.0563	0.9010
Direct effect			9.5970	1.2591	0.0000
SEDI_QUAN	*VOL_STR_3*	*TREAT*POST*			
Indirect effect			0.4393	0.1677	0.0090
Direct effect			4.1268	0.8850	0.0000
SEDI_QUA	*VOL_STR_3*	*TREAT*POST*			
Indirect effect			0.5214	0.2015	0.0100
Direct effect			9.0825	1.2958	0.0000

This is the Bootstrap test results (replications 500 times) on the mediator corporate risk, measured by *RISK_INV*, *RISK_FIN* and *VOL_STR_3*. Panel A and Panel B present the risk-moderating effect on deferred executive compensation and dividend pay-out and deferred executive compensation and corporate social performance, respectively.

5.6 Chapter Summary

In summary, this chapter tests the policy effects of the 'salary restriction order' on double-layered principal-principal conflicts in Chinese SOEs. The baseline Two-Way Fixed Effect regressions and main DID tests show the following findings: 1) DEC is insignificantly associated with corporate financial risk, investment risk, and volatility of stock return. 2) DEC significantly declines dividend pay-out ratios and increases related-party transactions. 3) DEC significantly enhances both quantitative and qualitative SEDI.

The robustness checks, parallel trend tests and placebo tests are consistent with the main DID tests, demonstrating that DEC is unlikely to act as an effective corporate governance mechanism to mitigate the traditional economic-layered wealth expropriation between large and minority shareholders. Because the decreasing dividend pay-out ratios would impair the interests of minority shareholders and send negative signals to outside retail investors (Faccio et al., 2001; Pan and Tian, 2016), in addition, the increasing related-party transactions would accelerate the monetary outflows to insiders, intensifying wealth expropriation towards minority shareholders (Jiang et al., 2010; Jian and Wong, 2010).

The findings are consistent with Dittmann et al. (2011), Jiang and Zhang (2017) and Bae et al. (2020), suggesting that policymakers should be aware of the unintended consequences of limiting executive pay. It may not be a conservative policy that shapes executive risk-taking behaviours through paying out dividends, and this finding is inconsistent with Edmans and Liu (2011), Caliskan and Doukas (2015), and Borah et al. (2020). Therefore, the findings support hypothesis *H3* but not *H2*.

In addition, the findings of DID tests and its robustness checks via parallel trend tests and placebo tests demonstrate that DEC may be a potentially effective corporate governance mechanism to mitigate the societal-layered principal-principal conflicts between large shareholders and the company's social and environmental stakeholders,

especially through enhancing the quality of the CSR disclosure. The robustness checks are consistent with the results of the main DID tests.

This finding is consistent with Kane (2002) and Mahoney and Thorne (2005, 2006), who believed that long-term deferred compensation improves corporate long-run prospects. However, this finding is inconsistent with Jiang et al. (2021), who criticised that policies mandated by the government would distort corporate social performance. The finding supports hypothesis *H5*.

Because the results of parallel trend tests are inconsistent with the placebo tests when examining the economic-layered principal-principal risk preference between large shareholders and outside creditors. The chapter follows previous literature and uses 2SLS regressions with IV to alleviate the endogeneity (e.g., Cassell et al., 2012; Anantharaman et al., 2014; Liu et al., 2014; Eisdorfer et al., 2015; Bennett et al., 2015) and to testify to the association between DEC and corporate risk. The results are consistent with the baseline Two-Way Fixed Effect regressions and the main DID tests. The findings support neither hypothesis *H1a* nor *H1b*.

Moreover, to further examine the overlooked causality issue between DEC and CSR (Wu and Lin, 2019; Kim et al., 2020; Boubaker et al., 2020; Sheikh, 2020), this research applies the Sobel tests and Bootstrap tests and cannot find significant evidence to support the assumption of the risk-moderating effect of *CEO Inside Debt Theory* (Edmans and Liu, 2011). The insignificant results of testing corporate risk as a mediator variable are consistent with the baseline Two-Way Fixed Effect regressions, the main DID tests and the 2SLS regressions. The findings support neither hypothesis *H2* nor *H4*. Table 5.15 shows the summary of the findings.

Table 5.15 Summary of Findings

Findings	**Theoretical Consistency**	**Hypotheses**	**Accepted/Rejected**
DEC is insignificantly associated with corporate financial risk, investment risk, and volatility of stock return.	Inconsistent with Edmans and Liu (2011).	*H1a, H1b*	Rejected
DEC significantly declines dividend pay-out ratios.	Inconsistent with Caliskan and Doukas (2015) and Borah et al. (2020).	*H2*	Rejected
DEC significantly increases related-party transactions.	Consistent with Dittmann et al. (2011), Jiang and Zhang (2017) and Bae et al. (2020).	*H3*	Accepted
DEC significantly enhances both quantitative and qualitative SEDI through the risk-moderating effect.	Inconsistent with Edmans and Liu (2011).	*H4*	Rejected
DEC significantly enhances both quantitative and qualitative SEDI directly.	Consistent with Kane (2002) and Mahoney and Thorne (2005, 2006); Inconsistent with Jiang et al. (2021).	*H5*	Accepted

Chapter 6. Conclusion

6.1 Introduction

This chapter summarises the research contributions, findings, implications, and limitations and suggests recommendations for future research. Section 6.2 reviews the research contributions and findings from theoretical and practical perspectives and provides constructive implications for academia and policymakers on prudently considering the institutional conditions for theory application and policy formulation. Section 6.3 indicates the limitations of this research in two research approaches: the restricted measurement of the independent variable and the manually collected SEDI scores. Section 6.4 recommends two promising ideas for future research on deferred executive compensation (DEC) and its impacts on the double-layered principal-principal conflicts in Chinese SOEs.

6.2 Contributions, Findings and Implications

6.2.1 Theoretical Contributions

Through investigating the Chinese market, SOEs occupy a critical position in the output value of the national economy. To the best of my knowledge, China currently controls the world's largest state-owned asset system, which includes transportation, medical biochemistry, manufacturing, IT, energy, construction, finance, and other core industries (Jin et al., 2022). Moreover, statistics show that the entire value of the Chinese SOEs commands a substantial two-thirds proportion of the market capitalisation, and the average percentage shareholdings of the largest and top 5 shareholders over the past 20 years is about 35% and 55%, respectively (Jiang and Kim, 2020). It indicates that the current Chinese market is dominated by concentrated ownership, particularly state ownership. Different from other types of concentrated companies (i.e., family business), which focus more on maximising shareholders' wealth, Chinese SOEs have two primary objectives: one is to achieve national economic goals while carrying out governmental/political strategies, and the other is to provide social public welfare (Jiang and Kim, 2020; Jin et al., 2022). Therefore, the Chinese SOEs are confronting vertical and horizontal agency problems (Jiang and Kim,

2020). To indicate, Chinese SOEs are not only involved in the traditional agency issues when the SOE managers fail to accomplish the demands of the state but also face the economic and social levels of principal-principal conflicts when the state (or its representative SOE managers) fail to protect the interests of the minority shareholders and the primary social and environmental stakeholders.

