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Controlling-minority shareholder incentive conflicts and directors' and officers' liability insurance: Evidence from China

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Abstract

This paper examines the demand for directors' and officers' liability insurance (D&O insurance) by Chinese listed companies where controlling-minority shareholder incentive conflicts are acute due to the concentrated and split ownership structure. We hypothesize and find evidence that the incidence of seeking D&O insurance is positively related to the extent of controlling-minority shareholder incentive conflicts – a finding not previously documented in the literature. Using an event study, we find that the announcements of D&O insurance decisions in firms that engage in earnings management, and/or are controlled by a local government (such firms tend to have stronger incentives to tunnel), seem to have a negative wealth effect. In addition, the incidence of the D&O insurance decision is positively related to the proportion of independent directors and several litigation risk proxies. Therefore, the breakthrough in corporate governance and judicial reforms has created non-negligible perceived securities litigation risk in China.

JEL classification: G22

Keywords: D&O insurance; Private securities litigation; Expropriation; Tunneling; China

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1. Introduction

This paper investigates why some listed Chinese companies recently considered the purchase of directors' and officers' liability insurance (since 2000) (hereafter referred to as "D&O insurance"). In particular, we explore the effect of China's concentrated ownership structure on D&O insurance decisions and test whether the purchase of D&O insurance is related to litigation risks arising from the incentive conflicts between controlling shareholders and minority investors. This is an issue not hitherto examined by prior D&O insurance studies conducted in jurisdictions such as the United States (US) and the United Kingdom (UK) where the ownership structure is dispersed and owner-manager agency incentive conflicts are a major agency problem.

D&O insurance is purchased by a company to cover *all* directors and managers for legal liability arising from their professional activities on behalf of the company and its use is common for listed companies in common-law jurisdictions, such as Canada, the US and the UK.¹ D&O insurance is an important corporate governance issue because it may change the liability risk profile of company directors and managers and thereby affect their incentives in business decisions. Core (1997) argues that demand for D&O insurance may arise from three main sources: a) the demand for personal coverage by risk-averse directors; b) the demand for D&O corporate coverage arising from an efficient corporate insurance decision (and thereby it mirrors the determinants of other insurance purchases);² and c) the demand for D&O insurance arising from managerial entrenchment. While there has been a longstanding

¹ A typical D&O policy provides both corporate and personal coverage. The former reimburses the company when it indemnifies directors or officers for legal costs or compensation payments awarded against them. The latter provides direct payment to directors or officers when the company is not able to indemnify them for legal reasons or due to financial distress. Traditionally, D&O insurers will pay claims arising from shareholder suits if the directors and officers have acted honestly and in good faith. As long as the directors and officers do not admit to dishonesty, however, insurance coverage may be retained (Ferris et al., 2007).

² Mayers and Smith (1982), among others, theorize that in a world with frictions (e.g., bankruptcy costs, contracting costs, and taxes), ownership structure, leverage, firm size, growth opportunities, managerial compensation, tax and regulatory status are important determinants of corporate use of insurance.

interest in understanding the determinants of corporate use of D&O insurance, the number of empirical studies has been limited due to the difficulty in obtaining D&O insurance data.

Three studies (Core, 1997; O'Sullivan, 1997; Chalmers et al., 2002) have investigated the use of D&O insurance in Canada, the UK and the US, respectively. For example, Core (1997) examined 222 Canadian companies in 1993 and found some support for all the three sources of D&O insurance demand mentioned above. Using a sample of London-listed companies in 1991, O'Sullivan (1997) found that large companies with a higher proportion of outside directors and a lower level of managerial share ownership were more likely to purchase D&O insurance. Using a sample of 72 IPOs in the US, Chalmers et al. (2002) found that the three-year post-IPO stock returns are negatively related to the amount of D&O insurance purchased at the time of the IPO. They conclude that managerial self-interest plays a key role in D&O insurance decisions, as managers seemed to have incorporated their private information regarding the overpricing of the IPO (and thereby the litigation risks induced by subsequent price decreases) in D&O insurance decisions.

These studies share two common features. First, they are carried out in litigious common-law jurisdictions, and, secondly, they are based on companies with a diffuse ownership structure where a major agency problem is related to the incentive conflicts between shareholders and managers. As directors and managers in these countries are under no obligation to seek shareholders' approval for purchasing insurance (Core, 1997, p.68), directors and managers are more likely to purchase D&O insurance to serve their self-interests.

China – a large and dynamic economy with a unique institutional background – now provides a good opportunity for us to further test and/or refine the above theories on D&O insurance purchases that were primarily developed in western countries. China serves as an interesting setting for the current study for at least two reasons.

First, China's listed firms have a concentrated ownership structure that is often dominated by a large (state-owned) shareholder. According to recent "law and finance" literature, a central agency problem under a concentrated ownership structure is the expropriation of minority interests by controlling shareholders. The conflicts of interest between controlling and minority shareholders are further exacerbated in China because the ownership structure of Chinese listed firms is also split into non-tradable shares held by controlling shareholders and tradable shares held by minority shareholders (though both types of shares have the same cash flow and voting rights). This unique split share structure can lead to divergent interests between tradable and non-tradable shareholders and has long been recognized as the source of many corporate governance problems (e.g., financial frauds and tunneling) in China. As a result, managers/directors of listed companies are often involved in helping the controlling shareholder to expropriate minority shareholders, thereby facing litigation risks. Whether or not the purchase of D&O insurance is related to the incentive conflicts between controlling and minority shareholders and expropriation-related litigation risks is a question that cannot be effectively answered by studies focusing on countries where companies have a diffuse ownership structure. Our investigation is possible because directors and managers in China are required by the CSRC to seek the approval of shareholders' meetings for the purchase of D&O insurance. Therefore, any observed D&O insurance approval by shareholders' meetings in China can be assumed to be in line with the interests of controlling shareholders because otherwise they can veto the proposed purchase. Therefore, D&O insurance decisions in China are more likely to be dictated by controlling shareholders' interests rather than by managerial entrenchment.

Second, as we explain in detail in Section 2, although recent legal reforms mean that private securities litigation (PSL) against listed companies and their directors and managers is now possible in China, it has yet to be seen how the relevant judicial agencies will apply the

new laws. Indeed, Chen (2003) reports that very few cases brought to the Chinese courts have been settled in favor of defrauded investors. As a result, the risk of litigation in China that exists in principle may appear less real in practice. Therefore, investigating the purchase of D&O insurance also provides an opportunity to evaluate whether or not the recent changes to the legal codes that aimed to strengthen investor protection have had any noticeable effect on managerial behaviors in China. This is clearly of interest to both policymakers and investors (including international investors).

