Related Party Transactions and Firm Performance: 
Evidence of Tunnelling and Propping in China

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This thesis is presented for the Degree of
Doctor of Philosophy of
Curtin University of Technology

December 2008
Declaration

To the best of my knowledge and belief this thesis contains no material previously published by any other person except where due acknowledgment has been made.

This thesis contains no material which has been accepted for the award of any other degree or diploma in any university.

Signature: ............................................

Date: .................................
ACKNOWLEDGEMENT

First and foremost, I would like to extend my greatest thanks to my supervisor, Associate Professor John Simpson for his valuable guidance and advice in making this dissertation possible. He pushed me to excel and did not lose faith in me. My honest appreciation extends to my associate supervisors, Dr. Shiguang Ma and Professor John Evans for their great contributions, encouragement and support.

My great and sincere appreciation goes to my parents, my brothers and sister for their consistent support and encouragement throughout my life. Not forgetting the most special person in my life, my wife Yue-Nan Wei. Thanks for her unconditional love, patience, understanding and advice throughout this process.

I appreciate gratefully to Dr. Felix Chan for his valuable econometrics assistance and Mr. Warren Kimble for reading my drafts so thoroughly and critically. I should also like to thank for all of the help and support that I have received from other faculty members, staff and my colleagues at Curtin University of Technology. I especially wish to thank Ms. Jo Boyott, Ms. Lan Sun, Ms. Yan Xu, Ms. Lingmei Cong, Ms. Yinghan Fan, Mr. Joshua Heniro, Ms. Saranya Raksong, Ms. Patchareewan Boriboonsate, Mr. Agus Setyadi and Ms Maisarah Mohamed Saat. I also owe my special thanks to Mr. Richardson Selva, Mr. Josef Emmanuel, Mr. Jinchao Yang, Mr. Caode Chun and Mr. Dengya Zhu whose friendship I cherish.

Last but not least, I would like to thank the Australian government for offering me the scholarship, because of which, I have been able to focus on my study.
ABSTRACT

Concentrated corporate ownership prevails in most countries, so the relationship between controlling shareholders and minority shareholders is an important principle-agent problem. Tunnelling, the transfer of assets and profit for the benefit of controlling owners, is the most important way of expropriating small shareholders. While tunnelling is rampant in emerging economies and even some developed countries, related research lacks convincing evidence. On the other hand, large shareholders sometimes use private funds to prop up firms in financial distress. Although there is plenty of anecdotal and indirect evidence on propping, it lacks direct large-sample examination. This study presents a pooled cross-sectional analysis of 4373 publicly listed companies in China between 2001 and 2004. The analysis not only examines the effects of various variables on the exploitation of related party transactions by controlling owners for tunnelling and propping, and also investigates the effects of tunnelling and propping on firm performance and valuation. The study reveals that the presence of controlling shareholders and higher control rights lead to higher levels of tunnelling. Conversely the existence of other large shareholders reduces the magnitude of tunnelling.

In addition, the study shows that pyramidal-controlled firms and firms owned by the State display more incidences of tunnelling. When firms have better investment opportunity, however, their controlling shareholders tend to divert fewer funds for
their private gains.

It is also found that controlling shareholders offer funds to financially stricken firms under their control. This is the first study that finds direct evidence on the occurrence of propping although not all badly-performing firms are propped up. While tunnelling negatively affects operating performance and firm valuation, propping has a positive effect on firm valuation. The occurrence and magnitude of tunnelling is greater than that of propping. Propping only occurs to partial firms in financial distress, yet there is no improvement in those firms’ performance.

As propping from new controlling owners is more a way of back-door listing, they tend to engage in tunnelling when their control is secure. In short, when legal protection of minority shareholders is weak, controlling owners tend to tunnel for private benefit. Hence policymakers and regulators must recognise that to eliminate widespread expropriation, the establishment of strong corporate governance in well-functioning institutions and strong legal enforcement is important. Lower levels of tunnelling in years 2003 and 2004 justify the positive effect of stringent regulation. Yet, more needs to be undertaken beyond the legal and regulatory level such as an allowance for diversified corporate ownership and the transformation of non-floatable shares to be floated on the exchange to align interests of large and minority shareholders.
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<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>CARs</td>
<td>Cumulative Abnormal Returns</td>
</tr>
<tr>
<td>CMS</td>
<td>Controlling Minority Structures</td>
</tr>
<tr>
<td>CSRC</td>
<td>China Securities Regulatory Commission</td>
</tr>
<tr>
<td>IAS</td>
<td>International Accounting Standards</td>
</tr>
<tr>
<td>IPO</td>
<td>Initial Public Offer</td>
</tr>
<tr>
<td>OP</td>
<td>Other Payables</td>
</tr>
<tr>
<td>OPCS</td>
<td>OP related to controlling shareholders</td>
</tr>
<tr>
<td>OR</td>
<td>Other Receivables</td>
</tr>
<tr>
<td>ORCS</td>
<td>OR related to controlling shareholders</td>
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<tr>
<td>RPT(s)</td>
<td>Related Party Transaction(s)</td>
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<td>SOE(s)</td>
<td>State-Owned Enterprise(s)</td>
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<tr>
<td>SSE</td>
<td>Shanghai Stock Exchange</td>
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<td>ST</td>
<td>Special Treatment</td>
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<td>SZSE</td>
<td>Shenzhen Stock Exchange</td>
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CHAPTER ONE

Introduction

1.1 Overview and Objectives

China has achieved remarkable economic growth since the start of economic reform in 1978. Chaudhuri and Ravallion (2006) indicate that over the last quarter century, China witnessed an average annual rate of growth of real per-capita GDP of nearly 9 percent. China became the world’s fourth largest economy in 2005, as shown by Kuijs and Wang (2006), and it may overtake the US as the largest economy in less than four decades.

Accompanied by China’s economic reform, two stock exchanges, Shanghai Stock Exchange (SSE) and Shenzhen Stock Exchange (SZSE) were set up in the late 1990s. In fifteen years, China’s stock market grew to be the eighth largest market in the world, the third in Asia following Japan and Hong Kong. Up to the end of 2005, there were 1,381 listed firms with a total capitalisation of YUAN 33,446 billion (approximately USD 4,039 billion)\(^1\). Table 1.1 shows the number of listed firms and

\(^1\) 1USD=8.28YUAN. Because the majority of outstanding shares are not floatable, total market capitalisation data may significantly inflate firm values. In fact, the corresponding floatable
market capitalisation of China’s share market from 2001 to 2005. The varieties of shares and the change of the number of listed firms and capitalisation should be noted.

Table 1.1
Number of Listed Firms and Market Capitalisation in China

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of listed firms (A&amp;B)</th>
<th>A share only</th>
<th>B share only</th>
<th>A &amp;B Share</th>
<th>A &amp;H Share</th>
<th>Capitalisation (YUAN Billion)</th>
<th>Floatable Capitalisation (YUAN Billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>1,088</td>
<td>955</td>
<td>28</td>
<td>86</td>
<td>19</td>
<td>48,091</td>
<td>16,088</td>
</tr>
<tr>
<td>2001</td>
<td>1,160</td>
<td>1,023</td>
<td>24</td>
<td>88</td>
<td>25</td>
<td>43,522</td>
<td>14,463</td>
</tr>
<tr>
<td>2002</td>
<td>1,224</td>
<td>1,085</td>
<td>24</td>
<td>87</td>
<td>29</td>
<td>38,329</td>
<td>12,485</td>
</tr>
<tr>
<td>2003</td>
<td>1,287</td>
<td>1,146</td>
<td>24</td>
<td>87</td>
<td>29</td>
<td>42,458</td>
<td>13,178</td>
</tr>
<tr>
<td>2004</td>
<td>1,377</td>
<td>1,236</td>
<td>24</td>
<td>86</td>
<td>30</td>
<td>37,055</td>
<td>11,689</td>
</tr>
<tr>
<td>2005</td>
<td>1,381</td>
<td>1,240</td>
<td>23</td>
<td>86</td>
<td>32</td>
<td>33,446</td>
<td>10,634</td>
</tr>
</tbody>
</table>


Note: A-shares are issued by domestic corporations and are traded in YUAN by domestic investors and qualified foreign institutional investors (QFII). B-shares are stocks issued by domestic corporations but traded in HK or US dollars only by foreign investors until May 2001, domestic investors could also hold these shares. H-shares refer to the shares issued by domestic corporations to foreign investors through listings on Hong Kong Stock Exchange. Firms with H-shares only are not included in this study. B-share only firms have to report their financial statements according to International Accounting Standards (IAS), thus are not included in this study either. In the case of firms with both A and B shares (or H shares), A-share based financial reports are used.

In terms of the ability of listed companies to raise funds (the combination of the number of listed firms and a moderate liquidity), as shown by Pistor and Xu (2005), China has outperformed all other transition economies.

capitalisation is only about 10,634 billion YUAN (USD 1,284 billion). See Chapter three for a discussion on the division of equity in China.
Yet in contrast to China’s spectacular economy, the share market plummeted to a five-year low in 2005. Table 1.1 indicates that about 34 percent of floatable capitalisation disappeared in the period 2001 to 2005. In addition, the number of A share initial public offering (IPO) during 2005 was only 15 and this was the lowest level since the establishment of the two exchanges. However, it is wrong to say that there has been a financial recession in China during this period. What causes the massive exit of outside investors and the extremely low market confidence? La Porta et al. (2000) emphasise that outside investors are unwilling to finance firms if facing extensive expropriation by corporate insiders such as controlling shareholders and managers. Moreover, long-term expropriation of small investors may lead to financial vulnerability.

Johnson et al. (2000a) show that the exchange rate depreciation and stock market decline during the 1997-1998 Asian crisis was more an outcome of weak protection of outside investors than of adverse macroeconomic factors. The compelling empirical results pave the way for institutional improvement and investor protection in emerging economies. Johnson et al. (2000b) term the behaviour of asset and profit transferring by controlling shareholders for their own benefit as tunnelling.

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2 Three indices of legal institutions—efficiency of the judiciary, corruption and the rule of law are used in their article to proxy for the protection of minority investors. They find that all three indices were statistically significant in explaining the deep exchange rate depreciation and the last two correlated significantly with the extent of stock market decline as well.
Tunnelling is a pervasive yet not extensively researched phenomenon in China. Ou, Li and Sun (2005) indicate that at the end of 2002, 676 out of 1175 listed firms had disclosed funds misappropriation by their controlling shareholders, which amounted to around USD 11.68 billion; the balance of misappropriated funds was USD 6.97 billion in the end of 2003; the balance was reduced to USD 6.15 billion as of 30 April 2005. They also show that more than 1,000 listed firms had illegally provided loan guarantees of about USD 5.13 billion for their controlling owners.

One typical case in China is Lotus Gourmet (a firm listed on the SSE) which was censured by the SSE because the controlling shareholder (Lotus Group) and its subsidiaries appropriated about USD 168 million from the listed firm (in the form of other receivables), which amounted to 76 percent of the firm’s total equity until June 30, 2004. Given the undesirable disclosure effect and complexity of related party transactions (RPTs) and the lax information disclosure practices in China, those above-mentioned figures may deeply underestimate the extent of tunnelling.

In a review of corporate governance with a focus on developed countries, Shleifer and Vishny (1997, p.742) argue that “straight-out expropriation is a frequent manifestation of the agency problem that financiers need to address”. Accordingly, when the agency conflict can’t be solved or mitigated by law, corporate governance or other mechanisms such as social norms, investors (that is, financiers) will flee
from the market which subsequently slumps. Since 1997, the CSRC, the Chinese securities market regulator, has noticed extensive tunnelling by large shareholders and has introduced new regulations to strength corporate governance and legal protection (Berkman, Cole & Fu, 2005).

Johnson et al. (2000b) first used the term “tunnelling” to describe expropriation by controlling shareholders in France, Italy and Belgium. Tunnelling scandals (like Enron, WorldCom and others) that occurred in the US, Germany and other Western European countries point to the need for strengthening the institutional framework of capital markets even in the developed economies.

It is believed that tunnelling is more rampant in emerging markets because of the underdevelopment of the legal system and non-legal mechanisms such as media pressure and tax enforcement. For example, controlling private benefits is found to be higher in developing countries such as Mexico, South Korea and Brazil (Dyck & Zingales, 2003; Nenova, 2003).

Under certain circumstances, controlling shareholders may prop up their controlled financially-stricken firms to maintain their private benefits. Propping is known as

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3 For example, special purpose entities controlled by Enron’s chief financial officer were used to inflate earnings and transfer cash to executives (Coffee, 2004). Kirchmaier and Grant (2005b) studied four high-profile cases on financial tunnelling in Germany and Italy.
reverse tunnelling in the literature, and it is used to describe the resources transfer by controlling shareholders to save the receiving firm from bankruptcy or delisting (Friedman, Johnson & Mitton, 2003). Their model shows that propping and tunnelling may be reciprocal, yet while there are some empirical studies on tunnelling, direct and large-sample evidence on propping is limited.

Tunnelling and propping normally occur between listed firms and their controlling entities or other entities with the same controlling owners, so tunnelling and propping actually are conducted via RPTs. Although the scope and emphasis of related parties may be different in each country, generally related parties include shareholders, key executives and their family members, associated companies, subsidiaries and other firms that are controlled or significantly influenced by the above related parties.

Despite the anecdotal evidence of expropriation and widespread media attention, there are few large sample and direct examination of the use of RPTs as tunnelling and propping in the literature. Two recent exceptions are the work undertaken by Kohlbeck and Mayhew (2004) and Gordon, Henry and Palia (2004). Kohlbeck and Mayhew (2004) using 1,261 firms from Standard and Poor’s 1,500 find that RPTs are common and related party loans (mainly for directors and executives) are the

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4 The focus of related parties may be different given different ownership structures. Under dispersed ownership, executives and directors are the main related parties, while controlling shareholders (government or family) are the focal point under concentrated ownership.
most common type of RPTs; furthermore, RPTs are associated with weak corporate
governance mechanisms. Gordon, Henry and Palia (2004) find that RPTs are
prevalent among the largest American companies. Besides, firms report more and
higher dollar amounts of RPTs with executives and directors than with other parties.
It is noted that both studies were completed after the American corporate scandals in
2000, which indicates a lack of concern on RPTs (and their conflicting role in
particular) among financial academics in developed countries.

Jian and Wong (2004) were among the first to undertake the tunnelling study in
China. They provide convincing evidence on tunnelling through related party lending
among group-controlled companies in the raw materials industry. They also show
that more credits were given to controlling shareholders when firms have more free
cash flow.

The purpose of this study is to examine how tunnelling and propping have occurred
in China by investigating the disclosures on RPTs and how tunnelling and propping
affect firm performance and valuations. The study is based on data relating to
firm-level ownership structure, RPTs and other accounting and market data from
China offers the opportunity to study tunnelling and propping activities due to its weak legal institutions, dominating state shareholders and unique equity division structures. In transforming its institutions over the past quarter century, the Chinese government has reformed its economic, legal and political infrastructures to suit a market-based economy. According to Tenev, Zhang and Brefort (2002), China introduced a series of complementary legal, financial and accounting reforms to build up its institutional foundations (for example, securities and company law, corporatisation of state owned enterprises (SOEs), share issue privatisation and convergence of accounting standards with IAS). While these institutional progresses greatly contribute to economic growth, as shown by Allen, Qian and Qian (2005), China’s law and institutions, including investor protection systems, corporate governance, accounting standards and quality of government, are significantly less sophisticated than most of her western and even some of her developing counterparts.

Secondly, most listed firms are spin-offs from original debt-stricken SOEs due to the listing quota. To be eligible for the listing and obtain a high subscription price, the spin-offs are given the most profitable or productive assets, while the remaining SOEs keep all the unprofitable assets\(^5\). The spin-off listing process seems to build up an entangled operational and managerial relationship between SOEs and their listing

\(^5\) The assets include affiliated school, hospital and other low-productive assets.
sectors (Tenev, Zhang & Brefort, 2002). The inherent and unending relationship creates a circumstance that gives controlling shareholders considerable room to engage in RPTs with their listed sectors for expropriation. Apart from that, the contributions made by the controlling SOEs give them extra incentive to take back by tunnelling. For example, some listed firms don’t have their own bank accounts and the money they raise from equity issuance is expropriated by the controlling owners; or listed firms repay the bank loans used by controlling owners.

Lastly, the dichotomy of shares exacerbates the problem for minority shareholders. In China, the majority of outstanding shares (that is, shares owned by controlling and other non-controlling legal person shareholders), are not floatable on any of the two exchanges. While the non-floatable shares are transferable, the transferable price is based on the face value of net assets, which is about 20 percent of the price of floatable shares (Chen & Xiong, 2002). The price discount is so huge that the controlling shareholdings are almost insulated from the fluctuation of the share price. Apart from the proportional dividend payout, controlling shareholders lack sufficient incentive to maximise the total shareholder wealth despite their large shareholding6. The so called “aligning effect” of large shareholders in addressing the agency

6 Controlling shareholders may tunnel less if they want to dilute their shares in the future. Gomes (2000) proves that in a multi-period setting, to sell remaining shares after the IPO at a higher price in the future, high ownership held by controlling shareholder can be taken by the minority shareholders as a credible commitment not to expropriate, yet this mechanism can’t work in China because of the equity division.
problem is not prominent in Chinese listed firms under the equity division structures. On the contrary, they either try to tunnel as much as possible (after that, they can still sell the shell to private firms given private firms face extensive listing restrictions in China) or they increase the transfer price by issuing more equity\(^7\). As suggested by Shleifer and Vishny (1997), when there is little legal protection for minority shareholders (as is the case in China), controlling entities may find it attractive to divert resources from the firms despite their large cash flow shareholding, “since in this way they do not need to share with outside investors at all” (p.769).

### 1.2 Research Questions

This study aims to provide direct and systematic research on the use of capital-related RPTs for tunnelling and propping by controlling shareholders in China and evidence of the corresponding valuation effect. Specifically, the study examines three separate, but related, aspects:

1. Does the presence of controlling shareholders (the owner type, controlling mechanism and the level of control rights) affect the level of tunnelling?

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\(^7\) Zheng, Zhao and He (2005) theoretically prove that equity division in China exacerbates the agency problem between controlling shareholders and minority shareholders. In fact, the required cash flow ownership to deter tunnelling (aligning effect) is so high that it makes the listing impossible.
2. Do controlling shareholders prop up firms in financial distress (propping hypothesis)?

3. What is the impact of tunnelling and propping on firm performance and valuation?

1.3 Significance of the Study

This study is expected to contribute to a thorough understanding of the interaction of large shareholdings, tunnelling, propping and firm value from the perspective of RPTs in a dynamic yet unsophisticated stock market. Although previous research has added to the knowledge of the association between ownership, tunnelling and firm value, the present study provides a significant contribution to the literature as described below.

Most previous studies are based on developed countries such as the US, UK, Australia and Germany, addressing the issue of ownership and performance (e.g. Demsetz & Lehn, 1985; Morck, Shleifer & Vishny, 1988; Thomsen, Pedersen & Kvist, 2006)\(^8\). In cross-country comparative studies (e.g. La Porta et al., 2002; Classens et al., 2002; Lins, 2003; Grant & Kirchmaier, 2005a), China is not part of

\(^8\) Similar research has been undertaken by authors such as Wiwattanakantang (2001) on Thailand, Baek, Kang and Park (2004) on South Korea, and Bai et al. (2004) on China.
the sample probably due to a lack of data and its complex equity division. Lins (2003) indicates that he was unable to identify the control structure in the majority of the Chinese sample firms and thus couldn’t include China in his sample. In addition, the cross-country research is hard to control for the differences in legal, taxation and accounting regulations. As argued by Joh (2003), a study focusing on one specific country can avoid the endogeneity problem between ownership structure and relevant institutional factors. By focusing on a large number of public firms in China, this study can control the country-specific factors and observe the ownership, tunnelling, propping and valuation relationship more precisely.

Numerous studies find that concentrated ownership leads to lower firm value especially in emerging countries; however these studies have not disclosed what specific mechanisms contribute to this negative relationship. This study will endeavour to find the missing empirical link in the chain. In particular, this study will show that it is tunnelling (via RPTs) that causes lower firm value and performance. The research on tunnelling will also add to the knowledge in understanding firms’ declining performance after IPO in China and other countries. Wang, Xu and Zhu (2004) find a post-IPO decline in financial performance in China’s listed firms between 1994 and 2000. They show that pre-IPO financial packaging plays a minor role in explaining the performance deterioration and they speculate that post-IPO tunnelling by controlling owners is worth exploring. Ehrhardt and Nowak (2003)
offer concrete evidence on the long-term underperformance after IPO among German family firms.

Secondly, while some theoretical studies show that controlling shareholders will prop bad-performing controlled firms (Friedman, Johnson & Mitton, 2003; Riyanto & Toolsema, 2004), there is a lack of direct evidence on the occurrence of propping and its corresponding valuation effect. For example, Cheng et al. (2005) through examining the announcement effects of RPTs in China find the extensive use of RPTs for tunnelling by controlling state shareholders⁹, yet they find limited evidence of propping. Bai, Liu and Song (2004) find that the designation of special treatment (ST) to poor-performing firms in China (a typical bad news) earn abnormal positive market returns. They attribute this to the anticipation of potential propping by incumbent or new controlling shareholders. Yet, they haven’t provided any direct propping evidence.

Thirdly, studies focusing on China cover only a small sample or a limited time frame, such as 292 RPTs in two years by Cheng et al. (2005) or 131 firm-years in the study by Jian and Wong (2004). This study differs in that it observes all of the

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⁹ The negative role of government ownership found by Cheng et al. (2005) is opposite to the results of Atanasov, Ciccotello and Gyoshev (2004), who found freeze-out firms in Bulgaria tend to have a smaller proportion of government-backed ownership. This demonstrates the different roles of state ownership under different privatisation schemes.
non-financial firms for four years from 2001 to 2004. The inclusion of the full population with a wide time frame means this study may not suffer sample selection bias and could obtain a more meaningful result.

1.4 Organisation of the Study

The remainder of this study is organised as follows. Chapter two goes through the relevant theory background on agency costs, distinct ownership patterns and theoretical explanations, private benefits of control, the role of internal markets and group affiliation.

Chapter three provides the institutional background for the study and discusses the institutional settings in the context of SOEs reform, state ownership, equity division, legal investor protection and listing quota in China.

Chapter four defines tunnelling, propping and review prior theoretical and empirical studies on tunnelling and propping. Two types of tunnelling and the relationship between tunnelling, earnings management and dividend payout are also discussed. Different proxies used for examining tunnelling are thoroughly reviewed. Finally why propping lacks effective exploration is discussed briefly.
Chapter five develops the research hypotheses based on the theory review, literature review and China’s institutional background. Hypotheses are proposed to explain how the presence and type of controlling shareholders, other blockholders, control rights and controlling mechanism affect the level of tunnelling and propping and the corresponding effects of tunnelling and propping on firm performance and market valuation.

Chapter six discusses the sample selection and explains the variables definition and empirical models. The descriptive statistics, empirical results and discussion, robustness tests and limitations are reported in Chapter seven. This study concludes in Chapter eight with a summary, suggestions for policy changes and future extensions.
CHAPTER TWO

Theory Review

2.1 Introduction

This chapter provides a background to the study by examining the related theory of agency conflict and its association with different ownership structures, the strengths and weaknesses of concentrated ownership, the concept of private benefits of control and its implications, group affiliation and the internal capital market.

Section 2.2 provides a brief introduction to agency conflict and its implications. Section 2.3 discusses concentrated ownership and the evolution of two distinct ownership structures. Advantages and disadvantages of concentrated ownership are presented in Section 2.4. Section 2.5 reviews the literature on private benefits of control and the corresponding arguments on its fairness. Section 2.6 gives a detailed review of group affiliation and internal capital markets as are the norms in emerging economies. The chapter is summarised in Section 2.7.

2.2 Dispersed Ownership and Agency Conflict
The notion of separation of control from ownership has been well noted among financial economists. The work by Berle and Means (1932) is probably the first that described in detail the dispersion of stock ownership and found the attention on the divorce of ownership and control in the largest corporations in the US. They predict that all large public corporations would mature to be dominated by the separation between ownership and control through expanded ownership. Although not using the term, Berle and Means show the concern of so called modern agency conflict: the interests of managers can diverge from those of the owners of the firm. In fact, they show that there are numerous ways, direct or indirect, that “the control without appreciable ownership” can profit at the expense of “the owners without appreciable control”. How to avoid the interest of conflict between both parties is one of their major concerns.

The research into the public and private costs of managers as agents in a corporation due to the conflict of interests was finally brought to attention on agency costs by Jensen and Meckling (1976). They define agency costs as “the sum of the the monitoring expenditures by the principal, the bonding expenditures by the agent and the residual loss” (p.308)\textsuperscript{10}. Later, “the costs of creating and structuring contracts

\textsuperscript{10} Fama and Jensen (1983) argue that the agent will ultimately bear the monitoring costs as a result of the adjustment of their compensation by the principal. The so called residual loss is the firm value reduction due to the interest conflict between the principal and agent apart from monitoring and bonding costs.
between the principal and the agent” is added as part of the agency costs (Jensen, 2000, p.86). Apart from the apparent expenditures by the principal and agent, it can be seen the major component of agency costs is their adverse effect on firm value.

According to Jensen and Meckling (1976) the controlling manager will have the incentives to pursue their own benefits at the cost of shareholders assuming both parties are utility maximisers, thus there will always be positive agency costs in an agency relationship. They assert that “as the owner-manager’s fraction of the equity falls, his fractional claim on the outcomes falls and this will tend to encourage him to appropriate larger amounts of the corporate resources in the form of perquisites” (p.313). In addition to the perquisites appropriation, Jensen and Meckling (1976) further indicate that managers may not devote significant effort to maximise firm value for many reasons. Apart from not working hard, managers may make choices in terms of risk exposure and time horizons to maximise their self-interest (Jensen, 2000).

The concept of agency costs is tested by Ang, Cole and Lin (2000), who directly measure the extent of agency costs based on a zero agency-cost prediction\(^\text{11}\). They find that agency costs are significantly higher when an outsider manages the firm and

\(^{11}\) According to Jensen and Meckling (1976), a firm owned solely by an owner-manager has zero agency costs.
an increase in managerial ownership reduces the agency cost.

With the emergence of agency conflict, the role of managerial ownership and various external and internal monitoring and bonding mechanisms (in order to minimise the agency costs) are brought to the frontline of theoretical discussions and empirical research. For example, Holderness, Kroszner and Sheehan (1999) analyse the data on ownership by directors and officers between 1935 (with a sample of 1,500) and 1995 (with a sample of 4,200) in the US. They find that managerial ownership as a group is about 21 percent in 1995 compared with 13 percent in 1935. While they made no difference between directors and executives, the results show the rapid increase of managerial ownership in the US. Although the popularity of executives’ stock options blurs the role of managers and shareholders, it doesn’t change the nature of agency conflict between managers and shareholders because of the minority of managerial ownership.

Broadly speaking, agency costs among firms in the US are under the control of various effective institutions such as independent boards, incentive compensation (mainly in the form of stock options), hostile takeovers and proxy contests, securities analysts signaling and other mechanisms like transparent accounting standards and intensive product competition (Jensen, 2000). However, the patterns of ownership structures and agency conflict are not so common in many other countries especially
developing economies.

2.3 Concentrated Ownership and Theories for Ownership Discrepancy

As a result of the analysis by Berle and Means (1932) and Jensen and Meckling (1976), much of the literature on agency costs in modern corporations focuses on the relationship between managerial control and dispersed outside investors. Yet recently more literature casts doubt on the assumable universality of diffuse ownership in public firms even in the US. For example, Holderness and Sheehan (1988) find that in the two major exchanges in the US around 5 percent of listed firms have majority shareholders; also “majority shareholders are usually directly involved in firm management” (p.319).

Apart from the US, what are the ownership patterns around the world? Tracing the ultimate owners of listed firms in 27 wealthy countries, La Porta, Lopez-de-Silanes and Shleifer (1999) find that ownership concentration prevails in most countries. For example, they show that by defining control on 10 percent voting rights, on average only 24 percent of large firms are widely held, while for medium sized firms (10 firms from each country), the percentage is only 11 percent. Even in the US, using a

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12 A majority shareholder, which could be an individual (a family) or an entity, is defined as one holding at least 50.1 percent yet less than 95 percent of common equity of a listed firm. They indicate that the 5 percent represents a lower bound given the samples tend to be the largest firms.
20 percent control rights cut-off, 20 percent of the largest US firms (10 percent of medium-sized firms) have controlling shareholders. They further indicate that controlling shareholders, families in most cases, exert their control through pyramidal structures and management presentation. They “typically have control over firms considerably in excess of their cash flow rights” (p.511), which is another form of separation of control from ownership.

The findings of La Porta, Lopez-de-Silanes and Shleifer (1999) are complemented by Claessens, Djankov and Lang (2000) using 2980 companies in nine East Asian countries. They reveal that more than two-thirds of firms are ultimately controlled by a single shareholder and most of them are families. At the same time, they find more pyramids and cross-holdings in family controlled firms and small firms. Using the same methodology, Faccio and Lang (2002) find the evidence of concentrated ownership and family control and management in 5232 corporations in thirteen Western Europe countries without UK and Ireland.

Table 2.1 summarise the ownership patterns of large firms all over the world. Some countries like Canada, France, Germany and others display two ratios, resulting from caused by different data samples compiled by different authors.
Table 2.1

Widely Held Firms as Percentage of Large Firms in Various Countries

<table>
<thead>
<tr>
<th>Country</th>
<th>10 percent control rights cut-off</th>
<th>20 percent control rights cut-off</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Australia</td>
<td>55</td>
<td>65</td>
</tr>
<tr>
<td>Austria</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Belgium</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Canada</td>
<td>50</td>
<td>60</td>
</tr>
<tr>
<td>Denmark</td>
<td>17.54</td>
<td>36.24</td>
</tr>
<tr>
<td>Finland</td>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td>France</td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td>Germany</td>
<td>5.61</td>
<td>14.02</td>
</tr>
<tr>
<td>Greece</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>0.6</td>
<td>7</td>
</tr>
<tr>
<td>Indonesia</td>
<td>0.6</td>
<td>5.1</td>
</tr>
<tr>
<td>Ireland</td>
<td>45</td>
<td>65</td>
</tr>
<tr>
<td>Israel</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Italy</td>
<td>7.83</td>
<td>15.86</td>
</tr>
<tr>
<td>Japan</td>
<td>42</td>
<td>79.8</td>
</tr>
<tr>
<td>South Korea</td>
<td>14.3</td>
<td>43.2</td>
</tr>
<tr>
<td>Malaysia</td>
<td>1</td>
<td>10.3</td>
</tr>
<tr>
<td>Mexico</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Netherlands</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>New Zealand</td>
<td>5</td>
<td>30</td>
</tr>
<tr>
<td>Norway</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>Philippines</td>
<td>1.7</td>
<td>19.2</td>
</tr>
<tr>
<td>Portugal</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Singapore</td>
<td>1.4</td>
<td>5.4</td>
</tr>
<tr>
<td>Spain</td>
<td>15</td>
<td>35</td>
</tr>
<tr>
<td>Sweden</td>
<td>0</td>
<td>25</td>
</tr>
<tr>
<td>Switzerland</td>
<td>50</td>
<td>60</td>
</tr>
<tr>
<td>Taiwan</td>
<td>2.9</td>
<td>26.2</td>
</tr>
</tbody>
</table>
Table 2.1 shows that apart from several countries such as U.K, U.S, Japan, Australia, Ireland and Switzerland, most countries display high percentages of concentrated ownership among the large firms. As large companies tend to be more liquid, it is expected that the percentages are higher among the medium-small firms.