Regarding these principal-principal agency problems, this research proposes a new theoretical framework to identify both economic and social levels of principal-principal conflicts when companies are highly concentrated. According to the seminal *Double-Layered Agency Theory* (Raelin and Bondy, 2013), previous literature focused more on examining the economic-layered agency problems between shareholders and managers caused by the separation of ownership and control, overlooking the hidden social-layered agency relationship between society and the company. Applying their view to the scenarios of principal-principal conflict studies, also known as the *Type II Agency Problems* (Young et al., 2008; La Porta et al., 1999; Claessens et al., 2000), I find a similar phenomenon. It reveals that the concentrated ownership studies focus more on the economic level of principal-principal conflicts from large/controlling shareholders towards minority shareholders, likewise lacking an approach examining the social level of principal-principal conflicts.

To fill this theoretical gap, I propose a double-layered principal-principal structure that examines economic and societal layers of principal-principal agency problems when companies are highly concentrated. The first layer focuses on the traditional economic principal-principal conflicts, such as wealth expropriation (Young et al., 2008; La Porta et al., 1999; Claessens et al., 2000), tunnelling behaviours (Johnson et al., 2010; Jiang et al., 2010), and conflicts of risk preference (Edmans and Liu, 2011; Laeven and Levine, 2009) between large/controlling shareholders and outside creditors. The second layer focuses on the overlooked societal principal-principal conflicts caused by large/controlling shareholders failing to achieve the demands of the company's primary social and environmental stakeholders.

The proposition of the *Double-Layered Principal-Principal Theory* elaborates the study area of the *Type II Agency Problems* (La Porta et al., 1999; Claessens et al., 2000) from a perspective of corporate social concern and highlights the overlooked second societal-layered principal-principal conflicts caused by the dominant large/controlling shareholders towards company's primary social and environmental stakeholders. This new theoretical framework provides clear guidance when examining agency problems in companies with high concentration. Especially when the large/controlling shareholder is the state, it reveals the root of these principal-principal conflicts, explaining factors such as strong political affiliation (Chen et al., 2011), policy-driven performance (Jiang and Kim, 2015), and influences of political promotion on SOE managers (Zhang and Liu, 2020), resulting in traditional corporate governance approaches less effective in the Chinese market compared to the Western markets (i.e., the US and the UK). Therefore, this theoretical framework would ring a bell for policymakers to formulate relevant corporate governance regulations regarding specific agency problems that emerge within the national context, which helps to avoid a departure from the uncritical application of conventional methodologies.

To answer the first main research question:

How does this research establish a theoretical framework that identifies and examines both economic and societal layers of principal-principal agency conflicts for highly concentrated companies?

This research critically reviews the development of the *Agency Theory* and finds that the *Double-Layered Agency Theory* (Raelin and Bondy, 2013) has inspired to establish a theoretical framework that identifies and examines both economic and societal layers of principal-principal agency conflicts for highly concentrated companies. The *Double-Layered Agency Theory* has been proposed from the perspective of an overlooked social-layered agency relationship between society and the company's shareholders (Raelin and Bondy, 2013). Through reviewing studies on the *Type II*

Agency Problem (i.e., the Principal-Principal Conflicts), this research finds that the societal-layered principal-principal agency problem also has been overlooked, and current studies focus on the economic-layered principal-principal conflicts caused by large shareholders to small and medium-sized investors. Therefore, this research fills the gap by introducing the second layer of principal-principal structure, which examines the societal principal-principal agency problems between a company's large/controlling shareholders and primary non-investment (i.e., social and environmental) stakeholders from the stakeholder-principal (Freeman, 1984, 1994) perspective.

Moreover, this research argues that, rather than the large/controlling shareholders, the management should act as the agent role for the double-layered principals because 1) the assumption of separated ownership and control fails to be fulfilled when forming the principal-agent relationship; 2) the opportunistic nature of large/controlling shareholders is unlikely to make them act as the agent on behalf of the minority shareholders; 3) the representative may be intimidated by the large power so that fail to express minority shareholders' demand; 4) as one of the company's insiders, the management gains timely information accessibility; and 5) large shareholders are unlikely to vote against the proposals that presented by the management.

Hence, this research contributes to establishing a double-layered principal-principal agency structure. The first layer of vertical agency relationship is between the economic-layered principals (i.e., large and minority shareholders and outside creditors) and management, and the second layer is between the societal-layered principals (i.e., social and environmental stakeholders) and the management. In addition, the first layer of horizontal principal-principal relationship is between large shareholders and other economic-layered principals, and the second layer is between large shareholders and the societal-layered principals.

To answer the second main research question:

Despite the ineffective traditional approaches, is there any other corporate

governance mechanism mitigating both economic and social layers of principal-principal agency problems in Chinese SOEs?

This research hypothesises that DEC is likely a promising corporate governance mechanism that mitigates economic and societal layers of principal-principal conflicts in Chinese SOEs based on the CEO inside debt theory. Edmans and Liu (2011) found that a CEO's long-term deferred compensation impacts his/her risk preference, aligning with the company's outside creditors. Thereby, the CEO is likely to refrain from making high-risk decisions, ensuring that the company has a stable cash flow and reducing the risk of bankruptcy. Their pioneering study laid a foundation for further studies that examine the correlations between DEC and corporate dividend pay-out and corporate social performance, reflecting the indicators that explain the influence of DEC on double-layered principal-principal conflicts.

As a result, this study uses the 'Salary Restriction Order' as an exogenous shock and applies a quasi-experiment to test the listed subsidiaries of SASAC central SOEs from 2007 to 2015. It finds: 1) DEC has insignificant effects on corporate risk-taking behaviours; 2) DEC declines dividend pay-out ratios; 3) DEC accelerates tunnelling behaviours by growing related-party transactions; 4) DEC has positive influences on corporate social performance, significantly improves the quality of CSR disclosure.

Evidence from this study indicates that DEC is likely to positively drive SOE managers to put more effort into CSR disclosure quality, which helps to alleviate the societal-layered conflict of interests between large shareholders and the company's primary social and environmental stakeholders. However, as for the first economic-layered principals, DEC is not able to mitigate the principal-principal issues (i.e., risk preference) between large shareholders and outside creditors. What is worse, DEC may deteriorate the relationship between large shareholders and minority shareholders because of the declining cash dividend and increasing tunnelling behaviours. Therefore, despite the CEO inside debt theory being supported by solid data in the US,

in China, examined by Chinese SOEs, DEC may not be a promising corporate governance mechanism that mitigates the economic-layered principal-principal conflicts.

6.2.2 Empirical Findings

Following the *CEO Inside Debt Theory* (Edmans and Liu, 2011) and its risk-moderating effect (e.g., Cassell et al., 2012; Wei and Yermack, 2011; Bennett et al., 2015; Van Bekkum, 2016; Srivastav et al., 2018) on increasing dividend pay-out (Caliskan and Doukas, 2015; Borah et al., 2020) and corporate social performance (Mayberry, 2020), as well as the *Long-Run Net Social Benefits View* when examining the deferred compensation (Kane, 2002), this research hypothesises that deferred executive compensation (DEC) is likely to be a potential corporate governance mechanism to alleviate both economic and societal layers of the principal-principal conflicts in Chinese SOEs.