We hypothesize that firms with more acute controlling-minority shareholder incentive conflicts are more likely to consider purchasing D&O insurance than other firms. Using a sample of 53 first-time approvals of the purchase of D&O insurance by shareholders' meetings over the period 2000 through 2004 and a matched control sample, we find support for the hypothesis. For example, firms with more board seats occupied by representatives of large shareholders, engaging in earnings management, and/or more tunneling related-party transactions (RPTs) are more likely to seek D&O insurance coverage. These results suggest that D&O insurance can be opportunistically purchased to protect controlling shareholders and their agents (company directors and managers) against the litigation risks arising from the expropriation of minority interests. Using an event study, we found that the announcements of D&O insurance decisions in firms that engage in earnings management, and/or are controlled by a local government (such firms tend to have stronger incentives to tunnel), seem to have a negative wealth effect. We believe that the above evidence constitutes a useful extension to the D&O insurance literature. Since concentrated ownership structures are common in many countries around the world, and particularly in East Asia (Claessens et al., 2000), our results also have implications for these economies. Ferris et al. (2007) demonstrate that the incidence of derivative lawsuits is higher for firms with a greater propensity to (owner-management) agency conflicts. Our study complements theirs in that we

show that firms with a greater propensity to controlling-minority shareholder agency conflicts are associated with a higher (perceived) risk of litigation.

In addition, we found that the incidence of the decision to take out D&O insurance is positively related to the proportion of independent directors on the board and to some litigation risk proxies (e.g., prior record of law violation, leverage, the number of shareholders, and the proportion of foreign investors). Interestingly, these results (from a country where the legal and political environment is still not conducive to PSL) are comparable to the findings of prior D&O insurance studies conducted in jurisdictions with litigious common-law traditions. One explanation is that the recent breakthrough in corporate governance and legal reforms seem to have created a non-negligible level of perceived securities litigation risk in China.

The remainder of this paper is structured as follows. Section 2 reviews the institutional background and formulates the research hypothesis. Section 3 presents the research design, including the model and variables used, and data description. Section 4 discusses the findings and the results of sensitivity tests, while Section 5 concludes the paper.

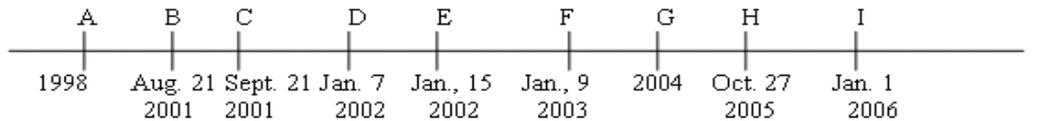
2. Institutional background and hypothesis development

2.1. The emergence of PSL in China

China's stock market was developed within a weak legal framework that offered shareholders little protection. During the early 2000s, China's stock market was riddled with outbreaks of corporate scandals. Common to these scandals was that the interests of minority shareholders (often individuals) were seriously infringed upon by the controlling shareholders (often a state-owned enterprise (SOE)). Realizing that many of these scandals had stemmed from the weak legal protection for investors, China launched several corporate governance

and legal reforms which led to the emergence of PSL in China. Figure 1 provides a timeline of the evolution of PSL and the emerging civil liabilities of company directors and managers.

Figure 1: A timeline on the development of civil liabilities of managers & directors in China



Time point	Event
A	The first PSL case was brought against <i>Hongguang Industrial</i> for false disclosure in IPO
B	The CSRC issued “Guidelines on the Establishment of an Independent Director System in Listed Companies” and allows listed companies to buy D&O insurance
C	The Supreme People’s Court (SPC) imposed a temporary ban on accepting PSL cases by lower courts
D	The CSRC issued “Standard on Corporate Governance for Listed Companies”
E	The SPC allowed lower courts to accept PSL cases relating to false disclosure
F	The SPC issued detailed rules on handling PSL cases related to false disclosure
G	The revision of Securities Law (1998) and Company Law (1993) started and this was widely reported and discussed in various media
H	The revised Securities Law and Company Law with strengthened investor protection were passed and derivative shareholder suits were established
I	The revised Securities Law and Company Law became effective

One key reform was the introduction of the independent director system under which independent directors are required to express opinions on the fairness of important corporate decisions to minority shareholders, e.g., relating to financial reporting and RPTs. The independent director system was formalized by the CSRC Regulations (2001, 2002), which require listed firms to have at least one third of their board members as independent directors by June 30, 2003. The CSRC regulations also permit listed firms to purchase liability insurance for independent and other directors subject to approval at the shareholders’ meetings. These CSRC Regulations served as a catalyst for the development of D&O insurance in China and the first D&O insurance policy was introduced to the market in January 2002 by Ping An Insurance. Other insurers (e.g., the American Insurance Group (AIG) and the People’s Insurance Company of China (PICC)) quickly followed suit.

On the other hand, investors had been responding to corporate scandals by attempting to seek civil compensation since 1998 when the first PSL case was brought against *Hongguang Industrial*. Chen (2003) reported that more than 2,000 lawsuits had been filed nationwide

against some 20 listed companies (pending court judgment) in China.³ However, the Supreme People's Court (SPC) had taken a cautious attitude towards the growing number of securities lawsuits being filed.⁴ On September 21, 2001, the SPC temporarily prohibited lower courts from accepting PSL cases on ground that the legislative and judicial conditions were not ripe for hearing such cases. Pressured by mounting criticism from lawyers, academics and investors, the SPC issued another notice on January 15, 2002 allowing lower courts to accept PSL cases relating to false disclosures. On January 9, 2003, the SPC issued another circular setting out detailed rules on the handling of false disclosure related PSL cases (hereafter referred to as "the SPC Rules").⁵ This represents a breakthrough, allowing litigation against false disclosure and recognizing the civil liabilities of company directors and managers in China.

Discussions on amending China's Company Law (1993) and Securities Law (1998) started in 2004 with the aim of strengthening investor protection. The amendment of both laws was completed at the end of 2005 and they came into effect on January 1, 2006. Of particular interest, Article 148 of the Company Law provides that directors, supervisors and managers owe a duty of loyalty and due diligence to the company. Articles 150-153 have, for the first time, established the possibility and procedure of statutory derivative lawsuits in China and empowered shareholders to take legal action against directors and managers for their wrongdoings.⁶ The new Securities Law (2005) also contains detailed provisions

³ This large number of litigation attempts has arisen because western-type class action suits are not allowed in China. This makes securities litigation potentially expensive and time consuming in China.

⁴ In China, securities-related cases have invariably resulted in administrative sanctions and/or criminal penalties; in contrast, a civil remedy has traditionally been neglected by law (Chen, 2003).

⁵ Despite this progress, the SPC Rules were criticized as they contain some barriers for plaintiff investors – e.g., the requirement for specific government administrative actions as a prerequisite for any PSL, the lack of a western-type class action suit system, the jurisdictional requirement favoring defendants, and the too narrowly-defined causal link between false disclosures made by the company and losses suffered by investors (e.g., Hutchens, 2003). Hutchens (2003) also opines that China's approach to PSL reflects the dilemma between protecting listed companies in which the state is often the controlling shareholder and protecting minority interests.

⁶ Article 149 sets out specific examples of disloyalty. Allowing shareholders to bring a derivative lawsuit has

regarding the civil liabilities for false corporate disclosure. Therefore, in anticipation of ever increasing civil liability lawsuits to be brought under the new laws, company directors and managers may have enhanced incentives to seek D&O insurance coverage, particularly in companies with a higher (perceived) litigation risk.