As families usually own and control public firms, it may imply the relative impracticability of agency conflict derived by Berle and Means (1932) and Jensen and Meckling (1976) under the framework of controlling managers and dispersed shareholders. In other words, agency conflict between controlling shareholders and minority shareholders may be more evident and dominating around the world. As Classens et al. (2002, p.2770) indicate, “...the risk of expropriation of minority shareholders by large, controlling shareholders is an important principal-agent problem in most countries”.

Coffee (2005) asserts that different ownership structures lead to divergent corporate scandals. He claims that earnings management (induced by the extensive adoption of
stock options) is more likely to happen under the governance of dispersed ownership, while under a concentrated ownership system, the expropriation of private benefits (tunnelling) is more characteristic. In all, under the umbrella of two opposite ownership structures, agency parties and conflicts between them are different. Figure 2.1 summarises agency conflicts under two opposite ownership structures.

**Figure 2.1**

**Ownership Structures and Agency Conflicts**

<table>
<thead>
<tr>
<th>Two Distinct Ownership Structures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diffuse Ownership</td>
</tr>
<tr>
<td>US UK Japan Australia</td>
</tr>
<tr>
<td>Directors and Executives</td>
</tr>
<tr>
<td>Shareholders</td>
</tr>
<tr>
<td>Agency Costs</td>
</tr>
<tr>
<td>Concentrated Ownership</td>
</tr>
<tr>
<td>All other countries</td>
</tr>
<tr>
<td>Controlling shareholder</td>
</tr>
<tr>
<td>Minority shareholders</td>
</tr>
<tr>
<td>Tunnelling</td>
</tr>
</tbody>
</table>

It can be seen from Figure 2.1, as ownership concentration prevails in most countries, the traditional principal-agency theoretical framework between professional managers and outside shareholders is inappropriate in analysing the relationship between controlling shareholders and minority shareholders. How to prevent tunnelling (expropriation) of minority shareholders by controlling owners is a central issue.
While more and more evidence shows the dominance of concentrated ownership all over the world, scholars differ in their ideas on the development of the ownership dichotomy (dispersed and concentrated) given the increasing integration of the worldwide economy and competitive global capital markets. There are three theories for this.

The recent scholarship of La Porta et al. (1997, 1998, 2000a, 2000b, 2002 and 2006) demonstrates that the weak legal protection of minority shareholders accounts for the dominance of concentrated ownership in the world. Particularly, they show that apart from a few common law origin countries, most civil law origin countries such as those with Scandinavian, German or French civil law origins are poor at protecting outside investors. They speculate that concentrated ownership may be a substitute for the weak legal environment. According to them, dispersed ownership can only persist if there exists capacity (such as strong legal rules and enforcement) to block an incoming controller from acquiring control without paying a control premium. The “law matters” hypothesis is boosted by Bebchuk’s (1999) rent-protection model. He posits that when private benefits of control are high, leaving control for grab is costly, so founders will not sell a majority of a firm’s voting rights to the public. They either maintain their controlling position or sell the whole control block with a control premium. Thus, concentrated ownership continues.
Slightly different from La Porta et al. (1997, 1998, 2000a, 2000b, 2002 and 2006), Gilson (2006) argues that both widely held and concentrated ownership can develop under a functionally good law system, while under a functionally bad law system only concentrated ownership can exist (the so-called inefficient controlling shareholder regime). He further proposes that to eliminate inefficient controlling shareholder systems, three strategies can be attempted: the improvement of the legal system, increasing exposure to the control of market and broader access to global capital markets.

Different from the theory of “law matters”, Roe (2000) stresses the critical determinant of political values. He argues that because social democracies prefer the interests of other constituencies (e.g. employees) to those of shareholders, either through law or the social climate and norm, such as codetermination and rigid labour markets in Western Europe and other countries, agency costs are normally higher under the regime of social democracies. Thus to resist the pressure and protect shareholders’ interests, concentrated ownership with a large shareholder is better than a group of small outside investors.

Coffee (2001a) disagrees with both theories. He argues that while it is true that there is an employee-favourable ideology among Western European countries, he is rather
reluctant to draw the conclusion that concentrated ownership is the result of controlling left-leaning social democracies. He indicates that while Southeast Asia is the place with the most concentrated ownership in the world, it has nothing to do with social democracy. Rather, those who are in control are deeply involved in government so as to protect their economic dominance.

Starting from the history of securities markets in the US, UK, France and Germany, Coffee (2001) indicates that it is the level of state involvement in economic decision-making rather than the distinctive legal system that exerts greater influence on the growth of securities markets. He documents that diffuse ownership appeared in the US in the late nineteenth century, which was a time that lacked adequate minority protection and presented high private benefits of control, yet through bonding measures and self-regulation (via the New York Stock Exchange), investors were assured the safeguards of their investment. While the Paris Bourse was the leading exchange at that time, dispersed ownership didn’t arrive in France or Germany due to lack of such mechanisms. He further highlights that “… doctrinal legal difference had only a secondary impact and that the fundamental precondition for the separation of ownership and control was the recognition—both legal and political—of the presumptive autonomy of the private sector”(p.78). However, for securities markets to grow to a full potential, he admits that strong law and legal enforcement are better than a purely voluntary legal regime, especially under the
condition of market crash.

In China, state involvement in the securities market is extremely high. For example, the CSRC strictly controls the price and pace of IPO and rights issues, the restructuring of poor-performing firms, the setup and ownership structures of securities firms, fund management companies and stock exchanges (Tenev, Zhang & Brevort, 2002; Chen, Fan & Wong, 2004). Thus the separation of ownership and control is impossible.

2.4 Advantages and Disadvantages of Concentrated Ownership

While scholars disagree on the appearance and development of ownership concentration, given its dominating position all over the world, it is important, theoretically and empirically, to examine its strengths and weaknesses.

When a concentrated ownership exists, contrasted with weak control of diffuse shareholdings due to the free-rider problem, large shareholders have the incentives and resources to monitor the management (if they themselves are not managers) and thus reduce agency costs. Accordingly this will increase the value of all shareholdings.

Coffee (1991) demonstrates that institutional investors in the U.S have a preference for liquidity and are reluctant to control or monitor the management. He shows, apart from the regulatory constraints, institutional investors (or their trustees) lack incentives or they themselves are frustrated by agency problems.
Shleifer and Vishny (1986) formalise the positive role of a large shareholder in solving free-rider problems in a value-enhancing takeover. In the model, they prove that the presence of a large shareholder may facilitate a takeover (by himself or an outsider) by giving up some of the gains while still maintaining the takeover as a profitable project for the bidder; furthermore, an increase in his shareholding will result in an increase in the market value of the firm.

Gomes (2000) sets up a model in a multi-period setting and shows that even when there is no effective legal system to protect minority shareholders, to be able to sell shares at a higher price in the future, controlling shareholders must build up a reputation of not expropriating minority shareholders. Initially and afterwards, the commitment is seen as credible because minority shareholders know that if the controlling owner unexpectedly extracts more private benefits, the stock price will be discounted accordingly and the majority owner’s remaining share value will be reduced as well\(^\text{14}\).

However, control by large shareholders comes at a cost as well. Fama and Jensen (1983) argue that at a high level of ownership concentration, controlling shareholders will be in charge of both decision management (initiation and implementation) and

\(^{14}\) As shown in Chapter three and four, minority shareholders may lack the capacity to discern when and how tunnelling happens. In China, the equity division problem greatly reduces the adverse wealth effect of price discount on the large shareholders.
decision control (monitoring and ratification), thus firms may not exist as publicly traded corporations in equilibrium given other shareholders will fear potential expropriation.

Stulz (1988) models the costs and entrenchment of large shareholdings from a perspective of a potential value-increasing takeover. In the model, when the initial managerial ownership and control is small, an increase in their managerial ownership will increase the premium and firm value if a tender offer is made; while when the initial managerial ownership and control is large, managers have the power to force bidders to increase bid premiums, which could make the acquisition of the target no longer a profitable investment for bidders. La Porta, Lopez-de-Silanes and Shleifer (1999) state that while ownership concentration could be the substitution for weak legal systems, controlling shareholders “have the power to expropriate the minority shareholders as well as the interest in so doing” given their control rights are normally significantly in excess of their cash flow ownership.

Burkart, Gromb and Panunzi (1997) argue that although managerial discretion comes with costs, yet even tight control by large shareholders is ex post beneficial, it represents ex ante an expropriation threat that reduces managerial initiative and non-contractible investment; moreover, concentrated ownership and consequent monitoring may also conflict with the performance-based incentive schemes. Thus, a
dispersed ownership structure is preferable as it commits to not exert excessive control to interfere with managerial initiative.

In addition to professional managers, the targets of expropriation by large shareholders could also be creditors and employees. Shleifer and Vishny (1997) summarise benefits and costs related to concentrated ownership as the following: “large shareholders thus address the agency problem in that they have both a general interest in profit maximisation, and enough control over the assets of the firm to have their interest respected (p.754)”; on the other hand, potential costs of having large investors include “straightforward expropriation of other investors, managers, and employees; inefficient expropriation through pursuit of personal (nonprofit-maximising) objectives; and finally the incentive effects of expropriation on the other stakeholders (p.758)”.

Jensen and Meckling (1976) imply that there is a linear relationship between managerial ownership and firm value, yet the empirical studies do not seem to completely agree with it. Based on a cross-section of 371 Fortune 500 US firms in 1980, Morck, Shleifer and Vishny (1988) find an inverse U-shaped relationship between managerial equity ownership and firm value. They show Tobin’s Q increases when managerial ownership is between 0 and 5 percent and is greater than 25 percent, while it decreases when managerial ownership ranges from 5 to 25
percent. Yet the above relationship is not robust to the use of profit rates. Similar non-monotonic relationships are found by McConnell and Servaes (1990) and Hermelin and Weisbach (1991) and in the UK (Short & Keasey, 1999) although the cutoff points are different.

The studies following Morck, Shleifer and Vishny (1988) yield conflicting results. Demsetz and Villalonga (2001) argue that the neglect of a distinction between managerial shareholding (directors or executives) and outside shareholders and the ownership endogeneity problem causes the blurriness. After controlling these two factors, they fail to find a statistically significant relation between ownership structures (either inside or outside) and firm performance (either Tobin’s Q or accounting performance). They conclude that ownership structures differ across firms “because of differences in the circumstances facing firms, particularly in regard to scale economies, regulation, and the stability of the environment in which they operate” (p.231).

While researchers disagree on the effect of managerial and blockholder ownership on firm value in the US and UK, there is much less disagreement on the entrenchment

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15 While many empirical results (mostly based on US and UK samples) confirm the endogeneity of a (managerial) ownership structure (see Himmelberg, Hubbard & Palia, 1999; Demsetz & Villalonga, 2001), ownership structure in emerging economies tends to be exogenously determined, as shown by many researchers (Lins, 2003; Lemmon & Lins, 2003; Wei, Xie & Zhang, 2005).
effect of large shareholdings in countries with weak legal protection of investors. Kirchmaier and Grant (2005a) analyse 473 largest firms in five major European economies in a ten-year time period. They show that dominant shareholders (those who own 50 percent or more of voting rights, individually or by group) negatively affect long-term share price performance. Based on 876 largest firms in the European Union and US from 1988 to 1998, Thomsen, Pedersen and Kvist (2006) show that blockholder ownership in Continental Europe has a negative effect on future firm value and accounting performance (not vice versa), although this doesn’t hold for firms in the US and UK\(^{16}\). Dyck and Zingales (2004) find that higher private benefits of control are associated with less developed capital markets and more concentrated ownership.

While the above researchers find the negative role of blockholders in a control-based governance system, they didn’t explore in detail how different controlling devices affect firm value and performance. As indicated by Claessens, Djankov and Lang (2000), Faccio and Lang (2002) and others, cross-holding and dual-class shares are in extensive use by large shareholders in Continental Europe and developing regions, so the influence of controlling devices on firm value is worth investigating.

Bebchuk, Kraakman and Triantis (1999) use the term ‘controlling minority

\(^{16}\) To control ownership the endogeneity problem, a Granger test is adopted in their article.
structures’ (CMS) to describe the separation of control and cash flow rights through stock pyramids, dual-class shares, and cross-ownership. They show that CMS allow a shareholder to effectively control a firm while owning only a small disproportional fraction of its equity. They indicate in theory that controlling minority ownership structures “have the potential to create very large agency costs—costs that are an order of magnitude larger than those associated with controlling shareholders who hold a majority of the cash flow rights in their companies” (p.121).

Cronqvist and Nilsson (2003) analyse the agency costs of CMS in Sweden, a typical country cited with high incidence of such structures. They show that CMS, with controlling families in particular, have a significant adverse effect on firm value, up to 25 percent of Tobin’s q for the median firm. They further contemplate that lower firm value is more likely to stem from suboptimal investment decisions instead of stealing (tunnelling).

Using 1301 corporations from eight East Asian countries before the financial crisis, Claessens et al. (2002) find that firm value (in terms of market to book ratio) increases with the cash flow rights of the largest shareholder (confirming an

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17 Voting rights and control rights are used interchangeable in the article. The same rule applies to ownership rights and cash flow rights.

18 Coffee (2001b) points out the positive role of social norms in curbing tunnelling in Sweden, a country well-known for wide deviation between voting rights and cash flow rights.
incentive effect) but falls when the wedge between its control rights and ownership rights increases (confirming an entrenchment effect). Lemmon and Lins (2003) examined 800 firms from the same region during the financial crisis period. They document that cumulative stock returns are 10-20 percent lower for firms where managers (from controlling families) have high levels of control rights and have separated their control from cash flow ownership. Lins (2003) checks the relationship between firm value and managerial ownership among 1433 firms in 18 emerging markets. He identifies a similar entrenchment effect of large managerial ownership (from controlling families). He finds that the leverage between managerial control and cash flow rights is negatively related to firms’ Tobin’s Q.

Baek, Kang, and Park (2004) state that group affiliated firms with concentrated ownership by controlling family shareholders, experienced a larger share-price drop during the 1997 Korean financial crisis; firms with the wider control and cash flow rights discrepancy have significant lower returns as well. Joh (2003) discusses the association between profitability and cash flow rights leverage in Korean firms before the financial crisis. She finds an inverse relationship between firm profitability and the cash flow rights leverage. She also shows that affiliation to

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19 The implication of managerial ownership in Lin’s is different from that of Jensen and Meckling. Managers in the former mostly come from the controlling families.

20 To account for the dispersion between control rights and cash flow rights, Claessens et al. (2002) and Lemmon and Lins (2003) use slightly different indicators. The former uses the difference between the two, while the latter uses the quotient, which they call cash flow rights leverage.
business groups reduces profitability.

In addition to controlling shareholders, there are always other blockholders in the firm (La Porta, Lopez-de-Silanes & Shleifer, 1999; Faccio & Lang, 2002; Lins, 2003). Theoretically, the presence of other blockholders will contest with the controlling shareholder and thus increase firm value. Maury and Pajuste (2005) develop a model and indicate that it is the high contestability of other blockholders with the largest shareholder that increases firm value. Otherwise, blockholders may collude to share the private benefits, which will reduce firm value. Based on 136 firms in Finland during 1993-2000, they show that firms have higher value with more equally distributed voting rights among blockholders.

Faccio, Lang and Young (2001) examine how blockholders affect dividend payout between Europe and Asia. They demonstrate that multiple large shareholders diminish expropriation in Europe (dividend rates are higher) while exacerbate it in Asia. Mitton (2002) checks the relationship between firm-level stock returns and corporate governance in 398 firms from five East Asian countries during the financial crisis. He concludes that better stock return is associated with higher outsider ownership concentration. Similar to Mitton, Lins (2003) shows that large non-management block shareholders in emerging markets positively affect firm value. Wiwattanakantang (2001) examines the relationship between controlling
shareholder and firm value in Thailand. He concludes that firms with more than one controlling shareholder have higher firm performance.

In sum, cash flow rights held by controlling shareholders mitigate their incentives to expropriate, as when expropriation accrues, minority shareholders will discount the share price; hence value of controlling shareholdings will be reduced as well. However, the punishment will be much less severe when they have control in excess of their proportional ownership through pyramids, cross-holdings or super-voting share schemes. In China, although the cash flow rights are concentrated in the hands of large shareholders, the incentive effect of block shareholdings is overshadowed because of their non-floating nature (see the equity division in Chapter three for details).

2.5 Private Benefits of Control

Like two sides on a coin, in a principal-agent relationship, opposite to the presence of agency costs, there must be some private benefits involved. Along with the popularity of the concept of agency cost, a new term “private benefits of control” emerges and is discussed much more by finance scholars.
2.5.1 What are Private Benefits of Control?

Berle and Means (1932) express their fears on expropriation via self-dealing by controlling managers. They show “…the controlling group even if they own a large block of stock, can serve their own pockets better by profiting at the expense of the company than by making profits for it” (p.114). For management-controlled corporations, they indicate that “profits at the expense of the corporation become practically clear gain to the persons in control and the interests of a profit-seeking control run directly to the interests of the owners” (p.115). In fact, there are numerous indirect ways to divert profits out of the corporation for the benefit of those in control. They also point out that managers in control may seek non-pecuniary benefits such as “prestige, power or the gratification of professional zeal”.

Jensen and Meckling (1976) pay attention to non-pecuniary benefits as well. They argue that, when an owner-manager owns less than 100 percent of the shares, he will try to enjoy as much non-pecuniary benefits as he can such as the “physical appointments of the office, the attractiveness of the office staff, the level of employee discipline, the kind and amount of charitable contributions, personal relations (“friendship,” “respect,” and so on) with employees, a larger than optimal computer to play with, or purchase of production inputs from friends” (p.312).
While Jensen and Meckling (1976) articulate their concern on the pecuniary and non-pecuniary benefits that are derived from managerial control, they didn’t show what private benefits are connected to controlling owners. Ehrhardt and Nowak (2003) firstly provide empirical evidence on what private benefits of control really are. After analysing 105 founding-family owned firms on the German stock exchange between 1970 and 1991, from IPO to ten years later, they find huge private benefits such as “excessive management compensation (self-dealing), enjoyment through association with luxury goods (amenities), and all the amusements and social benefits derived from being the King of a small town (reputation)” (p.32).

2.5.2 Defence of Private Benefits of Control

Shleifer and Vishny (1997, p.759) argue that when “large owners gain nearly full control of the corporation, they prefer to generate private benefits of control that are not shared by minority shareholders”. Should controlling entities enjoy private benefits? Grossman and Hart (1980) argue that given the free-rider problem of minority shareholders, to make a value-increasing takeover happen, a raider needs to acquire some extra benefits (to compensate the incurred costs) other than just the proportional price appreciation he acquires. One method, they suggest, is to allow the raider to sell the firm’s asset or output to a party owned by the raider at a favourable
lower price\textsuperscript{21}. This pecuniary compensation is explicitly expressed by Grossman and Hart (1988) as part of private benefits. In the article, they differentiate two types of benefits from control: private benefits and security benefits. While security benefits is the market value that accrues to all the shareholders, private benefits of control refers to the benefits that target security-holders do not obtain, such as synergy benefits, the return from being able to freeze-out minority shareholders at a lower fair value price, perquisites of control and the diversion of resources from the security-holders to incumbent management or acquirer.

Apart from synergy benefits, the above suggests outright expropriation of shareholders and management may sound implausible, yet it at least justifies the view that not all private benefits of control are necessarily bad. Amenity potential from being a controller of special industries like professional sports club and mass media may not be negative in its nature either, as indicated by Demsetz and Lehn (1985).

Gilson (2006, p.1652) asserts that “because controlling shareholders must bear the direct costs of monitoring, liquidity, and non-diversification from holding a concentrated position, some private benefits of control likely are necessary to induce a party to play that role”.

\textsuperscript{21} The way of compensating the raider is part of tunnelling indicated by Johnson et al. (2000a).
Although it is impossible to draw a cutoff line on how much large shareholders should be compensated, it seems clear that part of private benefits is reasonable. Yet, Ehrhardt and Nowak (2003) argue that the existence of any private benefits not shared with the minority shareholders—whether pecuniary or non-pecuniary, even the hardest transferable reputation—gives the controlling owner an incentive to deviate from the maximisation of total firm value. Holderness (2003) also disagrees that synergy gains or non-pecuniary private benefits will not reduce the wealth of minority shareholders.

Belcredi and Caprio (2003), on the other hand, claim that there are both good and bad private benefits, only bad private benefits translate into agency costs, while good private benefits, such as reputation, constrains controlling shareholders’ expropriating incentives.

The pursuit of private benefits (pecuniary benefits in particular) is mainly through tunnelling (operational tunnelling and financial tunnelling) and receives much attention, yet there still a lack of direct evidence on how controlling shareholders engage in tunnelling to grab private benefits.
2.6. Group Affiliation and Internal Markets

To smoothly transfer out assets and profits, controlling shareholders must rely on some physical means. Group affiliation and the internal markets among group members serve this purpose. Group affiliation and internal markets have been the subject of numerous theoretical analyses and empirical investigations. Many economists have addressed the benefits of internal markets compared with external markets. They highlight the role internal capital markets play in reducing information asymmetry and incentive problems. Stein (1997) argues that internal capital markets tend to play a more efficient role in reallocating limited funds across projects when external markets and credit constraints are very binding due to the pronounced information and agency problems.

External financial markets in emerging economies are typically less developed, characterised by weak protection of investors, inadequate disclosure, weak corporate governance and control. Naturally, business groups (in terms of ownership connection such as cross-holding and pyramids) are found to be dominant in most developing countries and some European countries (Khanna & Palepu, 1997; Barca & Becht, 2001; Classens, Fan & Lang, 2002). Compared with independent firms, group structures are associated with greater use of internal factor markets such as capital, labour and product markets, and with financial markets in particular. Khanna
and Palepu (2000) argue that due to the absence of intermediary institutions such as financial analysts, investment bankers and venture capitalists, it is hard for firms in emerging markets to obtain necessary inputs such as finance, technology and management talent, thus it is profitable to be part of a business group. Through their internal financial markets, groups may allocate capital to firms having relative good investment opportunity while being financially constrained or temporarily financially distressed. They discover that firms affiliated with the most highly diversified business group in India have a higher Tobin’s q than all the other firms. They attribute this to the supporting role business groups play in replicating the institutional functions that are missing in India.

The benefits of internal markets may in turn lead to better firm performance and higher firm valuation. Khanna and Rivkin (2001) study the effect of group affiliation on operational profitability in 14 emerging economies in Asia, Latin America and South Africa. They find that in most countries, group membership explains a statistically significant amount of variation in the profitability measure. While in four countries the mean of the estimated group effect is positive, it is negative in only one country.

Even though group affiliation can be potentially beneficial, internal markets associated with the typically complex ownership and control of group-affiliated firms
may cause greater agency problems. Khanna and Palepu (2000) indicate that group members are prone to conflict of interest between controlling owners (family in most cases) and minority shareholders. For example, common family ownership may result in misallocation of capital, with the cash flow generated by profitable group firms being invested in (propped into) unprofitable ventures, even though this may be detrimental to the interests of minority shareholders. Shin and Park (1999) show that while the internal capital markets among business groups in South Korea reduces members’ financial constraints, the efficiency of allocated funds is not increased. Obata (2003) presents theoretical and empirical evidence that pyramidal controlling owners prop up firms experiencing financial distress at the cost of minority shareholders of lower layer firms. Bae, Kang and Kim (2002) show similar capital misallocation from tunnelling among group members in South Korea22.

Lins and Servaes (2002) study the effect of corporate diversification on firm value in seven emerging Asian markets. Using a sample of over 1,000 firms in 1995, they find that diversified firms trade at a discount of approximately 7 percent compared to single-segment firms. What causes the discount? From a corporate governance perspective, they find a discount only for firms that are part of industrial groups, and

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22 An example from Bae, Kang and Kim (2002) shows the tunnelling role of group. Both LG Securities and LG Merchant Bank are controlled by LG group. While LG group owns only 18 percent of equity in LG Securities, she owns 60 percent in the latter. Under the control of LG group, profit-making LG Securities was required to acquire the debt-ridden LG Merchant Bank. The 10-day market-adjusted cumulative abnormal return after merger announcement was -46 percent.
when management control rights substantially exceed their cash flow rights. Given in these countries the prevalence of large shareholders and family control (Singapore is an exception), their results do not support an internal capital market efficiency rather than expropriation hypothesis in economies with severe capital market imperfections.

From a perspective of equilibrium on the interaction of external and internal capital markets and the level of investor protection, Almeida and Wolfenzon (2006) argue that in economies with an intermediary level of investor protection, it is optimal for business groups to allocate scarce capital internally to mediocre projects; even other stand-alone firms in the economy have higher productivity projects. Thus, the overall efficiency of capital market is reduced. As Claessens and Fan (2002) summarise corporate governance in Asia (excluding Japan): agency problems associated with group and diversification structures may offset the beneficial effects from internal market transactions and within-group learning.

2.7 Summary

Agency theory proposed by Jensen and Meckling (1976) provides a good starting point in analysing the conflicts between controlling managers and dispersed outside investors. Based on the framework they developed, significant progress has been made in the field. Yet recent evidence shows that dispersed ownership could be an
exception. As concentrated ownership prevails in most of the world, it needs to focus on the conflict between controlling shareholders and minority shareholders.

Concentrated ownership has its advantages and disadvantages, yet in most of the emerging countries, due to the weak legal institutions and prevalence of CMS, the disadvantages triumph.

Because of their controlling positions, controlling shareholders enjoy private benefits that are not shared with small shareholders, although there are arguments on the fairness nature of private benefits of control. The expropriation of private benefits by controlling shareholders is facilitated by group affiliation and internal capital markets, casting doubts on the early beneficiary role of business group and associated internal markets. While many researchers express concerns about the entrenchment effect of concentrated ownership on firm value, with CMS in particular, how concentrated ownership affects the level of tunnelling and private benefits needs to be explored.
CHAPTER THREE

Institutional Background

3.1 Introduction

China has achieved rapid economic growth in the past thirty years. As the economy expanded, the need for a stable financial system became obvious. China’s formal share markets, initiated and developed in the early 1990s under direct government involvement, are mainly for the reform of its SOEs (Xu & Wang, 1999; Sun & Tong, 2003). Following the creation of share markets, China steadily developed the institutional foundations for a well-functioning financial market. However, weak institutions like uncompetitive product markets, poor legal enforcement, state dominance of ownership and involvement have been bothering the Chinese share market (Lin, 2001). Thus, to show a clear picture of the magnitude of tunnelling and propping, a thorough review on the institutional background is crucial.

This chapter explains the institutional background following China’s economic reform and the setting-up of stock markets, with a focus on the (unique) institutions that impede the functions of the stock market and facilitate the tunnelling of controlling owners. An overview of the restructuring of state-owned enterprises and
partial privatisation is provided in Section 3.2, followed by Section 3.3 what describes the agency conflict associated with state ownership. Section 3.4 reviews the formation of equity division. Section 3.5 gives a thorough review on China’s legal institutions, followed by an evaluation of listing quota and its consequences in Section 3.6. A brief summary is offered in Section 3.7.

3.2 Reform of SOEs and Share Issue Privatisation

To understand China’s share market, the reform of SOEs is a good starting point, as the share market initially was set up to raise capital for financial-stricken SOEs. China adopted a gradual, trial-and-error strategy for its economic reform from 1978, the so-called “cross the river by touching the stone”. The reform of SOEs is no exception. First, the reform started with an expansion of enterprise autonomy, profit retention and then substitution of profit with taxes and economic responsible system while central planning and direct state ownership and control remained\(^{23}\). The reform improved productivity and efficiency to a certain extent (although quite limited), yet as argued by Qian (1996, p.428), “the main problem has been the narrow focus of providing contractual incentives for managers without fundamental transformation of government institutions, ownership structures, and corporate governance”.

\(^{23}\) See Tenev, Zhang and Brefort (2002) for the two-phase SOEs reform and institutional changes. See Ma (1998) for a description on the five-phase SOEs reform and different schemes adopted.
The unsuccessful restructuring of SOEs (large ones in particular) finally prompted the policy-makers to act in the field of property rights (ownership)\textsuperscript{24}. Since 1994, corporatisation and share ownership schemes have been adopted to diversify the ownership of SOEs\textsuperscript{25}. While small and medium-sized SOEs were privatised by selling to managers and employees, large SOEs were converted into limited liability share holding companies, and a few were selected under the quota system (see below) to be listed on the two stock exchanges. The process is called share issue privatisation (SIP). While there were more than one thousand listed firms by the end of 2005, overall state ownership of listed firms is still high.

Privatisation in China is quite different from the rapid and mass privatisation in Russia and other former Eastern European socialist countries. While mass privatisation, as shown by Black, Kraakman and Tarassova (2000), may be suitable for medium and small SOEs, it is not appropriate for large SOEs without effective government control. The reason being mass privatisation is highly likely to lead to massive self-dealing by those who are in control (controlling managers or shareholders) given a lack of good institutions is always the case in the initial transition from central planning to market economy. As a result, compared with

\textsuperscript{24} Initially all SOEs are 100 percent owned by either central or local governments.

\textsuperscript{25} During the economic reform, especially started from 1993, a legal framework of laws and regulations was gradually established.
managerial and political discretion under state ownership, extensive tunnelling by controlling entities collapsed the whole economy in Russia and former Eastern European socialist countries. As argued by Schmitz (2000), partial privatisation could be the optimal ownership structure from a perspective of incomplete contract. Because of the lack of a social safety net and a legal framework for corporate governance, he argues, for a transitional economy, a natural candidate of large investors is the government or government-owned institutions, such as state investment companies or state banks.

China adopted the path of partial privatisation, yet the presence of massing tunnelling under the concentrated state ownership seems to indicate that something went wrong.