Meanwhile, according to the 'salary restriction order' announced by the SASAC in 2010, it provides an appropriate opportunity to conduct a quasi-natural experiment to investigate its policy effects on the economic and societal layers of principal-principal conflicts. Therefore, this research applies baseline Two-Way Fixed Effect regressions and DID tests examining the panel data of 74 listed SOEs controlled by the SASAC central enterprises from 2007 to 2015.

Regarding the tests of DEC and the economic-layered principal-principal conflicts, this research finds an insignificant association between DEC and corporate risk, whether this variable is proxied by corporate financial risk, corporate investment risk, or a 3-year or 5-year stock return volatility. Moreover, the findings show a direct and significantly negative impact on dividend pay-out ratios and increased tunnelling behaviour via related-party transactions. Both parallel trend tests and placebo tests robustly testify to the results of the adverse effect in accelerating tunnelling behaviour. It indicates an unfavourable sign of increasing the traditional economic-layered

principal-principal conflicts toward the company's minority shareholders (Faccio et al., 2001; Johnson et al., 2000; Jiang et al., 2010; Aharony et al., 2010; Boateng and Huang, 2017).

Regarding the tests of DEC and the societal-layered principal-principal conflicts, this research finds a significant association between DEC and corporate social performance. The findings show that DEC directly and significantly increases SEDI scores from both quantitative and qualitative perspectives. Both parallel trend tests and placebo tests are consistent with the previous results from Two-Way Fixed Effect regressions and DID tests. The mediation effect tests, Sobel and Bootstrap tests provide further robust evidence demonstrating the direct impact of DEC on SEDI. Therefore, consistent with Kane (2002), the findings indicate that DEC may potentially mitigate the societal-layered principal-principal conflicts, especially in enhancing the quality of corporate social performance. Moreover, the conclusion on the quantity-based SEDI should be cautiously addressed because the parallel trend test on verifying the policy effects of DEC on the quantity-based SEDI is invalid.

In addition, in the robustness checks, there is an inconsistency between the parallel trend and placebo tests when examining the causal effect between DEC and corporate risk. Therefore, this research follows previous studies that apply 2SLS regressions (e.g., Cassell et al., 2012; Anantharaman et al., 2014; Liu et al., 2014; Eisdorfer et al., 2015; Bennett et al., 2015), including the CEO's age as the instrumental variable (Sundaram and Yermack, 2007) and further verifies that DEC has insignificant associations with corporate risk.

Moreover, to further verify that the changes in dividend pay-out ratios and SEDI scores are not caused by the casual effect between DEC and corporate risk, this research applies the Sobel mediation tests and 500-time Bootstrap tests and shows that the main effects of DEC on these two dependent variables come from direct impacts. The results from robustness checks are consistent with previous Two-Way Fixed Effect

regressions and DID tests, showing that the effect of the mediator variable (i.e., corporate risk) is insignificant.

These findings are inconsistent with the *CEO Inside Debt Theory* (Edmans and Liu, 2011) and relevant evidence that highlights DEC's risk-reducing effect (e.g., Cassell et al., 2012; Wei and Yermack, 2011; Bennett et al., 2015; Van Bekkum, 2016; Srivastav et al., 2018). However, the findings are consistent with those of Li and Zhao (2020), who found insignificant associations in examining the dropping of executive pensions and firm risk in the UK. Similarly, they also revealed an increase in executives' income tax (Li and Zhao, 2020), implying the possibility of unethical earning management to boost their performance-based salary to compensate for declining pensions.

On the other hand, the findings show a consistency with the view of unintended consequences after limiting executive pay (Dittmann et al., 2011; Jiang and Zhang, 2017; Jiang et al., 2021; Bae et al., 2020), and the view of net long-run benefits of the deferred compensation (Kane, 2002; Mahoney and Thorne, 2005, 2006). These findings suggest that restricting executive pay may enhance corporate social and environmental disclosure on a quality base. However, this restriction forces executives to compensate themselves through other unethical behaviours, such as holding dividends within the company (Faccio et al., 2001) and manipulating earnings through related-party loans (Jiang et al., 2010). These behaviours would accelerate the traditional economic-layered principal-principal conflicts as small and medium-sized investors expect steady and sustainable dividend income (Faccio et al., 2001; Pan and Tian, 2016). Moreover, these behaviours would also irritate the large/controlling shareholders (in this case, the state), as they expect the value of state-owned assets to be well preserved, reflecting the SOE's commercial nature (Jiang and Kim, 2020; Jin et al., 2022). Therefore, the executives 'salary restriction order' may fail to play an important role in mitigating the economic-layered principal-principal agency problems.

6.2.3 Implications for Companies

The empirical findings carry important implications for companies. First, the results provide constructive guidance to shape corporate social behaviours for highly concentrated companies, especially for those who fail in traditional corporate governance monitoring. The lasting 6 years of improved quality of corporate social performance (from 2010 to 2015) after the implementation of the 'salary restriction order' demonstrates that a deferred payment stimulates SOE executives to focus more on the company's long-term sustainability. It also shows that the long-term tenure appraisal system for SOE executives is linked to their corporate social responsibility performance, and appropriate adjustments to the executive pay structure can help to adjust executive decision-making behaviour.

6.2.4 Implications for Policymakers

Nevertheless, regarding the dropping dividend pay-out ratios and the rising manipulated related-party loans, this research also alarms the policymakers in China on straightforwardly cutting down the executives' pay without adequately adjusting the length, ratios, or portfolios of other types of deferred compensation and pension plans for the executives' long-term incentives. For instance, according to Edmans and Liu (2011), the CEO inside debt includes deferred compensation and executives' pension plans. The deferred compensation may have certain yearly restrictions, such as a 3-year tenure in this research; however, the pensions generally need to be received after the retirement or resignation of the executives. Moreover, in the US, the proportion of pension plans in the compensation package is much higher than the deferred compensation (He, 2020). Executives can only access pensions after they reach their retirement age (Li and Zhao, 2020). Such an arrangement can effectively regulate short-term earnings manipulation and increase executive incentives for a long-run prospect. In addition, the CEO inside debt in the US gives executives the right to claim only after the company's outside creditors if the company declares bankruptcy. It indicates that the executives' deferred compensation and pensions are protected as privileged as the long-term debt of the outside creditors (He, 2020). This attribute further highlights the risk reduction hypothesis of the *CEO Inside Debt Theory*, demonstrating that the interests of outside creditors and the company's executives are

closely aligned; thereby, increasing CEO inside debt limits executives' risk-seeking behaviours.