2.2. Controlling-minority shareholder incentive conflicts

China established the stock market in the early 1990s in order to help revitalize its ailing SOEs by providing them with a financing channel and instilling some elements of market discipline on top management. As a result, most listed companies are state controlled, with only about one-third of company shares sold to private investors by way of IPOs. The other two-thirds of shares are either held by government agencies, i.e., the state shares, or held by legal entities (often SOEs), i.e., the legal-person shares. Neither state shares nor legal-person shares are publicly tradable, but they can be transferred via private negotiations (subject to government approval). Shares issued to the public, on the other hand, are tradable and they are further divided into A-shares (primarily for domestic individual investors), B-shares (primarily for foreign investors) and H-shares (shares traded in overseas markets).⁷

Controlling-minority shareholder incentive conflicts are acute in China for two reasons. First, the split share structure means that large non-tradable shareholders often have different interests from those of minority investors. This is because non-tradable shareholders' interests are not directly affected by changes in market stock prices because of the non-tradability of their shares. More importantly, the concentrated ownership structure has given non-tradable shareholders tremendous potential to dominate company decisions and benefit themselves at the expense of minority interests.

been acclaimed by legal practitioners as greatly improving the private enforcement of law in China.

⁷ The Chinese government made the trading of B-shares available to domestic investors in 2001 and the trading of A-shares available to qualified foreign institutional investors (QFIIs) in 2002.

Second, most listed firms in China are spin-offs from SOEs with the parent groups serving as their largest shareholders. The process, by which a profitable arm of an SOE is carved out, packaged financially and floated creates inherent business and personnel connections between the listed firm and the unlisted parent firm and thus further compounds the expropriation problems between the controlling and minority shareholders. In many cases, the listed firm is expected to channel funds back to support the parent firm's unprofitable (business or non-business) units (Aharony et al., 2005). Many controlling shareholders therefore treat the listed firm as a vehicle of fund raising from minority shareholders and resource tunneling.⁸ Expropriation is prevalent also because the relevant laws were not developed enough to expose company managers and directors to a high litigation risk and thereby the potential penalty before 2000 was small.⁹

In China, controlling shareholders can use two primary vehicles to expropriate minority investors. The first is false information disclosure by listed companies in relation to equity issues. China has maintained a tight control (via a profitability-oriented screening process) over equity issues since the launch of the stock market. The right to equity financing thus represents a kind of "luxury" that is only available for a small proportion of companies. Yu et al. (2006) identify that some Chinese companies frequently engage in earnings manipulation and false financial disclosure in order to meet the CSRC's profitability requirements and secure the right to issue shares. False financial disclosure relating to share issues is now a major cause for the pending PSL cases in China.

The second vehicle for expropriation is through tunneling RPTs (e.g., Aharony et al., 2005; Cheung et al., 2006). The documented abuses by controlling shareholders in this

⁸ Non-tradable shareholders typically inject non-cash assets at the time of the IPO, subscribe to new share issues with non-cash assets or simply choose not to take up the new issue in seasoned equity offerings.

⁹ We thank the suggestion of an anonymous referee and discuss this in detail in Section 2.1.

respect include obtaining soft loans from the listed companies;¹⁰ using listed companies as guarantors for bank loans; and buying and selling goods, services, and assets at unfair prices. Such tunneling activities by controlling shareholders represent another major cause for PSL cases in China.

2.3. Controlling-minority shareholder incentive conflicts and D&O insurance

Since listed companies in China are expected to channel resources back to their parent companies, company directors and managers in China are often involved in expropriation activities and thus face litigation risk. In fact, directors and managers of *Hongguang Industrial* were sued in addition to the listed firm in 1998. More recently, two independent directors and managers of *Guangdong Kelon* were also sued by minority shareholders for false information disclosure and inflating profits for the purpose of issuing stocks in 2006.

Given the existence of litigation risks arising from controlling shareholders' expropriation activities, firms with more acute controlling-minority shareholder incentive conflicts may find it more difficult to hire and retain managers and directors. Managers and directors may refuse to collude with controlling shareholders in tunneling activities without insurance coverage. Controlling shareholders in these firms are therefore more likely to support the purchase of D&O insurance in order to reduce the litigation risks faced by directors and managers. We thus hypothesize that firms with more acute controlling-minority shareholder incentive conflicts are more likely to consider purchasing D&O insurance than other firms.

3. Research design

3.1. The model

¹⁰ According to a CSRC survey, as at the end of 2002, 676 companies out of the 1,175 listed companies surveyed were found to have money appropriated by controlling shareholders. In 2001, the controlling shareholder of *Sanjiu Pharmaceutical* appropriated RMB2.6 billion, about 96% of the listed firm's total equity. Examples of companies involved in lawsuits related to tunneling RPTs include *Sanjiu Pharmaceutical*, *Lianhua Gufen*, and *Houwang Gufen*.

To test the above hypothesis, we adopted the following probit model:

$$Y_{it}^* = f\{\text{Controlling-minority shareholder incentive conflict proxies}_{it-1}, \text{Controls}_{it-1}\} + \varphi_{it} \quad (1)$$

Where the latent variable, Y_{it}^* , is not observable; its observable counterpart is Y_{it} (INS), which is equal to 1 if $Y_{it}^* > 0$, denoting a company's shareholders' meeting has approved the purchase of D&O insurance for the first time; and 0 if $Y_{it}^* \leq 0$, denoting that there is no such approval. We use approval for purchases rather than actual purchases because data on actual purchases are not available from public sources. We discuss in Section 3.4 the important advantages of using such a measure. To mitigate potential endogeneity of some explanatory variables with respect to the purchase of D&O insurance¹¹, we measure all explanatory variables in a one-period lag.

3.2. *Measuring the incentive conflicts between controlling and minority shareholders*

We include a battery of proxies for the extent of the incentive conflicts between controlling and minority shareholders and discuss them below. Table 1 provides a detailed definition and the expected sign of all variables.

[Insert Table 1 about here]

The proportion of large shareholder representatives on the board (LARGEREP): Large shareholders can control a company's decision-making by electing representatives (outside 'grey' directors) onto the board. The higher the proportion of grey directors, the greater the chance that the board may make decisions at the expense of minority interests, and thereby the higher the litigation risks. Therefore, we expect LARGEREP to be positively related to the incidence of D&O insurance purchases.

Earnings Management: False financial disclosure relating to equity issues is now the major cause of the pending PSL cases in China. Yu et al. (2006) report pervasive use of

¹¹ The endogeneity issue is not a serious concern in our study because our measure of the dependent variable is the approval of D&O insurance rather than the actual purchase.

earnings manipulation by listed companies who are at the profitability threshold stipulated by the CSRC for rights issues (the threshold is 6% of ROE for our sample period). We therefore define an earnings manipulation indicator variable (ROE6_7%) to denote the possibility of earnings manipulation and/or fraudulent financial reporting. We expect that firms with more acute incentive conflicts between controlling and minority shareholders are more likely to manipulate earnings and consider D&O insurance.