Wei, Xie and Zhang (2005) argue that the Chinese SIP involves incremental primary capital-raising issues, while privatisation in other countries is mostly secondary share issues where proceeds go to the government as state revenues. Moreover, proceeds from additional primary issues are injected into the firm as fresh funds that are under controlling shareholders and management’s discretionary control. This provides extra opportunities for controlling shareholders and management to pursue activities that may not be consistent with value maximisation, such as unrelated diversifications, perquisites appropriation or channeling money to related entities that are controlled by the same owner. Liu (2006) argues that as the profitable segments are carved out
to be listed, the parent SOEs face pressing operating pressure, thus they take listed sectors as cash cows and tunnel funds as much as possible. He further indicates that this explains the pervasiveness of tunnelling in China although its privatisation route is less rapid and less massive compared with the former socialist regimes.

3.3 State Ownership and Agency Conflict

With the Chinese stock exchanges (SSE and SZSE) officially set up in the late 1990s, many state owned corporations were listed and shares publicly traded. Yet the nature of partial privatisation means that governments still maintain the majority ownership of many listed firms, this makes them play a direct and active role still in controlling those listed SOEs. Unlike private owners, the government may have political objectives other than maximising firm value, which could be very costly to economic efficiency. As argued by Qian (2000), the pursuit of non-value goals leads to a fundamental dilemma of government control of firms: maintaining the government’s control over firms entails high political costs because of political interference, and expanding managerial autonomy also induces high agency costs when managers tend to experience a lack of accountability. Clarke (2003) points out that while the State wants SOEs to be run efficiently, it still adds on other immediate purposes such as protection of urban employment, direct control of sensitive industries and politically motivated job placement.
Bai, Lu and Tao (2006) indicate that SOEs bear a multitask burden with a focus on maintaining social stability. At the same time, to smoothly reform debt-stricken SOEs, the State has to enhance its involvement and control in the share market. However, such state involvement creates a conflict of interest between the State as controlling shareholder and other minority shareholders. The worst thing is the State plays two roles at the same time: controlling shareholder and market regulator, which makes the protection of minority shareholders politically impracticable.

Apart from the high level of state involvement in the share market, the government extensively employs multi-layered pyramids to signal their credible commitment of decentralising decision rights from the government to the management, as indicated by Wang and Xiao (2005)\textsuperscript{26}. While the ownership and control gap is marginal, the long principal-agent chain induces severe agency problems. Despite state shareholding being high, its incentive effect is greatly reduced by the equity division to be discussed in the following section.

\textsuperscript{26} Cross-holding is rare in China while dual-class shares are prohibited by the Chinese Company Law.
3.4 Equity Division

The main task of corporatisation before IPO is to change a 100 percent SOE, owned by a state agency or a state-owned asset management company, to diffuse ownership to at least five shareholders, as required by the Chinese Company Law\textsuperscript{27}. The newly entered shareholders are normally SOEs or state-dominated companies. Shares held by the state agency and state-owned asset management company are usually called state-owned shares; shares held by the new shareholders are called (state-owned) legal person shares\textsuperscript{28}. The actual process of IPO in China involves only the subscription of new shares by the public individual and institutional investors, the so-called floatable shares. State-owned shares and legal person shares are not offered for sale to the public, nor are they traded on the two exchanges. The reason is that initially the government was concerned about the possible drainage of state owned assets if those shares were to be floated, although this may sound ridiculous now. After the IPO, the non-floating shares normally account for more than 60 percent of the total shares. Consequently, the whole ownership is split between non-floatable

\textsuperscript{27} According to the Company Law, it is legal for an IPO candidate to be 100 percent owned by a SOE or government agency. This exception only applies to some largest SOEs.

\textsuperscript{28} Most of new shareholdings may be ultimately owned by various state agencies or state-owned asset management companies.
and floatable shares despite all shareholders having the same cash flow rights and control rights\textsuperscript{29}.

It should be acknowledged that non-floatable does not necessarily mean non-transferable, since state and legal person shares can be transferred among various institutions subject to the approval of the CSRC, but the crucial point here is that after the transfer these shares still remain non-floatable and cannot be directly traded on the market\textsuperscript{30}.

Because controlling blockholders cannot float their shares in the future, furthermore when they transfer their shares, the transferable prices are based on the book value of the equity and are much lower than the price of floatable ones (Chen & Xiong, 2001). Accordingly, controlling owners are not subject to market pressure and monitoring (the drop of share price), thus their interests do not align with those of the minority shareholders. Instead, the focus of controlling shareholders is to increase the benefits of holding their shares, measured by higher book value (possibly through earnings management), private benefits of control (Clarke, 2003), or even a higher dividend payout (Lee & Xiao, 2004).

\textsuperscript{29} Theoretically, minority shareholders have proportional control rights according to their shares, yet in reality because they don’t vote, so their control rights can be assumed to be zero.

\textsuperscript{30} Some researchers use non-tradable instead of non-floatable. While these two words may have the same meaning in terms of securities investment, non-floatable is preferred given the fact that state and legal person’s shares are transferable among different institutions.
In short, while theoretically shareholders with high cash flow ownership have the incentives to increase firm value, which will benefit minority shareholders as well, the aligning effect of concentrated shareholding in China is notably weak because of the equity division. The worse thing is the weak law and legal enforcement in China can’t compensate minority shareholders after the tunnelling.

3.5 Legal and Institutional Infrastructure

A well-developed legal and institutional infrastructure is crucial to investor protection and financial development (La Porta et al., 1997). As to the law and the investor protection system in China, Allen, Qian and Qian (2005) compare China with country samples from La Porta et al. (1998). They indicate that almost half of the countries in the French-origin sub-sample, against which China compares favorably, have equal or better measures of creditor and shareholder rights. The overall evidence thus suggests that the majority of the La Porta et al. (1998) sample countries have better creditor and shareholder protection than China. Allen, Qian and Qian (2005) argue that the system of alternative mechanisms and institutions, such as reputation and relationship, plays an important role in supporting the growth in the private sector, the major driver in China’s spectacular economic growth.
Other sources show that China lags in its reform of the legal system and institutions. In its 2006 world competitiveness ranking, China’s ranking fell from 48 to 54. The World Economic Forum (2006) indicates that “by far the most worrisome development is a marked drop in the quality of the institutional environment, as witnessed by the steep fall in rankings from 60 to 80 in 2006, with poor results across all 15 institutional indicators, and spanning both public and private institutions”.

Based on the prevailing legal rules governing a hypothetical self-dealing transaction in 2003 in 72 countries in terms of information disclosure, transaction approval and litigation, Djankov et al. (2006) construct an anti-self-dealing index to address the legal protection of minority shareholders against self-dealing by controlling owners. The anti-self-dealing index is based on the scores of two parts: ex ante legal control of self-dealing (shareholders approval, information disclosure and so on) and ex post legal control of self-dealing (information disclosure, ease of proving wrong-doing and so on). The higher is the anti-self-dealing index, the better is the protection for minority shareholders. Table 3.1 presents data on the anti-self-dealing index and public enforcement based on the legal origin.
Table 3.1
Legal-Origin Based Anti-Self-Dealing and Public Enforcement Indexes

<table>
<thead>
<tr>
<th>Class of Legal Origin</th>
<th>Ex-ante Private Control of Self-dealing</th>
<th>Ex-post Private Control of Self-dealing</th>
<th>Anti-self-dealing Index</th>
<th>Public Enforcement Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average English Origin</td>
<td>0.58</td>
<td>0.76</td>
<td>0.67</td>
<td>0.3</td>
</tr>
<tr>
<td>Average French Origin</td>
<td>0.3</td>
<td>0.39</td>
<td>0.35</td>
<td>0.4</td>
</tr>
<tr>
<td>Average German Origin</td>
<td>0.28</td>
<td>0.5</td>
<td>0.39</td>
<td>0.46</td>
</tr>
<tr>
<td>China</td>
<td>1</td>
<td>0.56</td>
<td>0.78</td>
<td>0</td>
</tr>
<tr>
<td>Average Scandinavian Origin</td>
<td>0.22</td>
<td>0.55</td>
<td>0.39</td>
<td>0.55</td>
</tr>
<tr>
<td>Average Civil Law</td>
<td>0.29</td>
<td>0.43</td>
<td>0.36</td>
<td>0.43</td>
</tr>
<tr>
<td>World Average</td>
<td>0.37</td>
<td>0.53</td>
<td>0.45</td>
<td>0.39</td>
</tr>
</tbody>
</table>

Source: Adapted from Djankov et al. 2006 (p.51-53).

As can be seen from Table 3.1, the ranking of China in terms of an anti-self-dealing index is even better than that of average English common law origin (0.78 vs 0.67), let alone its own legal family,\(^{31}\) German civil law origin (0.78 vs 0.39), all civil law origin (0.78 vs 0.36) and the world average (0.78 vs 0.45). Particularly, China scores high in the ex ante private control of self-dealing. While surprisingly, China’s score on public enforcement is zero, the lowest in the world. It means there is no effective public enforcement in China. Yet a zero-score public enforcement in China may make its high anti-self-dealing index meaningless because the affirmation of wrongdoings by the CSRC is a first step for any private litigation.

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\(^{31}\) The legal origin of China is classified as German civil law origin.
Chen, Fan and Wong (2004) suggest that the quality of public governance is of the first-order importance in shaping the overall quality of corporate governance in China. The deficiency in public governance will directly or indirectly affect how current corporate governance practices evolve. Liu (2006) shows that corporate governance in China can be best described as control-based governance originating from administrative governance rooted in the constrained institutional settings. Thus, it is not clear how a well-developed corporate governance system will emerge in China.

As state shares dominate in China’s share market, it is impossible to build up quality corporate governance without an improvement in public governance and enforcement. As observed by MacNeil (2002), courts in China have a long tradition of protecting state interests and have little experience with private plaintiff-driven litigation. Chen (2003) shows that private enforcement of investor rights virtually haven’t existed in China so far, not because of lack of demand, but because courts have restricted investor law suits. Pistor and Xu (2005) collect evidence on China’s track record of private and public enforcement. They suggest that so far civil liability has little deterrence effect while public enforcement activities are thin and sanctions are benign.
La Porta, Lopez-de-Silanes and Shleifer (2006) examine how securities laws influence stock market development (in terms of new securities issuance) based on a 49 cross-country analysis. They illustrate that it is “laws mandating disclosure and facilitating private enforcement through liability rules” instead of public enforcement that benefit the markets most. The problem is in China there is no effective public or private enforcement at all. Zhang (2007) provides strong evidence of looting by controlling owners (state and individuals) in China and argues that while market mechanisms may work in the developed countries, they won’t work in China because a basic level of law and order in the corporate sector has not been established. He emphasises that an effective legal deterrence is the foundation of corporate governance in China.

3.6 Listing Quota and RPTs

Before 2001, access to listing in China’s stock exchanges was strictly administered by the central government through a share issue quota allocation. First, the State Planning Commission and the CSRC decided on a total quota amount. Then, the CSRC assigned a quota to the various provincial governments or other central industrial ministries. These, in turn, allocated a quota to IPO candidates in their own jurisdictions, mostly to the SOEs. The limited quota caused fierce competition
among the local IPO candidates, which resulted in rampant lobbying and bribing efforts.

Because Chinese Company Law required a to-be-listed firm to have positive earnings in each of the most recent three years, many money-losing SOEs needed to go through the process of financial packaging to qualify for an IPO. This process is literally to split a financial-stricken SOE into two parts: the “good” part (to be IPOed) and the “bad” part (to be the controlling group after the IPO of the “good” part). Ironically, the pre-IPO period always became the time of creating fake receipts and contracts to make up whatever profits that were needed to meet the requirements (Chen, 2003)\textsuperscript{32}.

In early 2001, the listing quota was abolished in favour of an expert-review and later investment bank sponsor system. However, the CSRC still tightly controls the number of IPO applications and the pace of IPO. Even under the new system, going public is still time-consuming and costly. The valuable listing status (shell) may provide an impetus for controlling owners to tunnel as much as possible as in the end the shell can still be sold.

\textsuperscript{32} For a secondary market offering, an issuer has to meet financial and other conditions specified by the CSRC such as a minimum return on equity threshold. These requirements have resulted in massive earnings inflation management (Jian & Wong, 2004).
Pistor and Xu (2005) argue that the quota system was a second-best choice in China in the 1990s, when lack of effective institutions and extreme information asymmetry between investors and issuer were the norm. Apart from solving the informational problems, the quota system also provides the local bureaucrats incentives to select qualified firms to be listed “by offering carrots to regional governors in the form of future quotas and by threatening with sticks in the form of delisting firms and forced bail-outs by the region in the case of underperformance” (p.199).

While praising its positive role in the partial success of China’s stock market, they warn that there is still a huge risk for local (regional) parties such as governors, bureaucrats, and company management to choose to cook the books rather than to disclose relevant information and share it with the regulator. This judgement is vindicated by Aharony, Wang and Yuan (2005), who confirm the extensive use of opportunistic related sales by controlling parents to boost earnings of IPO candidates. Still, the nature of the quota system means its adoption will create rent-seeking opportunities for the local bureaucrats (Shleifer & Vishny, 1998), like any other quota system employed in the transition economies. Thus the local bureaucrats have incentives to choose IPO candidates through which they can grab the largest rents.

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33 Wang, Xu and Zhu (2004) indicate pre-IPO window-dressing of accounting figures is one of the reasons for the post-IPO sharp performance deterioration.
A severe weakness associated with the quota system is the incomplete corporatisation. When a firm obtains a certain amount of quota, it will corporatise itself according to the amount of shares (quota) it can issue. This causes two major problems. First, the floating ratios are abnormally low and concentrated ownership naturally prevails in most listed firms. Second, many listed firms don’t even have a complete operating asset line or organisation structure. They either depend on their controlling owners for materials and energy supply or product sales. The ratio of executive’s duality is also high.

To some large SOEs, the limited quota can only make a small part of its effective production assets possible for listing. As a result, the independence of listed firms is seriously impaired and RPTs between controlling owners and listed firms are common. As Tenev, Zhang, and Brefort (2002, p.82-83) point out, “In China, the nature of the listing process in the past compounds the risks of conflicts between controlling and minority shareholders. Listing and parent companies are often in the same business sector and may compete with each other, have business transactions with each other, or share resources and functions. In some cases, the listed company may depend on the rest of the group for distributing products or supplying raw materials. Senior managers often work for both the listed and unlisted parts of the
group. This type of interdependence between listed companies and their parent firms creates fertile ground for agency problems”.

3.7 Summary

China, the fastest growing economy in the world, has made impressive economic progress since reforming its economy in 1978. While it is agreed that a strong securities market underpins the SOEs reform and economic development, some specific institutional weaknesses make further progress difficult. In contrast to those developed countries, especially common law countries like US, UK and Australia, state involvement in the economy and securities market is high, which induces a conflict of interest between the State as controlling shareholder and other minority shareholders. At the same time, China lacks a full set of effective public and private institutions. While developed economies rely more on disclosure regulations and private litigation to protect minority shareholders, China has to depend largely on the administrative regulations, which themselves are problematic and inefficient. In all, weak and premature institutions and legal enforcement can’t compensate minority shareholders ex post.

Ownership concentration is high in China yet the adoption of CMS is not common. Accordingly, large shareholders have the incentive to increase firm value. However,
the equity division considerably diminishes their wealth effect from aligning with minority shareholders; instead controlling shareholders engage in tunnelling for their private benefit.

Access to China’s share market is extremely costly and time consuming due to the listing quota system, which causes two problems: incomplete corporatisation and valuable listing shells. The former leads to an intimate operational, financial and managerial relationship between controlling owners and their listed parts, which facilitates the former’s tunnelling; the latter may encourage reckless tunnelling from controlling shareholders.
CHAPTER FOUR

Literature Review

4.1 Introduction

This chapter examines prior research in terms of tunnelling, propping and RPTs, in order to provide a foundation for developing the formal research hypotheses to be presented in Chapter five. Tunnelling has attracted enormous attention in recent years and there have been numerous demands for greater attention to be focused upon this issue following the 1997-98 Asian Financial Crisis and 2000 US corporate scandals. Recent academic studies have also focused specifically on the broadening scope of tunnelling and private benefits in corporate finance although there is still no satisfactory progress in propping, which seems to indicate the importance of this stream of research.

Section 4.2 expands on the concepts and definitions of tunnelling and propping. Consequences of tunnelling and propping are discussed in Section 4.3. Section 4.4 reviews the relevant studies on tunnelling using different proxies, with a focus on the use of RPTs, followed by a summary in Section 4.5.
4.2 Definitions of Tunnelling and Propping

Tunnelling is first referred to by Coffee (1999) as one of the tactics used to expropriate wealth from companies in the Czech Republic during its initial phase of massive privatisation. It mainly involves “the sale or transfer of a controlled firm’s products to the same controlling group as controlled the original firm” (p.23). Johnson et al. (2000b, p.22) firstly define tunnelling as “the transfer of assets and profits out of firms for the benefit of their controlling shareholders”. Following the definition, they present several legal cases displaying two types of tunnelling: operational tunnelling and financial tunnelling.

Operational tunnelling involves the use of self-dealing transactions to benefit controlling shareholders. Examples are “outright theft and fraud, asset sales, loan guarantees, excessive executive compensation, expropriation of invest opportunities” (Johnson et al. 2000b, p.22-23). Financial tunnelling includes “dilutive share issues, minority freeze-outs, insider trading, creeping acquisitions, or other financial transactions that discriminate against minorities” (p.23). Gilson and Gordon (2003) emphasise that financial tunnelling (via minority freeze-out) is the most value-destroying type of wealth expropriation, as future increases in firm value won’t
accrue to minority shareholders. Which type of tunnelling is prevalent in any country depends on its legal constraints. Controlling entities will always choose the way of tunnelling that benefits them most (or is the least costly). Through examining several legal cases in the US, Gilson and Gordon (2003) describe how the change of legal rules influences the way of extracting private benefits by controlling shareholders. In fact, they show that legal rules governing “self-dealing transactions, the sale of control and the freeze out of non-controlling shareholders” must be symmetrically balanced to restrict the level of expropriation from controlling shareholders, thus “it is plausible that the benefits to minority shareholders from reduction in managerial agency costs as a result of concentrated monitoring by a controlling shareholder exceeds the costs of the controlling shareholder’s private benefits of control” (p.61).

Coffee (2005) claims that financial tunnelling tends to occur in emerging economies with mass privatisation when there are almost no effective legal rules. Atanasov, Ciccotello and Gyoshev (2004) show how the change of acquisition rules in Bulgaria...

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34 As shown by the following chapters on operational tunnelling in China, operational tunnelling in a prolonged period is as destructive, if not more, as one-time financial tunnelling. The reason is firms may go bankrupted or delisted because of long-lasting operational tunnelling.

35 In China, it is rare for controlling shareholders to subscribe new equity offer. This contradicts the normal financial tunnelling view of dilution of minority shareholding. High ownership concentration, equity division and strict regulation on the control block sale in China may account for this exception.
made financial tunnelling disappear, while at the same time, controlling insiders started to engage in operational tunnelling.

In general, tunnelling is similar to the pursuit of perquisites by managers described by Jensen and Meckling (1976). However, given the underlying ownership structure is totally different, it is expected that the concept of tunnelling won’t cover all the agency problems such as overinvestment and installation of incompetent relatives (Johnson et al., 2000b). In fact, the concept of tunnelling is mostly used in research about concentrated ownership and emerging markets, while the concept of agency costs, because it’s originally derived from the separation of ownership and control, is always connected with managerial behavior.

Propping, known as reverse tunnelling in the literature, doesn’t have a very clear definition. Friedman, Johnson and Mitton (2003) firstly use it for the behaviour of providing private funds by controlling shareholders to financially-stricken firms. They show more leveraged pyramidal firms (a signal of commitment) had a smaller stock price drop in the Asian financial crisis because controlling shareholders will tried to save the company from bankruptcy to maintain their private benefit. Similar to their research, Bai, Liu and Song (2004) find that in China firms facing delisting risk earn positive abnormal market return, they conclude that public investors must anticipate potential propping from (incumbent or new) controlling shareholders. This
potential propping, however, may be a reflection of the value of the shell (listing status) given it is extremely hard to be listed in China especially for privately owned companies. In fact, the majority of the to-be-delisted firms changed their controlling shareholders (Bai, Liu & Song, 2004).

Riyanto and Toolsema (2004) develop a formal theoretic model in terms of tunnelling and propping. They declare that “tunnelling may justify the pyramidal structure only in the presence of myopic investors or in combination with propping” to keep the lower-level pyramidal firm from bankruptcy. Opposite to tunnelling, propping will always make minority shareholders better off at least those in the to-be-propped firms. This may be the reason why propping attracts less attention and research. Although propping is proved and witnessed by some anecdotal evidence, there is still a lack of credible direct empirical results.

4.3 Consequences of Tunnelling and Propping

4.3.1 Consequences of Tunnelling

Tunnelling has serious consequences. At a macro level, Johnson et al. (2000a) show that the effectiveness of protection of minority shareholder is more useful than the normal macroeconomic factors in explaining “the extent of exchange rate
depreciation and stock market decline” during the 1997-98 Asian market crisis. Morck, Wolfenzon and Yeung (2005) claim that in addition to the firm-level large shareholder entrenchment effect, pyramidal control of corporate assets by a few wealthy families will affect “rates of innovation, economy-wide resource allocation, and economic growth”, which they denote as “economic entrenchment”. Modigliani and Perotti (1997) also suggest that, in economies with poor legal enforcement, the value of control rights is generally greater than that which controlling shareholders could hope to gain by selling out shares to equity investors, which implies a small securities market. On the other hand, Shleifer and Wolfenzon (2002, p.15) show that “in countries with better investor protection, not only are more funds raised by firms, but these funds are also channelled to higher-productivity projects”.

Tunnelling affects liquidity adversely. As shown by Modigliani and Perotti (1997), when the legal rule fails to protect minority claims and tunnelling prevails, it will result in “scarce participation of small investors”, which may cause thin trading. Further, “poor liquidity, aggravated by unsuppressed insider trading36, increases required yields and depresses prices, further discouraging financing through security markets” (p.522). Brockman and Chung (2003) examine how investor protection affects firm liquidity between Hong Kong and mainland China. They demonstrate that compared to Hong Kong-based equities, the China-related equities have wider

36 Insider trading is a form of financial tunnelling according to the definition of tunnelling.
bid-ask spread and thinner depths. They conclude that China’s weak investor protection environment reduces the overall firm liquidity.

Morck, Yeung and Yu (2000) find that poor legal protection of public shareholders, even in developed economies, will decrease the information content in stock markets characterised by more market-wide stock price variation and synchronous stock price movements. They state that “economies that protect public investors’ property rights might discourage inter-corporate income-shifting by controlling shareholders” (p.258), which will make firm-specific risk-arbitrage more attractive and thus minimise synchronism in the stock returns.

Atanasov, Ciccotello and Gyoshev (2004) present evidence on how controlling shareholders used financial tunnelling to dilute and freeze out minority shareholders in Bulgaria. They show that from 1999 to 2001, around two-thirds of listed firms were delisted and the tender offers for minority shares were only about 25 percent of their intrinsic value. It can be seen how tunnelling can devastate the development of a capital market in a country.

Tunnelling and earnings management are twins. Leuz, Nanda and Wysocki (2003) assert that to keep outsiders from detecting their extraction of private benefits and take disciplinary actions, controlling insiders have incentives to manoeuver financial
reports in order to mask their diversion activities. They find higher levels of earnings management in countries with concentrated ownership and weak legal investor protection. At the firm-level, Kim and Cheong (2005) confirm the aggressive use of earnings management in group-affiliated firms by insiders in South Korea to “camouflage their self-serving behaviour”; Bertrand, Paras and Sendhil (2002) find widespread tunnelling via “manipulation of non-operating profits” among Indian group firms. Liu and Lu (2004) indicate that earnings management in China is mainly induced by controlling shareholders’ tunnelling activity.

Tunnelling affects the level of dividends paid. La Porta et al. (2000a) after conducting a 33 cross-country analysis show that agency approach rather than signalling is more related in explaining dividend policy around the world. They claim that firms pay dividends because their opportunities to steal (tunnelling) or disinvest are restricted by the legal protection of outside investors. Faccio, Lang and Young (2001) present evidence that investors are alert to potential expropriation by firms in Western Europe and Asia tightly affiliated to groups, and thus demand higher dividend payouts, although this doesn’t apply to firms in Asia in loosely affiliated groups.

While Jensen (1986) indicates paying cash dividends reduces the free cash flow controlled by managers and accordingly mitigates the agency problem, Lee and Xiao
(2004) find counterexamples to this traditional view. They find that “state dominant firms” in China tend to pay cash dividends while declining to subscribe to rights offerings. Moreover, the dividend payout ratio is higher after rights offerings. They argue that a cash dividend is actually used to tunnel. In fact, as large shareholders can only transfer their shares at a much lower market price, using receipts from rights offerings to pay dividends can be seen as selling a portion of non-floatable shares to minority shareholders at a market price. This contradicts the increase in shareholding by controlling owners in financial tunnelling to freeze out minority shareholders. Again, equity division plays an important role here.

Facing a high probability of tunnelling, outside investors, unless they are myopic, are expected to respond reasonably to protect themselves. Based on detailed information of shareholders in Sweden, Giannetti and Simonov (2006) find that investors, whether domestic or foreign, institutional and individuals, are unwilling to hold shares in firms where insiders have the potential to expropriate, proxied by higher ratio of control to cash flow rights, higher control premium and higher anti-takeover mechanisms. In contrast, those who are connected with insiders, such as “large domestic individual investors and individuals who are board members”, are more likely to invest in such firms. The reason is the connected parties can obtain private benefits (other than securities benefits by common investors) through insider
While there is evidence that investors care about the level of private benefits that controlling shareholders will extract and discount the share price ex ante (see Ehrhardt & Nowack, 2003; Claessens et al., 2002), yet because of information asymmetry and the degree of inefficiency of markets (prices won’t reflect the private information), common investors lack a strong capacity to discern, on a real-time basis, what private benefits are in fact being tunnelled out (Cheng, Rau & Stouraitis, 2006).

4.3.2 Consequences of Propping

Contrary to tunnelling, propping always benefits the market and minority investors. Friedman, Johnson and Mitton (2003) show that expectable propping from controlling shareholders under an unexpected shock can explain why emerging capital markets with weak institutions grow rapidly in certain periods (although vulnerable to any big, undesirable shock). Bae, Kang and Kim (2002) indicate that investors are willing to buy the securities of group-affiliated firms (despite possible higher expropriation) because they anticipate possible propping from the group. Bai,

37 Grishchenko, Litov and Mei (2003) and Durvev and Nain (2004) also show that insider trading is more likely to present in companies with lower level of investor protection.
Liu and Song (2004) find firms with severe financial problems in China earn abnormal positive market returns. Claessens, Djankov and Klapper (2003) study the bankruptcy possibility of 644 financially distressed firms in five East Asian countries during the 1997 Asian crisis period. They point to the likelihood of filing bankruptcy is lower for group-affiliated firms. This could be the indirect evidence of propping from (group) controlling shareholders.

It should be noted that financial resources transferred for propping may not come from controlling owners’ pockets. Obata (2003) documents that while pyramids facilitate propping for financially stricken firms, controlling insiders undertake this by transferring funds from lower layer firms in the control chain. Bae, Kang and Kim (2002) examine rescue acquisitions within Korean groups. They find that the stock price of group-affiliated firms declines when they announce bail outs of financially distressed firms in the group, while at the same time, the controlling shareholders benefit because the value of other firms in the group (where they hold higher shareholdings) increases. Bai, Liu and Song also claim that “how much to prop up depends on how much the controlling shareholders can tunnel in the future” (2004, p.3).

4.4 Studies on Tunnelling
Tunnelling by its nature is illegal, yet controlling shareholders always make it occur in a legal form. Thus it is difficult to detect and measure its extent and effect, especially in the short-term. Scholars have developed many proxies for measuring tunnelling or extraction of private benefits.

Given controlling shareholders normally hold large shareholding and obtain financial advantages, the pecuniary value implied in such large shareholdings should be higher than their proportional security benefits. One way of testing is to compare the price of sales of control blocks with that of outstanding minority shares to spot the premium and level of private benefits. Barclay and Holderness (1989) provide systematic evidence on the controlling private benefits. They discover an average 20 percent control premiums among blockholders in the U.S stock market. Further, the premiums tend to be larger as the fraction of the block increases. Using the same method, Nicodano and Sembenelli (2000) find an average premium of 27 percent in Italian corporations. They attribute the large premiums to the lack of legal constraints on large shareholders in Italy.

Given the prevalence of concentrated ownership, it is not surprising to find a broad range of high level of private benefits. Based on 393 transfers of controlling blocks

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38 Holderness (2003) argues that private benefits could also be negative if the costs associated with the shareholding exceed its benefits, as is always the case in financially distressed firms.
in 39 countries, Dyck and Zingales (2004) find that the value of control on average is about 14 percent of firm value (after the control transaction announcement), with a minimum minus 4 percent in Japan and a maximum 65 percent in Brazil\(^{39}\). They further indicate that a higher control premium is more associated with emerging economies and concentrated ownership.

However, there are some opposite results using a similar acquisition method. Faccio and Stolin (2004), studying 184 acquisition announcements by group-affiliated firms (which they can observe the change in value, both for the bidder and for all listed firms in the first layer of control) in Western European countries, show that controlling families on average do not get a disproportionate increase in wealth relative to what is implied by the families’ investment in the bidder. Using 15 intra-group equity transfers in Belgium during the late 1990s, Buysschaert, Deloof and Jegers (2004) find no evidence of expropriation of minority shareholders based on the fact that companies involved, whether their levels are high or low in the pyramid, realise significantly positive returns. Holmon and Knopf (2004) find limited evidence of tunnelling or bailing out for weak affiliated firms among mergers.

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\(^{39}\) Coffee (2001b) speculates that social norms fill the void given substantive corporate law and associated enforcement systems can’t fully explain the magnitude of variation in the cross-country private benefits of control.
in Sweden, a country where dual-class shares, pyramids and cross-shareholdings are in extensive use.\footnote{Sweden is frequently used as a notable example to display how extralegal institutions (e.g. social norms) contributes to the low level of expropriation given its concentrated ownership and wide control and cash flow rights gap (see Coffee, 2001b; Dyck & Zingales, 2004; Gilson, 2006).}

While dual-class shares are extensively used by controlling shareholders to enhance their voting control (Faccio & Lang, 2002), it provides a unique opportunity to measure the private benefits of controlling votes. Zingales (1994) shows that voting shares have about 82 percent premiums over the non-voting shares in the Milan Stock Exchange in Italy. He further asserts that high voting premiums are actually derived from large private benefits.