However, the pension system in China is mainly issued as employee benefits, which is different from the incentive schemes in Western countries. Moreover, each employee has an individual pension account in China; if bankruptcy were announced, the pension would not be included in the liquidation (Barr and Diamond, 2010). This means that executives' performance is unlikely to affect how much pensions they will receive when they retire or resign. Therefore, straightforwardly cutting down the executives' pay in China may not be a proper way to form a long-term incentive. Besides guaranteeing primary employee benefits, policymakers need to consider setting up provisions such as recourse or partial deduction correlated with executives' long-term performance when formulating the pension system.

6.3 Limitations

This research has two main limitations due to the restricted measurement of the independent variable (i.e., DEC) and the manually collected SEDI scores for measuring corporate social and environmental performance (i.e., the second-layered principal-principal conflicts).

Firstly, this research only measures the independent variable, DEC, as a dummy variable without using alternative measurements. In many previous studies on the CEO inside debt in the US, the deferred compensation and/or executives' pension plans are measured as accurate value or ratios, as the data can be accessible from the annual disclosure (e.g., Cassell et al., 2012; Anantharaman et al., 2014; Bennett et al., 2015; Van Bekkum, 2016; Srivastav et al., 2018). However, listed companies in China are not required to disclose the deferred compensation. The lack of accurate value disclosure of this key independent variable would limit the diversity of proxy measurement. It also affects the alternative method chosen for further robustness checks.

Moreover, according to the *CEO Inside Debt Theory*, both deferred compensation and executives' pension plans should be included as the proxy for DEC, as the pension plans account for a large portion of the CEO inside debt and give executives the right to claim only after the company's outside creditors when the company declares bankruptcy, in which reflects the risk preference aligned with the outside creditors (He, 2020). However, as Section 6.2.2 has addressed, the nature of pension plans in China is mainly issued as employee benefits. It lacks the risk-reducing attribute compared to the CEO inside debt being applied as a company's long-term incentive in the US. Therefore, differences in the nature of setting up pension plans also limit the alternative measurement of the independent variable in this research.

The second limitation is the technique issue when manually collecting the data to measure the SEDI scores. This research proposes a new concept of the 'societal-layered principal-principal conflicts' to define the social and environmental demands that may have been neglected by the opportunistic and self-interest-focused large/controlling shareholders in companies within highly concentrated ownership. Therefore, it would be inappropriate to directly collect the CSR data from third-party databases as the concept of 'societal-layered principal-principal conflicts' differs from the definition of CSR disclosure.

While calculating SEDI scores, this research reorganised the indicators from the CASS-CSR guidance, excluding all indicators related to shareholders and solely focusing on the ones that benefit primary non-investment stakeholders. To assign the SEDI scores for each sample company, this research used 'keyword searching' to manually check each company's CSR/ESG/sustainability disclosure and/or annual report. Therefore, the inaccuracy of manual data collection is inevitable. This technique problem would be improved if the machine learning method could be used to generate an automatic score. It would also enhance the accuracy of data measurement and potentially enlarge the scope of the dataset.

6.4 Recommendations for Future Research

Chinese SOEs are owned by the central or local government, which the SASAC and the state council manage. Therefore, when the 'salary restriction order' was issued, it was processed administratively by the upper superior to the subordinates and required all SOEs to conduct the rules accordingly. However, such a one-size-fits-all bureaucratic order is likely to disregard the impact of the industrial nature on executives' salary levels and risk preferences. For example, some SOEs within a specific industry, such as tobacco, energy, or transportation, have relatively stable financial performance compared with other sectors in China. The 'salary restriction order' may have less impact on them because executives still maintain relatively high annual payments even if partial (in this research, 40%) of their performance-based salary is deferred. However, other industries, such as steel, asset-heavy manufacturing, real estate, or financial sectors, are likely to be impacted easily by technique revolution or the turbulent environment of the macro market. Therefore, when the economy goes down, the 'salary restriction order' would cause the already depressing executive performance-based gains even worse. In this case, the 'salary restriction order' would no longer be a long-term incentive strategy; executives may manipulate earnings to compensate for their loss. This research also provides relevant evidence to address this point. Therefore, further studies can explore the issues of DEC by industry. For example, what range of proportions would be feasible regarding different industries?

Generally, the SOE managers are directly appointed by the government. They have dual identities, not only being a company's agents but also representing important government officials with strong political connections to carry out national policy and guidance (Jiang and Kim, 2020; Jin et al., 2022). In other words, the documents issued by the government often act as important political tasks for SOE managers to follow. The efficiency of the political tasks being executed and feedbacked and the performance of SOEs are significantly associated with their political promotions (Jiang and Kim, 2020). Moreover, previous literature shows that younger SOE managers with higher education backgrounds would have longer political careers and

a larger possibility of achieving higher political promotion (Leutert, 2018). They are also more likely to follow the political tasks and gain better SOE performance (Cao et al., 2019). Therefore, future research can focus on the moderator effect of executives' political promotion on the associations between implementing the 'salary restriction order' and double-layered principal-principal conflicts in Chinese SOEs.

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Appendix A: Variable Definitions

Variables		Definition	Reference
Dependent Variables			
Economic-Layered Principal-Principal Risk Preference: Proxied by Corporate Risk	*RISK_FIN*	The ratio of financial debt divided by the sum of financial debt plus equity. Financial debt is the sum of long-term debt and short-term loans less other non-current liabilities.	Cassell et al., 2012; Faccio et al., 2016
	RISK_INV	Calculated as the difference between long-term assets for year 't' and year 't-1' scaled by long-term assets for year 't-1'.	Cassell et al., 2012; Koirala et al., 2020
	VOL_STR_3	The standard deviation of the stock returns over 3-year overlapping windows.	Faccio et al., 2016; Yung and Chen, 2018
Traditional Economic-Layered Principal-Principal Conflicts: Proxied by Wealth Expropriation	*DIV_NP*	Total cash dividends paid to common and preferred shareholders divided by year-end accounting net profit plus noncash depreciation (and/or amortisation) minus noncash income.	Faccio et al., 2001 and Berkman et al., 2009
	DIV_SA	Total cash dividends paid to common and preferred shareholders divided by gross sales minus returns, discounts, and allowances.	Faccio et al., 2001 and Berkman et al., 2009
	DIV_MV	Total cash dividends paid to common and preferred shareholders divided by total market value of common and preferred stocks.	Faccio et al., 2001 and Berkman et al., 2009
	REC_AS	The percentage of the related-party receivables on total assets.	Bae et al., 2020
Societal-Layered Principal-Principal Conflicts: Proxied by Corporate Social Performance	*SEDI_QUAN*	Scores calculated by the 70 indicators selected from CASS-CSR 2.0. Each indicator stands for 1 score. The highest yearly score that one company may get is 70, and the lowest is 0.	Lu and Abeysekera, 2017
	SEDI_QUA	Integrate the 70 indicators into 27 categories. Apply content analysis to score via the following five requirements: (1) general narrative; (2) specific endeavour communicated in non-quantitative terms; (3) quantified performance data; (4) quantified performance data relative to benchmarks (e.g., targets, industry, previous periods); and (5) quantified performance data at a disaggregate level (e.g., plant, business unit, geographic segment). The highest yearly score that one company may get is 135, and the lowest is 0.	Lu and Abeysekera, 2017
Independent Variables			
Deferred Executive Compensation	*EXECOM_DEF*	A dummy variable. It equals 1 if the sample company has implemented the 'salary restriction order' in the current period. It equals 0 if not.	Deng et al., 2019; Deng et al., 2021
	TREAT	A dummy variable. It equals 1 when the treated companies comply with the policy from 2010 to 2015; otherwise, it equals 0, representing the control group which did not comply with the policy from 2007 to 2015.	Deng et al., 2019; Deng et al., 2021; Bae et al., 2020
	POST	A dummy variable. It equals 1 when the year is from 2010 to 2015; otherwise, it equals 0.	Deng et al., 2019; Deng et al., 2021; Bae et al., 2020