Tunneling RPTs between a listed firm and its large shareholders: Firms with more acute incentive conflicts between controlling and minority shareholders are more likely to engage in tunneling RPTs. We focused on three types of RPTs that may be used to channel funds from a listed firm to its controlling shareholder. First, we included credit guarantees provided by a listed firm to its non-tradable shareholders (CREDITG). Credit guarantees represent a contingent liability incurred by a listed firm to its non-tradable shareholders and are therefore potentially detrimental to the firm's minority shareholders. Second, as in Aharony et al. (2005), we include a firm's net lending to its non-tradable shareholders (NLEND) to measure the amount of money transferred away from the listed firm to its non-tradable shareholders.

Third, tunneling can also be facilitated by charging favorable prices to non-tradable shareholders for the purchases/sales of goods, services and assets between a listed firm and its non-tradable shareholders. Unlike NLEND and CREDITG, it is difficult to ascertain whether these RPTs are carried out at arm's length. For example, they can be used by non-tradable shareholders to tunnel resources from listed firms, to reduce transaction costs within business groups, or to prop up listed firms. As such, prior studies have attempted to identify specific conditions under which tunneling is likely to occur. Aharony et al. (2005) and Peng et al. (2006) report that controlling shareholders are more likely to tunnel wealth away from a listed firm when the firm has just completed an equity issue.

We manually collected data on the purchases/sales of goods, services and assets (including equity shareholdings) between listed firms and their non-tradable shareholders from company annual reports. We aggregated the amount of the purchases/sales of goods and services (TGDSV) but treated the amount of asset transactions (including equity shareholding) separately (ASSTRAN). This is because the former transactions tend to occur on a routine basis, while the latter transactions are one-off events. We define a variable ISSUE that equals 1 if there was an equity issue in the previous year, and 0 for otherwise. We interact TGDSV and ASSTRAN with ISSUE to denote the possibility of tunneling via RPTs. A positively significant coefficient on the two interaction terms would be consistent with the argument that listed firms engaging in tunneling RPTs are more likely to seek D&O insurance for their directors and managers. However, we note that the trading of goods and services and assets transactions in the years following an equity issue are only crude proxies for tunneling RPTs.

3.3. Control variables

In common with prior studies (e.g., Core, 1997; O’Sullivan, 1997; Chalmers et al., 2002), we include various control variables of D&O insurance decisions. Specifically, we include the proportion of independent directors (IND) on the board and managerial share ownership (MAN) in our model. We expect IND to have a positive sign as risk-averse independent directors tend to ask for D&O insurance coverage (Core, 1997; O’Sullivan, 1997); while the effect of MAN on D&O insurance is ambiguous.¹²

Second, we control for the effect of a firm’s (perceived) litigation risk on D&O insurance decisions. Following prior studies, we proxy the potential litigation risk by financial leverage (LEV), growth opportunities (GROW), number of shareholders (NUMACC), the proportion

¹² No outside independent directors owned shares in our sample. In China, insider ownership (all with voting rights) is typically less than 0.01% of total shares in issue and equity option plans are still rare.

of shares listed in overseas exchanges (HSHE), the proportion of domestically traded foreign shares (i.e., B-shares) (BSHE), and profitability (RROA).^{13,14} Since the SPC Rules require a prior administrative sanction as the prerequisite for initiating a lawsuit against a listed firm. We also include a firm's prior law violation record (VIOREC) as a litigation risk proxy.

The demand for D&O insurance (corporate coverage) may arise from an efficient corporate insurance decision (Core, 1997). In addition to leverage and growth opportunities, we also control for firm size, a firm's regulatory status (REG), and the power of the controlling owner (CONTR). Small and regulated firms are more likely to take out insurance than other firms (Mayers and Smith, 1982). Firms with a higher value of CONTR means that the controlling shareholders' tunneling is less likely to be challenged by other shareholders, leading to a higher demand for insurance coverage.

Finally, we control for the effect of controlling shareholder identity on D&O insurance decisions (LOCASOE and PRIVATE). Listed firms owned by local governments may be under pressure to channel funds back to their parent firms that are often left with unprofitable units, and in this way, local authorities can achieve political and social objectives (e.g., local employment and cross-subsidization) (Cheung et al., 2006). Thus, the litigation risk for listed firms controlled by a local government is likely to be higher than that for other firms. However, listed firms controlled by a local government may enjoy administrative protection provided by the local government, given that the SPC Rules specify that lawsuits against a listed firm must be filed where the firm is incorporated (Hutchens, 2003).¹⁵

¹³ We considered using the existence of actual litigation attempts as a direct measure of litigation risk, but the lawsuits brought so far are mainly against some 20 listed companies, and only 4 of these sued companies appear in our insurance sample. The lack of variation precludes its use as a litigation risk proxy. The reason why some companies involved in lawsuits do not appear in our sample could be because they are considered bad risks and insurance companies may be reluctant to insure them, or would charge them a prohibitively high insurance premium. This also illustrates that using the approval decision data instead of the actual purchase data provides a cleaner test for our hypothesis.

¹⁴ We also include audit opinion (coded as 0 if the previous year's financial statements received a standard unqualified opinion and otherwise coded 1) as an alternative risk measure and find it insignificant.

¹⁵ Listed firms often play an important role in the development of the local economy in terms of fund raising,

Privately-owned firms may not enjoy the same level of protection from local governments as SOEs in the event of a lawsuit and so they are more likely to consider D&O insurance than SOEs. However, since private firms often have better corporate governance (Cull and Xu, 2005) and are found to be less likely to engage in tunneling RPTs than SOEs (Cheung et al., 2006), they may face a lower litigation risk. The above reasoning thus indicates that private firms may be less likely to purchase D&O insurance. Overall, the effect of private ownership remains an empirical issue.¹⁶

3.4. Construction of the sample

As data on actual purchases of D&O insurance are not available from public sources, we relied on information concerning the first-time approval of D&O insurance purchases at the meetings of shareholders. While this is an unavoidable limitation of our study, it also affords us some important advantages. Our primary research purpose was to study whether firms experiencing more acute controlling-minority shareholder incentive conflicts have stronger incentives to purchase D&O insurance. Compared with the actual purchase of insurance, a decision to purchase insurance represents a cleaner and a more accurate measure of controlling shareholders' incentives. This is because the actual purchase involves not only the incentives of controlling shareholders but also the underwriting decisions of insurers. In China, the idea of D&O insurance is new and the D&O insurance market is still a seller's market, and as such, it is uncompetitive. As a result, a firm wishing to buy D&O insurance may fail to secure coverage because of a prohibitively high rate of premium, or because it finds the policy terms and conditions offered by insurers overly restrictive. Focusing on

generating tax revenue, and providing employment opportunities and so local governments may have incentives to protect these listed firms in the event of a lawsuit (Cheung et al., 2006).

¹⁶ We note that given movements towards greater competition and transparency (e.g., via general improvement in corporate governance in all firms and via improved audit) in China, both the administrative protection that a local government can provide to local SOEs and the difference in the quality of corporate governance between SOEs and private firms will diminish over time. We thank an anonymous reviewer for pointing this out.

companies whose shareholders have approved the purchase of D&O insurance for the first time can help minimize the effects of such external factors on our results and also result in a larger sample for a more meaningful test of our hypothesis.

