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Directors' and officers' liability insurance: Evidence from independent directors' voting

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ABSTRACT

Directors' and officers' liability insurance (D&O insurance) is one of the most controversial and least understood governance tools. Using manually collected voting data for all director types at Chinese listed firms, we provide the first evidence for the impact of D&O insurance on directors' voting decisions and the subsequent effects on corporate governance and financial performance. We find that independent directors at firms carrying D&O insurance are more likely to dissent when benchmarked against their peers in the same firm on the same proposal. Our results are robust to endogeneity checks. We identify channels through which the incentive effects of D&O insurance operate. We also find that the positive effect of D&O insurance on independent director dissension is associated with better firm performance and monitoring outcomes, including less litigation and lower claim values, less underinvestment, better internal control quality, and improved CEO pay- and turnover-performance sensitivities.

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1. Introduction

Directors' and officers' liability insurance (D&O insurance) is one of the most controversial and least understood governance tools. Opponents argue that D&O insurance weakens the disciplining effect of litigation, creates moral hazard, and reduces directors' and officers' accountability (Baker and Griffith, 2010). Consistent with this argument, the literature finds that D&O insurance is related to poor mergers and acquisitions (M&A) decisions (Lin et al., 2011), inferior IPO performance (Chalmers et al., 2002), inefficient investments (Bradley and Chen, 2011; Li and Liao, 2014), aggressive accounting (Cao and Narayanamoorthy, 2011; Lin et al., 2013), lower earnings quality (Chung and Wynn, 2008; Lin et al., 2011; Wynn, 2008), greater shirking by officers and directors (Bradley and Chen, 2011; Jia and Tang, 2018), and a higher cost of capital (Lin et al., 2013; Chen et al., 2016). Berkshire Hathaway, the third-largest U.S. company by 2018 revenue, does not buy D&O insurance because Warren Buffett, its chairperson and Chief Executive Officer (CEO), believes that if they screw up, directors must bear the consequences without insurance protection (Simpson, 2011). Because of the potential disincentives created by D&O insurance, many continental European countries forbade firms from purchasing D&O insurance until recently (Boyers and Tennyson, 2015). In 2017, the Malaysian Companies Act introduced new restrictions on companies' obtaining D&O insurance in that country.

On the other hand, proponents argue that D&O insurance plays an important governance role (Holderness, 1990; Core, 1997). The penetration rate of D&O insurance exceeds 90% in advanced economies such as the United States, the United Kingdom, Canada, and Australia. In recent years, a growing number of firms in developing countries have started to buy D&O insurance. Since 2012, the Hong Kong Stock Exchange has required all listed firms to either arrange appropriate insurance for directors or explain in annual reports why they have not done so. In 2018, the Securities and Exchange Board of India mandated compulsory D&O policies for independent directors of the top 500 listed firms. These listing rules suggest that having D&O insurance is regarded as a best corporate governance practice.

This article studies the governance role of D&O insurance in the world's second-largest economy—China. Although D&O insurance was introduced in China almost twenty years ago, only 7.3% Chinese listed firms carried D&O insurance in 2018; the penetration rate in Singapore and Hong Kong is about 90% and 57% in Taiwan (Allianz, 2010; Qian, 2020; Lai and Tai, 2019). However, experts forecast a significant uptick in D&O insurance coverage in China. For example, a 2017 AIG report noted (page 1): "D&O insurance is still in its relative infancy throughout Asia, but this is likely to change, especially in China. Risks and liabilities that didn't exist

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in past years loom large for growing Chinese businesses as they become bigger, and more importantly, geographically broader and more complex enterprises that require sophisticated corporate governance standards." Indeed, according to a 2020 study by Gen *Re*, a leading global reinsurer, 15% of Chinese listed firms carried D&O insurance in 2020, doubling the coverage rate of just two years before.

We analyze the governance role of D&O insurance through the lens of its impact on independent directors' voting. This inquiry is important given the ongoing debate surrounding D&O insurance and the vital governance role of independent directors. The board is the apex of the corporate governance system (Fama and Jensen, 1983). Voting is the primary way for boards to monitor (Schwartz-Ziv and Weisbach, 2013). Independent directors are perceived to be more effective monitors than non-independent directors (Guo and Masulis, 2015).

We propose and test two competing hypotheses. The efficient-contracting hypothesis predicts that D&O insurance plays a central governance role by providing the appropriate incentives for independent directors to monitor more effectively. The agency hypothesis argues that D&O insurance creates moral hazard and exacerbates agency problems. To test the hypotheses, we analyze 1) firms' decisions to carry D&O insurance, 2) the impact of a firm's having D&O insurance on independent directors' decisions to dissent, and 3) the interactive effect of D&O insurance and independent director dissension on the monitoring role of independent directors and firm performance.

Regarding the first research question, we find that the decision by Chinese listed firms to purchase D&O insurance is consistent with the efficient-contracting hypothesis. Following the literature (see, e.g., Claessens et al., 2000; Berkman et al., 2009, 2010; Jiang et al., 2010; Liu et al., 2015; Huang and Xue, 2016; He and Luo, 2018; Jiang et al., 2018), we use five proxies to measure the varying degrees and forms of conflicts between controlling and non-controlling shareholders. None of the results based on the five agency proxies suggest that firms with greater agency problems are more likely to purchase D&O insurance. Indeed, two proxies are significantly and negatively related to the likelihood of a firm's carrying D&O insurance. Further, other firm characteristics are systematically associated with the likelihood of firms' carrying D&O insurance as predicted by the efficient-contracting hypothesis, but not the agency hypothesis. For example, firms with more independent directors tend to buy D&O insurance, consistent with the notion that D&O insurance is an important tool in recruiting and retaining quality directors (Brook and Rao, 1994; Core, 1997; O'Sullivan, 1997; Boyer and Tennyson, 2015). Larger firms, cross-listed firms, or firms that are audited by one of the Big Four accounting firms tend to have D&O insurance, consistent with the argument that those firms have more expansive operations and a broader investor base and hence face greater litigation risk (Mayers and Smith, 1982; Core, 1997; O'Sullivan, 1997; Boyer and Tennyson, 2015). More-levered firms also tend to buy D&O insurance, in line with the idea that those firms are less likely to meet their indemnity obligations (Core, 1997).

Regarding the second research question, dissension imposes significant costs on dissenting directors including their being ejected from the board and drawing negative attention from regulators and investors (Warther, 1998; Chemmanur and Fedaseyeu, 2018; Jiang et al., 2016). Such costs may be particularly high for Chinese directors because of the concentrated ownership in China and the fact that the management and controlling shareholders sponsor most of the proposals (Jiang et al., 2016). If having D&O insurance creates moral hazard as predicted by the agency hypothesis, we should find that independent directors in firms carrying D&O insurance reduce monitoring efforts and dissent less. On the other hand, if D&O insurance sharpens independent directors' incentives to more effectively use voting to monitor, independent directors in firms carrying D&O insurance may be more inclined to dissent, as predicted by the efficient-contracting hypothesis; this is what we find.

To test the second research question more robustly, we manually collect voting data for all director types and benchmark the effect of having D&O insurance on independent director dissension against the effect on their peers in the same firm on the same proposal. This research design substantially mitigates endogeneity concerns that arise from latent proposal and firm characteristics and contemporaneous trends. We find that in firms carrying D&O insurance, independent directors are more likely to dissent than directors who are employees of the firm or directors who were nominated by non-controlling shareholders. Analysis of independent directors' decisions to dissent versus depart provides further support for the efficient-contracting hypothesis. Independent directors in firms carrying D&O insurance are more likely to stay on the board and dissent or depart after dissenting as opposed to not dissenting and staying on the board. Our results also hold using endogeneity checks including using proposal fixed effects, a Heckman two-stage model (Heckman, 1979), a propensity score matching (PSM) method, and an adapted two-stage least-squares instrumental variable (2SLS-IV) approach.

To gain a deeper understanding of the second research question, we examine the possible channels through which the effects of D&O insurance work. We hypothesize that the positive moderating effect of D&O insurance as predicted by the efficient-contracting hypothesis likely arises from two channels: the insurance channel and the insurer-monitoring channel. The first channel is premised on the direct effect of insurance. Dissension signals new and, importantly, negative information about the firm to outsiders and is associated with increased risk of regulatory sanctions and shareholder lawsuits (Tang et al., 2013; Jiang et al., 2016). As D&O insurance reduces the financial risks faced by independent directors that are associated with lawsuits related to their service to the firm (Core, 1997; Boyer and Tennyson, 2015), the positive moderating effect of D&O insurance should be stronger in firms that suffer more from this whistleblowing effect. Consistent with this argument, we find that the D&O insurance effect is stronger in firms with higher levels of information asymmetry or litigation risk. The second channel draws from the insurance-as-governance literature (Holderness, 1990), which argues that through a variety of mechanisms, including the underwriting and litigation processes, D&O policy providers help firms optimize incentives for independent directors to perform their monitoring duties. Supporting this argument, we find that the positive moderating effect of D&O insurance is stronger when the D&O insurance provider is of higher quality.

Regarding the third research question, we find that dissension by independent directors in firms carrying D&O insurance 1) is negatively associated with underinvestment and the total number and the claim value of lawsuits, 2) is positively related to internal control quality, and 3) improves the CEO turnover- and pay-performance sensitivities. Dissension by independent directors in firms carrying D&O insurance is also associated with higher firm valuation and return on equity (ROE). In sum, the findings for the third research question corroborate the efficient-contracting hypothesis.

This paper makes four main contributions. First, we address the ongoing debate regarding D&O insurance by providing the first evidence for its effect on independent directors' voting decisions and the subsequent effects on the monitoring role of independent directors and firm performance. Second, our results offer important policy implications because our sample is drawn from China, the world's second-largest economy, which has an underdeveloped corporate governance system. A growing number of firms and regulators in developing countries, where corporate governance is

typically weak, are debating the benefits of adopting D&O insurance. Third, our paper adds to the fledging literature that aims to provide direct evidence of factors that influence independent directors' incentives to monitor. Ma and Khanna (2016) find evidence for a social exchange theory. Jiang et al. (2016) identify reputation and career concerns as key drivers. We provide new evidence that D&O insurance, through the insurance channel and the insurer-monitoring channel, can be an important incentive-alignment tool. Finally, the paper extends the emerging literature that strives to better understand director activities inside the boardroom (Schwartz-Ziv and Weisbach, 2013; Schwartz-Ziv, 2015; Coles et al., 2016; Hao et al., 2020).

The rest of the article is organized as follows: Section 2 presents an overview of D&O insurance coverage trends and litigation risk in China, discusses the governance role of independent directors in China, and develops the hypotheses. Section 3 describes the sample construction process, the data sources, and the sample. Section 4 reports the results. Section 5 summarizes and concludes.

2. Institutional background and hypotheses development

2.1. D&O insurance coverage trends and litigation risk in China

D&O insurance has been an essential risk management and incentive tool for corporations in common law countries such as the United States, the United Kingdom, Canada, and Australia, where more than 90% firms have some form of D&O insurance. In recent years, D&O insurance has also gained popularity in continental Europe and some Asian countries. In contrast, the Chinese D&O insurance market is still in its infancy.

In August 2001, the China Securities Regulatory Commission (CSRC)—the regulatory authority of China's stock market—pointed out in its Guiding Opinions on the Establishment of an Independent Director System in Listed Companies that "[*i*]n order to ensure that independent directors can exercise their powers effectively, listed companies should provide the necessary conditions for independent directors," including "the establishment of the necessary independent directors' liability insurance system." On January 7, 2002, China's State Economic and Trade Commission (now the Ministry of Commerce) and the CSRC jointly issued the "Guidelines for the Management of the Listed Company," which permit Chinese listed firms to purchase D&O insurance upon the approval of the general meeting of shareholders. Sixteen days later, Ping An Insurance Company, one of the three largest Chinese insurance companies, and Chubb Insurance Group, jointly issued the first D&O insurance policy in China to Vanke, a Chinese real estate firm.

Fig. 1 depicts the fraction of Chinese firms listed on the Shanghai Stock Exchange (SHSE) and the Shenzhen Stock Exchange (SZSE) that carried D&O insurance from 2004 to 2020. Zou et al. (2008) provide the initial evidence that during 2000–2004, 53 firms—about 4% of the Chinese listed firms—sought shareholder approval to buy D&O insurance. The fraction of Chinese listed firms with D&O insurance stayed below 5% before 2007. From 2007 to 2018, the ratio increased from 4.5% to 7.3%. This increasing trend resulted from a series of governance reforms and the rising securities litigation risk. For better context, Fig. 1 lists some of the key market and business regulatory reforms during the period.

Before 2002, Chinese listed firms faced little threat or consequences of private securities litigation (PSL) (Sheng, 2015). As was the case in many other markets including the United States, there was a sudden explosion of corporate scandals in China during 2000–2002. In response to the filing of a flurry of PSL cases, on September 21, 2001, China's Supreme People's Court temporarily banned lower courts from accepting PSL cases on the ground that the courts were not ready to hear them due to "legislative and judicial limitations at the moment" (Huang, 2013). On December 26, 2002, the Supreme People's Court adopted new PSL rules, providing specific parameters for the handling of PSL cases. The new PSL rules allow not only firms, but also individuals including directors and officers, to be named as defendants. In 2005, China revised the Securities Law authorizing for the first time derivative lawsuits against directors and officers, effective January 1, 2006 (Howson and Clarke, 2012).