Control Variables

Ownership and Board Characteristics	*TOP1*	The percentage of the common share held by state ownership.	Huang and Wang, 2015; Khaw et al., 2016
	BOARD_SIZE	The number of directors serving on a company's board in the year t.	Huyghebaert and Wang, 2012
	DUAL	A dummy variable that equals 1 if the company's CEO and board chair are the same person and 0 otherwise.	Berkman et al., 2010
	PCT_IND	Percentage of independent directors serving on a company's board in the year *t*.	Huang and Wang, 2015; Khaw et al., 2016
	PCT_FEM	Percentage of female directors in the board in the year *t*.	Faccio et al., 2016; Khaw et al., 2016
CEO Characteristics	*CEO_AGE*	CEO's age.	Sundaram and Yermack, 2007
	CEO_FEM	A dummy variable that equals 1 if the company's CEO is female and 0 otherwise.	Faccio et al., 2016; Khaw et al., 2016
	CEO_NEW	A dummy variable that equals 1 if the company's CEO's tenure started in year t and 0 otherwise.	Sundaram and Yermack, 2007
	EXECOM_CASH	The natural logarithm of CEO's cash compensation, which is the sum of salary and bonus.	Cassell et al., 2012; Guay, 1999
	AGE (instrumental variable)	The natural logarithm of CEO's age.	Bennett et al., 2015; Sundaram and Yermack, 2007
Firm Characteristics	*FIRM_SIZE*	The natural logarithm of total assets.	Cassell et al., 2012
	GROWTH	The ratio of total sales in year t to total sales in year t -1.	Cassell et al., 2012
	MTB	The ratio of market value of equity plus book value of total liabilities divided by the book value of total assets.	Cassell et al., 2012; Huyghebaert and Wang, 2012
	ROA	The ratio of EBIT to total sales	Huyghebaert and Wang, 2012
	CAPEX	The book value of tangible fixed assets scaled by total assets.	Huyghebaert and Wang, 2012
	LEV	The book value of total liabilities divided by the book value of total assets.	Faccio et al., 2001; Berkman et al., 2010
	Z-SCORE	Altman's Z score = 1.2(working capital/total assets) + 1.4(retained earnings/total assets) + 3.3(earnings before interest and taxes/total assets) + 0.6(market value of equity/book value of total liabilities) + 0.999(sales/total assets).	Dunbar et al., 2020

Appendix B: List of 89 SASAC Central Enterprises

Name	Abbreviation	Official Website
China National Nuclear Corporation	CNNC	https://www.cnnc.com.cn/
China Aerospace Science and Technology Corporation	CASC	http://www.spacechina.com/n25/index.html
China Aerospace Science and Industry Corporation, Ltd.	CASIC	http://www.casic.com.cn/
Aviation Industry Corporation of China, Ltd.	AVIC	https://www.avic.com.cn/
China State Shipbuilding Corporation, Ltd.	CSSC	http://www.cssc.net.cn/
China North Industries Group Corporation, Ltd.	NORINCO	http://www.norincogroup.com.cn/
China South Industries Group Co., Ltd.	CSGC	https://www.csgc.com.cn/
China Electronics Technology Group Corporation	CETC	http://www.cetc.com.cn/
China National Petroleum Corporation	CNPC	http://www.cnpc.com.cn/cnpc/index.shtml
China Petroleum and Chemical Corporation	SINOPEC	http://www.sinopecgroup.com/group/
China National Offshore Oil Corporation	CNOOC	https://www.cnooc.com.cn/#1
State Grid Corporation of China	SGCC	http://www.sgcc.com.cn/
China Southern Power Grid Co., Ltd.	CSG	https://www.csg.cn/
China Huaneng Group Co., Ltd.	CHNG	https://www.chng.com.cn/

China Datang Corporation Ltd.	CDT	https://www.china-cdt.com/dtwz_site_HTML/index.html
China Huadian Corporation Ltd.	CHD	https://www.chd.com.cn/
State Power Investment Group Co., Ltd.	SPIC	http://www.spic.com.cn/
China Three Gorges Corporation	CTG	https://www.ctg.com.cn/
China Energy Investment Group Co., Ltd.	CHN ENERGY	https://www.ceic.com/
China Telecom Group Co., Ltd.	CHINA TELECOM	http://www.chinatelecom.com.cn/
China United Network Communications Group Co., Ltd.	CHINA UNICOM	http://www.chinaunicom.com.cn/
China Mobile Communications Group Co., Ltd.	CHINA MOBILE	http://www.10086.cn/index/bj/index_100_100.html
China Electronics Information Industry Group Co., Ltd.	CEC	https://www.cec.com.cn/
China FAW Group Co., Ltd.	FAW	http://www.faw.com.cn/
Dongfeng Motor Corporation	DFMC	https://www.dfmc.com.cn/
China First Heavy Industry Group Co., Ltd.	CFHI	https://www.cfhi.com/
China National Machinery Industry Corporation	SINOMACH	http://www.sinomach.com.cn/
Harbin Electric Corporation	HEC	https://www.harbin-electric.com/
Dongfang Electric Corporation	DEC	https://www.dongfang.com/
Angang Group Co., Ltd.	ANSTEEL	http://www.ansteel.cn/
China Baowu Iron and Steel Group Co., Ltd.	BAOWU	https://www.baowugroup.com/home
Aluminum Corporation of China	CHINALCO	https://www.chinalco.com.cn/
China COSCO Shipping Corporation Ltd.	COSCO	https://www.coscoshipping.com/