Nenova (2003) studies the voting value of control block shares based on 661 dual-class firms in 18 countries. She finds remarkable value premiums for voting shares, for example, the value of control-block votes is about one-quarter or more of firm value in Brazil, Chile, France, Italy, and Mexico, 48 percent in South Korea, while Scandinavian and Anglo-Saxon countries, on the other hand, display a value of less than 10 percent. What accounts for the cross-country variation? Nenova finds that “law enforcement, investor protection, takeover regulations, and corporate charter provisions together explain 68 percent of the systematic differences in the value of control-block votes” (p.348-349). Giannetti and Simonov (2006) claim that...
the estimates of private benefits of control in the studies (see Nenova, 2003; Dyck & Zingales, 2004) most likely provide only a lower bound of the benefit level.

Doidge (2004) examines how voting premiums caused by cross-listing affect private benefits of control from 1994 to 2001. He documents that 137 firms cross-listed in the U.S. have 43 percent lower voting premiums than non-cross-listed firms after controlling for firm and country determinants that affect voting premium. The effect is most pronounced in firms from the poorest investor-protected countries. They assert that cross-listing in the U.S stock market lead to lower private benefits of control.

While the small percentages of controlling pecuniary benefits in some developed countries seem reasonable, the enormous private benefits found in many of the developing and transitional countries without doubt questions the fairness of compensation for the controlling shareholders’ monitoring function and non-diversify risk⁴¹.

An efficient securities market is not born naturally. Black (2000) argues that a strong securities market must have two prerequisites: “minority shareholders receive good

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⁴¹ Atanasov (2005) shows that more than 85 percent of firm value is extracted as private benefits during the Bulgarian privatisation auctions. The fact that firms with a majority owner trade at 40-60 percent discount after going public reflects how investors concern about potential expropriation.
information about the value of a company’s business, and have confidence that a company’s insiders won’t cheat them out of most or all of the value of their investment” (p.1).

La Porta et al. (1997) after examining 49 countries in terms of legal investor protection and the deepening of capital markets, state “the differences in the nature and effectiveness of financial systems around the world can be traced in part to the differences in investor protections against expropriation by insiders, as reflected by legal rules and the quality of their enforcement” (p.1131).

Johnson et al. (2000b) show how legal tunnelling takes place and is protected by courts in developed civil law countries. Similarly, La Porta et al. (1997, 1998, 2000b, 2002) indicate that common law countries have broader capital markets (equity and debt) and higher firm values (using Tobin’s q) than German, Scandinavian and French civil law countries, as non-common-law countries are weaker in minority shareholders protection.

Kirchmaier and Grant (2005b) after examining four high profile acquisition cases in Germany and Italy demonstrate that financial tunnelling is still prevalent in Continental Europe even after the mandatory bid rule was introduced to eliminate it. They show that the mandatory bid rule was either evaded, or waived by the
As developing countries are normally weaker in the legal protection of minority shareholders, a minor progress in the law would probably result in dramatic effects. Atanasov, Ciccotello and Gyoshev (2004) document how the change of securities laws in Bulgaria, such as the abolition of favorable unilateral equity issuances by majority owners and the offer of minority shareholders’ veto power to disadvantaged tender offer, benefit minority shareholders. They note that the dilution of minority interests almost disappeared, while the tender offers began to show a premium of 50 percent compared to pre-change 75 percent discount on average.

Black, Jang, and Kim (2006) study the relationship between corporate governance and firm value among 515 firms in 2001 in South Korea. They demonstrate that large firms, when having at least 50 percent outside directors, as required by the change in South Korean securities and exchange regulations in 2000, experienced about a 40 percent increase in share price after controlling for measures of productivity and all other governance characteristics. They conclude that “this could be because outside directors may help to control self-dealing by insiders, which historically has been a

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42 This indicates that legal enforcement is more important than the law itself. In freeze-out financial tunnelling it is the offer price for the shares of minority shareholders that matters. Given the price of tender offer is normally determined by the previous averaged prices; it seems that regulations on price manipulation (such as wash sales and block trade) can mitigate the negative effect of financial tunnelling.
serious problem in Korea” (p.410).

Berkman, Cole and Fu (2005) show how four new securities regulations in China (for example, the restriction on loan guarantees to controlling shareholders, the requirement of independent directors on corporate boards, etc) increase shareholder wealth intended to limit the expropriation by controlling shareholders. They find that firms with weak corporate governance accrued about 16 percent in firm value.

Tunnelling can’t happen without RPTs. RPTs have been the target of concern by public accountants, market regulators, investors and other corporate stakeholders. The reason is there could be potential conflict of interest between a firm and its related parties.

Many countries have specific accounting standards on related party transactions. Globally, there is an IAS 24 Related Party Disclosure by the International Accounting Standards Board (IASB) that provides guidance on the disclosure of an entity’s financial position and profit and loss, affected by the existence of related parties and by transactions and outstanding balances with such parties. Apart from accounting standard setters, many countries’ market regulators (securities commissions and exchanges) also have regulations on RPTs. Although market regulators and accounting standard-setters may have their own scope and disclosure
criteria on RPTs, disclosure on the following is usually the norm: the nature of the relationship; transaction description including amounts; amounts due from, or to, related parties at year-end; the effects of any change in terms and manner of settlement.

Mak, Yeo and Yeo (2002) go through the accounting standards and exchange regulations on RPTs in the U.S, UK, Australia, Hong Kong and Singapore. They indicate that accounting standards on RPTs emphasise the identification and measurement of related party (transactions) while their disclosure (more relevant to financial statement users) is under-presented. Furthermore, there is a preference for “excessive reliance on enquiry of management” (p.20), thus, RPTs can be manipulated and concealed by management either for corporate purposes or because fraudulent activity is involved.

RPTs by nature are likely not to be arm’s length transactions. Thus, appropriate and timely disclosure of RPTs is considered a key for financial statement users and securities investors to make decisions and understand the impact of any transaction on the company, with any wealth transfers (tunnelling and propping) in particular.

In emerging markets, RPTs tend to be used for tunnelling due to capital constraints and close internal market connections among group members. As revealed by Coffee
(1999, p.34) “in transitional economies, affiliated business groups are the norm, meaning that intra-corporate transactions within such affiliated groups will be common. Yet such transactions can often be used to expropriate wealth from minority investors”. Bebchuk (2000, p.963) shows that “a controller that owns other entities that are engaged in lines of business complementary to those of the controlled company has a greater ability to extract value by engaging in self-dealing or the taking of corporate opportunities than a controller that does not own such entities”.

There are opposing views on the role of RPTs in resource allocation among business groups. In emerging economies, RPTs (as part of internal markets) may reduce transaction costs because of incomplete outside markets and thus efficiently fulfil the economic need of the firm (Khanna & Yafeh, 2005). Whether RPTs can be referred to as a conflict of interest or efficient transactions is mostly an empirical issue. However, more recent evidence shows the negative nature of RPTs particularly in emerging countries (see Section 2.6 in Chapter two).

Mak, Yeo and Yeo (2002) conclude that RPTs may “create agency problems of opportunism and shrinking, defraud the company, derive personal benefits through abuse of the office held and present false and misleading financial statements
(window dressing or earnings management) in an effort to maintain the prosperity or ensure the survival of the company” (p.21-22).

Although RPTs are a focus of world-wide concern, yet there are only some empirical examinations on their effect under the scenario of agency conflict. Gordon, Henry and Palia (2004) document that RPTs are extensively represented among the sample 112 American companies and firms with weaker governance settings (in terms of board characteristics, CEO pay-performance sensitivity, and outside monitors) report more RPTs and higher dollar value. In addition, they find a negative relationship between industry-adjusted returns and the number and dollar amount of loans to executives and non-executive directors. These findings are in line with RPTs as conflicts of interest rather than efficient transactions. Using 1,261 firms from Standard and Poor’s 1500, Kohlbeck and Mayhew (2004) find the similar corporate governance mechanisms and RPTs relationship. They show that related party loans (mainly for directors and executives) are a common type of RPT although it may be part of executives’ compensation package.

It is expected there will be more occurrences of RPTs with larger values in emerging economies due to market inefficiency, complex ownership and organisational structures and weak legal institutions. La Porta, López-de-Silanes and Zamarripa (2003) examine the benefits of related lending (firms and banks have the same owner)
using a newly assembled dataset for Mexico during the 1990s. They find that related lending is present in 20 percent of commercial loans and are on more favourable terms than arm’s-length lending. Moreover, related loans are much more likely to default and, when they do, have considerably lower recovery rates than unrelated ones. They conclude that the evidence for related lending in Mexico is a manifestation of expropriation by controlling owners. Charumilind, Kali and Wiwattanakantang (2006) provide similar evidence for Thailand. They show firms with connections to banks and politicians have more access to long-term loans and need less collateral than those without such ties. The crony lending, they argue, may contribute to the high level of non-performing loans and banking collapses during the Asian financial crisis.

Bertrand, Paras and Sendhil (2002) show that there exists a significant amount of tunnelling among group-affiliated firms in India through non-operating transactions. Cheng, Rau and Stouraitis (2006) study 375 filings of RPTs between Hong Kong listed firms and their controlling shareholders from 1998 to 2000. They find compared with arm’s length transactions, firms earn significant negative excess return at the time of RPTs announcement and in the 12-month period after the announcement. They conclude that these are in line with the tunnelling in firms with concentrated ownership, especially firms whose ultimate controlling shareholders are in mainland China. However, the use of RPTs for propping is not supported.
Cheng et al. (2006) apply the same event study methodology to the RPTs between public firms and their controlling state-owned shareholders in mainland China. They find an inverse relationship between the State ownership shareholding and excess returns at the announcement of RPTs, and a significant value loss when firms conducting RPTs with controlling SOEs compared with non-SOEs. Jian and Wong (2004) provide strong evidence on Chinese group-controlled companies’ earnings management and tunnelling through related party sales and lending. They also show that funds are appropriated by controlling shareholders when firms have more free cash flow.

Berkman, Cole and Fu (2006) analyse the related party loan guarantees given to controlling shareholders in Chinese public firms. They show that firms where the State is the controlling shareholder, smaller firms and firms with high growth, are less likely to provide related loan guarantees. They further indicate that Tobin’s q, profitability and dividend yield are significantly lower while the leverage is significantly higher in firms that issued loan guarantees.

4.5 Summary
The increasing attention to tunnelling all over the world may be due to increased interest in investor protection and improving efficiency of securities markets, driven to some extent by the growing importance of corporate governance, occasional financial crises and corporate scandals.

While some studies show tunnelling can’t be constrained by courts in developed, especially Western European countries, mounting evidence (direct and indirect, individual country and multinational) indicates that tunnelling is prevalent and private benefits of control are massive in emerging economies characterised by poor legal investor protection and concentrated ownership. Yet, despite the popularity of the concepts, direct, large-sample and systematic empirical studies on tunnelling and propping (propping in particular) are needed. Tunnelling research on an individual country will provide an in-depth view on the interaction of local institutions and (the method of) tunnelling and propping. This leads to the hypothesis development, discussed in Chapter five.
CHAPTER FIVE

Hypotheses Development

5.1 Introduction

This chapter develops and explains the rationale for the research hypotheses used in this study. Section 5.2 develops tunnelling hypotheses considering the role of controlling shareholders, control rights and other large blockholders. At the same time, the effects of ownership type and controlling mechanism on tunnelling are also examined. The development of propping hypotheses is presented in Section 5.3. Section 5.4 explores how tunnelling and propping affect firm performance and market valuation. A summary is given in Section 5.5.

5.2 Tunnelling Hypotheses

As discussed in previous chapters, controlling shareholders have the incentive to expropriate minority shareholders under weak legal institutions or when they exert their control through less cash flow rights (La Porta et al., 2002; Claessens et al., 2002). In China, ownership (accordingly control rights) is highly concentrated. On average, the largest shareholder holds around 40 percent of total shares (Xu & Wang, 1999; Jian & Wong, 2004; Liu & Lu, 2004; Bai et al., 2004; Liu, 2006). Because of the huge transferable price disparity between floatable and non-floatable shares, the
interests of controlling owners are not aligned with those of minority shareholders. This decreases the incentive effect of large shareholding and induces the entrenchment effect\textsuperscript{43}. At the same time, the weak legal systems in China provide little protection for minority shareholders. As shown by Zhang (2007, p.756), “shareholders’ right to take on private securities actions is substantially restricted by a judicial interpretation adopted by the Supreme People’s Court. … only securities actions against misrepresentation are permissible ”. He further states that in China, tunnelling of funds doesn’t violate the criminal law if there are no individuals directly benefiting from the transfer, which may account for the massive misappropriation by controlling shareholders, state owners in particular.

Apart from the equity division and weak legal system, the entangled operational and managerial relationship between controlling owners and their listed sectors facilitates the transfer of assets and profits (Tenev, Zhang & Brevort, 2002). As found by Bai et al. (2004), firms in China, with the CEO also being the chairman or vice chairman of the board, account for more than 31 percent of listed firms in 2001. They discover that CEO duality has a negative impact on firm value. Bebchuk (2000, p.963) shows that “a controller that owns other entities that are engaged in lines of business

\textsuperscript{43} The equity division puts public investors in a worse position than the actual controllers in making corporate policies and disposing of firms’ profits and assets. On April 29, 2005, the CSRC released “Notice on Related Issues about Experimental Reform of Equity Division”. It is about how non-floatable shareholders compensate floatable shareholders and acquire the right to float.
complementary to those of the controlled company has a greater ability to extract value by engaging in self-dealing or the taking of corporate opportunities than a controller that does not own such entities”. Bertrand, Mehta and Mullainathan (2002) indicate the pervasive use of profit transfer to firms where owners have higher cash flow rights among Indian business groups. La Porta, López-de-Silanes and Zamarripa (2003) examine the benefits of related lending (firms and banks have the same owner) in Mexico during the 1990s. They find that cheap bank loans (lower interest or less collateral) are offered to related firms. They conclude that related lending in Mexico is a manifestation of expropriation by controlling owners. Charumilind, Kali and Wiwattanakantang (2006) provide similar evidence on the looting of banks in Thailand. The crony lending, they argue, may contribute to the high level of non-performing loans and banking collapses during the Asian financial crisis.

During the pre-IPO process in China, controlling shareholders support the listing firms with their most profitable assets. Thus after the IPO, controlling shareholders will try to tunnel as much as possible (considering the debt-stricken parent SOEs and the capital-affluent listed sector because of IPO) (Liu, 2006). Controlling shareholders have three ways to extract their private benefits as argued by Gilson and Gordon (2003): operational tunnelling (self-dealing transactions), financial tunnelling and sale of control blocks. In China, selling control blocks is rare and
mostly occurs in bad-performing firms where controlling positions of large shareholders are insecure (Bai et al., 2004). Furthermore, the CSRC has a tight control on the transfer of (state-owned) control blocks\textsuperscript{44}; also as large shareholding is non-floatable, it will be beneficial for controlling owners to dilute their shares at market price rather than buy back minority shares at the market price. In other words, financial tunnelling actually doesn’t exist in China. Thus, the least cost way of extracting private benefits for controlling owners in China is self-dealing transactions.

The presence of non-controlling blockholders is common in China because of a low floating ratio (Xu & Wang, 1999; Liu & Lu, 2004; Bai et al., 2004; Liu, 2006). However, non-controlling blockholders find it hard to challenge the position of controlling shareholders. Chen, Fan and Wong (2004) indicate that although the proportion of independent directors is high in China’s listed firms\textsuperscript{45}, controlling shareholders literally control the board. As indicated by Shleifer and Vishny (1997)

\textsuperscript{44} The CSRC and the State-owned Assets Supervision and Administration Commission (SASAC) have a tight control on the changing hands of controlling block ownership through regulations on the tender offer (the trigger line is 30 percent shareholding) and red tape approval procedures. Initially, these regulations are adopted to avoid the loss of state-owned assets.

\textsuperscript{45} For example, Bai et al. (2004) find that outside directors (directors are not in management) account for around 71 percent on the board. The ratio is considerably high although outside directors may not be truly independent. This is the reason why listed firms in China score highly on the cross-country ranking of board independence, yet like the Chinese law, it is just on the book.
controlling shareholders tend to pursue private benefits that do not accrue to minority shareholders when they gain nearly full control of the corporation.

Under concentrated ownership, controlling shareholder (either state or family) is the major related party. In China, because of incomplete corporatisation, listed firms depend greatly on their controlling parents for a series of operational activities, which may justify the high level of RPTs. However, RPTs may serve controlling owners’ tunnelling purpose as well. In this sense, the RPTs conducted must be unfavourable to listed firms while favourable to controlling owners. Whether RPTs are favourable or unfavourable is assessed from the perspective of listed firms.

Joh (2003) demonstrates that in South Korea, controlling family owners, even with small ownership, appropriate firms’ resources. Cheung, Rau and Stouraitis (2006) show that Hong Kong listed firms whose ultimate owners are in mainland China are more likely to have tunnelling-purpose RPTs. Jian and Wong (2004, 2006) present concrete evidence on the extensive use of RPTs between controlling owners (local government in particular) and their listed sectors for opportunistic propping and tunnelling in China. Thus, the following hypotheses are proposed. As the hypotheses are either directly or indirectly related to firms’ ownership (control) structures, they are all under the umbrella of Hypothesis 1.

46 All proposed hypotheses in the project are the alternative hypotheses instead of null hypotheses.
**Hypothesis 1a:** Firms will report more unfavourable RPTs than favourable RPTs.

**Hypothesis 1b:** The level of unfavourable RPTs with controlling shareholders is higher than that with other related parties.

**Hypothesis 1c:** Firms with controlling shareholders will report more unfavourable RPTs.

Tunnelling is illegal by its nature. To smoothly transfer assets and profits out of firms they control, the shareholders must be in a controlling position. Holding more control rights gives more freedom for controlling owners. In China, cash flow rights are not separated from control rights through CMS, yet the equity division greatly lessens the incentive effect of high cash flow rights held by controlling owners. In addition, the equity division makes takeover from the secondary market impossible. Thus, the higher the control rights in the hands of controlling shareholders, the higher is their motivation to tunnel. La Porta et al. (1999, 2002) claim that 20 percent or even 10 percent of control rights would be enough to have effective control of a firm, especially a large firm in developed countries. Yet, in emerging countries, controlling owners normally hold higher control rights to secure their controlling power and maintain their private benefits.

Controlling shareholders are not always alone. In fact, La Porta et al. (1999),
Claessens, Djankov and Lang (2000) and Faccio and Lang (2002) find that in their cross-country firm samples, on average 25 percent, 32 percent and 45 percent of firms with controlling shareholders have another owner with at least 10 percent of voting rights.

The literature agrees on the positive role of non-controlling blockholders although not inclusive. Theoretically, multiple blockholders may compete for corporate control (Bloch & Hege, 2001) or monitor the controlling shareholder (Pagano & Roell, 1998), yet they may also form controlling coalitions to share private benefits (Bennedsen & Wolfenzon, 2000; Gomes & Novaes, 2001). Maury and Pajuste (2005) prove that high contestability of other blockholders with the largest shareholder, increases firm value, while low contestability decreases firm value. Empirically, they show that Finnish firms have higher value with more equally distributed voting rights among blockholders. Lins (2003) proves that in emerging markets large non-management block shareholders contribute to firm value in a positive way.

Whatever roles they play, assuming the amount of private benefits is given, the share of private benefits by controlling shareholders may be smaller, although their share could still be higher than that of non-controlling blockholders. As argued by Bai et al. (2004), in China there is no active corporate control market, however, other large
shareholders “are obstacles to tunnelling activities by the largest shareholder because these shareholders have incentive to monitor and restrain the largest shareholder”, also they “have an incentive to monitor the management directly” (p.607). In fact, they find that high concentration of non-controlling shareholding (measured by the natural logarithm of the sum of squares of the shareholdings of the 2nd to the 10th largest shareholders) has a positive effect on firm value in China. Wang, Xu and Zhu (2004) demonstrate that in China, the degree of ownership concentration by several large shareholders is positively correlated with operating performance, yet a concentrated ownership structure among the large blockholders (high Herfindahl index) is bad for firm performance. They suggest that in a country with weak legal and regulatory systems like China, “having a few large shareholders on a relatively equal footing may improve corporate governance and prevent misbehaviour by a dominant shareholder” (p.485). Accordingly, the following hypotheses are proposed:

**Hypothesis 1d:** The presence of other blockholders leads to a lower level of unfavourable RPTs with controlling shareholders.

**Hypothesis 1e:** There is a positive relationship between control rights and unfavourable RPTs with controlling shareholders.

La Porta et al. (2002) prove that controlling owners will expropriate less when firms under their control have better investment opportunity. Friedman, Johnson and
Mitton (2003) and Lemmon and Lins (2003) argue that low future returns (like in the financial crisis) will make tunnelling less marginally costly. Implicitly, there will be less tunnelling when future returns are high. Durnev and Kim (2005) also justify the conclusion that controlling shareholders of firms with more profitable investment opportunities divert less for private gains. Some other researchers also provide indirect tunnelling evidence based on the equity price change during the Asian financial crisis47.

Given China’s quarter-long robust economy, it is hard to test tunnelling in adverse macro-economic conditions, yet it is easy to prove it at the firm-level. In China as cash flow ownership is concentrated in the hands of controlling shareholders, they will always benefit from cash dividends if funds they can divert have high returns. In other words, they tend to tunnel less when there are better investment projects48. Thus, the following hypothesis is proposed:

**Hypothesis 2**: Firms will report less unfavourable RPTs when they have better investment opportunities.

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48 After examining an extensive sample of RPTs announcements between 1998 and 2004, Peng, Wei and Yang (2006) indicate that tunnelling RPTs (RPTs that have negative announcement effects) tend to occur in firms in good financial conditions.
The adoption of gradual privatisation in China means that most listed firms could be owned directly or indirectly by the government in the initial stage. In the spirit of ultimate ownership and control of public firms, suggested by La Porta et al. (1999) and others, Liu and Sun (2003) discover that, by the end of 2001, approximately 84 percent of listed firms are ultimately controlled by the government. Among the firms ultimately controlled by the government, the majority of them (about 90 percent) are owned indirectly, mainly through 100 percent SOEs (39 percent) or partial SOEs (50 percent).

Empirical evidence shows that state ownership is detrimental to firm value via different channels. Chen (2001) examines the relationship between ownership structures and firm performance (measured by Tobin's q) in 434 manufacturing firms in China in 1997. He suggests that State shares, whether they are controlled by a state agency, a state owned asset management company or SOEs, lead to lower firm value, while domestic legal person and managerial shares have a positive effect on firm performance.

Sun and Tong (2003) evaluate the performance changes of 634 partial privatised state owned firms during 1994–1998. They find that while share issue privatisation is effective in improving SOEs’ earnings ability, real sales and productivity, it does little to improve profit returns and leverage. In addition, state ownership is found to
have a negative impact on firm performance. Bai et al. (2004) investigate multiple external and internal governance mechanisms and their effects on firm value in China from 1999 to 2001. They discover that government as the largest shareholder has a negative effect on firm value. Wei, Xie and Zhang (2005) study how ownership structure affects firm value across a sample of 5284 firms (originally SOEs) between 1991 and 2001. They find that both state and institutional shareholdings are negatively related to Tobin’s q although the relationship is non-monotonic. Tian and Estrin (2005) find an overall negative effect of government shareholding on firm value (although not monotonic) in China based on a comprehensive panel data sample.

Based on 292 fillings of RPTs during 2001-2002 with controlling SOE and non SOE owners, Cheung et al. (2006) find that the announcements of RPTs with state shareholders lead to a larger value loss when compared with non-state parties. The median value loss is economically significant and accounts for 34 percent of the value of the connected transactions. They find incidences of propping by state owners as well. However, they show that tunnelling transactions dwarf beneficial transactions in terms of number and value. Accordingly, the following hypothesis is proposed:

49 Wei, Xie and Zhang (2005) make no difference between legal person (non-floatable) shares and other floatable institutional shares like shares owned by mutual funds, this could be the reason why they find a negative role of institutional shareholding.
**Hypothesis 3:** State-owned firms will report more unfavourable RPTs.

How controlling shareholders exert their control is important and relates to the level of tunnelling. As argued by Bebchuk, Kraakman and Triantis (2000), control via pyramids, cross-holding and dual-class shares has the potential to create larger agency conflicts than otherwise. While the above-mentioned studies confirm the prevalence of state ownership, they didn’t show if there is any divergence between cash flow ownership and control rights among government owners. Wang and Xiao (2005) show that by the end of 2004, more than 70 percent of listed firms in China were ultimately owned and controlled by the government. While most of them (94 percent) are pyramidally controlled yet mainly via 100 percent SOEs, thus the deviation of control rights from cash flow rights is as minor as 3.63 percent. In addition, they show that for state-controlled firms, longer controlling chain or higher divergence of ultimate control and cash flow rights would reduce more political costs than marginally increased agency costs, thus possibly increasing firm value.

While Wang and Xiao (2005) provide a good description of how the State controls the firm, they don’t show how families and individuals control firms. Fan, Wong and Zhang (2005) check the pyramidal ownership structure of newly listed firms in China between 1993 and 2001. They indicate that both local government and private
owners employ pyramids, yet the mean ratio of cash flow to control rights of the
largest owner is 0.96 for government-controlled firms (similar to 0.91 obtained by
Wang & Xiao 2005), while it is 0.54 for privately controlled firms 50 (the cash flow
rights leverage is 1.85), indicating the adoption of controlling minority structures in
private firms. They further show that pyramidal structures are mainly used by local
governments to credibly decentralise the decision rights to firm management due to
the legal constraints on the transfer of state ownership 51; to private firms, controlling
owners use pyramids because of lack of access to external funds. It can be seen that
while pyramidal structures enable controlling owners to expropriate less costly, it
works differently in state-owned firms and private firms.

Bai et al. (2004) show that around 80 percent of the listed firms in China have a
parent company. A listed firm affiliated to a group complicates its operational and
managerial relationship with the group members and the overall transparency is
reduced. On the contrary, when a listed firm is controlled by a government agency or
other non-profit organisations, it will operate more independently. Thus the
controlling shareholder will have less incentive and capacity to divert large amounts
of cash from firms. Gilson (2006, 1658) claims that “… a firm’s industrial

50 The result should be interpreted with caution. The reason is they use year 2001 as the starting point,
then trace back to the IPO year. Yet year 2001 is the first year listed firms are required to disclose
their ultimate ownership structures in annual reports, thus the disclosure is coarse and incomplete.

51 Conflict between inside managers and minority shareholders may dominate as the pyramidal chain
increases.
organisation may influence the effectiveness of different monitoring systems. Large private benefits of control require a mechanism to move large amounts of funds. The easiest way, short of simple theft, is to use transfer pricing favorable to the company in which the controlling shareholder has the larger equity interest”.

Bertrand, Paras and Sendhil (2002) provide evidence of extensive tunnelling via non-operating transactions in Indian business groups. They show that high cash-flow-rights firms are more sensitive to shocks that affect low-cash-flow-rights firms instead of their own industry shock, indicating resources transferred to high-layer firms in the pyramids. Tunnelling evidence is also found among corporate groups in South Korea by Bae, Kang and Kim (2002) and Joh (2003). Apart from operational tunnelling in South Korea, Baek, Kang and Lee (2006) find evidence of financial tunneling by group owners as well. They show that controlling group owners manipulate the price of equity-linked private securities issues to maximise their private benefits based on their different cash flow rights among business members. Obata (2003) studies 1048 group and non-group firms in East Asian countries during the 1990’s. He shows that positive shocks experienced by the low-cash-flow-rights bottom firms increase valuation of high-cash-flow-rights top firms in the same group, while negative shocks occurred on the high-cash-flow-rights top firms decrease the valuation of the low-cash-flow-rights bottom firms. He concludes that cash flow is tunneled to top firms from bottom firms and top firms are propped up at the cost of
the bottom firms. Jian and Wong (2004) document that group-affiliated firms in China are prone to tunnelling activities. Accordingly, the following hypothesis is proposed:

**Hypothesis 4**: Pyramid-controlled firms will report more unfavourable RPTs.

### 5.3 Propping Hypothesis

Theoretically, controlling owners may use their private funds to prop up bad-performing firms to maintain the large private benefit of control (Friedman, Johnson & Mitton 2003). Riyanto and Toolsema (2004) prove that tunnelling may justify a pyramidal structure only if investors are myopic or it is combined with propping. Friedman, Johnson and Mitton (2003) show that debt issuance poses a credible commitment for controllers to prop the firms when faced with a moderate adverse shock\(^\text{52}\), yet “direct evidence on the size and nature of propping would be helpful” (p.748). Polsiri and Wiwattanakantang (2004) provide similar propping evidence in Thailand after the financial crisis. They find that firms that belong to large business groups more often have restructuring activities than non group firms, such as expansion, executive turnover and dividend cuts. Additionally, debt increases the probability of operational restructuring among group members (low-layer firms

\(^{52}\) When there is a serious adverse shock, they speculate that controlling owners may give up financially constrained firms, thus more tunnelling is possible.
along the control chain in particular), whether they are controlled in a pyramid or not. They conclude that the results are consistent with the view that debt increases the incentives to prop. Claessens, Djankov and Klapper (2003) study the bankruptcy probability of 644 financially-distressed firms in five East Asian countries during the financial crisis. They discover that the likelihood of bankruptcy filing is lower for group-affiliated firms. Obata (2003) shows that group affiliation has a positive effect on the valuation of financially distressed (top level) firms, but only in countries with poor legal investor protection. These researches provide the indirect evidence of propping by controlling owners.

In China, when a firm sustains negative profit for two consecutive years, it will be given ST. The ST firms are under strict regulation and trade restrictions. Bai, Liu and Song (2004) find that firms, when designated as ST (typical bad news), earn abnormal high returns (around 32 percent). They attribute this to propping by controlling shareholders (white knights) to support and avoid the bad-performing firms being delisted. As listing status is valuable in China, their results are no

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53 In China, according to the regulations from the CSRC, a listed firm will be classified as an ST firm (special treatment) if it has suffered a loss for two consecutive years. The daily quotation fluctuation for a *ST firm is limited to 5 percent of its previous closing price. Its midterm reports must be audited. A listed firm will be temporarily delisted if it sustains losses for three consecutive years and it will only be traded on Fridays with a maximum 5 percent upside limit to the previous Friday’s close, but no restriction on the downside, temporarily delisted firm will be delisted if it is not profitable in its half-year financial report or it is profitable in the half-year but not profitable in the final-year financial report.
surprise. They further note that the market-adjusted after-ST returns decrease with increasing leverage ratios of ST firms, indicating a negative role of debt in propping. While this finding is different from that indicated by Friedman, Johnson and Mitton (2003), the reason could be that in China it is normally new entrants who are going to prop up rather than the original controlling owners. Cheung et al. (2006) find limited evidence of propping (compared to tunnelling) by controlling SOEs shareholders through beneficial RPTs with listed firms. Peng, Wei and Yang (2006) present similar propping evidence via RPTs among firms in bad financial conditions. Jian and Wong (2006) discuss the propping role of related party sales in China. They indicate that controlling shareholders manipulate related party sales with listed firms to avoid negative profits to maintain listing status, or to inflate performance (return on equity) to qualify for rights issues. As a result, the following hypothesis is proposed:

**Hypothesis 5**: Firms in financial distress will report more favourable RPTs.

### 5.4 Value Effects of Tunnelling and Propping

How tunnelling and propping affect firm performance and valuation is important.