The trend of securities misrepresentation lawsuits illustrates the rising litigation risk in China: a total of 2517 such cases were filed during 2001–2014, 2787 in 2015, 7014 in 2017, and 8120 in 2018.0F[1] In response to the rising litigation risk, legal experts and policymakers began pushing for greater adoption of D&O insurance. For example, in 2014, the Chinese State Council issued Several Opinions on Accelerating the Development of the Modern Insurance Industry, which discussed the need to develop a D&O insurance market and D&O products.

After our sample period ended in 2018, the adoption rate of D&O insurance spiked, reaching 15% in 2020, mainly due to the revised Securities Law and the Luckin Coffee scandal. The revised Securities Law, enacted on December 28, 2019, significantly increased the penalties for security violations by directors and officers and authorized individual investors to band together in U.S.-style class action lawsuits to sue listed firms in China (Huang et al., 2020; Gen *Re*, 2020; Qian, 2020). In April 2020, Luckin Coffee, once dubbed the "Chinese Starbucks," filed a D&O claim seeking USD 25 million. Although Luckin Coffee is listed on Nasdaq and is not an A-share listed Chinese firm, the high-profile nature of the case raised awareness about D&O insurance in China and catalyzed Chinese listed firms' demand for D&O insurance.1F[2]

To summarize, the need for a better understanding of the impact of D&O insurance on Chinese listed firms, especially their independent directors, is paramount given the growth in litigation risk, the demand for D&O insurance, and the institutional characteristics of the corporate governance system in China. As Section 2.2 will discuss in further detail, many governance controls that are critical for mitigating agency conflicts in other major stock markets are weak in China. Independent director is the central governance mechanism designed to improve China's corporate governance system and protect minority shareholders (Howson and Clarke, 2012).

2.2. The governance role of independent directors in China

The corporate governance problem is acute in China. The problem stems from the agency conflict between controlling and non-controlling shareholders, which is further exacerbated by illiquidity due to the non-tradable shares legacy. Before 2005, China had a complex scheme of shares and shareholders—a legacy of the privatization of over 1000 large state-owned enterprises (SOEs) in the early 1990s. To maintain state control, stock ownership of the privatized firms was divided into three classes: 1) A-shares quoted in Chinese RMB and traded by domestic investors; 2) B-shares quoted in U.S. dollars or Hong Kong dollars for trading by foreign investors of firms listed on the SHSE or the SZSE, respectively; and 3) H-shares quoted in Hong Kong dollars for firms cross-listed on the

[1] www.zhonglun.com/Content/2020/03-07/1603081618.html, in Chinese. We observe a similar trend of rising litigation risk in our sample. The number of lawsuits filed against our sample firms stayed below 500 during 2005–2012 and below 1000 during 2013–2015, and then rose to 1874 in 2017, 3318 in 2018, and 6229 in 2019. As a result, the number of lawsuits against the directors at the sample firms has also increased substantially in recent years.

[2] According to a *Financial Times* article published on May 11, 2020, 72 Chinese listed firms announced plans to buy D&O insurance before the end of the first half of 2020, compared to 23 firms in the whole of 2019 (Yu, 2020).

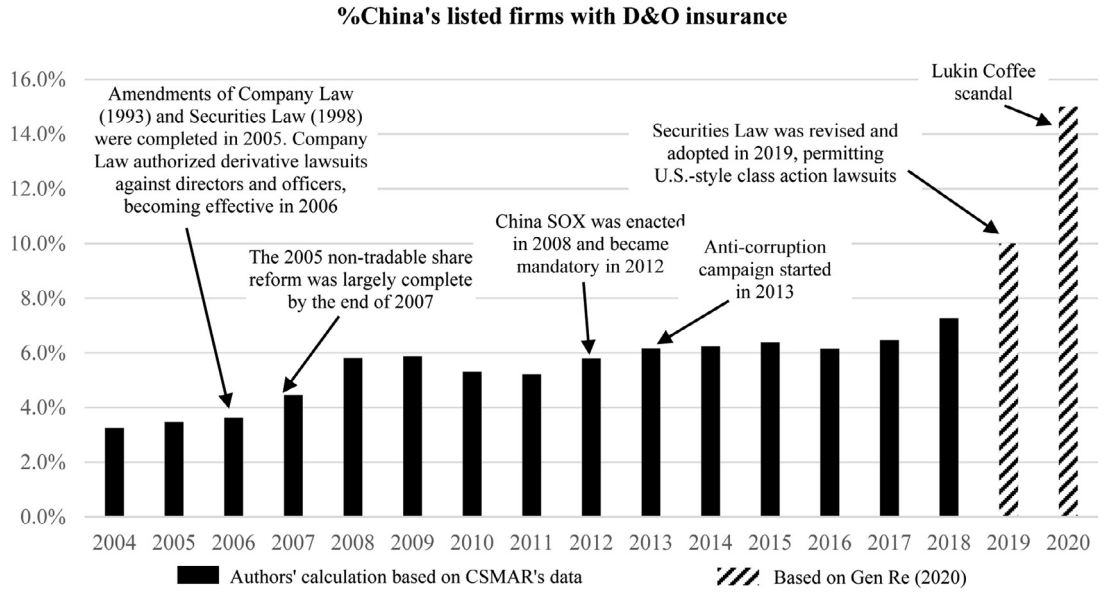

Fig. 1. Time trend of D&O insurance coverage in China from 2004 to 2020
This figure depicts the percentage of Chinese listed firms that purchased D&O insurance in a given year from 2004 to 2020. For the period of 2004–2018, the statistics are compiled by the authors using 34,138 firm-year observations on all firms listed on the Shanghai and Shenzhen Stock Exchanges. For the period of 2019–2020, the statistics are based on Gen *Re*'s 2020 research. For better context, we also highlight key governance events from 2004 to 2020 that potentially impact corporate demand for D&O insurance.

Hong Kong Stock Exchange. A-shares represented over 90% of the market and were split into tradable (about one-third) and non-tradable shares (about two-thirds). At the end of 2004, 74% of non-tradable shares were state-owned. In 2005, the CSRC required all listed firms to transform their non-tradable shares into tradable shares. The reform was largely completed by the end of 2007 (Campello et al., 2014; Liao et al., 2014).

Given the ownership structure legacy, many governance controls that are critical to curbing agency problems in other major markets are weak in China. More specifically, because ownership has remained concentrated2F,[3] the corporate takeover market is non-existent in China (La Porta, Lopez-de-Silanes, and Shleifer, 1999; Claessens et al., 2000). Chinese institutional investors have small stockholdings and perform a negligible monitoring role (Chen, 2003; Jiang and Kim, 2020). China's auditing profession is relatively new and small; its independence is frequently challenged (Ke et al., 2015). Therefore, the governance role of independent directors is particularly important in China.

From 2001 through 2002, China initiated a series of reforms with the goal of improving the corporate governance system and protecting the interests of non-controlling shareholders through the institution of independent directors (Clark, 2006). The CSRC required each Chinese listed firm to have at least two independent directors by June 30, 2002, and mandated that independent directors comprise at least one-third of the board by June 30, 2003. The role of independent directors in China is similar to that in the United States in that Chinese boards ratify and monitor major corporate decisions and function mainly through proposals discussed and voted on at board meetings (Giannetti et al., 2015; Jiang et al., 2016).

The weight of the empirical evidence shows that independent directors play a key monitoring role in China. For example, Chen et al. (2006) find that independent directors have a stronger deterrent effect than the ownership structure on firms' propensity to commit fraud. Lo et al. (2010) find that firms with a higher fraction of independent directors are less likely to engage in transfer pricing manipulations—a way that controlling shareholders expropriate from non-controlling shareholders and creditors. Liu et al. (2015) find that independent directors enhance firm operating performance.

Most relevant to this paper, Ye et al. (2011) and Tang et al. (2013) find that independent directors use voting to monitor controlling shareholders and protect non-controlling shareholders. Ye et al. (2011) find that most proposals not approved by independent directors were associated with subsequent improvements (e.g., a failed related-party-transaction proposal was followed by reduced related-party activities the subsequent year). Tang et al. (2013) find that firms with more-severe agency problems tend to experience more independent director dissension.

2.3. Hypotheses development

This paper aims to gain a better understanding of the governance role of D&O insurance via the lens of its effect on independent director dissension. To achieve this objective, we propose two competing hypotheses: the efficient-contracting hypothesis and the agency hypothesis.

The efficient-contracting hypothesis assumes that it is efficient for a risk-neutral firm to forgo self-insurance and purchase D&O insurance if the benefits outweigh the costs. The benefits of D&O insurance come from three main sources. First, D&O insurance can lower contracting costs (Mayers and Smith, 1982, 1987; Core, 1997). Consistent with this rational argument of corporate demand for insurance, the literature has found that firms facing higher costs of financial distress and litigation risk are more likely to buy D&O insurance (Mayers and Smith, 1982 and 1990; Core, 1997; O'Sullivan, 1997; Boyer and Tennyson, 2015). Second, unlike shareholders who are risk-neutral and make optimal risk-taking decisions to maximize their financial returns (Smith and Stulz, 1985), directors and officers are risk-averse.

[3] Using Chinese Securities Market and Accounting Research (CSMAR) data, we find that although the percentage of ownership by the largest shareholder decreased from 40% in 2005 to 34% in 2018, the ownership percentage of the largest shareholder is still far greater than that of the second-largest shareholder, which stayed stable at around 10% from 2005 (9.57%) to 2018 (10.33%).

Without D&O insurance, firms may be unable to recruit and retain qualified directors and fail to take appropriate business risks (O'Sullivan, 1997; Cao and Narayanamoorthy, 2011; Hwang and Kim, 2015).3F[4] Third, D&O insurance serves an important governance function. More specifically, the D&O insurance underwriting process is structured to enable the insurance company to obtain full information about the applicant's risk factors at a negligible cost (Core, 1997). During the underwriting process, the insurer undertakes considerable monitoring, including extensive review of the company's financial records and governance process, inspection of the records of directors and executives, and interviews of the management (Holderness, 1990; Core, 1997; Boyer and Tennyson, 2015). Insurance companies frequently negotiate changes in a firm's corporate governance as a condition for obtaining and renewing the policy (Boyer and Tennyson, 2015). Consistent with this insurance-as-governance argument, Core (2000) finds that D&O insurance premiums reflect a firm's corporate governance quality. Boyer and Stern (2012, 2014) find that insurance companies can appropriately evaluate governance and price risks of IPO firms.

The agency hypothesis argues that D&O insurance creates moral hazard and exacerbates the agency problem because the insurance policy weakens the disciplining effect of litigation and reduces D&O accountability (Baker and Griffith, 2010). As mentioned in the Introduction, the literature has produced ample evidence consistent with this argument (see, e.g., Lin et al., 2011; Chalmers et al., 2002; Bradley and Chen, 2011; Li and Liao, 2014; Cao and Narayanamoorthy, 2011; Lin et al., 2013; Chung and Wynn, 2008; Wynn, 2008; Bradley and Chen, 2011; Jia and Tang; 2018; Chen et al., 2016). Additionally, firms with more-entrenched managers purchase more D&O insurance coverage (Core, 1997). Firms with D&O insurance are more likely to be sued and the likelihood of litigation increases with increased coverage (Gillan and Panasian, 2015).

To test the efficient-contracting and the agency hypotheses, we analyze 1) the corporate decision to purchase D&O insurance, 2) the impact of D&O insurance on independent directors' decisions to dissent, and 3) the interactive effect of D&O insurance and independent director dissension on the monitoring role of independent directors and firm performance.

Regarding the determinants of the corporate decision to purchase D&O insurance, the efficient-contracting hypothesis predicts that the likelihood of a firm's carrying D&O insurance should be systematically associated with firm characteristics as predicted by the theory of corporate demand for insurance (Mayers and Smith, 1982, 1987; Core, 1997; O'Sullivan, 1997). Namely, the economic costs and benefits of D&O insurance should drive the firm's demand for D&O insurance. The agency hypothesis predicts that the likelihood of a firm's carrying D&O insurance should be positively associated with the extent of agency conflicts in the firm (Chalmers et al., 2002; Boyer, 2007). Therefore, we propose the following hypotheses:

H1 (null): The likelihood of firms' carrying D&O insurance is not systematically associated with firm characteristics or the extent of agency conflicts.

H1a (efficient contracting): The likelihood of firms' carrying D&O insurance is systematically associated with firm characteristics as predicted by the theory of corporate demand for insurance.

H1b (agency): The likelihood of firms' carrying D&O insurance is positively associated with the extent of agency conflicts.

Voting on proposals is the primary way for boards to monitor the management and safeguard firm welfare (Schwartz-Ziv and Weisbach, 2013). However, dissension imposes significant costs on dissenting directors, including ejection from the board and negative attention from regulators and investors (Warther, 1998; Chemmanur and Fedaseyeu, 2018; Jiang et al., 2016). Such costs may be particularly high for Chinese independent directors given the concentrated ownership and the fact that the management and controlling shareholders sponsor most proposals (Jiang et al., 2016). There is anecdotal evidence that independent directors are fired by controlling shareholders following a dissenting vote.4F[5] Zheng et al. (2016) also document that dissenting independent directors are less likely to be reelected for a second term. Jiang et al. (2016) find that the labor market rewards dissenting independent directors with more future directorships, indicating that the market values the monitoring function of dissension. The efficient-contracting hypothesis predicts that D&O insurance sharpens the incentives of independent directors to more effectively use voting to monitor. This incentive effect may arise because the insurance-as-governance literature documents that through the underwriting process, independent directors can learn best governance practices (Holderness, 1990; Core, 1997; Boyer and Tennyson, 2015). Independent directors who are more aware of best governance practices may be more inclined to effectively engage in monitoring activities such as dissenting.5F[6] The agency hypothesis predicts that D&O insurance dulls independent directors' vigilance and accountability and hence independent directors at firms carrying D&O insurance are more likely to vote in line with management. Therefore, we propose the following hypotheses:

H2 (null): D&O insurance is not associated with independent directors' decisions to dissent.