China National Aviation Holding Corporation Ltd.	AIRCHINA	http://www.airchinagroup.com/cnah/
China Eastern Airlines Group Co., Ltd.	CEAIR	https://www.ceair.com/
China Southern Airlines Group Co., Ltd.	CSAIR	https://www.csair.com/cn/
China Sinochem Holdings Co., Ltd.	SINOCHEM	https://www.sinochem.com/
COFCO Group Co., Ltd.	COFCO	http://www.cofco.com/cn/
China Minmetals Corporation	CMC	http://www.minmetals.com.cn/
China General Technology (Group) Holding Co., Ltd.	GENERTEC	https://www.gt.cn/
China State Construction Group Corporation	CSCEC	https://www.cscec.com/
China Grain Reserves Group Co., Ltd.	SINOGRAIN	https://www.sinograin.com.cn/indexWeb.html
State Development and Investment Corporation	SDIC	https://www.sdic.com.cn/cn/index.htm
China Merchants Group	CMHK	https://www.cmhk.com/main/
China Resources (Group) Co., Ltd.	CRC	https://www.crc.com.hk/
China Tourism Group Co., Ltd.	CTG	https://www.ctg.cn/
Commercial Aircraft Corporation of China	COMAC	http://www.comac.cc/
China Energy Conservation and Environmental Protection Group	CECEP	http://www.cecep.cn/
China International Engineering	CIECC	https://www.ciecc.com.cn/

Consulting Corporation		
China Chengtong Holding Group Ltd.	CCT	http://www.cctgroup.com.cn/
China Coal Energy Group Co., Ltd.	CHINACOAL	http://www.chinacoal.com/
China Coal Technology and Engineering Group	CCTEG	https://www.ccteg.cn/zh/
China Academy of Machinery Science and Technology Group	CAM	https://www.cam.com.cn/
Sinosteel Group Corporation Ltd.	SINOSTEEL	https://www.sinosteel.com/
China Iron and Steel Research Institute Group	CISRI	http://www.cisri.com/
China National Chemical Engineering Group Corporation Ltd.	CNCEC	https://cncec.cn/
China National Salt Industry Group Co., Ltd.	CHINASALT	http://www.chinasalt.com.cn/
China Nationa Building Material Group Co., Ltd.	CNBM	https://www.cnbm.com.cn/
China Nonferrous Metal Mining (Group) Co., Ltd.	CNMC	http://www.cnmc.com.cn/
General Research Institute for Nonferrous Metals Group Corporation Ltd.	GRINM	https://www.grinm.com/
Beijing General Research Institute of Mining and Metallurgy Technology Group	BGRIMM	http://www.bgrimm.com/
China International	CIIC	http://www.ciic.com.cn/

Intellectech Group Co., Ltd.		
China Academy of Building Research	CABR	http://www.cabr.com.cn/?ztzh_uuid=wap_news3168174
CRRC Corporation Ltd.	CRRC	https://www.crrcgc.cc/
China Railway Signal and Communication (Group) Corporation Ltd.	CRSC	http://www.crsc.cn/
China Railway Engineering Corporation Group Ltd.	CRECG	http://www.crecg.com/
China Railway Construction Corporation Ltd.	CRCC	https://www.crcc.cn/
China Communications Construction Group Co., Ltd.	CCCC	https://www.ccccltd.cn/
China Information and Communication Technology Group Co., Ltd.	CICT	https://www.cict.com/
China National Agricultural Development Group Co., Ltd.	CNADC	https://www.cnadc.com.cn/
China Forestry Group Corporation	CFGC	https://www.cfgc.cn/
China National Pharmaceutical Group Co., Ltd.	SINOPHARM	http://www.sinopharm.com/
China Poly Group Corporation Ltd.	POLY	http://www.poly.com.cn/
China Construction Technology Consulting Co., Ltd.	CCTC	https://ccstc.cscec.com/
China Metallurgical Geology Bureau	CMGB	https://www.cmgb.com.cn/
China National Administration of Coal Geology	CCGC	https://www.ccgc.cn/
Xinxinf Cathay International Group	XXCIG	http://www.xxcig.com/

China Civil Aviation Information Group Co., Ltd.	TRAVELSKY	http://www.travelsky.net/
China National Aviation Fuel Group Ltd.	CNAF	https://www.cnaf.com/
China Aviation Supplies Holding Co., Ltd.	CASC	http://www.casc.com.cn/cas/
China Power Construction Group Co., Ltd.	POWERCHINA	https://www.powerchina.cn/
China Energy Engineering Corporation Ltd.	CEEC	http://www.ceec.net.cn/
China National Gold Group Co., Ltd.	CHINAGOLD	https://www.chinagoldgroup.com/
China General Nuclear Power Group Co., Ltd.	CGNPC	http://www.cgnpc.com.cn/
China Hualu Group Co., Ltd.	HUALU	https://www.hualu.com.cn/
Overseas Chinese Town Group Co., Ltd.	OCT	https://www.chinaoct.com/
Nam Kwong (Group) Co., Ltd.	NAMKWONG	http://www.namkwong.com.mo/
China XD Group Co., Ltd.	XD	http://www.xd.com.cn/
China Railway Materials Group Corporation	CRMSC	https://www.crmsc.com.cn/

Appendix C: Indicators in CASS-CSR 2.0[103]

M2.1 Customer relationship management system

M2.2 Customer Service system

M2.3 Actively respond to customer complaints

M2.4 Customer information protection

M2.5 Customer satisfaction survey

M2.6 Product quality management system

M2.7 Rate of qualified products

M2.8 Product and service innovation support

M2.9 Research and Development

M2.10 Number or proportion of R&D personnel

M2.11 Number of new patents

M2.12 New product sales

M2.13 Major innovation awards

M2.14 Negative information on customer responsibility

M3.1 Supply chain social responsibility assessment and investigation

M3.2 Strategic sharing mechanism and platform

M3.3 Responsible procurement system and (or) policy

M3.4 Responsible procurement ratio

M3.5 The concept and (or) system guarantee of integrity management

M3.6 The concept and (or) system guarantee of fair competition

M3.7 Integrity management and fair competition training

M3.8 Credit rating

M3.9 Contract performance rate

M3.10 Negative information on partner responsibility

[103] For more information, please see Peng, H., Zhong, H., Zhang, E. and Sun, X., 2011. *Fundamental Framework for CSR Reporting Guidelines in China (CASS-CSR 2.0)*. 2nd ed. Economic & Management Publishing House. Beijing.

S1.1 Corporate compliance system

S1.2 Compliance measures

S1.3 Compliance training

S1.4 Significant negative information about compliance

S1.5 Respond to national policy

S1.6 Total tax

S1.7 Negative information on tax evasion

S1.8 Policies and (or) measures to ensure employment

S1.9 Number of jobs provided during the reporting period

S2. Employee Responsibility

S2.1 Compliance with national labour laws and regulations

S2.2 Labour contract signing/coverage rate

S2.3 Social insurance coverage

S2.4 Proportion of employees participating in a union

S2.5 Prohibition of forced labour

S2.6 Protect employees' personal information and privacy

S2.7 Systems and measures to ensure decent work

S2.8 Social dialogue mechanism and collective bargaining mechanism

S2.9 Protection of rights and interests of part-time, temporary and subcontractor employees

S2.10 Competitive salaries provided to employees

S2.11 Annual paid leave days per capita

S2.12 Equal and non-discriminatory employment

S2.13 Ratio of male and female employees' wages

S2.14 Proportion of female managers

S2.15 Employment rate or number of persons with disabilities

S2.16 Occupational disease prevention system

S2.17 Occupational safety and health training

S2.18 Number of occupational disease

S2.19 Employee mental health system and measures

S2.20 Medical examination and health file coverage

S2.21 Staff training system

S2.22 Staff training intensity

S2.23 Employee career development channel

S2.24 Democratic management and open factory affairs

S2.25 Channels through which employee opinions can reach senior management

S2.26 Investment in helping employees with difficulties

S2.27 Protection for special groups (such as pregnant women, breastfeeding women, etc.)