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54 While Jian and Wong (2006) classify the use of related party sales as propping, the sales could be some fictional figures in the form of accounts receivables on the book. Thus, there is actually no transfer of assets or profits.
There are mixed results on the valuation effect of expropriation. Morck, Shleifer and Vishny (1988) find the entrenchment effect of medium-level managerial equity ownership (5-25 percent) on firm value while not of profit rates. After analysing 473 of the largest firms in five major European economies over a ten-year time period, Kirchmaier and Grant (2005a) show that dominant shareholders (those who own 50 percent or more of voting rights, individually or as a group) negatively affect long-term share price performance. Thomsen, Pedersen and Kvist (2006), based on 276 of the largest firms in the European Union from 1988 to 1998, show that blockholder ownership in Continental Europe has a negative effect on future firm value and accounting performance although not vice-verse. Ehrhardt and Nowak (2003) find a significant long-term underperformance among German IPO firms with dual-class shares. They argue that the reason could be that myopic minority shareholders can’t anticipate ex ante expropriation. Similarly, Cheng, Rau and Stouraitis (2006) argue that investors can’t discount firms before tunnelling, although they revalue firms when expropriation occurs. Bertrand, Paras and Sendhil (2002) indicate that profits of low-layer firms are transferred to high-layer firms along the pyramidal chain in Indian business groups. Baek, Kang and Park (2004) show that group firms in South Korea with concentrated ownership in the hands of controlling family shareholders experience larger share price drops. Jian and Wong (2004) document that Tobin’s q and market-to-book ratio are lower for firms with related
party lending in China. Berkman, Cole and Fu (2005) show that new regulatory provisions of the CSRC intended to protect minority shareholders from expropriation, significantly increased firm value, especially those of firms with weak corporate governance. Therefore, the following related hypotheses are developed:

**Hypothesis 6a:** Firms reporting more unfavourable RPTs have lower operating performance.

**Hypothesis 6b:** Firms reporting more unfavourable RPTs have lower market value.

When firms are in financial distress, as private benefits of control are huge, controlling shareholders may temporarily prop up bad-performing firms via favourable RPTs, thus it is expected that these kinds of firms have higher market values. Friedman, Johnson and Mitton (2003) show that more leveraged pyramid firms had a smaller stock price drop during the Asian financial crisis because investors anticipated propping from controlling shareholders. Cheung et al. (2006) provide limited evidence on the propping effect in listed firms in China. They show firms entering into potentially beneficial RPTs with SOEs (based on their subjective classification), earn significantly positive CARs of 2.6 percent, equivalent to a median value creation of YUAN 98 million (USD 12 million). Peng, Wei and Yang (2006) examine the effect of various RPTs announcements during 1998-2004 in China. They notice that when firms are in a bad financial condition, the various RPTs
announcements tend to have positive market reactions. Therefore, the following related hypotheses are developed:

**Hypothesis 7a**: Firms reporting more favourable RPTs will have higher market value.

**Hypothesis 7b**: Firms reporting more favourable RPTs will have higher operating performance.

**Hypothesis 7c**: Firms in financial distress reporting more favourable RPTs will have higher market value.

### 5.5 Summary

This chapter identifies a series of hypotheses which illustrate how the presence of controlling shareholders, other blockholders, control mechanisms, ownership type, control rights concentration and investment opportunity explain the observed level of tunnelling and propping. All these hypotheses are centred on research questions one and two raised in Chapter 1. Hypotheses are also developed on how tunnelling and propping affect firm performance and valuation. They are about research question three. Rationales for the various hypotheses are based on mounting evidence about ownership structures, governance mechanisms, control rights, firm valuation and
direct studies examining the negative role of various RPTs and their effects in the Chinese context.
CHAPTER SIX

Research Design and Methodology

6.1 Introduction

This chapter outlines the research methods used to test the hypotheses identified in Chapter 5. Section 6.2 presents the sample selection criteria. Section 6.3 explains the definition and measurement of variables. Section 6.4 provides basic regression models for empirical measures of tunnelling and propping and their valuation effects. A summary of the chapter is provided in Section 6.4.

6.2 Sample Selection

The sample consists of all A-share firms (firms issuing A and B shares, A and H shares are also included) listed on the SSE and SZSE during the 2001-2004 period. Pure B-share firms are excluded because the IAS are applied, which are different from Chinese Generally Accepted Accounting Principles. Financial companies are excluded as well given their financial conditions are non-comparable with non-financial firms. Firms must be listed for one year to be included in the sample in each year. Firms delisted in any part of the period are excluded. Firms with missing
or unreliable data on ownership, RPTs and financial variables are also excluded\textsuperscript{55}. The sample period is chosen because starting from year 2001, listed firms are required to disclose their ultimate ownership (although incomplete), accordingly information is available on the identity of ultimate ownership, controlling mechanisms and controlling rights. Year 2004 is chosen because in 2005 the CSRC initiated a plan to address the equity division problem, which may change the incentives of controlling owners. Year 2004 is also the latest time when the research started.

The RPTs data are initially extracted from the \textit{China Stock Market and Accounting Research Database} (CSMAR), issued by Shenzhen GTA Technology Company Ltd. The CSMAR is one of the most commonly used databases for China’s stock market research, and has been used by Sun and Tong (2003) and Jian and Wong (2006) among others. Yet the RPTs data are found incomplete and there are some inconsistencies. Hence, the RPTs data are cross-checked with the corresponding sections in firms’ annual reports. Annual reports, financial data and ownership structures are taken from Shanghai JuYuan Data Service Company Ltd, a well-known data provider in China. Table 6.1 indicates results of the sample selection.

\textsuperscript{55} Some firms are found by the CSRC and other government agencies to have false statements on financial conditions and ownership disclosure; some firms combine trade receivables and other receivables together in their annual reports. Accordingly, these firms are excluded from the sample.
## Table 6.1

### Description of Sample Selection

<table>
<thead>
<tr>
<th></th>
<th>Year 2001</th>
<th>Year 2002</th>
<th>Year 2003</th>
<th>Year 2004</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year-end listed firms</td>
<td>1136</td>
<td>1200</td>
<td>1263</td>
<td>1353</td>
<td>4952</td>
</tr>
<tr>
<td>- financial firms</td>
<td>7</td>
<td>8</td>
<td>10</td>
<td>10</td>
<td>35</td>
</tr>
<tr>
<td>Non-financial listed firms</td>
<td>1129</td>
<td>1192</td>
<td>1253</td>
<td>1343</td>
<td>4917</td>
</tr>
<tr>
<td>- firms listed less than one year</td>
<td>70</td>
<td>64</td>
<td>63</td>
<td>92</td>
<td>289</td>
</tr>
<tr>
<td>- firms delisted</td>
<td>21</td>
<td>14</td>
<td>10</td>
<td>2</td>
<td>47</td>
</tr>
<tr>
<td>- firms with incomplete data</td>
<td>18</td>
<td>39</td>
<td>41</td>
<td>110(^{56})</td>
<td>208</td>
</tr>
<tr>
<td>Available firms</td>
<td>1020</td>
<td>1075</td>
<td>1139</td>
<td>1139</td>
<td>4373</td>
</tr>
<tr>
<td>Percent of non-financial firms</td>
<td>90%</td>
<td>90%</td>
<td>91%</td>
<td>85%</td>
<td>89%</td>
</tr>
</tbody>
</table>

Source: Shanghai JuYuan Data Service Company Ltd

It can be seen from Table 6.1 that the sample includes almost 90 percent of all non-financial firms.

### 6.3 Variable Definition

#### 6.3.1 Definition of RPTs

In China, firms are required by stock exchanges to timely disclose the occurrence of RPTs. In addition, firms are required by one specific accounting standard (Accounting Standard for Business Enterprises No.36 Related Party Disclosure) to disclose all RPTs in footnotes in their annual reports, which are to be released between January 1\(^{st}\) and April 30\(^{th}\) in the following year. According to the Standard, 56 Firms newly listed in 2003 are deleted because there is only one year data when they are included in 2004.
listed firms’ related parties normally include their (or their subsidiaries’) shareholders (or shareholders’ shareholders and so on), directors and executives, joint ventures, and any above parties’ associates and or their family members. Because ownership is concentrated in China to state-owned firms, the major related parties include controlling shareholders, other blockholders and entities controlled by (affiliated with) them; to private-owned firms, the major related parties include controlling owners and entities controlled by (affiliated with) them.

According to the Accounting Standard, any transactions among related parties are RPTs whether or not the money is transferred. There are various RPTs between a firm (or its subsidiaries) and a related party such as trade in products and services, asset sales (tangible and intangible) and acquisitions, asset swaps, equity sales and acquisitions, lending, asset leases, loan guarantees and joint ventures (Jian & Wong, 2004, 2006; Cheung et al., 2006). For example, Firm A owns 35 percent of outstanding shares of Firm B and is also the largest shareholder in Firm B. When Firm B sells 1 million dollars product to Firm A, because of the ownership connection between Firm A and B, this transaction is a RPT, which is typical in China. When Firm A borrows half million dollars from Firm B, this is another RPT. However, two broad types of RPTs are the focus of the study, finance borrowing and lending (not trade credit). The reasons are: firstly, these two types of RPTs are under the spotlight of the CSRC, which once issued several regulatory provisions to
address them. Secondly, it is relatively easy to judge who benefits from such transactions. While it is important to examine the overall level of RPTs, it will be more constructive in studying who directly benefits or suffers from them, controlling shareholders or minority shareholders. Thirdly, although ultimately the RPTs may serve the tunnelling purpose, they could present an opposite picture. For example, related sales are always used by controlling managers or shareholders to inflate earnings so as to realise (or conceal) private benefits, yet superficially these firms show a positive or high operating performance.

Not like Cheung, Rau and Stouraitis (2006) and Cheung et al. (2006), a priori judgement on the nature of various RPTs, (beneficial, expropriating or neutral to minority shareholders), is not tried in this project, the reason is that it is actually hard to tell. For example, Cheung, Rau and Stouraitis (2006) and Cheung et al. (2006) classify the formation of joint ventures between controlling shareholder and listed firms as a neutral transaction to minority shareholders, yet Jian and Wong (2006) show that the related investments, including formation of joint ventures, are closely related to controlling shareholders’ tunnelling activities.

In addition, different types of capital contributions and the timing may also make a big difference. For example, listed firms may contribute cash to the joint venture while controlling owners use non-cash assets. The distribution of shareholding (cash
flow rights) in the venture also matters. Initially, the listed firm may be in a controlling position (because of the uncertain future), yet when the harvest time arrives, the controlling stake may change to the hand of controlling shareholder.

In China, two (opposite) accounts are mainly used for finance borrowing and lending between listed firms and other parties (related and unrelated). Although unrelated financing also affects firm performance, only related party financing is researched in this project. While other receivables (OR) are for the funds from the listed firms that are lent out to related parties, other payables (OP), are for the funds that are lent to listed firms from related parties. Apart from OR and OP, prepayments and advances are often used for financing as well (Jian & Wong, 2004, 2006), so their balances are added to OR and OP respectively. Yet for brevity, OR and OP are used throughout. It should be noted that funds lent to controlling owners and other related parties are either free or based on the much-lower saving interest rate (there is a wide gap between saving rates and loan rates in China). Zhang (2007) lists several high-profile tunnelling cases in China. He shows that funds are tunnelled out of listed firms at a nominal (even zero) interest rate, while the normal interest rate is about two to three times that level.

When it comes to judge whether RPTs are unfavourable or favourable from the view of listed firms, the offset balance is used. Specifically, if listed firms’ OP are higher
than OR, it means listed firms take more free or low-cost finance from related parties than they give to related parties, which will mark a favourable RPT for listed firms. On the other side, when OR is higher than OP, it means an unfavourable RPT for listed firms.

It should be noted that the overall level of RPTs could be deeply underestimated for four reasons. Firstly, the financing amount obtained from the balance sheet is a presentation of year-end balance, which is easily manipulated. For example, many firms display a small year-end balance yet show huge (accumulated) debit and credit amounts in the OR account. In fact, controlling shareholders can tunnel funds from the first day up to the day before the last day of the financial year. In this case, the year-end balances actually lose their economic reality. Secondly, a large number of firms (privately-controlled firms in particular) manipulate the presentation of the balance sheet so that the appropriation of funds is not shown by the OR account or any other related accounts, or not RPTs (Lin, Cao & Zhou, 2006). Thirdly, there are many other RPTs that could be used to tunnel (Cheung, Rau & Stouraitis, 2006; Cheung et al., 2006; Jian & Wong, 2004, 2006), yet the focus here on financing RPTs, limits the inclusion of other RPTs. Fourth, many tunnelling RPTs have not been disclosed intentionally (Zhang, 2007).

While Gordon, Henry and Palia (2004) measure RPTs in two ways: the number and
the amount, only the amount of RPTs is used because the dollar amount of RPTs from the annual reports is accessible. Also, for most of the firms, the frequency of RPTs is so high that the numbers would not be economically meaningful (Jian & Wong, 2004). Considering the fact that in China the majority of RPTs are with the largest shareholders and their subsidiaries (Cheung, Rau & Stouraitis, 2006; Cheung et al., 2006; Jian & Wong, 2004, 2006), all OR will be divided into controlling shareholder related OR (ORCS) and non-controlling-shareholder-related OR (ORNCS). Similarly, OPCS and OPNCS are used for controlling-shareholder-related OP and non-controlling-shareholder-related OP. The dollar amount of OR and OP will be deflated by the year-end total assets to remove the size effect.

Jiang, Li and Yue (2005) examined the use of OR for tunnelling, however, this study is different from theirs. There are four main differences. In the first place, they made no distinction on related party OR from non-related party OR. They use OR in a general manner. Yet it is hard to justify the tunnelling nature of non-related party OR. Secondly, they checked the role of OR without taking into account the offsetting role of OP. Thirdly, They made no distinction on ORCS and ORNCS. Yet probably only controlling shareholders have the power to extract funds from firms under their control. Fourthly, they didn’t explore the propping role of OR.

57 Under each set of RPTs, there are three variables: the total RPTs and the divided RPTs for executives and non-executives. This is because in the US and other countries with diffuse ownership, the RPTs are mainly between firms and their executives and directors.
6.3.2 Definitions of Control Rights, Controlling Shareholder, Ownership Type and Pyramid

To account for the presence of a controlling shareholder, it is important to have a cut-off on the level of controlling rights. In their 27 cross-country firm samples, La Porta et al. (1999, 2002) argue that 20 percent of control rights is enough for effective control (for large firms, even 10 percent is sufficient). Claessens, Djankov and Lang (2000) and Faccio and Lang (2002) also use the 20 percent control benchmark for classing firms with controlling shareholders or not. From the perspective of management control, Lemmon and Lins (2003, p.1462) indicate that “having a significant degree of control over the firm’s assets is a necessary condition for expropriation of minority shareholders” in firms in East Asian countries. Given the high level of ownership concentration in China, it is reasonable to have a higher shareholding threshold. Furthermore, 30 percent shareholding is believed by the CSRC to be sufficient for a party to exercise effective control and thus needs to seek the approval in case of controlling blocks changing hands. Thus, if a firm has a shareholder who controls 30 percent or more of its direct and indirect voting rights, it will be classified as a firm with a controlling shareholder, a widely held firm otherwise. If there are two shareholders with 30 percent or more of control rights, the one with the highest will be chosen. A 20 percent cut-off will be used in the
robustness test.

While the controlling shareholder must be the largest shareholder, the largest shareholder may not be a controlling shareholder given the threshold applied in the definition of a controlling shareholder. When the entire sample is used, CS, ORCS and OPCS are also used for firms who don’t have controlling shareholders, yet the actual meaning of the above variables is for the RPTs associated with the largest shareholders.

How control rights are measured is important as well. There are two methods of measuring control rights. The one used by La Porta et al. (1999) and Claessens, Djankov and Lang (2000) and Faccio and Lang (2002) assign control (to a controlling shareholder) based on the weakest link along the control chain (direct and indirect), while Lins (2003) and Lemmon and Lins (2004) assign control to the nearest control level (direct and indirect) (see Appendixes 1 and 2 for the pyramidal structures and calculation of control rights, cash flow rights, the ownership and control gap and cash flow leverage). The two control rights will be the same when the lowest control level is the smallest along the control chain.

While the control level is pretty conservative under the first measure, the latter measure captures the actual controlling power of shareholders, which is directly
related to their capability of undertaking tunnelling activities. Second, as the nearest control level is always available, the second method is also better in keeping a big and complete sample. Third, in China the equity division already greatly reduces the incentive effect of large cash flow rights, therefore it is not that valuable to calculate the cash flow rights and measure the control-ownership gap (or the cash flow rights leverage). The nearest control rights will be more connected to the entrenchment effect of ownership concentration. Fourth, most firms in China are controlled by the State using pyramids, yet there is almost no deviation of control rights from cash flow rights (Fan, Wong & Zhang, 2005; Wang & Xiao, 2005). In regard to this project, the second method is adopted to measure the control rights.

Ideally, to capture the actual control level of private firms, at least 50 percent of ownership along every firm in the control chain should be available (see Claessens, Djankov & Lang, 2000)58. Yet in China, the overall disclosure of control and ownership by private firms is crude. While the ultimate largest shareholder is normally disclosed, its corresponding shareholding may account for much less than 50 percent of total ownership, for example only 20 percent. Besides, the relationship between the largest shareholder and other shareholders (for example, are there any blood, marriage relationships and concerted agreement?) are always missing intentionally or unintentionally. These undisclosed relationships are crucial to the

58 Lins (2003) uses the availability of 90 percent (of ultimate ownership) in screening the sample.
calculation of control level, given family ties play a crucial role in firm control and management (Claessens, Djankov & Lang, 2000). Ignoring the above-mentioned fact, direct use of the single largest shareholding for the computation of control and cash flow rights may inflate enormously the control and ownership gap or cash flow rights leverage.

Take Hua Sheng Da for example (a firm listed on SSE with sticker 600687), the single largest shareholding 26.46 percent of its shares, is owned by a holding company, which in turn is owned by two persons, holding 60 percent and 40 percent respectively. Based on the method used by La Porta et al. (1999) and others, the control right is 26.46 percent (the result will be the same using Lins’s method as the lowest control level is the smallest along the control chain), the cash flow right is 15.88 percent (60 percent * 26.46 percent)\(^{59}\), thus the gap is 10.58 percent (26.46 percent-15.88 percent), the cash flow rights leverage is 1.67 (26.46/15.88). In reality these two persons are related by blood (father and son), yet this relationship is not disclosed in the corporate control section in the annual report. Accordingly, based on the new information, there is no gap at all, although there is a pyramidal chain.

\(^{59}\) This percentage is adopted by CSMAR, yet CSMAR has indicated that the calculation of control rights and cash flow rights is preliminary.
To account for the above weakness, the method suggested by Lins (2003) is used. That is, control rights are calculated as the sum of the direct and indirect shareholdings by the ultimate controlling shareholder without considering other control levels along the control chain. Joh (2003) argues that ownership concentration is also important. The reason is that cash flow rights leverage (the control-ownership wedge) is only useful when the leverage is bigger than one (or the wedge is positive), it doesn’t include cases in which positive wedges may be caused by “shadow voting”\textsuperscript{60}, high cash flow rights (for example, more than 50 percent) or low cash flow rights with scattered small shareholders. While ownership concentration may serve a better control-ownership deviation measure in South Korea, this is also the case in China. In fact, because of the weak corporate governance system in China, controlling shareholders, even with a moderate ownership, can exercise full control over firms’ resources.

To account for the effect of ultimate owner type on the tunnelling or propping, two dummy variables are used: state (STATE) and private (PRIVATE). Other owners include foundations, foreign entities, a cooperative and employees\textsuperscript{61}. In China, there is not an active corporate control market. Yet as argued by Bai et al. (2004), the ST

\textsuperscript{60} In South Korea, independent financial institutions are restricted from voting in relation to their shareholding. This is called shadow voting.

\textsuperscript{61} In China, foreign entities, cooperatives and employees are most likely ultimately owned by family or individuals.
designation triggers the opening of a takeover market. However, due to the red tape in the approval of a controlling stake change by CSRC and other government agencies, some ST firms’ control is, in reality, in a transitional condition. For example, the controlling equity is always trusted first to the potential controller during the approving process, although the original controller may still play an influential role. Firms in transitional control pose a big challenge to the measurement of ultimate controlling type, even controlling rights. To account for this issue, the position of Board Chairman is used to classify who are in the controlling position. Not like that in western countries, the Chairman of the Board plays an important role in China (Tian & Lau, 2001; Bai et al., 2004). So if the Chairman is from the prospective controlling shareholder, then control rights and all other corresponding measures are calculated based on the prospective controlling owner and vice-verse.

Pyramidal structure is used intensively by controlling shareholders to separate cash flow rights from control rights (La Porta Lopez-de-Silanes & Shleifer, 1999; Claessens, Djankov & Lang, 2000; Faccio & Lang, 2002). Yet the definition of a pyramid in La Porta Lopez-de-Silanes and Shleifer (1999) is different from that in Claessens, Djankov and Lang (2000) and Faccio and Lang (2002). According to the first study, there must be a publicly traded firm between ultimate owner and the sample firm that constitutes a pyramid. While in the after two studies, just an intermediate firm (whether it is public or not) defines a pyramid.
Instead of using a pyramid, a lot of researchers use group (or affiliation). These two terms are similar yet slightly different. Both terms involve at least three parties. While a pyramidal structure is definitely a group (Indian case), a group is possible due to a cross-holding structure (Korean case). Group is especially appropriate if there is a combination of pyramids and cross-holdings, which is quite common, although probably one structure dominates in any specific country. This is probably the reason why the concept of group is used more empirically while pyramid is mainly used in theoretical discussions. In terms of the Chinese sample, pyramid is much more common than cross-holding, so pyramid is used. A pyramid is defined to exist when the ultimate shareholder controls the firm through an intermediate non-holding company.

6.3.3 Definition of Other Blockholders

In regard to the influence of other blockholders (BLOCK), following the threshold used by La Porta et al. (1999), Claessens, Djankov and Lang (2000) and Faccio and Lang (2002), a dummy variable will be used if there is a party holding at least 10 percent of shares in the firm in addition to the largest shareholder.

6.3.4 Definition of Investment Opportunity
Following La Porta et al. (2002) and Durne and Kim (2005), growth in sales (SALES) is used to measure investment opportunity. They argue sales growth is less affected by diversion and manipulation as. While they use a 2-year geometric average of annual percentage growth, because of data availability in the project, the one-year annual growth rate is used.

6.3.5 Definition of Firms in Financial Distress

Firms sustaining two consecutive years of negative net income will be classified as firms in financial distress (ST) because of the delisting arrangements of the stock exchanges. In China, when a firm has negative net profit for two years in a row, it will be classified as ST. While most ST firms are so classified due to negative profits, there are other reasons why a firm is so designated. For example, if the shareholders’ equity is lower than the registered capital (the par value of the shares); firms whose financial reports obtain negative opinions or the auditors are unable to issue opinions. Overall, ST firms are not in good financial condition and have to be propped up in a certain way to avoid being delisted.

There are many ways to prop up a financially-stricken firm. Apart from free or low-cost finance from controlling shareholders (the focus of this project), asset
(equity) swap is frequently used in China as well, which means controlling shareholders exchange low-productive assets in a listed firm with its high-productive ones. Yet, propping like this sometimes may show the form of tunnelling: sudden significant increases of (net) other receivables to a controlling shareholder. There are other ways of propping that are not discussed in this project. In this sense, propping activities may be moderately underestimated.

6.3.6 Definition of Firm Performance

There are two broad categories of measures of firm performance in the literature: accounting-based measures and market-based measures. While accounting-based measures mainly use information from the financial statements and thus include a huge range of ratios in the fields of profitability, repayment ability, operating and asset management efficiency, market-based measures typically use Tobin’s q and the market-to-book ratio (MB) to gauge stock market performance. Demsetz and Villalonga (2001) argue that the two measures differ in two important aspects. The first one is in the time perspective. The Accounting profit rate is backward-looking while Tobin’s q is forward-looking. The other difference is: who is truly measuring performance? They demonstrate “for the accounting profit rate, this is the accountant constrained by standards set by his profession. For Q, this is primarily the community of investors constrained by their acumen, optimism, or pessimism”
They further indicate that the two measures tend to be moderately correlated, since the numerator of Q partially reflects the accounting profit rates, while accounting policy also affects its denominator given the fact the book value is used instead of replacement cost.

In regard to the use of an accounting-based performance measure, Joh (2003) highlights its advantages in the context of market inefficiency associated with a developing economy. He argues accounting profitability is likely to be a better performance measure. In this project, while both accounting and market measures are used, Tobin’s q is modified to accommodate equity division in China.

Specifically, the accounting-based measure, return on assets (ROA) is used. ROA instead of return on equity (ROE) is adopted because some firms (most of them are ST firms) have both negative owners’ equity and negative net income, which will result in a positive, yet meaningless, ROE. To keep ST firms in the sample for propping research, ROA is preferred over ROE (the same reason applies to the use of Tobin’s q instead of market-to-book ratio).

For market-based measures, Tobin’s q (TQ) will be used. TQ is calculated as share price multiplied by the total number of outstanding shares, plus the book value of debt, all divided by the book value of total assets. Given the fact that the majority of
outstanding shares are non-floatable, the discounted TQ is used. Chen and Xiong (2002) find in China, non-floatable shares are 78 percent to 86 percent lower when compared with floatable shares. Consequently, the price of non-floatable shares is assumed to be 20 percent of floatable ones. Accordingly,

\[
TQ = \frac{(FS \cdot P + NFS \cdot P \cdot 0.2) + BVTD}{BVTA}
\]

Where;
FS = total number of floatable shares;
P = closing share price on April 30 in each year\(^{62}\);
NFS = total number of non-floatable shares;
BVTD = book value of total debt;
BVTA = book value of total assets.

For firms also issuing B shares (B shares listed on SSE are traded in USD, B shares listed on SZSE are traded in Hong Kong Dollar) or H shares (traded in Hong Kong Dollars), shares’ prices are converted to Chinese Yuan (1USD=8.28YUAN, 1HKD=1.2YUAN) and the market capitalisation is calculated accordingly.

Given some firms have a negative book value (equity), the market-to-book ratio is not adopted.

6.3.7 Measurement of Control Variables

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\(^{62}\) April 30 is the last day for all firms in China to present their audited annual reports.
There are other variables that may affect the level of tunnelling and propping. Debt plays different roles in tunnelling and propping. On the one hand, as Friedman, Johnson and Mitton (2003) and Polsiri and Wiwattanakantang (2004) argue, debt represents a commitment by the controlling shareholder to prop up and bail out the firm when there is a moderately adverse shock. However, when it comes to a serious shock, debt also makes it likely that the controlling shareholder will abandon or loot the firm instead of propping. On the other hand, the use of debt may restrict how much a controlling shareholder can tunnel; yet more available financial resources may also increase the likelihood of tunnelling. Debt is defined as the sum of long-term debt and short-term debt excluding non-financial liabilities such as accounts payable, deferred taxes and other provisions for liabilities. The debt ratio is measured by debt divided by year-end total assets.

Given the nature of gradual economic reform in China, older firms tend to have incomplete corporatisation restructuring and weak corporate governance. Accordingly, there could be more RPTs and tunnelling activities. Apart from this, the firm life-cycle could also influence ownership structure, which may affect the level of RPTs. To account for this, firm age (AGE) is used and measured as the logarithm of the number of months from the IPO.
Firm size (SIZE): the logarithm of total assets in millions of Chinese Yuan is also used as a control variable. Larger firms tend to have better visibility and coverage by financial analysts, yet they may also have more assets available to be diverted. On the other hand, given small firms are highly likely to have ownership separated from control (Claessens, Djankov & Lang, 2000), there could be more expropriation associated with small firms. In all, firm size may have a mixed effect on the level of RPTs.