H2a (efficient contracting): D&O insurance is positively associated with independent directors' decisions to dissent.

H2b (agency): D&O insurance is negatively associated with independent directors' decisions to dissent.

As discussed in Section 2.2, the Chinese corporate governance system is incomplete and underdeveloped. Therefore, independent directors arguably play a more important governance role in China than in economies with advanced governance systems. Given that the primary way for independent directors to monitor is through voting and having D&O insurance sharpens the incentives of independent directors to more effectively use voting to monitor, the efficient-contracting hypothesis predicts that D&O insurance moderates a positive relation between independent director dissension and board monitoring activities. Conversely, as the agency hypothesis assumes that D&O insurance dulls independent directors' vigi-

[4] In untabulated analyses, we examine whether D&O insurance plays a role in attracting higher-quality directors. We constructed a Director Quality Index (DQI), which is the sum of three indicator variables—whether a director has more than one board seat, holds a graduate degree, or has foreign experiences. We relate DQI to D&O insurance (*DO*) and D&O insurance interacted with whether a firm was disciplined by the CSRC (*Penalty*). We find that DQI is significantly and positively related to *DO* and *DO*Penalty* for all directors and is significantly and positively related to *DO*Penalty* if we consider only independent directors. Therefore, the weight of the results is consistent with the argument that D&O insurance helps firms attract higher-quality directors, especially for those firms facing higher litigation risk. The evidence that D&O insurance helps firms attract higher-quality directors is consistent with the efficient-contracting hypothesis and the findings in Masulis, Shen, and Zou (2020). We report the results in the Internet Appendix.

[5] http://stock.hexun.com/2014-05-23/165051086.html, in Chinese.

[6] Through the underwriting process, managers may also learn the benefits of best governance practices and come to realize that active monitoring by independent directors is value enhancing. Those managers may be then less likely to react negatively against dissenting independent directors. Consistent with this argument, while we find some evidence that dissenting independent directors are less likely to be reelected for a second term, we find strong evidence that dissenting independent directors at firms carrying D&O insurance are more likely to be reelected. Results are reported in the Internet Appendix.

lance and accountability, that hypothesis predicts a negative moderating effect of D&O insurance. Additionally, firms under more effective board supervision should experience fewer agency problems and consequently exhibit better firm performance. Therefore, we propose the following hypotheses:

H3 (null): The moderating effect of D&O insurance on independent director dissension is not associated with corporate governance and financial performance.

H3a (efficient contracting): The moderating effect of D&O insurance on independent director dissension is associated with better corporate governance and financial performance.

H3b (agency): The moderating effect of D&O insurance on independent director dissension is associated with worse corporate governance and financial performance.

3. Sample

3.1. Data sources

We start the sample construction process with all Chinese firms listed on the SHSE and the SZSE from 2005 to 2018. Following the literature, we exclude financial firms and firms that only issue B-shares (see, e.g., Jiang et al., 2016; Yuan et al., 2016). We manually collect the voting records of all directors from corporate announcements in the WIND database for proposals on which at least one director dissented. The sample period starts in 2005 because in that year the voting records of all directors became available. D&O insurance data come from the Chinese Research Data Services Platform (CNRDS). CNRDS is a leading data provider that specializes in technologies such as textual analysis and machine learning to collect data of Chinese financial markets and firms that have been historically difficult to gather or are missing from traditional databases. We manually collect the identities of D&O policy providers from corporate annual reports and minutes of the board and shareholders' meetings. We obtain the rest of the data from CSMAR, including financial statements; stock prices; board structure and director characteristics; ownership structure; CEO characteristics, turnover, and pay; and litigation and penalties.

3.2. Sample description

We have the requisite D&O insurance, financial, stock, and governance data for 26,484 firm-year observations or 3347 unique firms from 2005 to 2018. We refer to this sample as the Firm-Level Sample. We use this sample to estimate the probability of a firm's carrying D&O insurance (Table 3) and the impact of this coverage on the monitoring role of independent directors and on firm financial performance (Tables 8,9). Panel A of Table 1 reports univariate statistics for this sample at the firm-year level partitioned by whether a firm carries D&O insurance. Similar to prior studies (see, e.g., Zhu et al., 2016; Hu et al., 2020), approximately 37% of the directors in our sample are independent. Appendix I provides descriptions for all variables used in our analysis.

We have voting records of all the directors on 2035 proposals that had at least one dissenting vote for 1073 board meetings of 447 firms from 2005 to 2018. We refer to this sample as the Director-Level Sample. We use this sample to investigate the drivers behind independent directors' decisions to dissent (Tables 4 7). Panel B of Table 1 reports univariate statistics for this sample at the firm-year-director-proposal level partitioned by whether a firm carries D&O insurance. The percentage of observations associated with a dissenting vote is 15.2% in the subsample of firms carrying D&O insurance (the D&O subsample) versus 13.7% in the subsample of firms not carrying D&O insurance (the non-D&O subsample); the difference is statistically significant at the 5% level based on a two-tailed *t*-test. The D&O subsample has a higher (lower) fraction of non-controlling directors (controlling and internal directors) on the board than the non-D&O subsample, while the representation of independent directors across the two subsamples is statistically indistinguishable. This pattern is consistent with the CSRC mandate that the purchase of D&O insurance must be approved by a majority of the shareholders at a shareholder meeting.

To gain insight into voting patterns across director type, Panel C of Table 1 reports the frequency distribution of directors for the Director-Level Sample partitioned by whether a firm carries D&O insurance and whether a director dissents. While in the non-D&O subsample the proportion of dissension from independent directors (26.9%) is significantly lower (by 11.6 percentage points) than the proportion of affirmative votes from independent directors (38.5%), the two ratios are statistically indistinguishable in the D&O subsample. This contrast is interesting and suggestive of a potential effect of D&O insurance on independent directors' decisions to dissent. As Panel B shows that the representation of independent directors across the subsamples with and without D&O insurance is statistically indistinguishable, this contrast in Panel C should not arise from the mechanical possibility that independent directors are overrepresented in the non-D&O subsample.

Non-controlling directors cast the largest number of dissenting and affirmative votes for three of the four subsamples in Panel C, which is not surprising because they make up the largest group of directors on boards. The gap between dissenting and affirmative votes by non-controlling directors is smaller in the D&O subsample than in the non-D&O subsample (12.1% versus 27.6%). The seemingly different voting patterns of independent and non-controlling directors may indicate that D&O insurance has different effects on different director groups. As expected, the frequency of dissension is less than the frequency of affirmative votes for controlling and internal directors for both subsamples with and without D&O insurance.

Table 2 reports the distribution by issues of the proposals and the associated dissension rate of independent and other directors. The most common issues regard Investments and M&A. Additionally, independent directors are most likely to dissent on proposals regarding *Financial reporting*, followed by *Audit and accounting treatment* proposals. This pattern is consistent with the boards of directors in China having the primary responsibility for the establishment and implementation of internal controls. Other directors are most likely to dissent on proposals regarding *Financing and capital structure*, followed by *Ownership structure*.

4. Main results

4.1. Determinants of D&O liability insurance coverage

To test the H1s, we estimate the following logistic model that relates the probability of a firm's carrying D&O insurance to variables that measure agency conflicts and firm characteristics:

$$Pr(DO_{it} = 1) = \beta_0 + \beta_1 * Agency_{it} + \gamma X_{FIRM\_CHAR} + d_k + d_t + \varepsilon_{it}, \quad (1)$$

where $Agency_{it}$ denotes the proxies for agency conflict in firm i in year t. The main source of agency conflict in China is between controlling and non-controlling shareholders (Jiang and Kim, 2015, 2020). Further, because the corporate governance system is underdeveloped in China, the agency conflict experienced by Chinese firms is acute and manifests in various forms. Therefore, following the literature (see, e.g., Claessens et al., 2000; Berkman et al., 2009, 2010; Jiang et al., 2010; Liu et al., 2015; Huang and Xue, 2016; He and Luo, 2018; Jiang et al., 2018), we use the following five

Table 1
Univariate statistics.

Panel A: The Firm-Level Sample (n = 26,484 firm-year observations)

	DO = 1 (n = 1425)		DO = 0 (n = 25,059)		
	Mean	Std. Dev.	Mean	Std. Dev.	*Dif.*
OwnPct_TOP1	0.370	0.137	0.352	0.140	0.018***
#Blockholders	1.981	0.992	2.071	1.130	−0.090***
Separation	0.054	0.079	0.054	0.075	0.000
OREC	0.018	0.022	0.018	0.022	0.001
Pledge	0.045	0.097	0.089	0.131	−0.043***
SOE	0.715	0.452	0.403	0.491	0.312***
Firm size	22.844	1.304	21.880	1.123	0.964***
Leverage	0.545	0.190	0.446	0.203	0.099***
Cash	0.154	0.105	0.173	0.115	−0.019***
Board size	2.206	0.208	2.151	0.202	0.055***
%INDEP directors	0.373	0.043	0.368	0.043	0.005***
OwnPct_DO	0.020	0.076	0.107	0.179	−0.087***
Duality	0.116	0.320	0.242	0.428	−0.126***
CEO tenure	3.912	3.061	4.055	3.022	−0.143**
ROA	0.031	0.042	0.038	0.044	−0.007***
Growth	0.134	0.280	0.168	0.289	−0.033***
Volatility	0.028	0.009	0.031	0.009	−0.002***
Penalty	0.180	0.384	0.214	0.410	−0.035***
BH	0.338	0.473	0.047	0.212	0.291***
Big4	0.312	0.463	0.044	0.206	0.267***
INDEP_DIS	0.009	0.160	0.003	0.060	0.006***
NCONTR_DIS	0.010	0.148	0.005	0.001	0.005**
CONTR_DIS	0.004	0.108	0.001	0.019	0.003***
Forecast error	0.034	0.058	0.033	0.054	0.001
Analyst coverage	9.168	11.106	6.720	8.917	2.448***
Turnover	2.865	2.542	3.579	2.611	−0.714***
Crash risk	−0.241	0.496	−0.162	0.483	−0.079***
Foreign insurer	0.088	0.283	0.000	0.000	0.088***
#Lawsuits	0.143	0.350	0.109	0.312	0.034***
Lawsuit value	3.138	6.723	2.378	5.919	0.760***
Overinvestment	0.365	0.453	0.307	0.409	0.058***
Underinvestment	0.157	0.124	0.152	0.119	0.005
ICQ Index	6.542	0.634	6.481	0.574	0.061***
Reporting Index	8.369	1.074	8.416	1.049	−0.047*
Compliance Index	9.174	1.419	9.180	1.415	−0.006
Forced CEO turnover	0.229	0.421	0.193	0.394	0.046***
CEO pay	13.392	0.972	12.995	0.852	0.397***
Tobin's Q	1.544	1.254	2.092	1.411	−0.548***
Ln(market value of the firm)	23.159	0.920	22.466	0.905	0.693***
ROE	0.072	0.085	0.068	0.080	0.004**

Panel B: The Director-Level Sample (n = 21,445 firm-year-director-proposal observations)

	DO = 1 (n = 2370)		DO = 0 (n = 19,075)		
	Mean	Std. Dev.	Mean	Std. Dev.	*Dif.*
DISSENT	0.152	0.359	0.137	0.344	0.015**
Independent	0.366	0.482	0.369	0.483	−0.003
Non-control	0.420	0.494	0.327	0.469	0.093***
Control	0.093	0.290	0.143	0.350	−0.050***
Internal	0.122	0.327	0.161	0.368	−0.040***
ACC	0.475	0.499	0.381	0.486	0.094***
Law	0.118	0.322	0.090	0.287	0.027***
Politics	0.173	0.008	0.203	0.003	−0.030***
Male	0.850	0.357	0.865	0.342	−0.015**
Age	3.926	0.174	3.888	0.169	0.037***
Compensation	0.735	0.442	0.704	0.456	0.030***
Share	0.210	0.407	0.156	0.363	0.054***
Tenure	4.122	3.941	3.348	2.868	0.775***
Seats	0.312	0.806	0.320	0.848	−0.008
SOE	0.250	0.433	0.429	0.495	−0.179***
Firm size	21.932	1.136	21.780	1.249	0.152***
Leverage	0.561	0.207	0.496	0.224	0.066***
Cash	0.119	0.067	0.150	0.112	−0.031***
Board size	2.167	0.177	2.225	0.211	−0.058***
%INDP directors	0.370	0.042	0.364	0.039	0.006***
OwnPct_TOP1	0.272	0.149	0.288	0.139	−0.017***
OwnPct_DO	0.081	0.115	0.073	0.145	0.008***

(*continued on next page*)

Table 1 (*continued*)

Panel A: The Firm-Level Sample (n = 26,484 firm-year observations)						
	DO = 1 (*n* = 1425)			DO = 0 (*n* = 25,059)		
	Mean	Std. Dev.		Mean	Std. Dev.	*Dif.*
Duality	0.110	0.313		0.202	0.401	−0.092***
CEO tenure	4.597	4.033		3.369	2.856	1.228***
ROA	0.006	0.046		0.018	0.052	−0.012***
Growth	0.165	0.339		0.132	0.340	0.033***
Volatility	0.030	0.006		0.031	0.009	−0.001***
Penalty	0.480	0.500		0.408	0.491	0.072***
BH	0.095	0.293		0.058	0.233	0.037***
Big4	0.282	0.450		0.035	0.183	0.247***
Panel C: The Director-Level Sample (n = 21,445 firm-year-director-proposal observations)						
	DO = 1 (*n* = 2370)			DO = 0 (*n* = 19,075)		
	Dissent = 1 (*n* = 360)	Dissent = 0 (*n* = 2010)	*Dif.*	Dissent = 1 (*n* = 2609)	Dissent = 0(*n* = 16,466)	*Dif.*
Independent	0.344	0.370	−0.025	0.269	0.385	−0.116***
Non-control	0.522	0.401	0.121***	0.565	0.289	0.276***
Control	0.108	0.090	0.018	0.071	0.154	−0.083***
Internal	0.025	0.139	−0.114***	0.095	0.172	−0.077***

Panel A provides univariate statistics for **the Firm-Level Sample** that is used to estimate the probability of a firm's carrying D&O insurance (Table 3) and the impact of this coverage on the monitoring role of independent directors and firm financial performance (Tables 8,9). The Firm-Level Sample consists of 3347 firms or 26,484 firm-year observations from 2005 to 2018. Panel B provides univariate statistics for **the Director-Level Sample** that consists of 21,445 firm-year-director-proposal-level observations and is used to estimate the probability of independent directors' casting a dissenting vote (Tables 4 7). The Director-Level Sample consists of 2035 proposals discussed at 1073 board meetings of 447 firms from 2005 to 2018. To mitigate the concern of outliers, we winsorize all continuous variables by 5% at both tails. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively, based on a two-tailed *t*-test. See Appendix I for variable definitions and descriptions.