In China, disclosure rules require a listed firm to disclose in public media details of board and shareholders' meetings within two working days following the meetings. Information concerning the meetings also must be included in annual reports. As the CSRC requires that any purchase of D&O insurance be proposed by the board of directors and approved at the shareholders' meeting, we can find evidence of seeking D&O insurance coverage in the annual reports, and the disclosed minutes of board and shareholders' meetings.

The sampling period covers the years from 2000 through 2004 because the first attempt to seek D&O insurance appeared in China in 2000, and 2004 was the latest year for which the full texts of annual reports were available at the time our study was carried out. Our comprehensive search identified first-time D&O insurance approvals by 53 firms (about 4% of the total number of listed firms as at the end of 2004) (hereafter referred to as the "insurance sample").¹⁷ We did not find any case in which a proposal to purchase D&O insurance was vetoed by the shareholders' meeting. This suggests that controlling shareholders were supportive of the purchase of D&O insurance. The number of firms with the first-time D&O insurance approval in each sample year for the period 2000 to 2004 was 1, 6, 31, 13, and 2, respectively. While the industry distribution of our insurance sample is quite dispersed, industries subject to intense market competition, e.g., machinery (7) and metallurgy (6) manufacturing and retail business (5), are more widely represented.

To carry out our tests we adopted a matched control sample method, which has been extensively used in the literature particularly when the size of an event sample is small (e.g., D'Mello and Shroff, 2000; Ferris et al., 2007). We matched each observation in the insurance

¹⁷ Our event sample, though small, is comparable to Beasley's (1996) study that uses a sample of 75 fraudulent firms in examining the relationship between outside directors and financial statement frauds.

sample first by industry and year, then by firm size. We chose these matching criteria because many firm characteristics, e.g., leverage and profitability, and thereby the potential risk of litigation tend to vary according to industry. Firm size is a key determinant in corporate insurance decisions (Mayers and Smith, 1982) and it is also positively related to the number of shareholders and the amount of foreign investment (proxies for litigation risks) in China. Matching by year ensures that an insurance firm and a control firm are subject to the same legal and regulatory environment.

Total assets are used as a proxy for firm size because state and legal-person shares are not publicly tradable in China and hence the calculation of the market value of equity can be problematic and may affect our matching results. Industry matches are based on the two-digit industry code of the 2001 CSRC industry classification.¹⁸ Following D'Mello and Shroff (2000) and Ferris et al. (2007), we also use an alternative control sample consisting of the two closest size-matched firms (in the same industry and year) as a robustness check.

Unless indicated otherwise, firm-specific accounting, ownership and share price data are sourced from the CSMAR Database developed by Shenzhen GTA Ltd and the WIND database developed by Shanghai Wind Ltd. Prior violation records, recurring net profit, the number of board seats taken by large shareholder representatives, and related-party transaction data are all manually extracted from company annual reports.

4. Results

4.1. Characteristics of the sample

Table 2 Panel A lists the descriptive statistics for the variables calculated for the 53 firms that approved the purchase of D&O insurance and 53 control firms. Panel B compares the

¹⁸ The first two digits of the 2001 CSRC industry classification scheme divide companies into some 40 industries. Using a more stringent rule (e.g., three digits) would have resulted in many companies in the insurance sample remaining unmatched.

differences in the metric variables between the insurance and control samples. The results of Student t-tests suggest that firms in the insurance sample tend to provide more credit guarantees to their large shareholders than firms in the control sample. Albeit generally correctly signed, the differences in the other proxies for shareholder incentive conflicts are insignificant. The results of the t-tests also indicate that firms in the insurance sample tend to have a higher proportion of independent directors on the board, higher leverage, and more B-shares than firms in the control sample. There is no significant difference in the mean size of the insurance and control samples, suggesting that our matching by firm size worked well.

[Insert Table 2 about here]

4.2. *Multivariate analysis*

The results of the probit model are reported in Table 3.¹⁹ Model 1 uses the sample consisting of the 53 insurance observations and the 53 control observations. Because the value of NLEND is missing for one insurance observation, this observation and its matched control observation are dropped from the regression reported under Model 1. We report *p*-values based on standard errors robust to unknown cross-sectional heteroskedasticity.

[Insert Table 3 about here]

Turning to the results of Model 1, the coefficient estimate of LARGEREP is, as expected, positive and statistically significant ($p < 0.05$, 1-tail). Thus, corporate boards with greater representation by their non-tradable shareholders are more likely to seek D&O insurance coverage. This is consistent with the view that firms with more acute controlling-minority shareholder incentive conflicts are more likely to consider D&O insurance. Also consistent

¹⁹ We include in the regression models a dummy leverage variable (DLEV) as LEV is highly correlated with ASSTRAN. DLEV equals 1 if a firm has higher-than-sample-average leverage. We exclude LTA from the reported regression models because it is highly correlated with GROW and LNUMACC (with correlation of -0.67 and 0.62, respectively) and our matched control sample procedure has exerted an effective control over the firm size effect.

with our expectation, the coefficient estimate of ROE6_7 is significantly positive ($p < 0.10$, 1-tail), suggesting that firms that may have engaged in earnings manipulation are more likely to consider D&O insurance than other firms.

Among the measures of tunneling RPTs, the estimates of NLEND and CREDITG are positive and statistically significant ($p < 0.10$, 1-tail), suggesting that the more funds are appropriated from a listed firm by its non-tradable shareholders and/or the more credit guarantees are provided by a listed firm to its non-tradable shareholders, the higher the incidence of seeking D&O insurance coverage.

The estimates of two other measures of tunneling RPTs (TGDSV*ISSUE and ASSTRAN*ISSUE) have the expected positive sign but are statistically insignificant. The negative and statistically significant coefficient of TGDSV ($p < 0.05$, 2-tail) indicates that when there was no equity issue in the previous or current year (which suggests that a firm may need to meet the CSRC's profitability requirements and apply for an equity issue in the future), more purchases/sales of goods and services between the listed firm and its non-tradable shareholders lead to a lower chance of attempting D&O insurance. This is plausible, as Peng et al. (2006) report that under such circumstances controlling shareholders are more likely to prop-up a listed firm via RPTs. Interestingly, the coefficient estimate of ASSTRAN is positive and statistically significant ($p < 0.10$, 2-tail). This suggests that even when there was no equity issue in the previous year, firms with more asset transactions among connected parties, are still more likely to consider D&O insurance than other firms. This is possible because asset transactions are often related to mergers and acquisitions and so a firm may be more likely to incur civil liabilities from such transactions than from the purchases/sales of goods and services.

The coefficient estimate of IND is positive and statistically significant ($p < 0.01$, 1-tail). Therefore, as in O'Sullivan (1997), we find that firms with a higher proportion of

independent directors are more likely to consider purchasing D&O insurance – a result that is consistent with the risk aversion of independent directors.