Table 6.2 summarise descriptions of dependent variables, independent variables and other control variables.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Rights</td>
<td>CR</td>
<td>Percentage of the nearest shares owned by the largest shareholder, directly and indirectly</td>
</tr>
<tr>
<td>Controlling Shareholder</td>
<td>CS</td>
<td>Equals one if there is a shareholder owning at least 30 percent of CR, zero otherwise</td>
</tr>
<tr>
<td>Controlling Shareholder</td>
<td>CSL</td>
<td>Equals one if there is a shareholder owning at least 20 percent of CR, zero otherwise</td>
</tr>
<tr>
<td>(using 20 percent control rights)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State</td>
<td>STAT</td>
<td>Equals one if the State is the ultimate controlling shareholder, zero otherwise</td>
</tr>
<tr>
<td>Blockholder</td>
<td>BLK</td>
<td>Equals one if there is another shareholder owning at least 10 percent of CR, zero otherwise</td>
</tr>
<tr>
<td>Pyramid</td>
<td>PYD</td>
<td>Equals one if the ultimate shareholder controls the firm through an intermediate company, zero otherwise</td>
</tr>
<tr>
<td>Growth in Sales</td>
<td>SALES</td>
<td>Annual percentage growth in net sales</td>
</tr>
<tr>
<td>ORCS</td>
<td>ORCS</td>
<td>Other receivables related to controlling shareholders</td>
</tr>
<tr>
<td>ORNCS</td>
<td>ORNCS</td>
<td>Other receivables related to all other parties (excluding controlling shareholders)</td>
</tr>
<tr>
<td>OPCS</td>
<td>OPCS</td>
<td>Other payables related to controlling shareholders</td>
</tr>
<tr>
<td>OPNCS</td>
<td>OPNCS</td>
<td>Other payables related to all other parties (excluding largest shareholders)</td>
</tr>
<tr>
<td>OROP</td>
<td>OROP</td>
<td>ORCS-OPCS</td>
</tr>
<tr>
<td>ORDIFF</td>
<td>ORDIFF</td>
<td>ORCS-ORNCS</td>
</tr>
<tr>
<td>ODIFF</td>
<td>ODIFF</td>
<td>OPCS-OPNCS</td>
</tr>
<tr>
<td>Tunnelling</td>
<td>TUN</td>
<td>Equals OROP if OROP is equal to or bigger than zero</td>
</tr>
<tr>
<td>Propping</td>
<td>PROP</td>
<td>Equals the absolute value of OROP if OROP is negative</td>
</tr>
<tr>
<td>Return on assets</td>
<td>ROA</td>
<td>Net income divided by total assets</td>
</tr>
<tr>
<td>Tobin’s q</td>
<td>TQ</td>
<td>Tobin’s q</td>
</tr>
<tr>
<td>Firm in financial distress</td>
<td>ST</td>
<td>Equals one if a firm has sustained two consecutive years of negative net income, zero otherwise</td>
</tr>
<tr>
<td>Debt ratio</td>
<td>DEBT</td>
<td>Sum of financial liabilities divided by total assets</td>
</tr>
<tr>
<td>Size</td>
<td>SIZE</td>
<td>Logarithm of total assets in millions YUAN</td>
</tr>
<tr>
<td>Age</td>
<td>AGE</td>
<td>Logarithm of the number of months from the IPO.</td>
</tr>
<tr>
<td>INDUSTRY</td>
<td>IND</td>
<td>Following the criteria set by the CSRC, there will be 12 industry types after excluding the finance industry. There will be 11 dummy variables after setting agriculture industry as the numerator.</td>
</tr>
</tbody>
</table>
6.4 Empirical Models

Apart from univariate analysis (mainly for Hypotheses 1a and 1b), pooled cross-section multiple regressions, using the statistics package STATA are performed to test the hypotheses. Table 6.3 presents the major equation models used in the project.
Table 6.3

Equation Models

For Test of Tunnelling Evidence

\[
ORCS_{it} = \alpha_0 + \beta_1CS_{it} + \beta_2CR_{it} + \beta_3BLK_{it} + \beta_4PYD_{it} + \beta_5STAT_{it} + \beta_6SALES_{it} + \\
\beta_7ST_{it} + \beta_8DEBT_{it} + \beta_9SIZE_{it} + \beta_{10}AGE_{it} + \beta_{11}YEAR_{it} + \beta_{12}IND_{it} + \epsilon_{it} \quad (1)
\]

\[
TUN_{it} = \alpha_0 + \beta_1CS_{it} + \beta_2CR_{it} + \beta_3BLK_{it} + \beta_4PYD_{it} + \beta_5STAT_{it} + \beta_6SALES_{it} + \\
\beta_7ST_{it} + \beta_8DEBT_{it} + \beta_9SIZE_{it} + \beta_{10}AGE_{it} + \beta_{11}YEAR_{it} + \beta_{12}IND_{it} + \epsilon_{it} \quad (2)
\]

For Test of Propping Evidence

\[
OPCS_{it} = \alpha_0 + \beta_1CS_{it} + \beta_2CR_{it} + \beta_3BLK_{it} + \beta_4PYD_{it} + \beta_5STAT_{it} + \beta_6SALES_{it} + \\
\beta_7ST_{it} + \beta_8DEBT_{it} + \beta_9SIZE_{it} + \beta_{10}AGE_{it} + \beta_{11}YEAR_{it} + \beta_{12}IND_{it} + \epsilon_{it} \quad (3)
\]

\[
PROP_{it} = \alpha_0 + \beta_1CS_{it} + \beta_2CR_{it} + \beta_3BLK_{it} + \beta_4PYD_{it} + \beta_5STAT_{it} + \beta_6SALES_{it} + \\
\beta_7ST_{it} + \beta_8DEBT_{it} + \beta_9SIZE_{it} + \beta_{10}AGE_{it} + \beta_{11}YEAR_{it} + \beta_{12}IND_{it} + \epsilon_{it} \quad (4)
\]

For Test of Tunnelling and Propping on Operating Performance

\[
ROA_{it} = \alpha_0 + \beta_1ORCS(OPCS)_{it} + \beta_2SALES_{it} + \beta_3DEBT_{it} + \beta_4SIZE_{it} + \beta_5AGE_{it} + \beta_6IND_{it} + \epsilon_{it} \quad (5)
\]

\[
ROA_{it} = \alpha_0 + \beta_1TUN(PROP)_{it} + \beta_2SALES_{it} + \beta_3DEBT_{it} + \beta_4SIZE_{it} + \beta_5AGE_{it} + \beta_6IND_{it} + \epsilon_{it} \quad (6)
\]

For Test of Tunnelling on Firm Value

\[
TQ_{it} = \alpha_0 + \beta_1ORCS_{it} + \beta_2CS + \beta_3ST_{it} + \beta_4STAT_{it} + \beta_5SALES_{it} + \beta_6DEBT_{it} + \\
\beta_7SIZE_{it} + \beta_8AGE_{it} + \beta_9YEAR_{it} + \beta_{10}IND_{it} + \epsilon_{it} \quad (7)
\]

\[
TQ_{it} = \alpha_0 + \beta_1TUN_{it} + \beta_2CS + \beta_3ST_{it} + \beta_4STAT_{it} + \beta_5SALES_{it} + \beta_6DEBT_{it} + \\
\beta_7SIZE_{it} + \beta_8AGE_{it} + \beta_9YEAR_{it} + \beta_{10}IND_{it} + \epsilon_{it} \quad (8)
\]

For Test of Propping on Firm Value

\[
TQ_{it} = \alpha_0 + \beta_1OPCS_{it} + \beta_2CS + \beta_3ST_{it} + \beta_4STAT_{it} + \beta_5SALES_{it} + \beta_6DEBT_{it} + \\
\beta_7SIZE_{it} + \beta_8AGE_{it} + \beta_9YEAR_{it} + \beta_{10}IND_{it} + \epsilon_{it} \quad (9)
\]

\[
TQ_{it} = \alpha_0 + \beta_1PROP_{it} + \beta_2CS + \beta_3ST_{it} + \beta_4STAT_{it} + \beta_5SALES_{it} + \beta_6DEBT_{it} + \\
\beta_7SIZE_{it} + \beta_8AGE_{it} + \beta_9YEAR_{it} + \beta_{10}IND_{it} + \epsilon_{it} \quad (10)
\]

Note: Definitions are provided in Table 6.2.
Among the above equations, Equations (1) and (2) are to be used for the test of tunnelling presence, including Hypotheses 1c, 1d, 1e on the role of controlling shareholders, blockholders and control rights and Hypotheses 2 to 4 on the role of investment opportunity, State and pyramidal structure. Equations (3) and (4) relate to the test of Hypothesis 5 on the presence of propping among financially distressed firms. Equations (5) and (6) are to test Hypotheses 6a and 7b on the effect of tunnelling and propping on operating performance. Equations (7) and (8) will be used in testing Hypothesis 6b on the effect of tunnelling on firm value. The last two equations (9) and (10) are for the test of Hypotheses 7a and 7c on the effect of propping on firm value.

6.5 Summary

This chapter begins with outlining the selection criteria used in determining the final sample in the study. This is then followed by detail descriptions on measurement of dependent, independent and control variables. The chapter concludes with equation models to be used to test the hypotheses developed in Chapter 5.
CHAPTER SEVEN

Results and Discussion

7.1 Introduction

This chapter documents the preliminary results from the empirical models developed in Chapter Six. Section 7.2 presents the descriptive statistics and brief discussions. Normality tests and multicolinearity tests for dependent variables and continuous independent variables, normality and heteroskedasticity tests for the residuals are in Section 7.3. Regression results and discussions are provided in Section 7.4. Robustness tests are conducted in Section 7.5. A brief summary of the chapter is provided in Section 7.6.

7.2 Descriptive Statistics

Table 7.1 presents the descriptive statistics on control variables for the sample firms.
Table 7.1

Summary Statistics of Control Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
<th>Max</th>
<th>Min</th>
<th>StdDev</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS</td>
<td>4373</td>
<td>0.7228</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0.4476</td>
</tr>
<tr>
<td>CSL</td>
<td>4373</td>
<td>0.9506</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0.2167</td>
</tr>
<tr>
<td>CR</td>
<td>4373</td>
<td>0.4513</td>
<td>0.4455</td>
<td>0.8500</td>
<td>0.0731</td>
<td>0.1698</td>
</tr>
<tr>
<td>BLK</td>
<td>4373</td>
<td>0.3163</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0.4675</td>
</tr>
<tr>
<td>PYD</td>
<td>4373</td>
<td>0.8992</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0.3012</td>
</tr>
<tr>
<td>PRIV</td>
<td>4373</td>
<td>0.1874</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0.39</td>
</tr>
<tr>
<td>STAT</td>
<td>4373</td>
<td>0.7686</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0.4218</td>
</tr>
<tr>
<td>SALES</td>
<td>4373</td>
<td>0.4822</td>
<td>0.1538</td>
<td>400.6771</td>
<td>-0.9959</td>
<td>7.2791</td>
</tr>
<tr>
<td>ST</td>
<td>4373</td>
<td>0.0366</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0.188</td>
</tr>
<tr>
<td>DEBT</td>
<td>4373</td>
<td>0.3053</td>
<td>0.2916</td>
<td>6.6272</td>
<td>0</td>
<td>0.2287</td>
</tr>
<tr>
<td>ROA</td>
<td>4373</td>
<td>0.0061</td>
<td>0.0253</td>
<td>0.5135</td>
<td>-6.3371</td>
<td>0.2000</td>
</tr>
<tr>
<td>TQ</td>
<td>4373</td>
<td>1.3594</td>
<td>1.1772</td>
<td>19.0345</td>
<td>0.3822</td>
<td>0.7371</td>
</tr>
<tr>
<td>SIZE (in millions)</td>
<td>4373</td>
<td>2686.2935</td>
<td>1394.1319</td>
<td>460081</td>
<td>36.4692</td>
<td>11589.2848</td>
</tr>
<tr>
<td>AGE (months)</td>
<td>4373</td>
<td>83.1920</td>
<td>75.4521</td>
<td>246.1808</td>
<td>9.3370</td>
<td>45.7868</td>
</tr>
</tbody>
</table>

Note: Definitions are provided in Table 6.2.

Table 7.1 shows some summary statistics for the control variables (some of which are dependent variables to be used in partial regressions). Using a 30 percent control rights threshold, it can be seen that more than 72 percent of firms have controlling shareholders, while only 32 percent of firms have another block shareholder owning at least 10 percent of control rights. On average, largest shareholders on average own 45 percent (median 45 percent) of control rights, while the highest control rights are as big as 85 percent, indicating a highly concentrated ownership in China.

This is consistent with many other findings in terms of the Chinese market (Xu &
Ninety five percent of firms have controlling shareholders when using 20 percent of control rights. The results are complementary to those of concentrated ownership discovered by La Porta, Lopez-de-Silanes and Shleifer (1999) in 27 wealthy countries and Claessens, Djankov and Lang (2000) in 9 East Asian countries, where China is not part of the sample.

Ninety percent of firms are ultimately controlled in a pyramidal structure, indicating a dominance of such structures among Chinese firms. This result is in line with findings on other emerging and developing markets (see Claessens, Djankov & Lang, 2000; Lins, 2003). Because most of the listed firms are spin-offs of SOEs, this result is not surprising. However, the ownership and control gap for the state-owned listed firms is marginal (Wang & Xiao, 2005; also refer Appendix 1).

Around 77 percent of the firms are ultimately controlled by the State, with privately owned firms account for about 19 percent, the remaining are owners like cooperatives, employee associations, management and foreign entities, etc. Annual sales growth rate is on average about 48 percent, yet the median is 15 percent, indicating a well diversified sales growth rate. About 3.7 percent of firms are classified in financial

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63 The ownership concentration level is higher than it in previous studies. The reason is related (direct and indirect) ownership is added together according to the ultimate owner.
distress because of negative profits for two consecutive years. The average debt ratio is about 31 percent, yet the ratio can be as high as 663 percent, indicating extreme financial distress. The debt ratio will be much higher if non-financial liabilities are included. Average return on assets is 0.6 percent (median 2.5 percent), indicating Chinese firms’ low profitability. Tobin’s q on average is 1.44, yet the minimum is as small as 0.768 contrasting with the maximum of 18.37. The mean of Tobin’s q is higher than one probably due to the limited number of floatable shares and widespread speculation in China. Firms on average have YUAN 2,686 millions of total assets, although the smallest firm has total assets of only YUAN 36.47 millions. Firms on average are 83 months old from the date of IPO.

Table 7.2.1 presents the summary statistics of RPTs variables.

Table 7.2.1
Summary Statistics of RPTs

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
<th>StdDev</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORCS</td>
<td>4373</td>
<td>0.0265</td>
<td>0.0006</td>
<td>0.0894</td>
<td>0</td>
<td>2.5135</td>
</tr>
<tr>
<td>ORNCS</td>
<td>4373</td>
<td>0.0122</td>
<td>0</td>
<td>0.0501</td>
<td>0</td>
<td>1.4808</td>
</tr>
<tr>
<td>OPCS</td>
<td>4373</td>
<td>0.0075</td>
<td>0.0001</td>
<td>0.0294</td>
<td>0</td>
<td>0.6709</td>
</tr>
<tr>
<td>OPNCS</td>
<td>4373</td>
<td>0.0025</td>
<td>0</td>
<td>0.0137</td>
<td>0</td>
<td>0.4537</td>
</tr>
<tr>
<td>OROP</td>
<td>4373</td>
<td>0.0189</td>
<td>0</td>
<td>0.0929</td>
<td>-0.6709</td>
<td>2.4760</td>
</tr>
<tr>
<td>OROPNCS</td>
<td>4373</td>
<td>0.0097</td>
<td>0</td>
<td>0.0491</td>
<td>-0.4468</td>
<td>1.4567</td>
</tr>
<tr>
<td>ORDIFF</td>
<td>4373</td>
<td>0.0142</td>
<td>0</td>
<td>0.1003</td>
<td>-0.9163</td>
<td>2.5040</td>
</tr>
<tr>
<td>OPDIFF</td>
<td>4373</td>
<td>0.0050</td>
<td>0</td>
<td>0.0312</td>
<td>-0.3786</td>
<td>0.6709</td>
</tr>
</tbody>
</table>

Note: Definitions are provided in Table 6.2.

Table 7.2.1 shows the statistics of RPTs in different forms. On average, controlling
owners expropriate 2.65 percent of total assets in the form of other receivables (ORCS), with a maximum of 251.35 percent. At the same time, all other related parties\textsuperscript{64} tunnel out 1.22 percent of total assets (ORNCS), with a maximum of 148.08 percent. When it comes to propping (other payables), controlling owners and all other parties prop into listed firms on average 0.75 percent (OPCS) and 0.25 percent (OPNCS) of total assets respectively.

Table 7.2.2 shows the statistics for the test of positive means for RPTs.

\textbf{Table 7.2.2}

\begin{table}[h!]
\centering
\begin{tabular}{lcc}
\hline
\textbf{Test if Mean>0} & \textbf{t-statistic (one-side)} \\
\hline
OROP & 6.74*** \\
OROPNCS & 6.51*** \\
ORDIFF & 4.70*** \\
OPDIFF & 5.30*** \\
\hline
\end{tabular}
\end{table}

\textit{Note: Variables definitions are provided in Table 6.2.}

\textbf{***} denotes significant at the 1 percent level.

From Table 7.2.2, it can be seen that means of all RPTs differences (OROP, OROPNCS, ORDIFF and OPDIFF) are positive and significant at 1 percent level, thus listed firms give more financing to controlling shareholders and other parties than they receive from them. RPTs are used for tunnelling. As institutions and legal enforcement are weak in China, these results are not surprising. The findings give

\textsuperscript{64} All other related parties include non-controlling shareholders, non-consolidated firms, executives of listed firms and other related firms and so on.

\textsuperscript{65} t-statistics are adjusted for unequal variance.
direct support to the speculation on the straight-out expropriation by controlling owners in countries with weak legal systems, as indicated by Shleifer and Vishny (1997) and La Porta, Lopez-de-Silanes & Shleifer (1999). The findings align with those of Jian and Wong (2004), who indicate that Chinese listed firms give more credits to related-parties than they obtain, although they mix trade credit and finance credit together.

The difference between ORNCS and OPNCS (OROPNCS) is positive and significant, which indicates that non-controlling parties, the majority of them being previous controlling owners, also tunnel a lot; also, previous controlling owners didn’t pay the tunneled money back, at least not promptly. In all, listed firms are treated as cash cows by controlling shareholders and even other non-controlling parties. Hence Hypothesis 1a is supported.

The difference between ORCS and ORNCS (ORDIFF) is significantly positive. It means that share of controlling owners’ OR is larger than that of all other related parties. It indicates the controlling position of largest shareholders. Thus, Hypothesis 1b is supported. When it comes to propping, it can be seen that OPCS is significantly higher than OPNCS (OPDIFF>0). It means controlling shareholders are the ones who

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66 The test for equality of means of ORNCS among yearly samples shows no difference (F-statistic value is 1.419).

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actually prop up firms. Either tunnelling or propping, controlling shareholders are major parties. To test whether the medians are also positive, Wilcoxon signed rank test is used. The significant levels are same.

Table 7.3 provides results of univariate analysis.

Table 7.3

Univariate Analysis for RPTs

<table>
<thead>
<tr>
<th>Variables</th>
<th>Sample</th>
<th>ORCS</th>
<th>OROP</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS</td>
<td>1</td>
<td>0.0302</td>
<td>0.0228</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0.0166</td>
<td>0.0089</td>
</tr>
<tr>
<td>t-statistic</td>
<td></td>
<td>-5.63***</td>
<td>-5.29***</td>
</tr>
<tr>
<td>CSL</td>
<td>1</td>
<td>0.0274</td>
<td>0.0196</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0.0087</td>
<td>0.0055</td>
</tr>
<tr>
<td>t-statistic</td>
<td></td>
<td>-4.88***</td>
<td>-3.66***</td>
</tr>
<tr>
<td>BLK</td>
<td>1</td>
<td>0.0174</td>
<td>0.0099</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0.0307</td>
<td>0.0232</td>
</tr>
<tr>
<td>t-statistic</td>
<td></td>
<td>5.77***</td>
<td>5.44***</td>
</tr>
<tr>
<td>STAT</td>
<td>1</td>
<td>0.0276</td>
<td>0.0200</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0.0228</td>
<td>0.0154</td>
</tr>
<tr>
<td>t-statistic</td>
<td></td>
<td>-1.84*</td>
<td>-1.68*</td>
</tr>
<tr>
<td>PYD</td>
<td>1</td>
<td>0.0282</td>
<td>0.0206</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0.0110</td>
<td>0.0040</td>
</tr>
<tr>
<td>t-statistic</td>
<td></td>
<td>-6.74***</td>
<td>-5.39***</td>
</tr>
</tbody>
</table>

Note: Variables definitions are provided in Table 6.2.
* denotes significant at the 10 percent level
*** denotes significant at the 1 percent level

Table 7.3 shows how RPTs (ORCS and OROP) differ among major independent variables. It can be seen that for firms with controlling shareholders, ORCS (OROP) on average accounts for 3.02 percent (2.28 percent) of total assets, which is higher than

67 t-statistics are adjusted for unequal variance.
the 1.66 percent (0.89 percent) for firms without controlling shareholders. The associated t-statistics are large at -5.63 and -5.29, indicating a 1 percent significance level. The significance levels don’t change when using a 20 percent of control rights threshold. Thus, Hypothesis 1c is supported.

In firms with another blockholder, ORCS (OROP) on average accounts for 1.74 percent (0.99 percent) of total assets, which is significantly (1 percent significance level) lower than 3.07 percent (2.32 percent) for firms without another blockholder, with a t-statistic as big as 5.775 (5.437), indicating the positive role of other block shareholders in limiting the tunnelling RPTs of controlling shareholders. Accordingly, Hypothesis 1d is supported.

Appendices 3 and 4 show a graphical representation of the relationship between both ORCS and OROP and control rights. It can be seen that with the increase in control rights, both ORCS and OROP increase. However, when control rights reach 50 percent, ORCS and OROP both decrease, then increase again starting from 60 percent. Overall, more control rights lead to higher tunnelling-purpose RPTs. Accordingly, Hypothesis 1e is supported.

For firms that are ultimately controlled by the State, the level of tunnelling is higher (2.76 percent vs. 2.28 percent for ORCS) with a t-statistic of minus 1.84, significant at
the 10 percent level. The significance level doesn’t change when it comes to OROP.

This detrimental effect of state ownership echoes other researchers’ findings as reported by Cheung et al. (2006), Bai et al. (2004) and others. Accordingly, Hypothesis 3 is also supported. Firms controlled in pyramids have significantly more RPTs than stand-alone firms (2.82 percent vs. 1.1 percent with a t-statistic -6.74 for ORCS, significant at the 1 percent level). This is consistent with previous research (see Bertrand, Paras & Sendhil, 2002; Bebchuk, Kraakman & Triantis, 1999) on the negative effect of pyramidal structures in facilitating controlling owners’ tunnelling.

Therefore Hypothesis 4 is supported.

To test whether the medians of major variables are different, the Wilcoxon-Mann-Whitney test is used. The p-values are nearly the same except those on STAT. Tests for equality of means on STAT indicate a 10 percent significance level; however the median tests show the significance at a 1 percent level.

Controlling owners may treat financially-distressed firms and financially-sound firms differently. The reason is that propping is normally expected from controlling shareholders when firms are in financial distress. Table 7.4.1 shows how RPTs differ among ST firms.
Table 7.4.1
Univariate Analysis for ST Firms

<table>
<thead>
<tr>
<th>Variable</th>
<th>Sample</th>
<th>ORCS</th>
<th>OPCS</th>
<th>OROP</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST</td>
<td>150</td>
<td>0.0761</td>
<td>0.0288</td>
<td>0.0473</td>
</tr>
<tr>
<td>ST</td>
<td>4223</td>
<td>0.0247</td>
<td>0.0068</td>
<td>0.0179</td>
</tr>
<tr>
<td>t-statistic</td>
<td></td>
<td>-2.41**</td>
<td>-3.24***</td>
<td>-1.30</td>
</tr>
</tbody>
</table>

Note: Variables definitions are provided in Table 6.2.

** denotes significant at the 5 percent level
*** denotes significant at the 1 percent level

From Table 7.4.1, it can be seen that firms in distress have significantly more ORCS (0.0761 vs 0.0247) and OPCS (0.0473 vs 0.0179), indicating a mix of tunnelling and propping. When it comes to OROP, the adjusted t-statistic is insignificant (unadjusted t-statistic is significant at 1 percent).

The OROP is the difference between ORCS and OPCS, thus the incidence of propping could be blurred by the inclusion of tunnelling. Table 7.4.2 is the univariate analysis based on the sign of OROP. The TUN and PROP are used respectively.

---

68 t-statistics are adjusted for unequal variance. When Wilcoxon-Mann-Whitney median test is used, the significance level for OPCS doesn’t change. For ORCS, it is no more significant. For OROP, it is significant at the 10 percent level.
Table 7.4.2
Univariate Analysis for ST Firms

<table>
<thead>
<tr>
<th>Variable</th>
<th>Sample</th>
<th>TUN</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST</td>
<td>1 90</td>
<td>0.1205</td>
</tr>
<tr>
<td></td>
<td>0 2966</td>
<td>0.0322</td>
</tr>
<tr>
<td>t-statistic</td>
<td>-2.59**</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variable</th>
<th>Sample</th>
<th>PROP</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST</td>
<td>1 60</td>
<td>0.0625</td>
</tr>
<tr>
<td></td>
<td>0 1257</td>
<td>0.0158</td>
</tr>
<tr>
<td>t-statistic</td>
<td>-3.03***</td>
<td></td>
</tr>
</tbody>
</table>

Note: Variables definitions are provided in Table 6.2.

** denotes significant at the 5 percent level
*** denotes significant at the 1 percent level,

Table 7.4.2 shows significant yet opposite results, indicating the presence of both tunnelling and propping for ST firms. When PROP is used, it can be seen that ST firms (60 firms in this case) are supported with funds, accounting for 6.25 percent of total assets (significant at 1 percent level). Also, the significance level is higher than that of the TUN (1 percent vs. 5 percent). Combined with Table 7.4.1, there is clear evidence of propping for ST firms by controlling owners. The coexistence of tunnelling and propping in ST firms is in line with the predictions made by Friedman, Johnson and Mitton (2003), who indicate that while controlling owners tend to prop up bad-performing firms in a moderate shock, they may continue to tunnel when there is a large shock and they lack enough financial resources to prop.

Table 7.5.1 shows descriptive statistics on yearly samples of RPTs.

---

69 t-statistics are adjusted for unequal variances. When the Wilcoxon-Mann-Whitney test is used, both are significant at a 1 percent level.
Table 7.5.1

Yearly Samples of RPTs

<table>
<thead>
<tr>
<th>Year</th>
<th>N</th>
<th>ORCS Mean</th>
<th>ORNC Mean</th>
<th>OPCS Mean</th>
<th>OPNC Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>1020</td>
<td>0.0274</td>
<td>0.0128</td>
<td>0.0061</td>
<td>0.0021</td>
</tr>
<tr>
<td>2002</td>
<td>1075</td>
<td>0.0318</td>
<td>0.0136</td>
<td>0.0074</td>
<td>0.0027</td>
</tr>
<tr>
<td>2003</td>
<td>1139</td>
<td>0.0230</td>
<td>0.0132</td>
<td>0.0080</td>
<td>0.0026</td>
</tr>
<tr>
<td>2004</td>
<td>1139</td>
<td>0.0241</td>
<td>0.0094</td>
<td>0.0086</td>
<td>0.0026</td>
</tr>
</tbody>
</table>

Note: Variables definitions are provided in Table 6.2.

Table 7.5.2 presents the results on the test for equality of means on yearly RPTs.

Table 7.5.2

Test for Equality of Means of Yearly RPTs

<table>
<thead>
<tr>
<th>Test for Equality of Means</th>
<th>F-statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORCS</td>
<td>2.14*</td>
</tr>
<tr>
<td>OPCS</td>
<td>1.43</td>
</tr>
</tbody>
</table>

Note: Variables definitions are provided in Table 6.2.
*denotes significant at the 10 percent level.

The ORCS and OPCS variables show different a tendency across years. It can be seen from Table 7.5.1 that ORCS in Year 2001 and 2002 are higher than those in Year 2003 and 2004 (2.7 percent and 3.2 percent vs. 2.3 percent and 2.4 percent). As to OPCS, it doesn’t show a clear pattern.

Table 7.5.2 shows that there are significant differences between yearly ORCS with an F-statistic of 2.144, significant at 10 percent level. The F-statistic (1.429) for OPCS indicates no such differences. The reason could be the change in securities regulation.
Since year 2003, auditors of public firms are required by the CSRC to have their specific opinions on related lending and borrowing in annual reports, which may contribute to the lower level of ORCS in years 2003 and 2004. This result lends support to the positive effect of new regulations imposed by the CSRC found by Berkman, Cole and Fu (2005).

7.3 Test of Regression Assumptions

Normality is an important assumption in regression analysis and a prerequisite for many inferential statistical tests. All data are screened for the assumption of regression models relating to uniformity and normality of the distributions of the key continuous variables and residuals. Distributions for both the dependent and the key independent variables are found to be abnormal. Jarque-Bera tests show the same non-normality (refer Appendices 5 and 6). In particular, for ORCS, OROP, TUN and PROP, lots of values distribute around zero. There are four reasons for this. First, controlling owners manipulate ORCS and OPCS (for example, return the money diverted before the balance sheet date), making ORCS, OROP and TUN zero or even negative. Second, some firms display both big ORCS and OPCS, which makes small OROP and TUN. Third, firms may intentionally conceal the occurrence of ORCS. Fourth, controlling shareholders may prop up bad-performing firms other than by giving finance credit.
Normality test results using Histogram and Jarque-Bera tests for all other non-dummy variables are shown in Appendices 7 to 10. It can be seen that none of them are normally distributed.

While normality is not required to obtain unbiased estimates of the regression coefficients, in regressions using least squares technique, normality of residuals is required for valid hypothesis testing, otherwise, the p-values for the t-tests and F-test may be invalid. Residuals’ normality seems not to be met using a Q-Q plot (refer Appendices 11-16).

Heteroskedasticity is the severe violation of assumptions in the linear regression analysis, which may indicate that the model is mis-specified. To control for the problem of heteroskedasticity, a generalised least squares estimator is used. Tests for heteroskedasticity after the regression are included in Appendices 17-22. There appears to be the presence of heteroskedasticity even after the adoption of generalised least squares techniques.

The presence of multicollinearity may mean that one of the variables is superfluous and thus should not be included as an explanatory variable. Testing for multicollinearity is undertaken using correlation analysis. Table 7.6.1 presents the
Pearson correlations between variables (industry and year variables are excluded) in equation models (1) to (4) in Table 6.3. P-values are given under the coefficients.

Table 7.6.1
Correlation Matrix for Variables in the Tunnelling and Propping Models

<table>
<thead>
<tr>
<th>P-value</th>
<th>AGE</th>
<th>BLK</th>
<th>CR</th>
<th>CS</th>
<th>DEBT</th>
<th>PYD</th>
<th>SALES</th>
<th>SIZE</th>
<th>ST</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGE</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BLK</td>
<td>0.0384</td>
<td>1.000</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.011</td>
<td>-----</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CR</td>
<td>-0.2579</td>
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<td>1.000</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>CS</td>
<td>-0.2077</td>
<td>-0.4249</td>
<td>0.7441</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>-----</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>DEBT</td>
<td>0.1899</td>
<td>0.0639</td>
<td>-0.1555</td>
<td>-0.1441</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
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Note: Variables definitions are provided in Table 6.2.

It can be seen that CS has a high positive correlation with CR (correlation coefficient is 0.74, significant at 1 percent level), which is because most of the firms have a controlling shareholder. Other variables don’t exhibit high correlations. As CS and CR are not perfectly positively or negatively correlated, both variables are included to increase the explanatory power of the model.
Table 7.6.2 presents the Pearson correlations between variables (industry and year variables are excluded) in equation model (5) in Table 6.3. P-values are produced under the coefficients.

Table 7.6.2

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Note: Variables definitions are provided in Table 6.2.

It can be seen from Table 7.6.2 that there are no high correlations between variables.

Table 7.6.3 presents the Pearson correlations between variables (industry and year variables are excluded) in equation models (7) to (10) in Table 6.3. P-values are provided under the coefficients.
Table 7.6.3
Correlation Matrix for Regressions on TQ

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<th>ORCS</th>
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</table>

Note: Variables definitions are provided in Table 6.2.

It can be seen from Table 7.6.3 that there are no high correlations between variables.

Based on the above tables, overall, multicolinearity is not seen to be a concern in the project.