Table 2
Distribution of proposals and director dissension by issues.

Issues	#Proposals	%	#(%)Proposals of independent director dissension		#(%)Proposals ofother director dissension	
Investment and M&A	386	*19%*	112	*29%*	321	*83%*
Financial reporting	305	*15%*	119	*39%*	227	*74%*
Financing and capital structure	244	*12%*	46	*19%*	225	*92%*
Director and officer selection, appointment, and turnover	217	*11%*	66	*30%*	186	*86%*
Restructuring	134	*7%*	39	*29%*	111	*83%*
Related-party transactions	117	*6%*	31	*26%*	95	*81%*
Loan guarantee	113	*6%*	21	*19%*	98	*87%*
Ownership structure	89	*4%*	18	*20%*	80	*90%*
Audits and accounting treatment	70	*3%*	22	*31%*	53	*76%*
Executive and director pay	38	*2%*	11	*29%*	33	*87%*
Miscellaneous issues	322	*16%*	101	*31%*	262	*81%*
Total	**2035**	***100%***	**586**	***29%***	**1691**	***83%***

This table reports the distribution by issues of the proposals on which at least one director dissented during board meetings that took place from 2005 to 2018 for Chinese firms listed on the Shanghai and the Shenzhen Stock Exchanges. The sample consists of 2035 proposals discussed at 1073 board meetings of 447 firms.

proxies to capture the degree and form of agency conflicts: 1) the percentage of common shares held by the largest shareholder (*OwnPct_TOP1*), 2) the number of owners with greater than 5% common equity (*#Blockholders*), 3) separation of ownership and control rights (*Separation*), 4) other receivables over total assets (*OREC*), and 5) the percentage of shares pledged by insiders as collateral to obtain loans (*Pledge*). Prior studies show that higher *OwnPct_TOP1*, fewer blockholders, greater *Separation*, and higher levels of *OREC* and *Pledge* indicate more-acute agency problems.

X_{FIRM_CHAR} is a vector of other firm operating and governance characteristics that potentially drive firms' decisions to purchase D&O insurance, including firm size, the percentage of independent directors on the board (*%INDEP directors*), *Board size*, an indicator variable for the CEO's being the chairperson of the board (*Duality*), equity ownership by directors and officers (O*wnPct_DO*), *CEO tenure*, a dummy that equals one if a firm is a state-owned enterprise (*SOE*),6F[7] *Leverage*, financial slack (*Cash*), net profits over total assets (*ROA*), sales growth (*Growth*), stock return volatility (*Volatility*), a dummy that equals one if a firm was disciplined by the CSRC in the previous or the present year (*Penalty*),7F[8] a dummy

[7] In an untabulated robustness check, we replaced *SOE* with two indicator variables, *Central SOE* and *Local SOE*, that take the value of one if the firm's largest shareholder is the central or local government, respectively. Our results remain qualitatively similar. Neither *Central SOE* nor *Local SOE* is significantly related to the likelihood of firms' carrying D&O insurance when we control for all five proxies for agency conflicts.

[8] China's Securities Law requires that to bring a civil securities suit, there must be a prior criminal judgment or administrative sanction by the relevant bodies, notably the CSRC (Huang, 2013). In the Supreme People's Court's draft revision of the Securities Law in December 2008, it was suggested that these procedural prerequisites be removed (Sheng, 2015). Our consultation with Chinese securities law attorneys revealed that these prerequisites are slowly being removed, but have not yet been eradicated. Therefore, in practice, Chinese investors still need either a criminal judgment from a court or an administrative sanction from securities regulators to bring a lawsuit.

that equals one if a firm issues B- or H-shares (*BH*), and a dummy that equals one if a firm is audited by one of the Big Four accounting firms (*Big4*). d_k and d_t denote industry and year fixed effects, respectively. ε is the residual. As Fig. 1 shows that it is important to account for time trends, we include not only year fixed effects in all regressions but also cluster standard errors at both firm and year levels.

As the agency hypothesis predicts that agency conflicts drive corporate demand for D&O insurance, we expect the likelihood of firms' carrying D&O insurance to be negatively associated with *#Blockholders* but positively associated with *OwnPct_TOP1, Separation, OREC*, and *Pledge*. In contrast, the efficient-contracting hypothesis predicts that the economic costs and benefits of D&O insurance drive corporate demand for D&O insurance, resulting in systematic relations between firm characteristics and the likelihood of firms' carrying D&O insurance. More specifically, Mayers and Smith (1982) theorize that larger firms face less financial distress costs proportional to their size and hence have less demand for insurance, whereas Core (1997) theorizes that larger firms face greater litigation risks and hence are more likely to purchase D&O insurance. Throughout D&O insurance history, larger firms have adopted coverage earlier than smaller firms (Advisen, 2014; AIG DandO White Paper, 2017). We expect that for larger firms the effect of litigation risk regarding D&O insurance dominates that of financial distress and hence *Firm size* be positively associated with the likelihood of firms' carrying D&O insurance.

Given their links to litigation risks, we expect the likelihood of firms' carrying D&O insurance to be positively associated with *Leverage, Volatility, Penalty, BH*, and *Big4* and negatively associated with *ROA* (Mayers and Smith, 1982, Mayers and Smith, 1987; Core, 1997; Boyer and Tennyson, 2015). Since directors are risk averse, we expect D&O insurance to be a more important tool in recruiting and retaining directors for financially distressed firms, resulting in a negative relation between *Cash* and the likelihood of firms' carrying D&O insurance (Core, 1997; Boyer and Tennyson, 2015). We expect a positive relation between *Growth* and the likelihood of firms' carrying D&O insurance because higher-growth firms face greater litigation risk and higher opportunity costs of financial distress (Core, 1997; Boyer and Tennyson, 2015).

If D&O insurance and other governance controls are substitutes, the likelihood of firms' carrying D&O insurance should be negatively associated with*%INDEP directors* but positively associated with *Duality* and Board size (O'Sullivan, 1997). However, it is widely recognized that D&O insurance is instrumental in attracting talented directors (O'Sullivan, 1997; Cao and Narayanamoorthy, 2011; Hwang and Kim, 2015). Masulis et al., 8) provide the first U.S.-based evidence that shows causal support for the "widely claimed" hypothesis that director liability protection helps recruit talented outside directors. Additionally, there is ample evidence that the dual leadership structure reflects firms' operating environments and the abilities of the CEOs rather than a lack of board independence (see, e.g., Brickley et al., 1997; Byrd et al., 2012; Yang and Zhao, 2014). Therefore, we view the relation between the likelihood of firms' carrying D&O insurance and*%INDEP directors* and *Duality* as an empirical one.

The efficient-contracting hypothesis does not provide a directional prediction for the relation between *OwnPct_DO* and the likelihood of firms' carrying D&O insurance. If higher *OwnPct_DO* captures greater incentive alignment between insiders and shareholders, then *OwnPct_DO* should be negatively related to the likelihood of firms' carrying D&O insurance because greater incentive alignment leads to lower litigation risk and consequently lower demand for D&O insurance (Core, 1997). However, because insiders are risk averse, firms with higher O*wnPct_DO* should be more likely to purchase D&O insurance (Core, 1997; Hwang and Kim, 2015). If higher *OwnPct_DO* captures entrenched management, the agency hypothesis predicts a positive relation. Therefore, we view the relation between *OwnPct_DO* and the likelihood of firms' carrying D&O insurance as an empirical one. The existing theories do not provide directional predictions for *SOE* and *CEO tenure*. Appendix II summarizes the predicted relations between firm characteristics and the likelihood of firms' carrying D&O insurance per the efficient-contracting hypothesis and the agency hypothesis, and our findings.

As Table 3 shows, *OwnPct_TOP1* and *Pledge* are the only agency proxies that enter the regressions with statistical significance, both with a negative sign. These findings suggest that firms with fewer agency conflicts between controlling and non-controlling shareholders are more likely to carry D&O insurance, which contradicts the agency hypothesis. Further, both coefficients of *Duality* and *OwnPct_DO* are significantly negative. To the extent that separate CEO and chairperson titles signal a board that is more independent of management and that higher insider ownership provides greater incentive alignment of insiders with shareholders and hence less demand for D&O insurance, these results are also inconsistent with the agency hypothesis.*%INDEP directors* enters the regressions with a significantly positive sign consistent with the argument that D&O insurance is an important tool in attracting outside directors. The literature has typically found an insignificant relation between *Duality* and the likelihood of firms' carrying D&O insurance (O'Sullivan, 1997; Zou et al., 2008; Boyer and Tennyson, 2015), a significantly negative relation for *OwnPct_DO* (Core, 1997; O'Sullivan, 1997; Hwang and Kim, 2015; Yuan et al., 2016), and a significantly negative or insignificant relation for*%INDEP directors* (O'Sullivan, 1997; Boyer and Tennyson, 2015).

Results of other firm characteristics are also consistent with the efficient-contracting hypothesis. Specifically, *Firm size, BH,* and *Big4* enter the regressions with a significantly positive sign, consistent with the litigation-risk argument that those firms have more expansive operations and a broader investor base and therefore are more likely to face lawsuits (Mayers and Smith, 1982; Core, 1997; O'Sullivan, 1997; Boyer and Tennyson, 2015). The significantly positive coefficient of *Leverage* is in accord with Core (1997)'s findings and the argument that firms facing greater financial distress are less likely to meet their indemnity obligations and hence are more likely to buy D&O insurance.8F[9]

To summarize, we find that the decision by Chinese listed firms to carry D&O insurance is consistent with the efficient-contracting hypothesis. This conclusion is in line with the prevailing evidence based on developed economies such as Canada and the United Kingdom (Core, 1997; O'Sullivan, 1997), but contrasts with Zou et al. (2008) who find that Chinese listed firms with more-acute agency conflicts between controlling and non-controlling shareholders were more likely to seek the approval of shareholders to buy D&O insurance for the first time in the period of 2000–2004. The different findings between our study and Zou et al. (2008) likely result from the decreasing conflict between controlling and non-controlling shareholders in our sample period of 2005–2018. As discussed in Section 2, the Chinese government implemented a series of governance reforms to protect non-controlling shareholders' interests during our sample period. As a result, five out of the six agency proxies used in Zou et al. (2008) are no longer applicable, as they relate to non-tradable shares, which the 2005 non-tradable share reform abolished.

[9] As Chinese firms are not required to disclose policy limits and deductibles, we are unable to examine these aspects of D&O insurance. Canada and Taiwan are among the few markets that mandate the disclosure of D&O policy details. In 2008, South Korea stopped requiring firms to disclose that they carry D&O insurance.

Table 3
Determinants of D&O liability insurance coverage.