Regarding litigation risk proxies, the estimates of litigation risk proxies VIOREC, DLEV, and NUMACC are positive and significant as expected ($p < 0.10$, 1-tail). Therefore, firms with a prior violation record, higher leverage, and/or a large number of shareholders are more likely to consider D&O insurance than other firms. Our finding with respect to VIOREC suggests that listed firms view a prior violation as an important signal of a possible risk of litigation against company directors and managers. The positive effect of DLEV on the incidence of D&O insurance is consistent with the notion that a firm with higher-than-average leverage is likely to have a higher litigation risk than other firms, e.g., because such firms may need to undertake more RPTs. This result is also consistent with the argument that companies purchase insurance in order to lower the expected costs of financial distress (see Mayers and Smith, 1982; Core, 1997).

The positively significant coefficient estimate of RROA ($p < 0.10$, 2-tail) means that firms with high recurring profitability are more likely to consider D&O insurance. Such firms with high recurring profitability are more likely to suffer from tunneling by their non-tradable shareholders and thereby may face a higher litigation risk than other firms.

Regarding the identity of controlling shareholders, the coefficient estimates of LOCALSOE and PRIVATE are negative and statistically significant ($p < 0.10$, 2-tail), implying that listed firms with a local government or a private individual/entity as the controlling shareholder are less likely to consider D&O insurance than other firms. It is plausible that local protectionism may mitigate the need of D&O insurance in listed firms controlled by local governments. A local government may have incentives to exert pressure on a local court to rule in favor of a local defendant firm when the local government is the firm's large shareholder. The evidence on PRIVATE is consistent with the argument that

private firms are less likely to engage in the expropriation of minority interests because of their better corporate governance than SOEs (Cull and Xu, 2005).

No other variables are found to have a statistically significant impact on the incidence of D&O insurance decisions. Finally, the pseudo- R^2 of the probit model is about 0.85 and therefore, the probit model appears to have reasonable predictive power.

4.3. Checks of robustness and further tests

4.3.1. Results from using an alternative control sample

We ran the model with an alternative sample that included 53 insurance observations and their two closest-size matched observations from the same industry and year. The sample size was 156 observations after dropping one observation for which the value for NLEND was missing and its two matched control observations. The new results are reported in Model 2.

There are two notable changes in the results. First, the (positive) coefficient estimate of ASSTRAN*ISSUE now becomes statistically significant ($p < 0.05$, 1-tail), implying that firms with more asset transactions with large non-tradable shareholders in the year following an equity issue are more likely to consider D&O insurance. As discussed in Section 3, such assets transactions are likely to be tunneling and so detrimental to minority shareholders. Therefore, this result provides further support for our hypothesis.

Second, the (positive) coefficient estimates of HSHE and BSHE are now statistically significant ($p < 0.10$, 1-tail). Therefore, firms with more shares listed in litigious overseas markets and/or firms having more foreign investors are more likely to consider D&O insurance. This result provides additional support to the litigation risk proxies. Otherwise, the results of Models 1 and 2 are comparable. Therefore, our main results are not sensitive to the use of a different control sample.

4.3.2. Market reactions to the announcement of D&O insurance decisions

In order to gauge how the market views a D&O insurance decision, we carried out an event study. For each D&O insurance approval contained in our insurance sample, we searched for the announcement in the minutes of the original board meeting. After screening out announcements associated with potentially confounding events²⁰, we end up with 17 clean announcements of D&O insurance proposals. The problem of a small sample size, however, is not uncommon in similar event studies. For example, Bhagat et al. (1987) used a sample of 11 announcements and found a positive and marginally significant market reaction to D&O insurance purchases for New York-based firms. Market model parameters are estimated using the 250 days preceding the examination period and are then used to calculate abnormal returns (AR) over the event window [0, +1] (Day 0 is the announcement day).

In unreported results, we find a positive but insignificant cumulative abnormal return for CAR (mean CAR = 2.8%, t-value = 1.22) for the two-day window. This result is broadly in line with the findings of Bhagat et al. (1987) and Brook and Rao (1994).²¹

The small sample size prevents us from running a multivariate regression model using CARs. We thus compare mean CARs by two groups determined by the variables used in testing our major hypothesis, i.e., LARGEREP, ROE6_7, NLEND, CREDITG, TGDSV*ISSUE, and ASSTRAN*ISSUE, in order to see whether CAR is related to the extent of controlling-minority shareholder incentive conflicts.²² While most of these variables are, as expected, negatively correlated with CAR, i.e., the higher-than-median group has a lower mean CAR, only the t-test on the groups classified by ROE6_7 is statistically

²⁰ The confounding events we screened out include earnings announcements, profit distributions, mergers and acquisitions, share issues, RPTs, asset write-downs, termination of investment projects, granting managers more decision power, etc.

²¹ Brook and Rao (1994) investigated the stock price response to the adoption of liability limitation provisions using a sample of 120 US firms and find that the market appears to be indifferent to the event.

²² For each continuous variable, we partition the sample into two groups (i.e., higher than or lower than the sample median of the test variable).

significant. Specifically, the mean CAR for the group $ROE6_7 = 0$ and 1 is 1.1% and -2.6%, respectively. The difference has a p -value of 0.022 (1-tail). This implies that the market reads the D&O insurance attempts in firms that may have engaged in earnings manipulation as being harmful. This provides supplementary evidence to our hypothesis that D&O insurance may be opportunistically purchased to protect the agents of controlling shareholders. The reason why only $ROE6_7$ bears a significant correlation with CARs is perhaps because ROE is a simple but closely watched indicator in China and it is also the key criterion for regulatory approval of equity issue.

Interestingly, the mean CAR between the groups classified as LOCALSOE is also statistically significant (the mean CAR for the groups LOCALSOE = 0 and 1 is 1.8% and -0.4%, respectively; p -value = 0.06, 1-tail). This result is consistent with our previous argument that firms controlled by local governments are more likely to manage earnings and/or engage in tunneling RPTs than other firms and, not surprisingly, the market views the proposal to buy D&O insurance in such firms as negative news. This corroborates the findings of Cheung et al. (2006).

5. Conclusion

This study examines why some Chinese listed firms have recently decided to purchase D&O insurance. Chinese listed firms are of interest because they are plagued by controlling shareholders' expropriation of minority shareholders and there is a regulatory requirement that the purchase of D&O insurance needs to be approved by the shareholders' meetings. We hypothesize that firms experiencing more acute controlling-minority shareholder incentive conflicts are more likely to consider purchasing D&O insurance than are other firms, because of the need to protect directors and managers from expropriation-related litigation risks.

Using a sample of 53 first-time approvals of D&O insurance purchases and a matched control sample, we found evidence supporting this hypothesis. Our results suggest that D&O insurance might be opportunistically purchased to protect company directors and managers against litigation risks arising from the expropriation of minority shareholders. The announcement of D&O insurance decisions seems to have a negative effect on shareholder wealth in firms that engage in earnings management and/or in firms controlled by local governments. As far as we are aware, the evidence we present on the effect of controlling-minority shareholder conflicts on the decision to purchase D&O insurance has not been previously documented in the literature. One policymaking implication of our results is that for the protection of minority shareholders, the CSRC may need to require the corporate purchase of D&O insurance be approved by a minimum proportion of minority shareholders.