7.4 Regression Results and Discussion

7.4.1 Evidence of Tunnelling and Propping

Regressions are run to provide evidence of tunnelling and propping using STATA. As can be seen from the descriptive statistics and histograms, many variables have
extreme values. To mitigate the effects of influential observations, a Dffits (Fox, 1991) statistic is used as a threshold for classifying the observations. The Dffits statistic is a scaled measure of the change in the predicted value for the \( i^{th} \) observation. Large absolute values of Dffits indicate influential observations. A general cutoff to consider is 2. However, in this study, the size adjusted cutoff recommended by Belsley, Kuh and Welsch (1980) is used to fit the model, \( 2*\sqrt{p/n} \), where \( p \) is the number of parameters in the model and \( n \) is the number of observations. All the models are estimated using general least squares method. Overall, the results from the trimmed samples are more significant.

Table 7.7.1 shows the effect of various governance mechanisms and other variables on the occurrence of tunneling based on the full sample and the trimmed sample (refer Table 6.3). P-values are provided under the coefficients.
<table>
<thead>
<tr>
<th>Variables</th>
<th>Full Sample</th>
<th>Trimmed Sample</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Model 1</td>
<td>Model 2</td>
</tr>
<tr>
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<td>ORCS TUN</td>
<td>ORCS TUN</td>
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<tr>
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<td>Yes</td>
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Note: Variables definitions are provided in Table 6.2.

* denotes significant at the 10 percent level
** denotes significant at the 5 percent level
*** denotes significant at the 1 percent level
Table 7.7.1 presents the regression results on the determinants of tunnelling. The ORCS and TUN are used in four models. As CS and CR are moderately correlated, CR is not significant in all models. However, if CS and CR are separated, both effects are more pronounced in the models. As expected, the presence of controlling shareholders leads to more tunnelling. In Models 1, 3 and 4, coefficients on CS are all positive and significant at the 10 percent level in Model 4, 5 percent level in Model 1 and 1 percent level in Model 3. Take Model 3 for example, firms with controlling shareholders will report 0.62 percent more tunnelling RPTs (TUN). The finding is consistent with the univariate analysis and lends support to Hypothesis 1c.

The findings on the negative role of controlling shareholders align with the judgment by Shleifer and Vishny (1997) and La Porta, Lopez-de-Silanes and Shleifer (1999), who argue that large shareholders have the power and incentives to expropriate small shareholders where legal institutions are weak. The results are also complementary to those found in other emerging economies. For example, Joh (2003) indicates that controlling owners in South Korea, even with small ownership, appropriate firms’ resources. Bertrand, Mehta and Mullainathan (2002) demonstrate the pervasive use of non-operating transactions for tunnelling by controlling group owners in Indian business groups. In fact, RPTs such as ORCS and TUN are also a form of non-operating transactions given their effect on the income statement.
Coefficients on CR are positive and yet only significant at 5 percent and 1 percent in Models 3 and 4 respectively, which means that more control rights lead to more tunnelling. This empirical result lends support to Hypothesis 1c. The results are consistent with the theory of the entrenchment effect of large shareholdings indicated by Claessens et al. (2002). They are also in line with the findings on the positive relationship between concentrated ownership and private benefits of control found by Dyck and Zingales (2004). As equity division noticeably decreases the incentive effect of cash flow rights owned by large shareholders, logically the entrenchment effect would dominate. The facilitating role of controlling shareholder and control rights in tunnelling probably can be attributable to the entrenchment effect caused by the equity division. Because of the equity division, controlling shareholders need not worry about the share price drop induced by the tunnelling.

The presence of another blockholder reduces the level of tunnelling by controlling owners. Coefficients on BLK are negative in all models and most of them are significant at 1 percent level. Hypothesis 1d is supported. It can be seen from Model 4 that firms with another blockholder have less 0.49 percent less tunneling. The positive role of another blockholder is in accordance with theoretical predictions and empirical evidence. For example, Bloch and Hege (2001) prove that multiple blockholders may compete for corporate control and thus make minority shareholders better off; Pagano and Roell (1998) argue that other blockholders may monitor the controlling
shareholder to protect their interests. Maury and Pajuste (2005) show that high contestability of other blockholders with the largest shareholder (e.g. equally distributed voting rights among all blockholders) increases firm value. Lins (2003) finds that large non-management block shareholding increases firm value in emerging markets. In China, non-controlling blockholders find it hard to challenge the position of controlling shareholders, thus the negative role of blockholders on the level of tunnelling may be the outcome of collusion (non-controlling blockholders get their share) instead of contesting.

As expected, a pyramidal structure leads to more tunnelling. In all the models, the coefficients on PYD are positive and significant at a 1 percent level. Hypothesis 4 is supported. In Model 4, it can be seen that firms controlled in pyramids report 1.5 percent more tunnelling than stand-alone firms. The findings are consistent with the theory that CMS (pyramids in particular) will create large agency costs as indicated by Bebchuk, Kraakman and Triantis (1999). The results on the facilitating role of pyramids in tunnelling reinforce those indicated by Bertrand, Mehta and Mullainathan (2002) in India, Bae, Kang and Kim (2002) and Joh (2003) in South Korea, Jian and Wong (2004, 2006) in China and Obata (2003) in nine East Asia countries. As Claessens and Fan (2002) point out group members, low-level firms in the control chain in particular, are prone to expropriation by controlling families. Yet the findings disagree with those of Cronqvist and Nilsson (2003), who demonstrate
that agency costs associated with CMS in Sweden stem from inefficient investment
decisions instead of tunnelling.

Firms controlled by the State display higher funds tunnelling as can be seen from
Models 1 to 4. Coefficients on STAT are all positive and significant at 1 percent level.
From Model 4, it can be seen state-owned firms display around 0.42 percent more
tunnelling lending than non-state-owned firms. Poor-performing state-owned firms
always end up selling the control block to private owners (Bai, Liu & Song, 2004),
otherwise the effect of the State could be more pronounced. The tunnelling effect of
the State echoes in related theories and empirical findings. For example, Qian (2000)
argues that government control of firms may entail high political costs because of
political interference or induces high agency costs when managerial autonomy
expands. Clarke (2003) suggests that SOEs in China have multiple goals such as
protection of urban employment, direct control of sensitive industries and politically
motivated job placement, which may prompt controlling state owners to take their
listed sectors as cash cows and divert funds. MacNeil (2002) shows that courts in
China have a long tradition of protecting state interests rather than those of the
individual, which may implicitly encourage controlling state owners to engage in more
tunnelling. Cheung et al. (2006) show that RPTs associated with the controlling state
owners are for expropriation and detrimental to minority shareholders.
ST is positive and significant (at 5 or 10 percent level) in all models except Model 3. A positive coefficient means ST firms tend to have more tunnelling, which is consistent with the finding of the univariate analysis. The reason could be that some ST firms are so debt-stricken that the potential or incumbent controlling owners lack necessary financial resources to prop and continue to tunnel instead. As Friedman, Johnson and Mitton (2003) argue, controlling owners may decide to prop or continue to loot given the level of outside adverse shock. Another possible reason is that propping from controlling shareholders such as asset swaps increases other receivables to controlling owners.

Coefficients on SALES are negative in all models yet significant at 1 percent level in trimmed samples only. It can be seen that firms of controlling shareholders with better investment opportunity will tunnel less. The findings provide direct evidence on the positive role of investment opportunity in reducing controlling owners’ tunnelling as proposed by La Porta et al. (2002) and Durnev and Kim (2005). For example, Durnev and Kim (2005) prove that controlling shareholders of firms with more profitable investment opportunities divert less for private gains.

Debt doesn’t seem to constrict the tunnelling activities by controlling owners; on the

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70 For example, when a listed firm sells its bad-performing subsidiary to the controlling shareholder, the previously consolidated other receivables to be collected from the subsidiary will explicitly turn out to be other receivables to be collected from listed firm’s controlling shareholder.
contrary, more debt leads to more tunnelling (all coefficients in the models are positive and significant at 1 percent level). This may explain why controlling owners in China offer loan guarantees to their listed sectors to acquire bank loans. The results contradict the prediction made by Friedman, Johnson and Mitton (2003) who argue that debt may signal controlling owners’ commitment to propping. Older firms are likely to have more tunnelling lending with all coefficients positive and significant at 1 percent level. Bigger firms tend to have less tunnelling lending (all coefficients are negative and significant at 1 percent level), probably because they tend to attract attention from the media and analysts.

Coefficients for Years 2001 and 2002 are positive and statistically significant at a minimum 5 percent level in all models. The results are consistent with the univariate analysis of yearly samples. As Year 2004 is the base year, it can be seen that tunnelling in Year 2001 and 2002 is more than that in Year 2004, indicating a positive effect of the CSRC regulations. Among industry variables, public service is the only industry that displays consistently negative and significant coefficients (1 percent level) in all models.

Table 7.7.2 presents the results on the evidence of propping in both the full sample and the trimmed sample. P-values are given under the coefficients.


**Table 7.7.2**

**Evidence of Propping**

<table>
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<th>Variables</th>
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<th>Trimmed Sample</th>
</tr>
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<tbody>
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**Note:** Variable definitions are provided in Table 6.2.

* denotes significant at the 10 percent level
** denotes significant at the 5 percent level
*** denotes significant at the 1 percent level.

OPCS and PROP are used in the models in Table 7.7.2. Of all models, the coefficient on ST is positive and significant at 1 percent level. Take Model 4 for example, the
coefficient on ST is 2.9 percent; it means that ST firms are injected into 2.9 percent of funds compared with non-ST firms. It can be seen that bad-performing firms are actually propped up by controlling shareholders. That is, Hypothesis 5 is supported. The findings add direct evidence for the first time to the propping predictions indicated by Friedman, Johnson and Mitton (2003) in terms of Southeast Asia countries during the financial crisis and Bai, Liu and Song (2004) in China.

In Models 3 and 4, PYD shows a positive and significant sign. These results are in line with the prediction that a pyramidal structure facilitates propping as proved by Riyanto and Toolsema (2004). The coefficient on DEBT is mostly negative, yet insignificant, which contradicts the notion that a high level of debt induces propping by controlling shareholders (Friedman, Johnson & Mitton 2003; Polsiri & Wiwattanakantang, 2004). The probable reason is that in China it is the new owners who actually prop up the bad-performing firms. Thus when debt level is high, prospective entrant may be short of financial resources to bail out the firms. The presence of another blockholder contributes to prop lending. The findings of positive BLK (although insignificant) and negative DEBT in propping tests are similar to Bai, Liu and Song (2004), who demonstrate that cumulative abnormal returns in two years after firms’ ST designation are more prominent when competition for the control rights is tougher and firms are less debt-stricken.
State-owned firms tend to have more propping lending (coefficients on STAT are positive and significant at 10 percent level). This is not surprising given state-owned firms tend to be rescued by the other state-owned firms or private firms.

7.4.2 Effect of Tunnelling and Propping on Operating Performance

Given the prevalence of tunnelling, it is important to measure its impact on firms’ performance. Table 7.8 reports the results on the effects of tunnelling on operating performance. ROA is regressed on tunnelling variables ORCS and TUN. P-values are shown under the coefficients.
Table 7.8.1
Effect of Tunnelling on Operating Performance

<table>
<thead>
<tr>
<th>Variables</th>
<th>Full sample</th>
<th>Trimmed Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 1 ROA</td>
<td>Model 2 ROA</td>
</tr>
<tr>
<td>Constant</td>
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</tr>
<tr>
<td></td>
<td>0.007</td>
<td>0.046</td>
</tr>
<tr>
<td>ORCS</td>
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</tr>
<tr>
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<td>0.007</td>
<td>0.000</td>
</tr>
<tr>
<td>TUN</td>
<td>-0.4760***</td>
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</tr>
<tr>
<td></td>
<td>0.000</td>
<td></td>
</tr>
<tr>
<td>SALES</td>
<td>0.0004</td>
<td>0.215</td>
</tr>
<tr>
<td></td>
<td>0.004</td>
<td>0.092</td>
</tr>
<tr>
<td>DEBT</td>
<td>-0.3616***</td>
<td>-0.4016***</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>SIZE</td>
<td>0.0768***</td>
<td>0.8222***</td>
</tr>
<tr>
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<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>AGE</td>
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<td>-0.0051</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>0.644</td>
</tr>
<tr>
<td>IND</td>
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<td>Yes</td>
</tr>
<tr>
<td>F-value</td>
<td>10.50</td>
<td>6.51</td>
</tr>
<tr>
<td>R-Square</td>
<td>0.2790</td>
<td>0.3073</td>
</tr>
<tr>
<td>Obs</td>
<td>4373</td>
<td>3056</td>
</tr>
</tbody>
</table>

Note: Variable definitions are provided in Table 6.2.
* denotes significant at the 10 percent level
** denotes significant at the 5 percent level
*** denotes significant at the 1 percent level.

From Models 1 to 4 in Table 7.8.1, it can be seen that all tunnelling variables (ORCS and TUN) have a negative effect on ROA, significant at 1 percent level. Take Model 3 for example. A one percent increase in ORCS will reduce ROA by 33.16 percent. As a result, Hypothesis 6a is supported. The results align with the negative effect of overall OR on operational performance found by Jiang, Lee and Yue (2005) in China. The results also provide support to the prediction made by Wang, Xu and Zhu (2004), who
speculate that tunnelling may play an important role in the post-IPO decline in financial performance in China’s listed firms. Furthermore, the findings provide a possible explanation for the negative relationship between blockholder ownership and accounting performance found by Thomsen, Pedersen and Kvist (2006) in the European Union and Joh (2003) in South Korea among others. DEBT has a negative impact on operating performance, significant at 1 percent level. Bigger firms tend to have better return on assets (significant at 1 percent level) while older firms are likely to have lower performance (significant at 1 percent level).

How propping affects operating performance of firms (ST firms in particular) is investigated in Table 7.8.2. While propping occurs in some ST firms, it may not change their financial status immediately given all ST firms are in financial distress.
Table 7.8.2
Effect of Propping on Operating Performance

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Full sample</td>
<td>Trimmed Sample</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ROA</td>
<td>ROA</td>
<td>ROA</td>
<td>ROA</td>
</tr>
<tr>
<td>Constant</td>
<td>-0.1033***</td>
<td>-0.0577</td>
<td>-0.0310***</td>
<td>-0.0152</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>0.110</td>
<td>0.002</td>
<td>0.327</td>
</tr>
<tr>
<td>OPCS</td>
<td>-0.5043</td>
<td></td>
<td>-0.0961*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.140</td>
<td></td>
<td>0.095</td>
<td></td>
</tr>
<tr>
<td>PROP</td>
<td></td>
<td>-0.3848</td>
<td></td>
<td>-0.1532**</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.272</td>
<td></td>
<td>0.017</td>
</tr>
<tr>
<td>SALES</td>
<td>0.0006</td>
<td>0.0003</td>
<td>0.0011*</td>
<td>0.0005**</td>
</tr>
<tr>
<td></td>
<td>0.185</td>
<td>0.184</td>
<td>0.078</td>
<td>0.014</td>
</tr>
<tr>
<td>DEBT</td>
<td>-0.3846***</td>
<td>-0.2989***</td>
<td>-0.1535***</td>
<td>-0.1205***</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>0.010</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>SIZE</td>
<td>0.0805***</td>
<td>0.0563***</td>
<td>0.0398***</td>
<td>0.0317***</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
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<td>0.000</td>
</tr>
<tr>
<td>AGE</td>
<td>-0.0112</td>
<td>-0.0124</td>
<td>-0.0184***</td>
<td>-0.0162***</td>
</tr>
<tr>
<td></td>
<td>0.207</td>
<td>0.336</td>
<td>0.000</td>
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<td>Yes</td>
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<td>32.12</td>
<td>14.13</td>
</tr>
<tr>
<td>R-Square</td>
<td>0.2373</td>
<td>0.2042</td>
<td>0.2057</td>
<td>0.2262</td>
</tr>
<tr>
<td>Obs</td>
<td>4373</td>
<td>1317</td>
<td>4313</td>
<td>1297</td>
</tr>
</tbody>
</table>

Note: Variable definitions are provided in Table 6.2.

* denotes significant at the 10 percent level
** denotes significant at the 5 percent level
*** denotes significant at the 1 percent level.

OPCS or PROP are used in Models 1 to 4 to show the influence of propping on operating performance. It can be seen that the coefficients on OPCS and PROP are all negative, yet only significant in the two trimmed samples, indicating that propping has a negative impact on the financial performance of firms. Hypothesis 7b is not supported. Possibly there are four reasons. Firstly, performances of most
to-be-proped-up firms are so deteriorating that they actually become a shell without few productive assets. Thus, controlling shareholders may keep tunnelling instead of propping as indicated by Friedman, Johnson and Mitton (2003). Secondly, the performance effect may not be captured by OPCS or PROP. Thirdly, propping from controlling parents may not be adequate to change the performance or it may take time for propping to work on the chronic firms. Lastly, controlling shareholders may undertake propping by engaging in other tunnelling activities at the same time.

7.4.3 Effect of Tunnelling and Propping on Firm Valuation

While tunnelling and propping affect operating performance, will minority investors discount the share price and thus firm valuation? Table 7.9.1 presents the results on the effect of tunnelling on Tobin’s q. TQ is regressed on ORCS and TUN based on the full sample and the trimmed sample. P-values are recorded under the coefficients.
### Table 7.9.1

**Effect of Tunnelling on TQ**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Full Sample</th>
<th>Trimmed Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 1 TQ</td>
<td>Model 2 TQ</td>
</tr>
<tr>
<td>Constant</td>
<td>2.4132***</td>
<td>2.4336***</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>ORCS</td>
<td>-0.1917</td>
<td>-0.2488***</td>
</tr>
<tr>
<td></td>
<td>0.387</td>
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</tr>
<tr>
<td>TUN</td>
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<td>-0.1977**</td>
</tr>
<tr>
<td></td>
<td>0.332</td>
<td>0.027</td>
</tr>
<tr>
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<td>-0.0191</td>
</tr>
<tr>
<td></td>
<td>0.809</td>
<td>0.455</td>
</tr>
<tr>
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<td>0.1216</td>
</tr>
<tr>
<td></td>
<td>0.008</td>
<td>0.226</td>
</tr>
<tr>
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<td>0.0376*</td>
<td>0.0186</td>
</tr>
<tr>
<td></td>
<td>0.080</td>
<td>0.464</td>
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<td>0.2642***</td>
</tr>
<tr>
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<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>SALES</td>
<td>0.0009*</td>
<td>0.0514**</td>
</tr>
<tr>
<td></td>
<td>0.096</td>
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<td>0.001</td>
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<td>-0.8145***</td>
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<td>YEAR</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>IND</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>F-value</td>
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</tr>
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<td>R-Square</td>
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<td>0.5082</td>
</tr>
<tr>
<td>Obs</td>
<td>4373</td>
<td>3056</td>
</tr>
</tbody>
</table>

Note: Variable definitions are provided in Table 6.2.

* denotes significant at the 10 percent level
** denotes significant at the 5 percent level
*** denotes significant at the 1 percent level.

Table 7.9.1 shows the effect of tunnelling on TQ. Coefficients on ORCS and TUN
are all negative yet significant only in the two trimmed samples. Take Model 4 for example, one percent increase in TUN will reduce TQ by 19.77 percent. Consequently, Hypothesis 6b is supported. The negative relationship between tunnelling and Tobin’s q is consistent with the finding by Jian and Wong (2004, 2006), who indicate that investors discount share price of firms engaged in related lending. The results are also complementary to those of Cheung, Rau, and Stouraitis (2006) that investors in mainland China discount firms involved in tunnelling transactions. Firms with controlling shareholders (CS in Models 3 and 4) have lower TQ than firms without, significant at the 1 percent level. The reason could be the negative effect of tunnelling conducted by controlling shareholders.

The ST firms normally have higher TQ, as shown in Models 1 and 3, indicating the anticipation of potential propping by investors from controlling owners although it may not necessarily be the injection of funds. SALES is positively related to TQ, significant at the 1 percent level in Models 3 and 4, indicating that profitable investment opportunities increase firm value. Bigger firms tend to have lower TQ while older firms have higher TQ (significant at the 1 percent level). Firms with a higher debt ratio have a higher TQ, all coefficients are positive and significant at the 1 percent level.

---

71 The ORCS and TUN will be negatively significant if ST firms are excluded. The difference could be caused by the distortion of ST firms on TQ.
Table 7.9.2 presents the results on the impact of propping on TQ. P-values are shown under the coefficients.

### Table 7.9.2

**Effect of Propping on TQ**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Full Sample</th>
<th>Trimmed Sample</th>
<th>ST Only</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 1</td>
<td>Model 2</td>
<td>Model 3</td>
</tr>
<tr>
<td>TQ</td>
<td></td>
<td></td>
<td>TQ</td>
</tr>
<tr>
<td>Constant</td>
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<td>0.000</td>
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<tr>
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<td>2.3438***</td>
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<td>0.000</td>
</tr>
<tr>
<td></td>
<td>2.0388***</td>
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<td>0.000</td>
</tr>
<tr>
<td></td>
<td>1.9796***</td>
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<td>0.000</td>
</tr>
<tr>
<td></td>
<td>3.7162***</td>
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<td>0.000</td>
</tr>
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<td>2.4249***</td>
</tr>
<tr>
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<td>0.000</td>
</tr>
<tr>
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<td>2.0251***</td>
<td>1.6994***</td>
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</tr>
<tr>
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<td>0.000</td>
<td>0.000</td>
<td></td>
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<td>0.000</td>
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<td>0.0340***</td>
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<td>0.2511***</td>
<td>0.2297***</td>
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<td>0.000</td>
</tr>
<tr>
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<td>0.0003</td>
<td>0.0033**</td>
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<tr>
<td></td>
<td>0.092</td>
<td>0.406</td>
<td>0.025</td>
</tr>
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<td>1.1340***</td>
<td>0.2591***</td>
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</tr>
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<td>-0.7607***</td>
<td>-0.5533***</td>
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<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>IND</td>
<td>Yes</td>
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<td>Yes</td>
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<tr>
<td>F-value</td>
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<td>Obs</td>
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<td>1317</td>
<td>4183</td>
</tr>
</tbody>
</table>

Note: Variable definitions are provided in Table 6.2.

* denotes significant at the 10 percent level
** denotes significant at the 5 percent level
*** denotes significant at the 1 percent level.
It can be seen from Table 7.9.2, coefficients on OPCS and PROP are positive and significant at the 1 percent level, meaning more propping leads to higher TQ. Thus, Hypothesis 7a is supported. Coefficients on ST are positive and significant in Models 1 to 4 (minimum 10 percent level), echoing the results presented in Table 7.9.1. ST firms have higher TQ because of possible propping from incumbent or incoming controlling owners.

In Model 5, only ST firms are used to examine the effect of propping. It can be seen that OPCS is still positive and significant at the 1 percent level. On the whole the results indicate a clear positive impact of propping lending on TQ.

The findings provide direct support to the propping speculations implied by Friedman, Johnson and Mitton (2003) in terms of lower price drop for pyramidal firms in the Asian Financial Crisis and Bai, Liu and Song (2004) on the positive market effect of ST designation in China. The findings are also consistent with the positive announcement effects stemming from the propping-purpose RPTs indicated by Cheung et al. (2006).

DEBT has a positive effect on market valuation while SIZE is negatively related to TQ as indicated in Table 7.9.2. STAT has a positive effect in Models 2 to 4. The reason could be that poor-performing state-owned firms can always sell the listing shell to
private firms. The finding is opposite to that of Bai et al. (2004), who show that government as the largest shareholder negatively affects firm value. It also contradicts the findings of Wei, Xie and Zhang (2005) and Tian and Estrin (2005), who find a negative relationship between firm value and state shareholding.

7.5 Robustness Test

7.5.1 Control Rights Threshold

There are no specific rules on choosing the threshold for control rights. La Porta et al. (1999) and Claessens, Djankov and Lang (2000) use 10 percent and 20 percent respectively to classify the presence of controlling shareholders. Lemmon and Lins (2003) argue that a significant level of control is a necessary condition for expropriating minority shareholders. To see if the change of control rights cutoff affects the overall results, 20 percent control cutoff is used. Table 7.10 shows the results on the evidence of tunnelling using lower control rights in trimmed samples. P-values are recorded under the coefficients.
Table 7.10
Evidence of Tunnelling Using CSL

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1 ORCS</th>
<th>Model 2 TUN</th>
</tr>
</thead>
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</tr>
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<td>0.030</td>
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</tr>
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<td>0.000</td>
</tr>
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<tr>
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<td>0.001</td>
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<td>-0.0044***</td>
</tr>
<tr>
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<td>0.005</td>
<td>0.002</td>
</tr>
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<td>0.0169**</td>
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<td>0.947</td>
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</tr>
<tr>
<td>SIZE</td>
<td>-0.0086***</td>
<td>-0.0139***</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>YEAR</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>IND</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>F-value</td>
<td>13.76</td>
<td>14.55</td>
</tr>
<tr>
<td>R-Square</td>
<td>0.0716</td>
<td>0.1065</td>
</tr>
<tr>
<td>Obs</td>
<td>4260</td>
<td>2961</td>
</tr>
</tbody>
</table>

Note: Variable definitions are provided in Table 6.2.

* denotes significant at the 10 percent level,
** denotes significant at the 5 percent level,
*** denotes significant at the 1 percent level.

Table 7.10 presents the results based on the lower level of control rights. Similar to those in Models 3 and 4 in Table 7.7.1, all coefficients for CSL are positive and
significant at the 1 percent level. The positive sign using a lower cutoff means that 20 percent of control rights are enough for effective control. This is in line with the outcome from Joh (2003) who indicates that controlling shareholders in South Korea can engage in tunnelling even with a small ownership stake.

Another blockholder is normally more powerful when controlling owners have lower control rights. As expected, coefficients for BLK are more economically and statistically significant. In Models 1 and 2 in Table 7.10, BLK has coefficients of 0.31 percent and 0.55 percent (absolute value) respectively, which are bigger than 0.25 percent and 0.49 percent (absolute value) in Models 3 and 4 in Table 7.7.1. The findings are consistent with the view of Maury and Pajuste (2005), who prove that higher contestability of other blockholders with the largest shareholder increases firm value, while lower contestability decreases firm value.

Other variables like PYD and STAT do not change. All other variables have similar outcomes as well. Overall, the adoption of lower control rights increases the explainable power of the models.

7.5.2 Relationship between Tunnelling, Propping and ST

As shown before, tunnelling may cause the deterioration of firm performance.
Because ST is for firms which have two consecutive years of loss, it can be seen that tunnelling may lead to the occurrence of ST. Jiang, Lee and Yue (2005) indicate that firms with a high level of gross OR are likely to become ST firms. Thus, the inclusion of ST in the regressions for estimating tunnelling and the impact of tunnelling on operating performance could be inappropriate. To control this potential weakness, ST firms are excluded to re-estimate related regressions.

Table 7.11 presents the results without the inclusion of ST, based on the trimmed samples. The ORCS and TUN are used in the two models. P-values are presented under the coefficients.
Table 7.11
Evidence of Tunnelling Without ST Firms

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1 ORCS</th>
<th>Model 2 TUN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-0.0073</td>
<td>-0.0186*</td>
</tr>
<tr>
<td></td>
<td>0.271</td>
<td>0.064</td>
</tr>
<tr>
<td>CS</td>
<td>0.0056***</td>
<td>0.0048*</td>
</tr>
<tr>
<td></td>
<td>0.001</td>
<td>0.052</td>
</tr>
<tr>
<td>CR</td>
<td>0.0114**</td>
<td>0.0269***</td>
</tr>
<tr>
<td></td>
<td>0.021</td>
<td>0.000</td>
</tr>
<tr>
<td>BLK</td>
<td>-0.0036***</td>
<td>-0.0039**</td>
</tr>
<tr>
<td></td>
<td>0.003</td>
<td>0.035</td>
</tr>
<tr>
<td>PYD</td>
<td>0.0102***</td>
<td>0.0145***</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>0.026</td>
</tr>
<tr>
<td>STAT</td>
<td>0.0042***</td>
<td>0.0056***</td>
</tr>
<tr>
<td></td>
<td>0.002</td>
<td>0.004</td>
</tr>
<tr>
<td>SALES</td>
<td>-0.0002***</td>
<td>-0.0038***</td>
</tr>
<tr>
<td></td>
<td>0.003</td>
<td>0.009</td>
</tr>
<tr>
<td>DEBT</td>
<td>0.0325***</td>
<td>0.0436***</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>AGE</td>
<td>0.0106***</td>
<td>0.0159***</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>SIZE</td>
<td>-0.0092***</td>
<td>-0.0117***</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>YEAR</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>IND</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>F-value</td>
<td>13.67</td>
<td>14.85</td>
</tr>
<tr>
<td>R-Square</td>
<td>0.0780</td>
<td>0.1059</td>
</tr>
<tr>
<td>Obs</td>
<td>4101</td>
<td>2872</td>
</tr>
</tbody>
</table>

Note: Variable definitions are provided in Table 6.2.
* denotes significant at the 10 percent level
** denotes significant at the 5 percent level
*** denotes significant at the 1 percent level.

Similar to the results in Table 7.7.1, it can be seen in Table 7.11 that coefficients on CS are all significant although they show a slight decrease in magnitude. Other
variables display similar patterns. Overall, the exclusion of ST in estimating tunnelling produces roughly comparable results.

To further test the effect of ST on firms’ valuation in terms of tunnelling and propping, four interactive terms are created: ST*ORCS, ST*TUN, ST*OPCS, ST*PROP. For brevity, TQ is only regressed on the full sample. The results are more pronounced when using the trimmed sample. Table 7.12.1 presents the results with the interactive terms of ST*ORCS and ST*TUN in terms of tunnelling effect on firm valuation.
### Table 7.12.1

**Effect of Tunnelling on TQ with Interactive Terms**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1 TQ</th>
<th>Model 2 TQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>2.4221***</td>
<td>2.4443***</td>
</tr>
<tr>
<td>ORCS</td>
<td>-0.4402</td>
<td>0.053*</td>
</tr>
<tr>
<td>TUN</td>
<td>0.0083</td>
<td>-0.5258</td>
</tr>
<tr>
<td>CS</td>
<td>0.0083</td>
<td>-0.0141</td>
</tr>
<tr>
<td>ST</td>
<td>0.1604*</td>
<td>0.0251</td>
</tr>
<tr>
<td>ORCS*ST</td>
<td>0.8304**</td>
<td>0.013</td>
</tr>
<tr>
<td>TUN*ST</td>
<td></td>
<td>0.9859***</td>
</tr>
<tr>
<td>STAT</td>
<td>0.0364*</td>
<td>0.0174</td>
</tr>
<tr>
<td>AGE</td>
<td>0.2744***</td>
<td>0.2702***</td>
</tr>
<tr>
<td>SALES</td>
<td>0.0009*</td>
<td>0.0525**</td>
</tr>
<tr>
<td>DEBT</td>
<td>1.2297***</td>
<td>1.2959***</td>
</tr>
<tr>
<td>SIZE</td>
<td>-0.8043***</td>
<td>-0.8202***</td>
</tr>
<tr>
<td>YEAR</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>IND</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>F-value</td>
<td>74.90</td>
<td>55.03</td>
</tr>
<tr>
<td>R-Square</td>
<td>0.5021</td>
<td>0.5121</td>
</tr>
<tr>
<td>Obs</td>
<td>4373</td>
<td>3056</td>
</tr>
</tbody>
</table>

Note: Variable definitions are provided in Table 6.2.