S2.28 Ensure work-life balance

S2.29 Employee satisfaction

S2.30 Employee turnover rates

S2.31 Negative information on employee responsibilities

S3.1 Safety production management system

S3.2 Safety emergency management mechanism

S3.3 Safety education and training

S3.4 Safety training performance

S3.5 Safe production investment

S3.6 Number of employee casualties

S3.7 Negative information on safety production

S4.1 Assess the impact of business operations on the local area

S4.2 Support the education and learning of community members (especially disadvantaged groups)

S4.3 Employee localisation policy

S4.4 Localised employment ratio

S4.5 Localised procurement policy

S4.6 Proportion of localised procurement

S4.7 Corporate donation policy or donation system

S4.8 Corporate charity fund

S4.9 Total donation

S4.10 Policies and (or) measures to support volunteer activities

S4.11 Employee volunteer activity data

S4.12 Overseas charity

S4.13 Negative information on community responsibility

E1.1 Environment management system

E1.2 Environmental accident emergency mechanism

E1.3 Environmental training and education

E1.4 Environmental training intensity

E1.5 Green procurement

E1.6 Environmental public welfare

E1.7 R&D and sales of environmentally friendly products

E1.8 Development and application of environmental protection technology equipment

E1.9 Total environmental protection investment

E1.10 Environmental assessment of new projects

E1.11 Protect biodiversity

E1.12 Negative information on environmental responsibility

E2.1 Energy conservation policy measures

E2.2 Energy consumption and energy savings per unit output value

E2.3 Water conservation system and measures

E2.4 Water consumption per unit output value and water resources saved

E2.5 Policies and measures for using renewable resources

E2.6 Renewable resource usage or utilisation rate

E2.7 Policies and (or) measures for circular economy

E2.8 Energy resource recycling rate or utilisation

E2.9 Green office measures

E2.10 Green office performance

E2.11 Reduce official travel

E2.12 Energy-efficient buildings

E3.1 Policies, measures or technologies to reduce exhaust emissions

E3.2 Exhaust emissions and emission reductions

E3.3 Policies, measures or technologies to reduce wastewater discharge

E3.4 Wastewater discharge and emission reduction

E3.5 Policies, measures or technologies to reduce waste discharge

E3.6 Waste emissions and emission reductions

E3.7 Actively respond to climate change

E3.8 Greenhouse gas emissions and reductions

E3.9 Production noise control

E3.10 Governance of the ecological environment of the plant and surrounding areas

Appendix D: The Hausman Tests[104]

RISK_INV	(b) fe	(B) re	(b-B) Difference	sqrt(diag(V_b-V_B) Std. err.
EXECOM_DEF	-0.07341	0.002507	-0.0759119	0.0480635
TOP1	0.000671	-0.00041	0.0010856	0.0025719
BOARD_SIZE	0.030031	-0.0044	0.0344274	0.0144648
PCT_IND	-0.51362	-0.39352	-0.1201023	0.4467263
PCT_FEM	0.012309	0.176741	-0.1644321	0.1710356
CEO_AGE	-0.00571	-0.00275	-0.0029644	0.0027658
CEO_FEM	0.060754	0.020534	0.04022	0.0736856
CEO_NEW	0.043048	0.028868	0.0141793	0.011236
EXECOM_CASH	-4.92E-08	-4.28E-08	-6.39E-09	4.66E-08
FIRM_SIZE	0.083404	0.01152	0.0718844	0.0340872
GROWTH	0.400653	0.441563	-0.0409108	0.0230527
MTB	-0.00717	-0.00712	-0.0000566	0.0065008

b = Consistent under H0 and Ha; obtained from xtreg.
B = Inconsistent under Ha, efficient under H0; obtained from xtreg.

Test of H0: Difference in coefficients not systematic
chi2(11) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 15.19
Prob > chi2 = 0.1738

[104] Prob > chi2 = 0.0000 indicates a strong rejection of the original hypothesis H0. Therefore, it is appropriate to apply fixed effect model rather than random effect model.

RISK_FIN	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B)
	fe	re	Difference	Std. err.
EXECOM_DEF	0.051124	0.052318	-0.0011937	0.003412
TOP1	0.001027	4.26E-05	0.0009848	0.000273
BOARD_SIZE	0.000954	0.000584	0.0003699	0.001326
PCT_IND	-0.01447	-0.06023	0.0457612	0.033404
PCT_FEM	-0.07016	-0.05797	-0.0121824	0.00873
CEO_AGE	0.000133	0.000643	-0.0005093	0.000139
CEO_FEM	0.06648	0.063501	0.0029789	.
CEO_NEW	0.001081	7.05E-05	0.0010106	.
EXECOM_CASH	1.68E-08	1.14E-08	5.45E-09	2.75E-09
FIRM_SIZE	0.036251	0.032052	0.0041987	0.004706
GROWTH	-0.00228	-0.00203	-0.0002526	.
MTB	0.008537	0.008906	-0.0003691	0.000209

b = Consistent under H0 and Ha; obtained from xtreg.
B = Inconsistent under Ha, efficient under H0; obtained from xtreg.

Test of H0: Difference in coefficients not systematic
chi2(11) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 38.7
Prob > chi2 = 0.0001
(V_b-V_B is not positive definite)

VOL_STR_3	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B)
	fe	re	Difference	Std. err.
EXECOM_DEF	-.4398917	-0.25483	-0.18506	0.043446
TOP1	0.002263	0.001856	0.000407	0.002812
BOARD_SIZE	0.027105	0.046683	-0.01958	0.014802
PCT_IND	-1.66707	-0.56204	-1.10503	0.445662
PCT_FEM	-0.01176	-0.52454	0.512776	0.13682
CEO_AGE	-0.00564	-0.00783	0.002195	0.002106
CEO_FEM	0.070825	0.038718	0.032108	.
CEO_NEW	0.077001	0.074915	0.002087	.
EXECOM_CASH	-2.57E-07	-8.38E-08	-1.73E-07	4.03E-08
FIRM_SIZE	-0.23348	-0.01766	-0.21583	0.038881
GROWTH	-0.0649	0.003996	-0.0689	.
MTB	0.045324	0.042569	0.002755	0.004044

b = Consistent under H0 and Ha; obtained from xtreg.
B = Inconsistent under Ha, efficient under H0; obtained from xtreg.