In addition, we found that the incidence of the D&O insurance decision is positively related to the proportion of independent directors on the board and several litigation risk proxies. It is interesting to note that these results (drawn from a jurisdiction that is relatively less litigious) are comparable to the findings of prior D&O insurance studies conducted in the West. One explanation is that the dynamic corporate governance and legal reforms in China (in particular, the recent breakthrough in private securities litigation law) have created a non-negligible level of perceived litigation risk.

Our study represents an important first step towards understanding the implications of controlling-minority shareholder incentive conflicts for corporate D&O insurance decisions in China. Though we have adopted a matched control sample design, we note that our results are tempered by the small sample size and therefore should be interpreted with caution. Future studies would benefit from using data from other jurisdictions where controlling-minority shareholder incentive conflicts are also important.

References

- Aharony, J., Wang, J., Yuan, H., 2005. Related party transactions: a real means of earnings management and tunneling during the IPO process in China. Working paper, Tel Aviv University.
- Beasley, M.S., 1996. An empirical analysis of the relation between the board of director composition and financial statement fraud. *Accounting Review* 71, 443-465.
- Bhagat, S., Brickley, J.A., Coles, J.L., 1987. Managerial indemnification and liability insurance: the effect on shareholder wealth. *Journal of Risk and Insurance* 54, 721-736.
- Brook, Y., Rao, R.K.S., 1994. Shareholder wealth effects of directors' liability limitation provisions. *Journal of Financial and Quantitative Analysis* 29, 481-497.
- Chalmers, J.M.R., Dann, L.Y., Harford, J., 2002. Managerial opportunism? evidence from directors' and officers' insurance purchases. *Journal of Finance* 57, 609-636.
- Chen, Z., 2003. Capital markets and legal development: the China case. *China Economic Review* 14, 451-472.
- Cheung, Y.L., Jing, L., Rau, P.R., Stouraitis, A., 2006. How does the grabbing hand grab? tunneling assets from Chinese listed companies to the state. Working paper, City University of Hong Kong.
- China Securities Regulatory Commission (CSRC), 2001. Guidelines on the Establishment of the Independent Director System in Listed Companies. CSRC: Beijing.
- China Securities Regulatory Commission (CSRC), 2002. Standard on Corporate Governance. CSRC: Beijing.
- Claessens, S., Djankov, S., Lang, L.H.P., 2000. The separation of ownership and control in East Asian corporations. *Journal of Financial Economics* 58, 81-112.
- Core, J.E., 1997. On the corporate demand for directors' and officers' insurance. *Journal of*

- Risk and Insurance 64, 63-87.
- Cull, R., Xu, L.C., 2005. Institutions, ownership, and finance: the determinants of profit reinvestment among Chinese firms. *Journal of Financial Economics* 77, 117-146.
- D'Mello, R., Shroff, P.K., 2000. Equity undervaluation and decisions related to repurchase tender offers: an empirical investigation. *Journal of Finance* 55, 2399-2424.
- Ferris, S.P., Jandik, T., Lawless, R.M., Makhija, A., 2007. Derivative lawsuits as a corporate governance mechanism: empirical evidence on board changes surrounding filings. *Journal of Financial and Quantitative Analysis* 42, 143-166.
- Hutchens, W., 2003. Private securities litigation in China: material disclosure about China's legal system. *University of Pennsylvania Journal of International Economics Law* 24, 599-689.
- Mayers, D., Smith, C.W., 1982. On the corporate demand for insurance. *Journal of Business* 55, 281-296.
- O'Sullivan, N., 1997. Insuring the agents: the role of directors' and officers' insurance in corporate governance. *Journal of Risk and Insurance* 64, 545-556.
- Peng, W., Wei, K.C.J., Yang, Z., 2006. Tunneling or propping: evidence from connected transactions in China. Working paper, Hong Kong University of Science and Technology.
- Yu, Q., Du, B., Sun, Q., 2006. Earnings management at rights issue threshold: evidence from China. *Journal of Banking and Finance* 30, 3453-3468.

Table 1
Variable definition

Variable	Exp. Sign	Definition
INS		Taking 1 if a firm's shareholder meeting has approved D&O insurance purchase for the first time and 0 if there is no such approval.
LARGEREP	+	The proportion of directors being representatives of non-tradable shareholder.
ROE6_7	+	Taking 1 if a firm's reported return on equity is between 6-7% and 0 for otherwise.
NLEND	+	A listed firm's net lending to non-tradable shareholders in year t, defined as (the amount of net lending to non-tradable shareholders at the end of year t — the amount of net lending to non-tradable shareholders at the end of year t-1) ÷ total assets at the end of year t. Net lending is the difference between the amount of money receivable from non-tradable shareholders minus the amount of money payable to non-tradable shareholders in a year-end.
CREDITG	+	A listed firm's credit guarantee provided to non-tradable shareholders, defined as the year-end amount of credit guarantee provided by the listed company to non-tradable shareholders ÷ total assets.
TGDSV	+/-	The amount of purchases and sales of goods and services between the listed firm and its non-tradable shareholders scaled by total assets.
ASSTRAN	+/-	The amount of purchases and sales of assets (other than goods and services, but including equity shareholdings) between the listed company and its non-tradable shareholders scaled by total assets.
ISSUE	+/-	Taking 1 if there is an equity issue in the current and the previous year and 0 for otherwise.
TGDSV*ISSUE	+	Denote for potential tunneling transactions of goods and services.
ASSTRAN*ISSUE	+	Denote for potential tunneling transactions of assets (including shareholdings).
IND	+	The proportion of independent directors on the board.
VIOREC	+	A firm's prior violation record, taking 1 if the firm has been subject to CSRC disciplinary actions, or the firm including its directors and managers received reprimands from stock exchanges in the prior year.
LEV	+	Financial leverage, defined as the book value of total debt ÷ the book value of total assets. DLEV is a dummy variable with 1 denoting higher-than-sample-average leverage.
GROW	+	Growth opportunities, proxied by the market to book value ratio of a company. The ratio is calculated using the total number of shares and the tradable A-share price.
NUMACC	+	The natural log of the total number of shareholders.
HSHE	+	The proportion of shares listed in overseas stock markets.
BSHE	+	The proportion of domestically traded B-shares.
RROA	+/-	Recurring profitability, defined as recurring net profit ÷ year-beginning book value of total assets.
SIZE	-	Firm size, defined as the natural log of total assets.
MAN	+/-	The number of shares owned by a company's directors and managers ÷ total number of shares in issue.
REG	+	Regulatory status dummy, 1=regulated utilities 0=otherwise.
CONTR	+	A measure of power of the largest shareholder, defined as log (the number of shares held by the largest shareholder ÷ the sum of the number of shares held by the second to the fifth largest shareholders).
LOCALSOE	+/-	Taking 1 if a listed firm is controlled by a local government-controlled SOE and 0 for otherwise.
PRIVATE	+/-	Taking 1 if a listed firm is controlled by a private individual or firm and 0 for otherwise.