Dep. Var. = DO	(1)	(2)	(3)	(4)	(5)	(6)
OwnPct_TOP1	−1.129*	−1.234**				
	(−1.94)	(−2.23)				
#Blockholders	0.009		0.053			
	(0.12)		(0.78)			
Separation	−0.305			−0.651		
	(−0.33)			(−0.71)		
OREC	1.286				1.496	
	(0.43)				(0.50)	
Pledge	−1.355**					−1.426**
	(−2.37)					(−2.52)
Firm size	0.179**	0.169**	0.133	0.134	0.138*	0.145*
	(2.14)	(2.02)	(1.61)	(1.63)	(1.68)	(1.77)
%INDEP directors	3.428**	3.547**	3.548**	3.498**	3.542**	3.506**
	(2.16)	(2.24)	(2.25)	(2.22)	(2.25)	(2.21)
Board size	0.233	0.258	0.329	0.362	0.357	0.329
	(0.57)	(0.63)	(0.81)	(0.89)	(0.88)	(0.81)
Duality	−0.346**	−0.347**	−0.337**	−0.338**	−0.337**	−0.334**
	(−2.11)	(−2.11)	(−2.04)	(−2.04)	(−2.03)	(−2.02)
OwnPct_DO	−3.312***	−3.290***	−3.271***	−3.298***	−3.158***	−3.137***
	(−3.82)	(−3.93)	(−3.91)	(−4.03)	(−3.92)	(−3.91)
CEO tenure	−0.020	−0.020	−0.015	−0.016	−0.016	−0.016
	(−1.19)	(−1.21)	(−0.91)	(−0.94)	(−0.95)	(−0.98)
SOE	0.221	0.372*	0.326	0.275	0.315	0.159
	(1.09)	(1.88)	(1.63)	(1.47)	(1.59)	(0.77)
Leverage	1.347***	1.342***	1.404***	1.406***	1.360***	1.435***
	(2.67)	(2.72)	(2.83)	(2.84)	(2.69)	(2.87)
Cash	0.450	0.478	0.452	0.465	0.463	0.421
	(0.64)	(0.69)	(0.65)	(0.67)	(0.66)	(0.60)
ROA	−0.603	−0.447	−0.857	−0.829	−0.865	−1.069
	(−0.37)	(−0.28)	(−0.53)	(−0.51)	(−0.54)	(−0.67)
Growth	−0.182	−0.220*	−0.211*	−0.201	−0.197	−0.165
	(−1.45)	(−1.73)	(−1.71)	(−1.60)	(−1.53)	(−1.33)
Volatility	−9.365	−10.559	−12.081	−11.728	−11.889	−10.458
	(−1.19)	(−1.32)	(−1.52)	(−1.47)	(−1.48)	(−1.32)
Penalty	−0.050	−0.057	−0.040	−0.039	−0.040	−0.022
	(−0.31)	(−0.35)	(−0.24)	(−0.24)	(−0.25)	(−0.13)
BH	1.263***	1.279***	1.302***	1.313***	1.316***	1.301***
	(5.22)	(5.26)	(5.40)	(5.42)	(5.45)	(5.39)
Big4	1.057***	1.075***	1.028***	1.048***	1.033***	1.014***
	(4.68)	(4.73)	(4.57)	(4.66)	(4.61)	(4.52)
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES
N	26,484	26,484	26,484	26,484	26,484	26,484
Pseudo R^2	0.191	0.189	0.187	0.187	0.187	0.189

This table reports the regression results from estimating a logistic model. The dependent variable is an indicator variable that takes the value of one if a firm has D&O insurance (*DO*) in a given year, and zero otherwise. In parentheses are *Z*-statistics computed based on heteroskedasticity-consistent standard errors clustered at both firm and year levels. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. See Appendix I for the definitions and descriptions of all variables.

Notably, the CSRC mandates that the purchase of D&O insurance be approved by a majority of shareholders.9F[10] For comparison, in most countries, D&O insurance is part of D&O compensation and does not require shareholder approval (Core, 1997). Therefore, as non-controlling shareholders have gained power in China in recent years, we should expect firms' decisions to carry D&O insurance to become more driven by economic factors rather than the agency motives of controlling shareholders. This interpretation is also consistent with Panel B of Table 1, which shows that the D&O subsample has a higher fraction of non-controlling directors on the board than the non-D&O subsample.

[10] Based on our own research of the minutes of shareholder meetings, the approval rate typically exceeds 90%.

4.2. D&O insurance and independent director dissension

To test the H2s, we estimate the following logistic model at the firm-year-director-proposal level:

$$Pr\left(DISSENT_{ijpt}=1\right)=\beta_0+\beta_1 DO_{it}+\beta_2 DO_{it}*Type_{it}+\beta_3 Type_{it}+\gamma X_{FIRM\_CHAR}+\kappa X_{DIR\_CHAR}+d_p+d_k+d_t+\varepsilon_{ijpt}, \quad (2)$$

where *Type* denotes director type (i.e., whether a director is an independent, controlling, non-controlling, or internal director); X_{FIRM_CHAR} is the same set of firm operating and governance characteristics used in Eqn. (1); X_{DIR_CHAR} is a vector of director characteristics including *Male, Age, Pay*, equity ownership (*Share*), *Tenure*, the number of directorships of publicly traded firms that a director holds (*Seats*), and dummies to capture whether a director has an accounting or finance background (*ACC*), a legal background (*Law*),

or political connections (*Politics*), respectively. d_p, d_k, and d_t denote proposal type, industry, and year fixed effects, respectively.10F[11]

We first only include the dummy for whether a firm carries D&O insurance (*DO*), along with the director and firm characteristic variables. We then separately add the dummy for director type and its interaction with *DO*. Last, we simultaneously include all director type dummies—except the dummy for internal directors—and their interactions with *DO*. This specification has two benefits. First, it enables an exploratory analysis of whether D&O insurance has a differential effect on voting decisions across director types. Second, it mitigates endogeneity concerns arising from contemporaneous trends and latent proposal or firm characteristics by benchmarking independent directors' votes against their peers' in the same firm on the same proposal.

As columns (1) and (5) of Table 4 show, *DO* generally enters the regression with a significantly positive sign, suggesting that having D&O insurance promotes director dissension. Consistent with Zhu et al. (2015), we find that independent, controlling, and internal directors are less likely to dissent, while non-controlling directors tend to dissent. When director types are interacted with *DO*, only *DO*Independent* enters the regression with a significantly positive sign—consistent with the efficient-contracting hypothesis. *DO*Control* is insignificant, while *DO*Non-control* and *DO*Internal* are significantly negative. In column (6), when we analyze the impact of D&O insurance on independent director dissension while controlling for its potential effect on other directors' voting decisions, *DO*Independent* continues to be significantly positive, *DO*Control* becomes marginally significant, and *DO*Non-control* is insignificant. Wald tests reject the null that *DO*Independent* and *DO*Non-control* are equal (p-value = 0.0029), but not the null that *DO*Independent* and *DO*Control* are equal (p-value = 0.4540). Taken together, the results support the efficient-contracting hypothesis.

Estimation results of the other variables are in line with the prevailing consensus of the literature. For example, consistent with Zhu et al. (2015), Ma and Khanna (2016), and Jiang et al. (2016), we find that younger directors and directors with longer tenure, lower pay, or greater equity ownership are associated with a higher likelihood of dissension, consistent with those directors' caring more about their reputation capital and being more aligned with shareholders' interests. Dissension tends to occur at firms that are state-owned, are less levered, grow more slowly, have received disciplinary action from the CSRC, or do not use one of the Big Four accounting firms, consistent with those firms' having more governance problems.

When testing the H2s, we use column (2) as the base model because that specification directly addresses the hypotheses concerning the association between D&O insurance and independent directors' decisions to dissent. While the results in columns (2) and (6) are qualitatively similar, column (6) tests whether D&O insurance has a differential effect on voting decisions across director types. When we test the H3s, we control for the interactive effects between D&O insurance and other directors' votes, as corporate governance and firm performance are influenced by the collective decisions of board members.

4.2.1. Dissension versus departure

In this section we examine whether D&O insurance influences the decision of independent directors to depart or dissent. As resignation and dissension are observable and substitute decisions that impact shareholder welfare, this analysis provides additional evidence for the H2s.

Dissension imposes significant costs on dissenting directors (Warther, 1998; Chemmanur and Fedaseyeu, 2018). Such costs may be particularly high for Chinese independent directors because of the concentrated ownership and because management and controlling shareholders sponsor most of the proposals. In anticipation of major corporate events, independent directors can choose to leave the firm to avoid a heavy workload and the costs of dissenting instead of remaining in the boardroom and using their voting power to monitor the firm. Using Chinese listed firms from 2005 to 2009, Lin et al. (2012) find that independent directors frequently choose to resign rather than dissent when they have private information about adverse corporate events. If having D&O insurance incentivizes independent directors to discharge their duties with due diligence as predicted by the efficient-contracting hypothesis, *DO*Independent* should be positively associated with *DISSENT*. If having D&O insurance creates moral hazard as predicted by the agency hypothesis, *DO*Independent* should be negatively associated with *DISSENT* and departure. To test these predictions, we modify Eqn. (2) and estimate the following multinomial logistic model:

$$Pr\left(Y_{ijpt} = m\right) = \beta_0 + \beta_1 DO_{it} + \beta_2 DO_{it} * Indepndent_{it} + \gamma X_{FIRM\_CHAR} + \kappa X_{DIR\_CHAR} + d_p + d_k + d_t + \varepsilon_{ijpt}, \quad (3)$$

where $m = 0$ if a firm experienced no dissension by or departure of an independent director (DISSENT = 0 and DEPART = 0); $m = 1$ if DISSENT = 1 and DEPART = 0; $m = 2$ if DISSENT = 0 and DEPART = 1; and $m = 3$ if DISSENT = 1 and DEPART = 1. In China, the mandated tenure for independent directors is six years. Therefore, we exclude departures that occurred during the sixth year of an independent director's tenure so that we compare the voting decision—which is a discretionary decision—to voluntary departure. We also exclude independent directors with political connections because their departures are frequently driven by government orders rather than economic factors.

As columns (1) and (3) of Table 5 show, independent directors are less likely to dissent and stay on the board. As columns (4)–(5) show, after controlling for the effect of D&O insurance, *Independent* retains the sign and significance. *DO*Independent* is significantly and positively associated with the likelihood that independent directors dissent and do not depart or dissent and depart. Therefore, the results in Table 5 are consistent with those in Table 4 and the efficient-contracting hypothesis.

4.2.2. Endogeneity checks

We perform three tests to more comprehensively address potential endogeneity concerns: a Heckman two-stage model (Heckman, 1979), a PSM method, and an adapted 2SLS-IV approach. Table 6 reports the results.

We use the Heckman model to address the concern of self-selection as less than 10% of Chinese listed firms bought D&O insurance during our sample period. We first estimate a probit model using Eqn. (1). Following Heckman (1979), we estimate the inverse Mills ratio (the correction for self-selection, Lambda) from the first-stage regression, and include Lambda in the second-stage regression alongside other variables in Eqn. (2). As column (1) in Panel A shows, our results hold after using the Heckman model to correct for the potential selection bias.

As an alternative identification strategy to address the concern of the non-random determinant of D&O insurance, we follow the literature (see, e.g., Malmendier and Tate, 2009; Aggarwal et al., 2009; Yuan et al., 2016; Jia and Tang, 2018) and use PSM. The identifying assumption of PSM is that conditioning on the probability of becoming a firm carrying D&O insurance removes the confounding effect of self-selection. Following the literature (see, e.g., Rosenbaum and Rubin, 1983; Malmendier and Tate, 2009;

[11] For robustness, we also re-estimate Eqn. (2) using proposal fixed effects. *DO*Independent* continues to be significantly and positively related to *DISSENT*. *DO*Control* loses its marginal significance. Results are reported in the Internet Appendix.

Table 4
Impact on independent directors' decisions to dissent.

Dep. Var. = DISSENT	(1)	(2)	(3)	(4)	(5)	(6)
DO	0.264**	0.122	0.574***	0.189**	0.278**	−0.775
	(2.38)	(0.83)	(2.95)	(2.10)	(2.22)	(−1.55)
DO * Independent		0.446**				1.386**
		(1.96)				(2.46)
DO * Non-control			−0.663***			0.694
			(−2.58)			(1.37)
DO * Control				1.083		2.011*
				(1.26)		(1.88)
DO * Internal					−1.082*	
					(−1.93)	
Independent		−0.357***				0.367**
		(−2.75)				(2.00)
Non-control			1.185***			1.269***
			(8.21)			(6.92)
Control				−1.215***		−0.316
				(−4.80)		(−1.10)
Internal					−0.747***	
					(−4.77)	
Male	−0.070	−0.089	−0.153	−0.080	−0.067	−0.136
	(−0.28)	(−0.35)	(−0.62)	(−0.34)	(−0.26)	(−0.54)
Age	−1.099**	−0.948**	−0.935**	−1.220***	−1.244***	−1.102***
	(−2.47)	(−2.17)	(−2.29)	(−2.82)	(−2.80)	(−2.67)
Pay	−0.705***	−0.631***	−0.334**	−0.845***	−0.555***	−0.406***
	(−5.02)	(−4.12)	(−2.47)	(−6.32)	(−4.03)	(−2.60)
Share	32.732**	27.932*	28.105*	40.278***	34.986**	34.095**
	(2.28)	(1.85)	(1.84)	(2.91)	(2.26)	(2.09)
Tenure	0.116***	0.107***	0.110***	0.129***	0.125***	0.122***
	(5.68)	(4.84)	(5.61)	(5.95)	(5.99)	(5.34)
Seats	0.165	0.224	0.275*	0.157	0.103	0.206
	(0.97)	(1.34)	(1.83)	(0.92)	(0.59)	(1.32)
ACC	0.037	0.064	0.082	−0.005	0.032	0.051
	(0.23)	(0.40)	(0.53)	(−0.03)	(0.21)	(0.35)
Law	0.061	0.178	0.258	0.007	−0.039	0.127
	(0.22)	(0.64)	(1.04)	(0.02)	(−0.15)	(0.50)
Politics	−0.006	0.040	0.082	−0.005	−0.056	0.032
	(−0.04)	(0.31)	(0.66)	(−0.04)	(−0.45)	(0.27)
Firm size	−0.058	−0.059	−0.051	−0.046	−0.061	−0.047
	(−1.01)	(−1.03)	(−0.77)	(−0.81)	(−1.01)	(−0.74)
OwnPct_TOP1	−0.010	−0.019	0.192	0.140	−0.012	0.206
	(−0.03)	(−0.06)	(0.66)	(0.38)	(−0.03)	(0.66)
%INDEP directors	1.484	1.651	2.456*	1.490	1.651	2.335*
	(1.45)	(1.62)	(1.93)	(1.34)	(1.49)	(1.79)
Board size	−0.599**	−0.603**	−0.600**	−0.608**	−0.593**	−0.599**
	(−2.34)	(−2.32)	(−2.07)	(−2.25)	(−2.24)	(−2.02)
Duality	−0.006	−0.007	0.057	−0.016	0.029	0.056
	(−0.06)	(−0.07)	(0.49)	(−0.13)	(0.26)	(0.47)
OwnPct_DO	−0.446	−0.380	−0.601*	−0.693	−0.459	−0.705*
	(−1.11)	(−0.95)	(−1.68)	(−1.62)	(−1.20)	(−1.84)
CEO tenure	0.010	0.011	0.009	0.009	0.009	0.008
	(1.11)	(1.15)	(0.70)	(0.88)	(1.11)	(0.70)
SOE	0.109*	0.110*	0.139**	0.110*	0.130**	0.143**
	(1.85)	(1.83)	(2.01)	(1.83)	(2.12)	(2.08)
Leverage	−0.548**	−0.525**	−0.549**	−0.608***	−0.545**	−0.575**
	(−2.47)	(−2.37)	(−2.55)	(−2.68)	(−2.47)	(−2.56)
Cash	−0.030	−0.001	−0.034	−0.145	−0.021	−0.094
	(−0.07)	(−0.00)	(−0.07)	(−0.32)	(−0.04)	(−0.19)
ROA	−0.241	−0.291	−0.716	−0.233	−0.354	−0.614
	(−0.30)	(−0.36)	(−0.75)	(−0.27)	(−0.42)	(−0.63)
Growth	−0.213*	−0.206*	−0.215*	−0.201	−0.225*	−0.219*
	(−1.68)	(−1.68)	(−1.71)	(−1.47)	(−1.76)	(−1.67)
Volatility	−6.489	−6.327	−8.143	−7.626	−7.020	−8.694
	(−1.02)	(−1.04)	(−1.38)	(−1.08)	(−1.15)	(−1.40)
Penalty	0.215*	0.207*	0.211*	0.221*	0.223**	0.223*
	(1.86)	(1.80)	(1.73)	(1.85)	(1.96)	(1.87)
BH	0.331	0.317	0.303	0.310	0.364	0.303
	(1.03)	(0.99)	(0.86)	(0.94)	(1.07)	(0.84)
Big4	−0.676*	−0.671**	−0.720*	−0.718**	−0.688*	−0.739**
	(−1.94)	(−1.98)	(−1.95)	(−1.98)	(−1.87)	(−1.98)
Industry & Year FE	YES	YES	YES	YES	YES	YES
Proposal Type FE	YES	YES	YES	YES	YES	YES
N	21,445	21,445	21,445	21,445	21,445	21,445
Pseudo R^2	0.0430	0.0454	0.0784	0.0583	0.0518	0.0838