Test of H0: Difference in coefficients not systematic
chi2(11) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 173.73
Prob > chi2 = 0.0000
(V_b-V_B is not positive definite)

DIV_NP	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B)
	fe	re	Difference	Std. err.
EXECOM_DEF	-0.98144	-1.17636	0.1949237	0.7917517
TOP1	-0.01508	-0.04933	0.0342514	0.0446408
BOARD_SIZE	-0.30753	0.009095	-0.3166277	0.2518943
PCT_IND	-0.93211	-3.95825	3.026138	7.342223
DUAL	-0.17742	-0.62015	0.4427323	0.8889535
FIRM_SIZE	-0.04131	-0.38348	0.3421686	0.6161208
GROWTH	-0.74856	-1.28995	0.5413861	0.3390892
MTB	-0.609	-0.64669	0.0376893	0.1022825
ROA	12.47982	-0.80524	13.28507	5.298574
CAPEX	-4.26066	4.756442	-9.017101	4.124676
LEV	7.300059	10.83152	-3.531459	2.899478

b = Consistent under H0 and Ha; obtained from xtreg.
B = Inconsistent under Ha, efficient under H0; obtained from xtreg.

Test of H0: Difference in coefficients not systematic
chi2(11) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 24.98
Prob > chi2 = 0.0092

DIV_SA	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B)
	fe	re	Difference	Std. err.
EXECOM_DEF	-0.02222	-0.02406	0.001835	0.001077
TOP1	0.00089	0.000592	0.000298	9.45E-05
BOARD_SIZE	0.002156	0.001794	0.000363	0.000448
PCT_IND	-0.10548	-0.11783	0.012346	0.010163
DUAL	-0.00389	-0.00568	0.001786	0.000741
FIRM_SIZE	0.009073	0.008232	0.000841	0.001626
GROWTH	-0.02991	-0.02973	-0.00018	.
MTB	-0.00118	-0.00171	0.000525	.
ROA	0.050809	0.061129	-0.01032	.
CAPEX	-0.07009	-0.05615	-0.01394	0.003385
LEV	0.007968	0.020688	-0.01272	0.004143

b = Consistent under H0 and Ha; obtained from xtreg.
B = Inconsistent under Ha, efficient under H0; obtained from xtreg.

Test of H0: Difference in coefficients not systematic
chi2(11) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 8.05
Prob > chi2 = 0.7085
(V_b-V_B is not positive definite)

DIV_MV	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B)
	fe	re	Difference	Std. err.
EXECOM_DEF	-0.00791	-0.00951	0.001606	0.001182
TOP1	0.000683	0.00026	0.000423	9.88E-05
BOARD_SIZE	0.001951	0.002044	-9.3E-05	0.000475
PCT_IND	-0.02246	-0.02723	0.004768	0.011096
DUAL	-0.00058	-0.00184	0.001261	0.000912
FIRM_SIZE	0.011092	0.00954	0.001552	0.001677
GROWTH	-0.00711	-0.00689	-0.00021	.
MTB	-0.00547	-0.00595	0.000477	.
ROA	0.05916	0.062939	-0.00378	.
CAPEX	-0.09834	-0.09179	-0.00655	0.004294
LEV	0.07252	0.086737	-0.01422	0.004504

b = Consistent under H0 and Ha; obtained from xtreg.
B = Inconsistent under Ha, efficient under H0; obtained from xtreg.

Test of H0: Difference in coefficients not systematic
chi2(11) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 41.88
Prob > chi2 = 0.0000
(V_b-V_B is not positive definite)

REC_AS	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B)
	fe	re	Difference	Std. err.
EXECOM_DEF	0.007976	0.006749	0.001228	0.000726
TOP1	-6.4E-05	-6.9E-05	5.75E-06	5.37E-05
BOARD_SIZE	-0.00079	-0.00044	-0.00035	0.000272
PCT_IND	-0.00944	0.012977	-0.02242	0.007031
DUAL	0.001448	0.000298	0.00115	0.000709
FIRM_SIZE	-0.00519	-0.00278	-0.00241	0.000844
GROWTH	0.001181	0.002243	-0.00106	.
MTB	0.000181	0.000168	1.33E-05	5.75E-05
ROA	-0.03301	-0.02648	-0.00654	0.00247
CAPEX	-0.01904	-0.01847	-0.00057	0.003284
LEV	0.002233	0.005314	-0.00308	0.002827

b = Consistent under H0 and Ha; obtained from xtreg.
B = Inconsistent under Ha, efficient under H0; obtained from xtreg.

Test of H0: Difference in coefficients not systematic
chi2(11) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 93.84
Prob > chi2 = 0.0000
(V_b-V_B is not positive definite)

SEDI_QUAN	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B)
	fe	re	Difference	Std. err.
EXECOM_DEF	5.220019	5.619089	-0.3990702	0.4110255
TOP1	-0.04445	-0.0249	-0.0195474	0.0294006
BOARD_SIZE	-0.73126	-0.75423	0.0229647	0.1486459
PCT_IND	-10.6699	-6.58053	-4.089318	4.111439
PCT_FEM	1.336851	1.668127	-0.3312758	1.20264
CEO_AGE	0.089651	0.056765	0.0328864	0.0198481
CEO_FEM	3.316318	3.799392	-0.4830745	0.216262
FIRM_SIZE	4.603964	4.1544	0.4495642	0.4582593
GROWTH	-2.13327	-2.10419	-0.0290833	.
MTB	0.01952	0.099279	-0.0797592	0.0391452
LEV	4.781153	3.020535	1.760619	2.032817
CAPEX	-3.06548	-5.5114	2.445918	1.866241
ZSCORE	-0.5344	0.088074	-0.6224735	0.207376

b = Consistent under H0 and Ha; obtained from xtreg.
B = Inconsistent under Ha, efficient under H0; obtained from xtreg.

Test of H0: Difference in coefficients not systematic
chi2(13) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 54.15
Prob > chi2 = 0.0000

(V_b-V_B is not positive definite)

SEDI_QUA	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B)
	fe	re	Difference	Std. err.
EXECOM_DEF	9.164798	9.683979	-0.51918	0.641672
TOP1	-0.08751	-0.01825	-0.06926	0.044767
BOARD_SIZE	-1.00266	-0.92564	-0.07701	0.228382
PCT_IND	3.804093	12.34374	-8.53965	6.380875
PCT_FEM	-0.38654	-0.35688	-0.02966	1.929837
CEO_AGE	0.181666	0.106669	0.074996	0.03175
CEO_FEM	2.876101	4.102965	-1.22686	0.503273
FIRM_SIZE	6.928216	6.946173	-0.01796	0.690501
GROWTH	-2.32055	-2.27081	-0.04974	.
MTB	-0.21322	-0.04706	-0.16616	0.065143
LEV	9.243863	5.772461	3.471402	3.142801
CAPEX	-14.1605	-14.3055	0.14504	2.981951
ZSCORE	0.488697	1.21851	-0.72981	0.329381

b = Consistent under H0 and Ha; obtained from xtreg.
B = Inconsistent under Ha, efficient under H0; obtained from xtreg.

Test of H0: Difference in coefficients not systematic
chi2(13) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 63.33
Prob > chi2 = 0.0000

(V_b-V_B is not positive definite)