Table 2
Summary statistics

Panel A: Key descriptive statistics

Variables	Mean	Std Dev	5%	25%	Median	75%	95%	N
INS	0.50	0.50	0.00	0.00	0.50	1.00	1.00	106
LARGEREP	0.46	0.24	0.00	0.27	0.45	0.60	0.88	106
ROE6_7	0.085	0.28	0.00	0.00	0.00	0.00	1.00	106
NLEND	0.015	0.472	-0.090	-0.014	0.000	0.029	0.156	105
CREDITG	0.006	0.027	0.000	0.000	0.000	0.000	0.011	106
TGDSV	0.118	0.228	0.000	0.000	0.017	0.118	0.750	106
ASSTRAN	0.050	0.231	0.000	0.000	0.000	0.011	0.155	106
ISSUE	0.10	0.296	0.000	0.000	0.000	0.000	1.000	106
IND	0.11	0.14	0.00	0.00	0.00	0.21	0.33	106
VIOREC	0.29	0.45	0.00	0.00	0.00	1.00	1.00	106
LEV	0.48	0.36	0.13	0.33	0.44	0.59	0.79	106
GROW	2.48	1.72	0.77	1.18	1.88	3.30	6.04	106
NUMACC	10.68	0.93	8.93	10.04	10.81	11.30	12.12	106
HSHE	0.02	0.07	0.00	0.00	0.00	0.00	0.27	106
BSHE	0.03	0.09	0.00	0.00	0.00	0.00	0.26	106
RROA	0.03	0.06	-0.10	0.01	0.03	0.05	0.11	106
SIZE	11.96	0.98	10.22	11.36	11.81	12.46	13.70	106
MAN	0.0002	0.0004	0.0000	0.0000	0.0001	0.0003	0.0010	106
REG	0.12	0.32	0.00	0.00	0.00	0.00	1.00	106
CONTR	1.75	1.77	-0.54	0.16	1.58	3.25	4.72	106
LOCALSOE	0.56	0.50	0.00	0.00	1.00	1.00	1.00	106
PRIVATE	0.06	0.23	0.00	0.00	0.00	0.00	1.00	106

Panel B: Differences between the insurance and control sample

Variables	Predicted Sign	Insurance Sample		Control Sample		t-stat
		Mean	Std. Dev.	Mean	Std. Dev.	
LARGEREP	Insurance>Control	0.48	0.03	0.44	0.03	0.80
NLEND	Insurance>Control	0.03	0.09	0.001	0.01	0.29
CREDITG	Insurance>Control	0.01	0.005	0.002	0.001	1.57 ^c
TGDSV	+/-	0.09	0.02	0.14	0.04	-1.20
ASSTRAN	+/-	0.08	0.04	0.02	0.01	1.39
TGDSV*ISSUE	Insurance>Control	0.007	0.004	0.008	0.004	-0.12
ASSTRAN*ISSUE	Insurance>Control	0.0009	0.0009	0.0003	0.0003	0.61
IND	Insurance>Control	0.14	0.02	0.09	0.02	1.83 ^b
LEV	Insurance>Control	0.54	0.06	0.43	0.02	1.66 ^b
GROW	Insurance>Control	2.50	0.24	2.49	1.66	0.02
NUMACC	Insurance>Control	10.69	0.14	10.64	0.12	0.29
HSHE	Insurance>Control	0.08	0.04	0.04	0.03	0.84
BSHE	Insurance>Control	0.04	0.01	0.01	0.01	1.56 ^c
RROA	+/-	0.03	0.01	0.02	0.01	0.63
SIZE	+/-	11.98	0.143	11.90	0.129	0.38
MAN	+/-	0.0030	0.0028	0.0003	0.001	0.97
CONTR	Insurance>Control	1.66	0.240	1.83	0.244	-0.49

^{a,b,c} = statistically significant at the 1%, 5% and 10% level. One-tailed p-values are reported for uni-directional variables with predicted signs and two-tailed p-values are reported otherwise. See Table 1 for variable definitions.

Table 3
Multivariate results of the insurance probit model

Variable	Expected signs	Model 1		Model 2	
		M.E.	p-value	M.E.	p-value
<i>Proxies for shareholder incentive conflicts</i>					
Proportion of large shareholder representatives on the board (LARGEREP)	+	0.57	0.02 ^b	0.50	0.01 ^a
Earnings management (ROE6_7)	+	0.31	0.07 ^c	0.28	0.03 ^b
<i>Tunneling proxies</i>					
Net lending to large shareholders (NLEND)	+	1.41	0.06 ^c	0.94	0.05 ^b
Credit guarantees to large shareholders (CREDITG)	+	7.57	0.01 ^a	5.18	0.00 ^a
The aggregate amount of goods and service RPTs (TGDSV)	+/-	-0.73	0.02 ^b	-0.49	0.04 ^b
The amount of asset RPTs (ASSTRAN)	+/-	2.35	0.07 ^c	1.78	0.03 ^b
Equity issue in the prior year (ISSUE)	+/-	-0.31	0.48	-0.21	0.33
TGDSV*ISSUE	+	2.37	0.26	1.37	0.22
ASSTRAN*ISSUE	+	14.0	0.16	16.8	0.03 ^b
<i>Control variables</i>					
Proportion of independent directors (IND)	+	1.63	0.00 ^a	1.23	0.01 ^a
<i>Litigation risk proxies</i>					
Prior law violation (VIOREC)	+	0.34	0.01 ^a	0.32	0.00 ^a
Leverage dummy (DLEV)	+	0.33	0.02 ^b	0.15	0.07 ^c
Market-to-book value ratio (GROW)	+	0.08	0.11	0.01	0.36
Log of number of shareholders (NUMACC)	+	0.14	0.06 ^c	0.05	0.21
Proportion of shares listed overseas (HSHE)	+	0.26	0.37	0.90	0.07 ^c
Proportion of B-shares (BSHE)	+	0.86	0.11	0.64	0.09 ^c
Recurring profitability (RROA)	+/-	2.05	0.09 ^c	2.52	0.00 ^a
Power of controlling owner (CONTR)	+	0.02	0.28	0.03	0.18
Managerial ownership (MAN)	+/-	-44.5	0.80	-69.5	0.22
Regulated utilities dummy (REG)	+	-0.18	0.40	-0.10	0.50
Local government controlled firms (LOCALSOE)	+/-	-0.23	0.08 ^c	-0.16	0.10 ^c
Private firm dummy (PRIVATE)	+/-	-0.70	0.02 ^b	-0.41	0.02 ^b
Intercept	+/-	-2.32	0.03 ^b	-1.33	0.06 ^c
Year dummies	+/-		Yes		Yes
McKelvey & Zavoina Pseudo-R ²			0.85		0.72
Number of observations			104		156

Notes:

1. The dependent variable is INS, with 1 denoting a firm's shareholders' meeting has approved the purchase of D&O insurance. See Table 1 for details of variable definitions. M.E. means marginal effects.

2. Heteroskedasticity robust standard errors are used in computing p-values. ^{a,b,c} = statistically significant at the 1%, 5% and 10% level. Reported p-values are one-tailed when uni-directional variables have predicted signs and two-tailed for otherwise.

3. Model 1 uses the insurance sample and the one-to-one matched control sample. Model 2 used the insurance sample and the control sample comprising the two closet-size matched observations. The insurance observations with missing values on NLEND and their corresponding matched observations are deleted from the regression and so 2 (3) observations are dropped from Model 1 (2).