This table reports the regression results from estimating a logistic model. The dependent variable is a dummy that equals one if a director cast a dissenting vote (*DISSENT*). The main independent variable of interest is the interaction (*DO*Independent*) between a dummy that equals one if a firm carries D&O insurance (*DO*) and a dummy that equals one if a director is independent (*Independent*). In parentheses are *Z*-statistics computed based on heteroskedasticity-consistent standard errors clustered at both firm and year levels. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. See Appendix I for the definitions and descriptions of all variables.

Table 5
Dissenting versus departure decisions.

Multinomial logit (Base case = DISSENT = 0 & DEPART = 0)						
	DISSENT=1 &DEPART=0	DISSENT=0 &DEPART=1	DISSENT=1 &DEPART=1	DISSENT=1 &DEPART=0	DISSENT=0 &DEPART=1	DISSENT=1 &DEPART=1
	(1)	(2)	(3)	(4)	(5)	(6)
DO * Independent				0.499**	0.084	0.553**
				(2.42)	(0.56)	(2.57)
DO				−0.010	0.113	0.299**
				(−0.09)	(1.31)	(2.13)
Independent	−0.417***	−0.044	0.127	−0.470***	−0.052	0.052
	(−5.37)	(−0.80)	(1.25)	(−5.77)	(−0.91)	(0.48)
Controls as Table 4	YES	YES	YES	YES	YES	YES
Industry & Year FE	YES	YES	YES	YES	YES	YES
Proposal Type FE	YES	YES	YES	YES	YES	YES
N	18,723	18,723	18,723	18,723	18,723	18,723
Prob > chi2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

This table reports the regression results from estimating a multinomial logistic model. The baseline case is that a director did not cast a dissenting vote (*DISSENT=0*) and did not voluntarily leave the firm (*DEPART=0*). The main independent variable of interest is the interaction (*DO*Independent*) between a dummy that equals one if a firm carries D&O insurance and a dummy that equals one if a director is independent. In parentheses are *Z*-statistics computed based on heteroskedasticity-consistent standard errors clustered at both firm and year levels. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. See Appendix I for the definitions and descriptions of all variables.

Agarwal et al., 2010), we implement the PSM procedure in two steps. First, we estimate a logistic model to predict the probability of a firm's carrying D&O insurance using Eqn. (1). Next, we use the predicted values from the logistic regression (propensity scores) to construct without replacement a nearest-neighbor matched sample. We then analyze the impact of D&O insurance on independent director dissension by comparing the treatment sample (firms carrying D&O insurance) to the control sample (firms not carrying D&O insurance). As column (2) in Panel A shows, our results are robust to the PSM method.

The typical 2SLS-IV approach applies when both the dependent variable and the endogenous regressor are continuously distributed, which is not the case in Eqn. (2). When both the dependent and the endogenous variables are binary, applying the standard 2SLS-IV method creates its own endogeneity problem that the residuals in the second stage correlate with the predicted value from the first stage. To overcome this problem, we use the three-stage procedure outlined in (Papke and Wooldridge, 2008; Wooldridge, 2010) and widely used in empirical research (see, e.g., Behr et al., 2013; Coşgel et al., 2018; Mary and Mishra, 2020). More specifically, we specify *DO* and *DO*Independent* as endogenous and identify two instrumental variables (IVs). In the first stage, we estimate a probit model to obtain the predicted values using the IVs to instrument *DO* and *IV*Independent* to instrument *DO*Independent*. In the second stage, we estimate an OLS model to get the predicted values using the predicted values from the first stage as the new instruments for *DO* and *DO*Independent.* In the third stage, we estimate Eqn. (2) using an OLS model, replacing the endogenous variables of *DO* and *DO*Independent* with the predicted values from the second stage.

The two IVs are 1) the logarithm of one plus the distance between the firm's headquarters and the nearest major airport (*IV1*) and 2) the natural logarithm of the total sales volume of insurance products in the province in which the firm is headquartered. The distance data, measured in kilometers, are from Baidu Maps. We obtain the sales-volume data from China's National Bureau of Statistics (http://www.stats.gov.cn/). The IVs likely satisfy the two criteria of a valid instrument—relevance and orthogonality. Firms close to major airports are likely proximate to financial centers that offer sophisticated financial services including D&O insurance underwriting, making this variable relevant. This variable is unlikely to impact directors' voting decisions, satisfying the orthogonality criterion. Similarly, the sales volume of insurance products likely correlates with firms' decisions to purchase D&O insurance, but is unlikely to correlate with their independent directors' voting decisions.

As Panel B shows, our results are robust to the adapted 2SLS-IV approach. Additionally, supporting the relevance argument, *IV* and *IV*Independent* are significantly related to *DO* and *DO*independent* with the expected sign in the first stage, and the *p*-value of the under identification test is significant at better than the 1% level. Further, the Hansen over identification test fails to reject the joint null that the IVs are orthogonal to the error and that the excluded instruments are correctly excluded. Despite our efforts to mitigate endogeneity concerns, we acknowledge that our results are subject to the usual caveats. For example, the orthogonality condition of the IV method requires that the instrument should be a variable that can be "excluded" from the original list of control variables without affecting the results. This requirement cannot be explicitly tested by statistical methods (Ferreira et al., 2010).

4.2.3. Channel tests

We argue that the positive relation between D&O insurance and independent director dissension as predicted by the efficient-contracting hypothesis likely arises from two channels: the insurance channel and the insurer-monitoring channel. The first channel is premised on the direct effect of insurance. Dissension signals new and, importantly, negative information about the firm to outsiders. Jiang et al. (2016) document the whistleblowing effect of independent director dissension. They find that news volumes spike around a dissension event—about three (monthly frequency) to over eight (daily frequency) times the normal volume. Further, firms with dissension experience significant declines in stock returns and bank credit and an increase in government sanctions. Because of this whistleblowing effect, independent directors may be reluctant to dissent for fear of sending negative signals about the firm, which could attract unwanted scrutiny and trigger litigation. D&O insurance protects independent directors against this risk and the resulting loss of personal wealth because the policy reimburses the expenses associated with lawsuits as long as independent directors have acted in good faith. We expect this insurance effect to be stronger in firms facing higher levels of information asymmetry or litigation risk.

We follow the literature and use four variables to proxy for the level of a firm's information asymmetry—analyst forecast errors, analyst coverage, share turnover, and stock return volatility (see, e.g., Krishnaswami and Subramaniam, 1999; Leuz and Verrecchia, 2000; Linck et al., 2008; Li, 2020). We partition the sample

Table 6
Endogeneity checks.

Panel A: Heckman and PSM							
Dep. Var. = DISSENT			Heckman			PSM	
			(1)			(2)	
DO * Independent			0.456**			0.970***	
			(2.02)			(4.16)	
DO			0.517			−0.098	
			(0.72)			(−0.97)	
Independent			−0.440***			−0.738***	
			(−3.22)			(−3.28)	
Lambda			−0.180				
			(−0.61)				
Controls as Table 4			YES			YES	
Industry & Year FE			YES			YES	
Proposal Type FE			YES			YES	
N			21,445			4740	
Pseudo R^2			0.0420			0.1271	
Panel B: Adapted 2SLS-IV							
Dep. Var. =	DO		DO * Independent		DO	DO * Independent	DISSENT
	1st stage				2nd stage		3rd stage
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
IV1	0.105***						
	(5.67)						
IV2		0.034**					
		(1.96)					
IV1 * Independent			0.536***				
			(30.98)				
IV2 * Independent				0.216***			
				(32.28)			
Predicted DO from 1st stage using IV1					2.065***	0.605**	
					(3.65)	(2.46)	
Predicted DO from 1st stage using IV2					−0.062	0.283***	
					(−1.05)	(3.03)	
Predicted DO * Independent from 1st stage using IV1 * Independent					−0.826	−0.527**	
					(−1.56)	(−2.03)	
Predicted DO * Independent from 1st stage using IV2 * Independent					0.119**	0.777***	
					(1.97)	(8.27)	
Predicted DO from 2nd stage							−0.018
							(−0.49)
Predicted DO * Independent from 2nd stage							0.085**
							(2.51)
Independent					−0.009	−0.003	−0.040**
					(−0.86)	(−0.20)	(−2.48)
Controls as Table 4	YES	YES	YES	YES	YES	YES	YES
Industry & Year FE	YES	YES	YES	YES	YES	YES	YES
Proposal Type FE	YES	YES	YES	YES	YES	YES	YES
N	20,158	19,459	20,158	19,459	19,459	19,459	19,459
Pseudo/Adjusted R^2	0.335	0.334	0.478	0.504			
Underidentification Test					*p*-value=0.0727		
Hansen *J* statistic					*p*-value=0.4646		
Centered R^2							0.0338

Panel A reports the estimation results from a Heckman two-stage model and a PSM model. The main dependent variable is a dummy that equals one if a director cast a dissenting vote (*DISSENT*). The main independent variable of interest is the interaction (*DO*Independent*) between a dummy that equals one if a firm carries D&O insurance and a dummy that equals one if a director is independent. Panel B reports the estimation results from an adapted 2SLS-IV model. The first instrumental variable (*IV1*) is the natural logarithm of one plus the distance between the firm's headquarters and the nearest major airport. The second instrumental variable (*IV2*) is the natural logarithm of the total sales volume of insurance products in the province in which the firm is headquartered. Columns (1) through (4) report estimation results from a probit model and in parentheses are *Z*-statistics computed based on heteroskedasticity-consistent standard errors. Columns (5) through (7) report estimation results from an OLS model and in parentheses are *t*-statistics computed based on heteroskedasticity-consistent standard errors clustered at both firm and year levels. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. See Appendix I for the definitions and descriptions of all variables.

Table 7
Channel tests.