* denotes significant at the 10 percent level
** denotes significant at the 5 percent level
*** denotes significant at the 1 percent level.
It can be seen from Table 7.12.1, tunnelling variables (ORCS and TUN) are both negative yet more significant than those in Table 7.9.1. On the other hand, coefficients on ST are nearly the same. Overall, the results show that to ST firms, tunnelling doesn’t concern investors, while to non-ST firms, tunnelling negatively affects firm value.

Table 7.12.2 presents the results with the interactive terms of ST*OPCS and ST*PROP in terms of propping effect on firm valuation. TQ is only regressed on the full sample.
### Table 7.12.2

Effect of Propping on TQ with Interactive Terms

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1</th>
<th></th>
<th>Model 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TQ</td>
<td></td>
<td>TQ</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>2.3632***</td>
<td>0.000</td>
<td>2.3463***</td>
<td>0.000</td>
</tr>
<tr>
<td>OPCS</td>
<td>2.8160***</td>
<td>0.003</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROP</td>
<td></td>
<td></td>
<td>1.8067***</td>
<td>0.004</td>
</tr>
<tr>
<td>CS</td>
<td>-0.0050</td>
<td>-0.0708</td>
<td>0.821</td>
<td>0.164</td>
</tr>
<tr>
<td>ST</td>
<td>0.1466*</td>
<td>0.066</td>
<td>0.1962*</td>
<td>0.099</td>
</tr>
<tr>
<td>OPCS*ST</td>
<td>0.2698</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROP*ST</td>
<td></td>
<td>0.6664</td>
<td></td>
<td>0.716</td>
</tr>
<tr>
<td>STAT</td>
<td>0.0307</td>
<td>0.0832**</td>
<td>0.146</td>
<td>0.043</td>
</tr>
<tr>
<td>AGE</td>
<td>0.2474***</td>
<td>0.000</td>
<td>0.2532***</td>
<td>0.000</td>
</tr>
<tr>
<td>SALES</td>
<td>0.0008*</td>
<td>0.0003</td>
<td>0.090</td>
<td>0.338</td>
</tr>
<tr>
<td>DEBT</td>
<td>1.1978***</td>
<td>0.000</td>
<td>1.1326***</td>
<td>0.001</td>
</tr>
<tr>
<td>SIZE</td>
<td>-0.7755***</td>
<td>0.000</td>
<td>-0.7606***</td>
<td>0.000</td>
</tr>
<tr>
<td>YEAR</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>IND</td>
<td>Yes</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>F-value</td>
<td>76.45</td>
<td></td>
<td>28.07</td>
<td></td>
</tr>
<tr>
<td>R-Square</td>
<td>0.5124</td>
<td>0.5298</td>
<td>0.5298</td>
<td></td>
</tr>
<tr>
<td>Obs</td>
<td>4373</td>
<td></td>
<td>1317</td>
<td></td>
</tr>
</tbody>
</table>

Note: Variable definitions are provided in Table 6.2.

* denotes significant at the 10 percent level
** denotes significant at the 5 percent level
*** denotes significant at the 1 percent level.
It can be seen from Table 7.12.2, coefficients OPCS and PROP are both positive and significant, comparable to those in Table 7.9.2. Coefficients on ST display a similar pattern as well. Overall, the results indicate that investors anticipate propping for ST firms from controlling parents.

7.5.3 Endogeneity of Ownership, Tunnelling and Propping Variables

Many scholars argue that ownership could be endogenously determined (see Chui, Titman & Wei, 2000; Demsetz & Villalonga, 2001 and others). If that is the case, regression results based on the use of controlling shareholders and control rights could be biased. While ownership endogeneity could be a problem in developed countries, in emerging economies, as argued by Djankov and Murrell (2002), ownership is “largely determined through political and administrative processes rather than endogenously determined in markets with low transactions costs” (p.754).

Lins (2003) indicates that the consideration of ownership endogeneity doesn’t change the relationship between ownership and firm valuation in the emerging markets. Sun and Tong (2003) argue that in China, the amount and type of ownership is largely based on government policy, ideology and a quota system. They find no evidence in China that SOEs profitability prior to privatisation affects the government’s consideration of how much ownership to retain after its privatisation.
As large shareholdings are non-floatable and strictly controlled by the government, it is hard for large shareholders to change their shareholdings. Overall, ownership endogeneity is not an issue in this research.

The variables ORCS (TUN) and OPCS (PROP) are explanatory in the equations of ROA (see Table 7.8.1). These variables are also determined separately by other variables (see Table 7.7.2). Therefore, the endogeneity of ORCS (TUN) and OPCS (PROP) is obvious. Jiang, Lee and Yue (2005) indicate that firms with a high level of gross OR are likely to become ST firms. Thus, ST may be endogenously determined as well. To fix the endogeneity issue, 3-Stage OLS is used to retest the determination of tunnelling and its effect on firm performance. 2-Stage OLS is attempted to retest the determination of propping and its effect on firm performance. For brevity, only the results on the full sample (without industry variables) are reported. As some R-squares are negative, R-squares are shown. Tables 7.13.1 and 7.13.2 present the results on the evidence of tunnelling and its effect on ROA.
Table 7.13.1
Evidence of Tunnelling Using 3-Stage Least Square

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1 ORCS</th>
<th>Model 2 TUN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-0.0154***</td>
<td>-0.0109</td>
</tr>
<tr>
<td></td>
<td>0.010</td>
<td>0.146</td>
</tr>
<tr>
<td>CS</td>
<td>0.0087***</td>
<td>0.0074**</td>
</tr>
<tr>
<td></td>
<td>0.001</td>
<td>0.041</td>
</tr>
<tr>
<td>BLK</td>
<td>-0.0063***</td>
<td>-0.0104***</td>
</tr>
<tr>
<td></td>
<td>0.005</td>
<td>0.003</td>
</tr>
<tr>
<td>PYD</td>
<td>0.0106***</td>
<td>0.0179***</td>
</tr>
<tr>
<td></td>
<td>0.002</td>
<td>0.000</td>
</tr>
<tr>
<td>STAT</td>
<td>0.0044*</td>
<td>0.0023</td>
</tr>
<tr>
<td></td>
<td>0.060</td>
<td>0.511</td>
</tr>
<tr>
<td>SALES</td>
<td>-0.0002*</td>
<td>-0.0044***</td>
</tr>
<tr>
<td></td>
<td>0.104</td>
<td>0.002</td>
</tr>
<tr>
<td>ST</td>
<td>0.6763***</td>
<td>0.8754***</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>YEAR</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Obs</td>
<td>4373</td>
<td>3056</td>
</tr>
</tbody>
</table>

Note: Variable definitions are provided in Table 6.2.

* denotes significant at the 10 percent level,
** denotes significant at the 5 percent level,
*** denotes significant at the 1 percent level.
### Table 7.13.2

**Effect of Tunnelling on ROA using 3 Stage Least Square**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1 ROA</th>
<th>Model 2 ROA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-0.1048***</td>
<td>-0.1283***</td>
</tr>
<tr>
<td>ORCS</td>
<td>-0.5652***</td>
<td></td>
</tr>
<tr>
<td>TUN</td>
<td>-0.3030*</td>
<td>0.083</td>
</tr>
<tr>
<td>AGE</td>
<td>-0.00004</td>
<td>-0.00004***</td>
</tr>
<tr>
<td>SALES</td>
<td>0.0004</td>
<td>0.0163***</td>
</tr>
<tr>
<td>DEBT</td>
<td>-0.3558***</td>
<td>-0.4118***</td>
</tr>
<tr>
<td>SIZE</td>
<td>0.0749***</td>
<td>0.0845***</td>
</tr>
<tr>
<td>Obs</td>
<td>4373</td>
<td>3056</td>
</tr>
</tbody>
</table>

*Note: Variable definitions are provided in Table 6.2.*

* denotes significant at the 10 percent level

*** denotes significant at the 1 percent level.

It can be seen results from the above two tables are nearly same to those in Tables 7.7.1 and 7.8.1.

Tables 7.13.3 and 7.13.4 present the results on the evidence of propping and its effect on ROA.
Table 7.13.3
Evidence of Propping Using 2-Stage Least Square

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1 OPCS</th>
<th>Model 2 PROP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>0.0055***</td>
<td>0.0244***</td>
</tr>
<tr>
<td></td>
<td>0.003</td>
<td>0.000</td>
</tr>
<tr>
<td>CS</td>
<td>0.0001</td>
<td>-0.0032</td>
</tr>
<tr>
<td></td>
<td>0.924</td>
<td>0.347</td>
</tr>
<tr>
<td>BLK</td>
<td>-0.0001</td>
<td>0.0021</td>
</tr>
<tr>
<td></td>
<td>0.921</td>
<td>0.480</td>
</tr>
<tr>
<td>PYD</td>
<td>0.0007</td>
<td>-0.0097*</td>
</tr>
<tr>
<td></td>
<td>0.661</td>
<td>0.066</td>
</tr>
<tr>
<td>STAT</td>
<td>0.0008</td>
<td>0.0030</td>
</tr>
<tr>
<td></td>
<td>0.482</td>
<td>0.340</td>
</tr>
<tr>
<td>SALES</td>
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<td>-0.00004</td>
</tr>
<tr>
<td></td>
<td>0.474</td>
<td>0.672</td>
</tr>
<tr>
<td>ST</td>
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<td>0.0461***</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Obs</td>
<td>4373</td>
<td>1317</td>
</tr>
</tbody>
</table>

Note: Variable definitions are provided in Table 6.2.
* denotes significant at the 10 percent level,
*** denotes significant at the 1 percent level.
Table 7.13.4
Effect of Propping on ROA using 2 Stage Least Square

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1 ROA</th>
<th>Model 2 ROA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-0.1260***</td>
<td>-0.1364***</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>0.006</td>
</tr>
<tr>
<td>OPCS</td>
<td>-0.3275</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.655</td>
<td></td>
</tr>
<tr>
<td>PROP</td>
<td></td>
<td>0.5908</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.276</td>
</tr>
<tr>
<td>AGE</td>
<td>-0.00003</td>
<td>-0.0001</td>
</tr>
<tr>
<td></td>
<td>0.706</td>
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<tr>
<td>SALES</td>
<td>0.0006</td>
<td>0.0003</td>
</tr>
<tr>
<td></td>
<td>0.131</td>
<td>0.349</td>
</tr>
<tr>
<td>DEBT</td>
<td>-0.3853***</td>
<td>-0.2949***</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>SIZE</td>
<td>0.0800***</td>
<td>0.0756***</td>
</tr>
<tr>
<td></td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Obs</td>
<td>4373</td>
<td>1317</td>
</tr>
</tbody>
</table>

Note: Variable definitions are provided in Table 6.2.
*** denotes significant at the 1 percent level.

It can be seen results from the above two tables are nearly same to those in Tables 7.7.2 and 7.8.2.

Overall, the above results using 3 Stage Least Square and 2 Stage Least Square show that endogeneity is not an issue in terms of determinants of tunnelling and propping and their effects on firm performance.

7.6 Limitations
The inferences of this study are subject to several limitations. Firstly, because (de)listing status and SEO are closely tied to firm performance (ROE in particular), there is widespread accounting manipulation and earnings management (inflated earnings in most case) in China (Jian & Wong, 2004; Liu & Lu, 2004; Liu, 2006), which may greatly cause the underestimation of tunnelling and distort the relationship between tunnelling, operating performance and firm valuation.

Secondly, only borrowing and lending RPTs are researched for tunnelling and propping in this study, yet there are lots of other RPTs that can be used for tunnelling and propping. For example, listed firms are exploited by giving loan guarantees to controlling shareholders (Berkman, Cole & Fu, 2006), which is clearly a form of tunnelling. Yet loan guarantees are often offered by new controlling shareholders for bad-performing firms to obtain necessary financial resources apart from the funds injection. While Berkman, Cole and Fu (2006) point out the tunnelling nature of the issuance of loan guarantees to controlling owners, it doesn’t necessarily mean that offers of loan guarantees from controlling owners to listed firms are beneficial. The reason is that controlling owners can always divert the funds using their controlling position when firms obtain the loans. That higher debt level leads to a higher level of tunnelling implies such a possibility.
Thirdly, in this study only a few related governance indicators, like the presence of controlling shareholders and other blockholders and control rights are used to account for the impact of corporate governance. Other factors such as duality of CEO, percentage of independent directors, executives’ compensation, may also affect the occurrence and level of tunnelling especially in state-owned firms. Data availability also constraints the exploration of the effect of the ownership and control gap on tunnelling.

Fourthly, while general least squares techniques are adopted to deal with the heteroskedasticity of residuals, heteroskedasticity still seems a problem. The possible presence of violations of assumptions in the linear regressions may cause unreliable statistical inferences.

7.7 Summary

In China, controlling owners engage in tunnelling and propping through related lending and borrowing, although tunnelling dwarfs propping in terms of number and magnitude. Firms with controlling shareholders have more tunnelling RPTs, the effect is more pronounced using a lower control rights threshold. While more control rights lead to more tunnelling RPTs, better investment opportunities induce controlling owners to tunnel less. State ownership and pyramidal structures increase
the level of tunnelling lending, while the presence of large non-controlling shareholder reduces it. Tunnelling RPTs in Years 2001 and 2002 are higher than those in Years 2003 and 2004, this is attributable to the enhanced regulation imposed by the CSRC in 2003. While RPTs are mainly for tunnelling, they are also used by controlling shareholders to prop up financially distressed firms although not all of them choose to do so. A high debt ratio contributes to tunnelling instead of deterring it. Tunnelling and propping have different valuation outcomes. While tunnelling adversely affects firms’ operating performance and market valuation, propping shows a positive effect on market valuation (ST firms in particular) although not on operating performance.

A robustness test in terms of lower control rights indicates that even lower control rights are enough for effective control. The exclusion of ST firms does not change the overall economic and significant level of results, indicating the effectiveness of empirical models. While ownership endogeneity plagues research in terms of ownership and firm value in developed countries, it is not an issue in this project. However, the heteroskedasticity of residuals may pose a threat to the reliability of statistical inferences although a generalised least squares technique is adopted.
CHAPTER EIGHT

Conclusions and Policy Implications

8.1 Conclusions

This study examines how controlling owners utilise related party transactions for the purpose of tunnelling and propping, how owner type and control mechanisms affect the tunnelling behaviour and how tunnelling and propping affect operating performance and firm valuation.

Johnson et al. (2000a) define tunnelling as the assets and profit transfer for the benefits of controlling owners. While they derive the concept from the expropriation of minority shareholders by controlling owners in several developed Western European countries, tunnelling is generally thought to be more rampant in emerging markets. Indirect evidence in India, South Korea and other transitional countries justifies the statement. However direct and large-sample evidence is needed. Controlling owners in certain circumstances use their private funds to prop up financially distressed firms. Friedman, Johnson and Mitton (2003) coin the term propping to account for this type of activity. While they show anecdotal evidence of propping and imply the symmetric nature between tunnelling and propping, they call
for further direct evidence on the magnitude and nature of propping.

Similar to other developing countries, China lags in the setup and operation of sound institutions despite its remarkable economic success. Apart from its immature institutions, China differs from many of the economies studied in the tunnelling and propping literature. The unique features of China’s institutional setting such as equity division structures, prevailing state ownership, spin-off listing process and high ownership concentration make this study appealing and productive.

The findings of this study are as follows. The first part of the study examines the association between ownership structures and tunnelling. In particular, how the presence of controlling shareholders and other block shareholders, the level of control rights, the ownership type (state or private) and the control mechanism affect the level of tunnelling. The results indicate the entrenchment effect of controlling shareholders and high control rights. For example, the presence of controlling shareholders and higher control rights leads to the higher level of tunnelling-purpose related party transactions. At the same time, while the share of the tunnelling attributable to controlling shareholders is higher than that of other related parties, the presence of other blockholders reduces its magnitude. How firms are controlled also matters. Controlling shareholder will tunnel more when they control listed firms in pyramids. This is consistent with the negative effect of pyramidal groups. The
“grabbing role” of the State is also confirmed. State controlling shareholders tend to tunnel more. However, when firms have better investment opportunities, controlling shareholders tend to tunnel less. Contrary to the restricting role of debt, more leveraged firms display more tunnelling. All these results are robust to lower control rights and the exclusion of financially-distressed firms. It can be seen that the first research question is well addressed.

The second research question is to testify the propping hypothesis: will controlling owners prop up firms with delisting risk to maintain their private benefits? The empirical findings show that poor-performing firms exhibit more propping-purpose related party transactions, indicating low-cost funds are injected into financially distressed firms. This is the first time that direct evidence on propping is found. Given tunnelling dwarfs propping in magnitude and propping is only given some bad-performing firms, the positive role of propping shouldn’t be overemphasised. In fact, propping from controlling owners doesn’t change the receivers’ operating performance.

The second part of the study demonstrates the effect of tunnelling on operating performance. The findings indicate that tunnelling-purpose other receivables have a negative effect on listed firms’ operating performance.
The third part of the study examines how tunnelling and propping affect firm valuation to address the third research question. The findings show that tunnelling purpose other receivables lead to lower Tobin’s q while propping purpose other payables are associated with higher Tobin’s q. Additionally, ST firms normally have higher Tobin’s q, implying investors anticipate propping from controlling owners although the propping may not necessarily be the funds injection researched in this study. The fact that tunnelling RPTs (propping RPTs) are associated with lower (higher) Tobin’s q indicates the increasing attention of investors to expropriation and potential propping in China.

In short, the evidence in this study shows that when legal protection of minority shareholders is weak and the aligning effect of high ownership is reduced, controlling owners divert financial resources out of listed firms for their own benefits. While propping does occur to some bad-performing firms, it is normally undertaken by new private owners for listing status, which may cause further tunnelling when their control of firms in special treatment is secure.

8.2 Implications of Findings

The main contribution of this study is to provide direct and large-sample evidence on tunnelling and propping (in particular) via related party transactions by controlling
owners in China. The findings have important policy implications. Firstly, the results presented in this study provide consistent evidence which shows that tunnelling is prevalent in China especially in firms that are ultimately state-owned or firms where controlling owners have higher control rights. Hence, policymakers and regulators must recognise that the pervasive expropriation by controlling owners will not change if there is no substantial improvement in legal protection of minority shareholders. Lower levels of tunnelling in years 2003 and 2004 shows the positive effect of strict regulation. Yet, more needs to be undertaken beyond the regulatory level.

For example, China’s government should take steps to improve the quality of China’s corporate governance by strengthening legal liabilities and shareholder rights. Most importantly, the presence of active direct market intervention by the Chinese government is responsible for some of China’s tunnelling activities (state-controlled firms display more tunnelling). Over a long period, China’s share market has been dominated by the political or ideological doctrines adopted by the government. However, China’s share market will not advance without building up a well-functioning corporate governance system with a focus on protecting the interests of minority shareholders.

72 Corporate governance mechanisms in China are considered very weak and ineffective (Bai et al., 2006; Lin, 2004; Shi & Weisert, 2002; Tenev, Zhang & Brefort, 2002).
Poor institutional infrastructures in China’s economy, i.e., concentrated state ownership, the existence of considerable non-floatable shares, the absence of management incentive mechanisms, weak legal enforcement and government manipulation, have created a number of institutional obstacles which impede the sustained and sustainable development of its financial system (Allen, Qian & Qian, 2005). Under such a government-directed system, the ownership of listed companies in China is highly concentrated, a fact which creates several systemic problems. Controlling shareholders can easily ignore minority shareholders and make use of all kinds of related party transactions for private benefit. In addition, the government still controls the pace, price and criteria of share issuance, making valuable listing status and entangled operational and managerial relationship possible. Hence, policymakers and regulators must lessen the role of the state by liberalising the financial sector, allowing for diversified corporate ownership and gradually releasing non-floatable shares to be floated on the market to align interests of large and minority shareholders.

Secondly, China’s government has made substantial progress in recent years in enacting laws and regulations to improve corporate governance, disclosure quality, 73 See regulations endorsed by the CSRC to protect minority investors as indicated by Berkman, Cole and Fu (2005).
reduce information asymmetry. However, the nature of the developing market won’t change in a short time. La Porta, Lopez-de-silanes and Shleifer (2006) argue that it is laws mandating disclosure and facilitating private enforcement instead of public enforcement that benefit the stock market. While their statements sound reasonable in developed countries, it is not the case in China. In fact, the main problem with China’s weak corporate governance system and extensive tunnelling is not the laws or regulations themselves, but how they are implemented or enforced. Pistor and Xu (2005) indicate that private enforcement of investor rights and public enforcement of contractual disputes are extremely weak and inefficient in China. Because of this, as indicated by Liu (2006), a control-based governance structure is adopted. Only when a law or regulation has been promulgated with a rigorous enforcement mechanism and supplemented by an effective penalty system, will it be possible to prevent tunnelling and expropriation and bring the management of companies under regulation (Zhang, 2007). A positive impact of strict regulations from the CSRC indicates that it is the public enforcement that matters in China although at the possible cost of over-regulation. In fact, until now there is not even one civil-liability compensation case for minority investors from directors, controlling shareholders and other financial intermediaries because of false statements, insider trading, market manipulation or other misconducts. It is still a long way to set up an effective legal system in China.
8.3 Avenues for Future Research

This study suggests several extensions for studies in the future. First, this study raises the question as to what other institutional and governance factors influence tunnelling and propping. Further attempts could be made to integrate the literature of corporate governance to gain knowledge and understanding about the nature of tunnelling via related party transactions. For example, it would be interesting to investigate the link between aspects of corporate governance (apart from variables used in this study) and tunnelling and propping, such as the functioning of a board of (independent) directors with specialised committees, audit quality and independence and other external governance structures.

As macro-level institutions in China are very weak, firm-level corporate governance is expected to play a more direct role in constraining controlling owners’ expropriating incentives. With gradual improvement in legal and regulatory institutions in China, further research will continue to explore the effects of new institutions (e.g., floating of non-floating state and legal person shareholdings) and different segregations (i.e., inter-regional, cross-industry and cross-ownership) on tunnelling and propping in different stages of China’s transition to a market economy.
Secondly, while only funds injection is examined as a way of propping in the study, there are actually many ways for controlling owner to transfer resources into poor-performing firms. For example, controlling owners may swap their profitable assets with loss-making assets from listed firms. Controlling owners may also offer loan guarantees to their listed sectors. Thus, it is important to examine the impact of propping other than fund injection.

Thirdly, future research can build on the findings of this study to identify the beneficiaries of tunnelling. Burkart and Panunzi large (2006) argue that the shareholder and the manager are distinct parties, and their interests are likely to differ, irrespective of the block size. In China, apart from family-controlled firms, as pyramids employed in state-owned firms are to reduce state intervention and decentralise decision rights to the management (Fan, Wong & Zhang, 2005), it is likely that management insiders will benefit themselves even at the cost of controlling state shareholders (managerial ownership virtually doesn’t exist in China). Several high profile appropriation cases by insider managers also imply that the interests of state shareholders and of managers may not be perfectly aligned. Thus more meaningful results could be obtained via differentiating private benefits of control between controlling shareholders and management, as indicated by Hwang (2004), although his method can’t be directly applied to this study.
Fourthly, the study shows that controlling shareholders do inject funds to their poor-performing firms. However, determining when propping actually occurs is an issue. Based on the literature, controlling shareholders or parents prop up only when firms they control go bankruptcy or are to be delisted. That is when they are going to lose their private benefits of control permanently. This is the reason, in this study, that firms with a two-year loss (STs) are used as a proxy for the possible propping from parents. Will firms only experiencing large drops of operating performance in one specific year compel controlling parents to prop them up? This is a vital area for future research in terms of propping.

Lastly, while focusing on lending and borrowing RPTs, it is necessary to explore the impact of financial tunnelling (e.g., insider trading) and the combinations of operational and financial tunnelling. The reason is that with the increasing regulatory attention on operational tunnelling and the completion of equity division reform, controlling shareholders may turn to financial tunnelling to grab their private benefits. Thus paying attention to financial tunnelling may provide more insightful results in the near future.
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**STATEMENT:**

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Appendix 1

A Typical State Owned Pyramidal Structure in China

State-Owned Assets Management Bureau (Committee)

100%  
Firm A (SOE)  85%  

40%  
Listed Firm C (SOE)  20%

Firm B (SOE)

Cash Flow Rights: $100\% \times 40\% + 85\% \times 20\% = 57\%$

Control Rights: $40\% + 20\% = 60\%$

Control and Ownership Gap: $60\% - 57\% = 3\%$

Cash Flow Rights Leverage: $60\% / 57\% = 1.05$
Appendix 2

A Typical Private Controlled Pyramidal Structure in China

Cash Flow Rights: 50%*40%*30%+20%*5%=7%

Control Rights: 30%+5%=35%

Control and Ownership Gap: 35%-7%=28%

Cash Flow Rights Leverage: 35%/7%=5
Appendix 3

ORCS and Control Rights

Univariate Analysis

ORCS (%) vs. Control Rights (%)
Appendix 4

OROP and Control Rights

Univariate Analysis
Appendix 5

Histogram of ORCS

Note:

These histograms indicate the shape, centre and spread (the normality and uniformity) of the distributions of the key continuous variable in the tunnelling, propping and their effects models. P-value of Jarque-Bera is zero, which means that ORCS is not normally distributed.
Appendix 6

Histogram of OROP and TUN

**Series: OROP**
Sample 1: 4373
Observations: 4373
Mean: 0.018927
Median: 0.000000
Maximum: 2.476045
Minimum: -0.670921
Std. Dev.: 0.092920
Skewness: 10.29401
Kurtosis: 221.0617
Jarque-Bera: 8741404.
Probability: 0.000000

**Series: TUN**
Sample 1: 4373
Observations: 3056
Mean: 0.034825
Median: 0.002241
Maximum: 2.476045
Minimum: 0.000000
Std. Dev.: 0.103102
Skewness: 10.70576
Kurtosis: 200.1024
Jarque-Bera: 5005196.
Probability: 0.000000
Appendix 7

Histogram of PROP and CR

Series: PROP
Sample 1 4373
Observations 1317
Mean 0.017965
Median 0.004067
Maximum 0.670921
Minimum 1.63e-07
Std. Dev. 0.045371
Skewness 7.579313
Kurtosis 87.77087
Jarque-Bera 406946.7
Probability 0.000000

Series: CR
Sample 1 4373
Observations 4373
Mean 0.451286
Median 0.445500
Maximum 0.850000
Minimum 0.073100
Std. Dev. 0.169821
Skewness 0.107347
Kurtosis 1.956262
Jarque-Bera 206.8943
Probability 0.000000
Appendix 8

Histogram of AGE and SIZE in Logarithm

Series: AGE
Sample 1 4373
Observations 4373
Mean 1.845520
Median 1.877671
Maximum 2.391254
Minimum 0.970207
Std. Dev. 0.271506
Skewness -0.615154
Kurtosis 3.081839
Jarque-Bera 277.0215
Probability 0.000000

Series: SIZE
Sample 1 4373
Observations 4373
Mean 3.175574
Median 3.144303
Maximum 5.662834
Minimum 1.561922
Std. Dev. 0.396597
Skewness 0.482391
Kurtosis 4.614153
Jarque-Bera 644.3424
Probability 0.000000
Appendix 9

Histogram of DEBT and SALES

Series: DEBT
Sample 1 4373
Observations 4373

Mean 0.305310
Median 0.291628
Maximum 6.627225
Minimum 0.000000
Std. Dev. 0.228710
Skewness 7.851039
Kurtosis 168.7451

Jarque-Bera 5050449.
Probability 0.000000

Series: SALES
Sample 1 4373
Observations 4373

Mean 0.482171
Median 0.153800
Maximum 400.6771
Minimum -0.995900
Std. Dev. 7.279139
Skewness 44.28456
Kurtosis 2235.182

Jarque-Bera 9.09e+08
Probability 0.000000
Appendix 10

Histogram of ROA and TQ

Series: ROA
Sample 1 4373  
Observations 4373

- Mean: 0.006099
- Median: 0.025285
- Maximum: 0.513531
- Minimum: -6.337126
- Std. Dev.: 0.199993
- Skewness: -17.24253
- Kurtosis: 394.6546
- Jarque-Bera: 28166229
- Probability: 0.000000

Series: TQ
Sample 1 4373  
Observations 4373

- Mean: 1.359384
- Median: 1.177172
- Maximum: 19.03451
- Minimum: 0.382183
- Std. Dev.: 0.737116
- Skewness: 6.176627
- Kurtosis: 96.83137
- Jarque-Bera: 1632027.
- Probability: 0.000000
Appendix 11

Q-Q Plot of Residuals in Model 4 in Table 7.7.1

Note:

Q-Q plot indicates quantiles of regression residuals against quantiles of normal distribution using Stata command qnorm. While Q-Q plot is sensitive to non-normality near the tails, it seems that the residuals are not normally distributed.
Appendix 12

Q-Q Plot of Residuals in Model 4 in Table 7.7.2
Appendix 13

Q-Q Plot of Residuals in Model 4 in Table 7.8.1
Appendix 14

Q-Q Plot of Residuals in Model 4 in Table 7.8.2
Appendix 15

Q-Q Plot of Residuals in Model 4 in Table 7.9.1
Appendix 16

Q-Q Plot of Residuals in Model 4 in Table 7.9.2
Appendix 17

Scatterplot of Residuals in Model 4 in Table 7.7.1

Note:

These scatterplots indicate the homoskedascity of regression residuals using Stata command rvfplot. It seems that there is presence of heteroskedasticity in the residuals ever after using generalised least squares technique.
Appendix 18

Scatterplot of Residuals in Model 4 in Table 7.7.2
Appendix 19

Scatterplot of Residuals in Model 4 in Table 7.8.1
Appendix 20

Scatterplot of Residuals in Model 4 in Table 7.8.2
Appendix 21

Scatterplot of Residuals in Model 4 in Table 7.9.1
Appendix 22

Scatterplot of Residuals in Model 4 in Table 7.9.2