	Panel A: Information-asymmetry channel							
Dep. Var. = DISSENT	Forecast error> median (1)	Forecast error≤ median (2)	Analyst coverage≤ median (3)	Analyst coverage> median (4)	Turnover≤ median (5)	Turnover> median (6)	Volatility> median (7)	Volatility≤ median (8)
DO * Independent	1.088***	0.268	0.451**	0.926	0.610**	−0.057	0.824*	0.309
	(4.11)	(0.83)	(2.03)	(1.54)	(2.14)	(−0.18)	(1.87)	(1.31)
DO	−0.201	0.368**	0.105	0.067	0.351**	−0.021	−0.189	0.306
	(−1.53)	(2.21)	(0.69)	(0.34)	(2.04)	(−0.12)	(−0.85)	(1.47)
Independent	−0.439**	−0.376	−0.388**	−0.277*	−0.489***	−0.048	−0.480**	−0.295
	(−1.99)	(−1.41)	(−2.23)	(−1.79)	(−3.18)	(−0.27)	(−2.20)	(−1.31)
Controls as Table 4	YES	YES	YES	YES	YES	YES	YES	YES
Proposal Type FE	YES	YES	YES	YES	YES	YES	YES	YES
Industry & Year FE	YES	YES	YES	YES	YES	YES	YES	YES
N	4883	10,717	15,700	5745	14,994	6451	6673	14,772
Pseudo R^2	0.0827	0.0655	0.0536	0.0532	0.0651	0.0410	0.0760	0.0517
	Panel B: Litigation-risk channel							
Dep. Var. = DISSENT	Crash risk > median (1)			Crash risk ≤ median (2)	Lawsuit = 1 (3)	Lawsuit = 0 (4)	Penalty = 1 (5)	Penalty = 0 (6)
DO * Independent	1.159***			0.190	0.813***	−0.334	0.751**	0.078
	(3.90)			(0.35)	(2.90)	(−0.70)	(2.44)	(0.18)
DO	−0.093			0.007	−0.080	0.356*	−0.055	0.344*
	(−0.33)			(0.04)	(−0.77)	(1.72)	(−0.50)	(1.74)
Independent	−0.764**			−0.124	−0.259*	−0.418*	−0.009	−0.618***
	(−2.49)			(−0.52)	(−1.66)	(−1.87)	(−0.05)	(−2.78)
Controls as Table 4	YES			YES	YES	YES	YES	YES
Proposal Type FE	YES			YES	YES	YES	YES	YES
Industry & Year FE	YES			YES	YES	YES	YES	YES
N	5400			11,169	11,104	10,341	8920	12,525
Pseudo R^2	0.0723			0.0566	0.0603	0.0551	0.0807	0.0510
	Panel C: Insurer-monitoring channel							
Dep. Var. = DISSENT						(1)		
Foreign insurer * Independent						1.088***		
						(2.80)		
Foreign insurer						−0.847		
						(−1.03)		
Independent						0.412		
						(0.75)		
Controls as Table 4						YES		
Proposal Type FE						YES		
Industry & Year FE						YES		
N						2370		
Pseudo R^2						0.1950		

This table reports the results from estimating a logistic model. The dependent variable is a dummy that equals one if a director cast a dissenting vote (*DISSENT*). The main independent variable of interest is *DO*Independent* in Panels A and B and *Foreign insurer*Independent* in Panel C. *DO* is a dummy that equals one if a firm has D&O insurance. *Independent* is an indicator variable for independent directors. *Foreign insurer* is a dummy that equals one if any of the underwriters of the D&O policy is a foreign insurance company. In parentheses are *Z*-statistics computed based on heteroskedasticity-consistent standard errors clustered at both firm and year levels. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. See Appendix I for the definitions of all variables.

based on the median value of these variables; firms with above-median values of *Forecast error* and *Volatility* and below-median values of *Analyst coverage* and *Turnover* are categorized as high information asymmetry. As Panel A of Table 7 shows, consistent with H2a, *DO*Independent* is only significantly positive in the subsample of firms with a higher level of information asymmetry.

We use three proxies to measure the litigation risk a firm faces—stock price crash risk, whether a firm is involved in lawsuits,11F[12] and whether the CSRC has disciplined the firm. *Crash risk* is an appropriate proxy because arguably, the most important cause for shareholder lawsuits is a sharp drop in stock prices (Chalmers et al., 2002; Weterings and Otto, 2018). We partition the sample into subsamples of high and low litigation risk; firms with an above-median value of *crash risk,* lawsuit involvement, and CSRC discipline are categorized as high litigation risk. As Panel B of Table 7 shows, consistent with H2a, *DO*Independent* is only significantly positive in the subsample of firms with a higher level of litigation risk.

The conjecture of the insurer-monitoring channel is based on the insurance-as-governance literature (Holderness, 1990), which argues that through a variety of mechanisms, D&O policy providers help firms optimize incentives for independent directors to perform their monitoring duties. Specifically, during the underwriting process, insurers provide external reviews of firms' governance processes, assessing and identifying governance risks, suggesting corresponding changes, educating independent directors about best governance practices, and ultimately giving firms and their independent directors financial incentives to adopt best governance practices through setting the terms and conditions of the insurance policy. Insurers reinforce best governance practices through policy renewals and modifications. During the litigation process, insur-

[12] We obtain the lawsuit data from CSMAR, which includes all lawsuits (11,344 in total) filed against our sample firms and/or their directors and officers from 2005 to 2018. Lawsuits that occur with the highest frequency are based on *Contract terms and conditions* (32% of the total number of lawsuits), followed by *Loans* (20%). We report the number and the types of lawsuits filed against our sample firms and their directors during 2005–2018 and the associated total and mean claim values in the Internet Appendix.

Table 8
Impact on the monitoring role of independent directors.

Panel A: Litigation and investment inefficiency								
Dep. Var. =	#Lawsuits		Lawsuit_value		Overinvestment		Underinvestment	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
DO * INDEP_DIS		−0.082**		−1.612***		−0.063		−0.059***
		(−2.14)		(−3.28)		(−0.58)		(−4.72)
DO	0.020	0.022	0.236	0.259	0.008	0.008	−0.015**	−0.015*
	(1.21)	(1.28)	(1.06)	(1.15)	(0.96)	(0.93)	(−1.98)	(−1.94)
INDEP_DIS	0.063	0.084**	0.832	1.257***	−0.011	−0.009	0.017	0.049***
	(1.14)	(2.56)	(1.01)	(4.38)	(−0.75)	(−0.46)	(1.26)	(3.87)
NCONTR_DIS	0.082***	0.084***	1.096***	1.139***	−0.002	−0.008	−0.018*	−0.016
	(2.79)	(3.01)	(2.62)	(2.66)	(−0.27)	(−0.65)	(−1.89)	(−1.14)
CONTR_DIS	0.009	0.128	0.255	1.903	0.104	0.088	−0.009	−0.086***
	(0.21)	(0.92)	(0.38)	(1.04)	(1.49)	(1.11)	(−0.50)	(−2.77)
DO * NCONTR_DIS		−0.031		−0.587		0.023*		0.020
		(−0.33)		(−0.64)		(1.86)		(0.43)
DO * CONTR_DIS		−0.180		−2.502		0.268		0.095***
		(−1.31)		(−1.37)		(1.43)		(2.88)
Controls as Table 3	YES	YES	YES	YES	YES	YES	YES	YES
Industry & Year FE	YES	YES	YES	YES	YES	YES	YES	YES
N	26,484	26,484	26,484	26,484	8699	8699	13,421	13,421
Adjusted R^2	0.063	0.063	0.067	0.068	0.910	0.910	0.134	0.134

Panel B: Internal control quality						
Dep. Var. =	The ICQ Index		Reporting Index		Compliance Index	
	(1)	(2)	(3)	(4)	(5)	(6)
DO * INDEP_DIS		0.195***		0.212***		0.240*
		(3.07)		(2.97)		(1.76)
DO	0.002	0.001	−0.024	−0.029	0.001	−0.006
	(0.09)	(0.05)	(−0.50)	(−0.60)	(0.02)	(−0.10)
INDEP_DIS	−0.183***	−0.246***	−0.439***	−0.514***	−0.391*	−0.510**
	(−3.82)	(−7.75)	(−5.58)	(−8.15)	(−1.66)	(−2.07)
NCONTR_DIS	−0.092***	−0.076**	−0.211**	−0.265**	−0.242***	−0.338***
	(−3.85)	(−2.00)	(−2.07)	(−2.51)	(−3.53)	(−2.75)
CONTR_DIS	0.101**	0.191	−0.184*	0.016	−0.715***	0.867
	(2.37)	(1.00)	(−1.66)	(0.04)	(−3.13)	(0.95)
DO * NCONTR_DIS		−0.076		0.279*		0.440***
		(−1.01)		(1.91)		(2.63)
DO * CONTR_DIS		−0.112		−0.229		−1.752*
		(−0.60)		(−0.52)		(−1.93)
Controls as Table 3	YES	YES	YES	YES	YES	YES
Industry & Year FE	YES	YES	YES	YES	YES	YES
N	15,254	15,254	15,254	15,254	15,254	15,254
Adjusted R^2	0.280	0.280	0.090	0.090	0.238	0.239

Panel C: Impact on CEO turnover-performance sensitivity and CEO pay-performance sensitivity				
Dep. Var. =	Forced CEO turnover		CEO pay	
	(1)	(2)	(3)	(4)
DO * INDEP_DIS * ROA		−8.582**		7.802***
		(−2.51)		(3.07)
ROA	−0.428***	−0.430***	3.800***	3.803***
	(−7.08)	(−7.09)	(14.98)	(15.01)
DO	0.003	0.002	0.122***	0.121***
	(0.42)	(0.22)	(2.90)	(2.85)
INDEP_DIS	−0.002	−0.002	0.082	0.096
	(−0.06)	(−0.08)	(0.86)	(0.99)
DO * ROA	0.105	0.170	−0.469	−0.507
	(0.48)	(0.78)	(−0.70)	(−0.73)
INDEP_DIS * ROA	−0.508	−0.257	−0.660	−1.157*
	(−1.05)	(−0.75)	(−0.80)	(−1.83)
DO * INDEP_DIS	0.074	0.061	0.170	0.559***
	(1.05)	(0.27)	(1.09)	(3.49)
NCONTR_DIS	0.021	0.022	0.138**	0.134**
	(1.10)	(1.15)	(2.30)	(2.23)
CONTR_DIS	0.157	0.153	0.286	0.277
	(1.45)	(1.41)	(1.35)	(1.33)
NCONTR_DIS * ROA	0.322	0.298	−0.602	−0.553
	(0.93)	(0.81)	(−0.47)	(−0.42)
CONTR_DIS * ROA	−0.644	−0.510	−1.860	−1.648
	(−0.34)	(−0.27)	(−0.49)	(−0.43)
DO * NCONTR_DIS	−0.021	−0.013	−0.202***	−0.311***
	(−0.23)	(−0.10)	(−4.49)	(−4.95)
DO * CONTR_DIS	−0.709**	−267.058***	−0.181	0.062
	(−2.00)	(−13.34)	(−0.84)	(0.28)
DO * NCONTR_DIS * ROA		0.082		3.119
		(0.02)		(0.92)
DO * CONTR_DIS * ROA		−4442.810***		−6.943*
		(−13.34)		(−1.88)

(*continued on next page*)

Table 8 (*continued*)

Panel A: Litigation and investment inefficiency								
Dep. Var. =	#Lawsuits		Lawsuit_value		Overinvestment		Underinvestment	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Controls as Table 3		YES		YES		YES		YES
Industry & Year FE		YES		YES		YES		YES
N		26,484		26,484		25,462		25,462
Pseudo R^2 / Adjusted R^2		0.176		0.176		0.384		0.384

This table reports the estimation results from OLS regressions except for *Forced CEO turnover*, which is estimated using a logistic model. The main independent variable of interest is the interaction of *DO*INDEP_DIS* in Panels A and B and *DO*INDEP_DIS*ROA* in Panel C. *DO* is a dummy that equals one if a firm carries D&O insurance. *INDEP_DIS* is the number of independent directors' dissensions divided by the number of board meetings in a given year. The sample period for Panel B starts in 2007, not 2005 as in the other tables, because the data on internal control became available in 2007. In parentheses are *t*-statistics (*Z*-statistics in the regressions of *Forced CEO turnover*) computed based on heteroskedasticity-consistent standard errors clustered at both firm and year levels. Coefficient estimates in columns (1) and (2) of Panel C are marginal effects. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. See Appendix I for the definitions and descriptions of all variables.

Table 9
Impact on firm performance.

Dep. Var. =	Tobin's *Q*		Ln(market value of the firm)		ROE	
	(1)	(2)	(3)	(4)	(5)	(6)
DO * INDEP_DIS		0.353***		0.116**		0.036***
		(3.12)		(2.16)		(5.10)
DO	0.068	0.070	−0.001	−0.002	0.001	0.001
	(1.53)	(1.59)	(−0.10)	(−0.11)	(0.30)	(0.28)
INDEP_DIS	0.303***	0.205**	0.098***	0.061	0.002	−0.010
	(3.95)	(2.08)	(2.68)	(1.33)	(0.16)	(−1.06)
NCONTR_DIS	0.144*	0.247***	0.003	0.012	0.003	0.004
	(1.69)	(2.66)	(0.19)	(0.54)	(0.64)	(0.79)
CONTR_DIS	−0.148	−0.178	−0.059	0.038	0.043**	0.080**
	(−0.82)	(−0.38)	(−1.02)	(0.29)	(2.47)	(2.10)
DO * NCONTR _DIS		−0.580***		−0.058		−0.011
		(−3.59)		(−1.09)		(−0.97)
DO * CONTR_DIS		0.008		−0.153		−0.057
		(0.02)		(−1.18)		(−1.44)
Controls as Table 3	YES	YES	YES	YES	YES	YES
Industry & Year FE	YES	YES	YES	YES	YES	YES
N	25,842	25,842	25,842	25,842	26,483	26,483
Adjusted R^2	0.607	0.607	0.894	0.894	0.182	0.182

This table reports the estimation results from OLS regressions. The main independent variable of interest is *DO*INDEP_DIS. DO* is a dummy that equals one if a firm carries D&O insurance. *INDEP_DIS* is the number of independent directors' dissensions divided by the total number of board meetings in a given year. Independent variables in columns (5) and (6) do not include ROA. In parentheses are *t*-statistics computed based on heteroskedasticity-consistent standard errors clustered at both firm and year levels. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. See Appendix I for the definitions and descriptions of all variables.

ers not only serve as an independent third-party investigator and therefore can protect firms and their independent directors against frivolous lawsuits, but they also accumulate valuable information about the risk profiles of specific firms and individual directors, which can be used in underwriting future policies. Consistent with this insurance-as-governance argument, Boyers and Stern (2012, 2014) find that insurance firms are unbiased and expert evaluators of "deep governance" factors such as culture and character. We expect the insurer-monitoring effect to be stronger if the insurance company is of higher quality.

We use a dummy (*Foreign insurer*) that equals one if any of the D&O policy underwriters is a foreign insurer to proxy for the quality of D&O insurance companies. Domestic insurers have an information advantage over their foreign counterparts in providing D&O underwriting services because they speak the same language and possess intimate knowledge of local business norms, rules, and culture (Li and Liao, 2014). However, foreign insurers have comparative advantages over their domestic peers in terms of knowledge of best practices and latest technologies and access to global talent and capital. Consistent with this argument of comparative advantages, Kim et al. (2016) find that while domestic institutional investors are generally more effective monitors than foreign ones, foreign institutional investors from developed countries are more effective monitors than their domestic peers in developing countries. (All foreign insurers in our sample are from developed countries.) The competitive advantage of foreign insurers is likely to be particularly strong in China because before 2019, only foreign insurance companies with more than 30 years of operating experience were permitted to establish a foreign-invested insurance company in China.12F[13] Therefore, we expect that foreign, rather than domestic, insurers possess better underwriting technologies and a deeper understanding of the best governance practices to help Chinese firms optimize monitoring incentives for independent directors. We estimate Eqn. (2) using only firms carrying D&O insurance and hence replace *DO* with *Foreign insurer.* As Panel C of

[13] Ample anecdotal evidence also shows that Chinese insurance regulators and industry experts alike agree that foreign insurers bring to China valuable global experiences, diverse product offerings, sophisticated contract designs, and superior operating practices and philosophies (see, e.g., http://www.china-insurance.com/hyzx/20210401/54598.html and http://www.zqrb.cn/jrjg/bank/2019-07-22/A1563728100578. html, in Chinese).

Table 7 shows, consistent with H2a, *Foreign insurer*Independent* is significantly and positively related to *DISSENT*.

4.3. Impact on the monitoring role of independent directors

To assess whether D&O insurance moderates the relation between independent director dissension and their monitoring role, we employ the following specification:

$$Outcome_{it} = \beta_0 + \beta_1 DO_{it} * DIR\_DIS_{it} + \beta_2 DO_{it} + \beta_3 DIR\_DIS_{it} + \gamma X_{FIRM\_CHAR} + d_k + d_t + \varepsilon_{it}, \quad (4.a)$$

$$Sensitivity_{it} = \beta_0 + \beta_1 DO_{it} * DIR\_DIS_{it} * ROA_{it} + \beta_2 DO_{it} + \beta_3 DIR\_DIS_{it} + \beta_4 DO_{it} * ROA_{it} + \beta_5 DIR\_DIS_{it} * ROA_{it} + \gamma X_{FIRM\_CHAR} + d_k + d_t + \varepsilon_{it}, \quad (4.b)$$

where *Outcome* (*Sensitivity*) denotes the aspects of corporate governance that D&O insurance potentially influences through the disciplinary effect of independent director dissension—litigation, investment, and internal control quality (CEO turnover- or pay-performance sensitivities). *DIR_DIS* denotes *INDEP_DIS, NCONTR_DIS,* or *CONTR_DIS*—the number of non-affirmative votes cast by independent, non-controlling, and controlling directors over the total number of board meetings in firm *i* in year *t*, respectively.13F[14] X_{FIRM_CHAR} is the same set of firm operating and governance characteristics as in Eqn. (1). d_k and d_t denote industry and year fixed effects, respectively. Table 8 reports the results.

Panel A examines litigation and investment inefficiency. *#Lawsuits* is the number of lawsuits in which a firm is involved in a given year. *Lawsuit_value* is the natural logarithm of the total value of the claims in lawsuits in which a firm is involved in a given year plus one. The efficient-contracting hypothesis predicts a negative coefficient for *DO*INDEP_DIS* because D&O insurance, through the insurance channel, empowers independent directors to cast dissenting votes to monitor management without fearing potential personal wealth loss due to litigation. Additionally, through the insurer-monitoring channel, D&O insurance facilitates learning and adopting best governance practices by independent directors. More-effective monitoring by independent directors should result in better governance outcomes and firm performance, reducing litigation frequency and claim value. The agency hypothesis predicts a positive coefficient for *DO*INDEP_DIS* because the hypothesis assumes that D&O insurance creates moral hazard, leading to less vigilant and accountable independent directors. Indeed, this concern was raised amidst the flurry of Chinese companies purchasing D&O insurance in the first half of 2020, as almost half of the new D&O policies were bought by firms that had been fined or publicly criticized by regulators in the previous 12 months (Yu, 2020). As columns (2) and (4) of Panel A show, *DO* moderates a significantly negative relation between *INDEP_DIS* and *#Lawsuits* and *Lawsuit_value.* Therefore, the litigation results are consistent with the efficient-contracting hypothesis (H3a).

In the perfect world of Modigliani and Miller (1958), a firm's investment decisions are driven solely by its investment opportunities (Stein, 2003; Richardson, 2006). In reality, agency problems such as moral hazard created by D&O insurance can cause firms to deviate from their optimal investment behavior (Li and Liao, 2014). Following the literature (see, e.g., Richardson, 2006; Chen et al., 2011; Li and Liao, 2014), we measure investment inefficiency (i.e., underinvestment and overinvestment) by first estimating the following OLS regression:

$$INV_{it} = \beta_0 + \beta_1 INV_{it-1} + \beta_2 Tobin's Q_{it-1} + \beta_3 Leverage_{it-1} + \beta_4 Cash_{it-1} + \beta_5 Size_{it-1} + \beta_6 Age_{it-1} + \beta_7 StockReturn_{it-1} + d_k + d_t + \varepsilon_{it}, \quad (5)$$

where *INV* is this year's fixed assets minus last year's fixed assets over this year's total assets; *Tobin's Q* is the sum of market value of tradable shares, non-tradable shares, and liabilities, divided by the book value of total assets; *Leverage* is total liabilities minus cash and cash equivalents over total assets; *Cash* is cash plus cash equivalents over total assets; *Size* is the natural logarithm of total assets; *Age* is firm age; and *Stock Return* is the holding period of return of firm *i* in year *t*. d_k and d_t denote industry and year fixed effects, respectively. ε is the residual. *Overinvestment (underinvestment)* is the absolute value of ε when ε is greater (less) than zero. As columns (6) and (8) of Panel A show, *DO*INDEP_DIS* is significantly and negatively associated with *underinvestment* and insignificantly associated with *overinvestment*. Therefore, the weight of the results is consistent with the efficient-contracting hypothesis (H3a), which states that D&O insurance incentivizes independent directors, through voting, to more effectively monitor firms' investment decisions.

Panel B analyzes internal control quality. Internal control plays a critical role in protecting shareholders' interests (Dechow et al., 2010; Chen et al., 2020), which explains why regulators around the world have prioritized it in recent governance reforms (e.g., U.S. SOX of 2002 and China SOX of 2008). Importantly, Chinese boards have the primary responsibility for the establishment and implementation of internal control. We obtain internal control data from the DIB database, which is the first and most comprehensive database regarding internal control in China (Lu and Cao, 2018). The DIB database covers all listed firms in China starting 2007.14F[15]The overall Internal Control Quality (ICQ) Index is based on the five subcategories of the internal control indices: reporting, compliance, asset safety, operations, and strategy. To evaluate how well the firm achieves each of the five internal control objectives, DIB uses a number of achievement-orientated measures and constructs a score that ranges from 0 to 1000, with 0 being the least effective and 1000 being the most effective for the ICQ index and the five subindices. This scoring system is recognized by the CSRC and China's Ministry of Finance and represents an official standard of internal control quality measures for Chinese listed firms (Chang et al., 2020). For our analysis, we focus on the ICQ Index, the Reporting Index, and the Compliance Index, since the other three indices (asset safety, operations, and strategy) are more related to managerial rather than corporate governance aspects of the firm. We first deflate each index by 100 and then take the natural logarithm of the deflated index plus one (Wang et al., 2018). As Panel B shows, *DO*INDEP_DIS* is significantly and positively associated with each index, consistent with H3a.

Panel C examines CEO turnover- and pay-performance sensitivities. One primary board task is to set CEO pay and fire poorly performing CEOs (Fama and Jensen, 1983). Consistent with the expectation, worse firm performance as measured by *ROA* is associated with a higher likelihood of forced CEO turnover and a lower level of CEO pay. Consistent with H3a, *DO*INDEP_DIS*ROA* is significantly and negatively associated with forced CEO turnover, but is significantly and positively associated with CEO pay.15F[16]

[14] As mentioned in Section 4.2, when testing the H3s, we control for the interactive effects between D&O insurance and other directors' votes, as corporate governance and firm performance are influenced by the collective decisions of board members. Our results remain qualitatively similar without controlling for the interactive effects between D&O insurance and other directors' votes.

[15] The first internal control regulation in China, sometimes called Chinese Sarbanes-Oxley Act (China SOX), was enacted in July 2008 and became effective on January 3, 2012.

[16] Because the frequency of dissension is low, especially for controlling directors, we also estimate CEO turnover-performance sensitivity using a linear probability model. We continue to find *DO*INDEP_DIS*ROA* to be significantly and negatively associated with forced CEO turnover. Interestingly, *DO*CONTR_DIS* and

4.4. Impact on firm performance

To assess whether D&O insurance moderates the relation between independent director dissension and corporate financial performance, we use two market measures of firm performance—Tobin's *Q* and the natural logarithm of market value of the firm—and one operating measure of firm performance—return on equity (ROE). Tobin's *Q* incorporates the market expectation of all future cash flows and is a popular measure of firm performance (see, e.g., Hwang and Kim, 2015; Giannetti et al., 2015). However, *Q* faces measurement errors due to omitted assets and time-varying, firm-specific characteristics that can systematically alter a firm's book value. Therefore, we follow Bartlett and Partnoy (2020)'s recommendation and use an alternative measure of firm performance, specifically, the natural logarithm of the market value of the firm. As one main criticism of D&O insurance is that it shields directors and officers from shareholder lawsuits (Gillan and Panasian, 2015), ROE serves as a useful flow measure of firm performance from the perspective of shareholders. As Table 9 shows, *DO*INDEP_DIS* is significantly and positively related to each of the three measures of firm performance, consistent with the efficient-contracting hypothesis. The economic magnitude is also meaningful. In firms carrying D&O insurance, a one-standard-deviation increase in *INDEP_DIS* is associated with an increase in Tobin's *Q* of 5.65 percentage points (3.66% of the mean) or ROE of 0.576 percentage points (8.00% of the mean).16F[17]

5. Conclusion

D&O insurance is one of the most controversial and least understood corporate governance tools. In recent years, as business risks have increased around the world, there has been a growing demand by firms for D&O insurance. This paper studies the governance role of D&O insurance by providing the first evidence for its impact on independent directors' voting decisions and the subsequent effects on firm performance and the monitoring role of independent directors.

Our results are consistent with the efficient-contracting hypothesis, but not the agency hypothesis that states D&O insurance creates moral hazard and exacerbates agency problems because the insurance policy weakens the disciplining effect of litigation and reduces the accountability of directors and officers. Specifically, we find that firms' decisions to purchase D&O insurance are not driven by agency motives but by economic factors as predicted by the theory of corporate demand for insurance. If D&O insurance creates moral hazard, we should find that independent directors at firms carrying D&O insurance reduce monitoring efforts and dissent less. We find the opposite: independent directors at firms carrying D&O insurance are more likely to dissent, consistent with the efficient-contracting hypothesis. Our results hold in a robust research design that mitigates endogeneity including benchmarking independent directors' votes against those of their peers in the same firm on the same proposal, using proposal fixed effects, a Heckman model, a PSM method, and an adapted 2SLS-IV approach, and identifying channels through which D&O insurance operates. We also find that the positive effect of D&O insurance on independent director dissension is associated with better corporate financial performance and monitoring outcomes, including fewer lawsuits and a lower claim value of the lawsuits, less underinvestment, better internal control quality, and improved CEO turnover- and pay-performance sensitivities.

Our results have important policy implications. We use manually collected voting data of all director types from China, which is the world's second-largest economy but has an underdeveloped corporate governance system. D&O insurance has a long history of being an essential risk management and incentive tool for firms in developed countries. For example, the first D&O policy was issued in the United States in the 1930s (Kalis et al., 1997), and almost all U.S. firms have D&O insurance. In contrast, D&O insurance is not well understood nor widely used in developing countries. As global markets continue to integrate and business risks continue to rise, the demand for D&O insurance will continue to grow, especially in developing countries given the low baseline. Our results on the governance role of D&O insurance through the lens of its effect on independent directors contribute to the ongoing debate regarding firms' use of D&O insurance and are of particular interest to researchers, practitioners, and regulators in developing countries where corporate governance is underdeveloped.

Credit author statement

Tianshi Li, Tina Yang, and Jigao Zhu contributed equally to the conceptualization and execution of the research project.

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*DO*CONTR_DIS*ROA* are no longer statistically significant. To address endogeneity concerns, we re-estimate Table 8 regressions using the Heckman and the PSM methods and find qualitatively similar results.

[17] To address endogeneity concerns, we re-estimate Table 9 regressions using the Heckman and the PSM methods and find qualitatively similar results.

Appendix I
Variables descriptions.

Variable Name	Variable Description
Panel A: Firm-level variables	
Analyst coverage	The number of analysts following a firm in a given year
#Blockholders	The number of shareholders with greater than 5% equity
BH	An indicator variable that equals one if a firm issues B- or H-shares on the Chinese and/or Hong Kong Stock Exchanges that are designated for foreign investors
Big4	An indicator variable that equals one if the firm is audited by a Big Four accounting firm (i.e., Deloitte, Ernst & Young, KPMG, or PricewaterhouseCoopers), and zero otherwise.
Board size	The natural logarithm of the number of directors on the board
Cash	Cash and cash equivalents over total assets
CEO pay	The natural logarithm of a CEO's salary and bonus
CEO tenure	The number of years the CEO has been in office
Compliance Index	The Compliance Index is extracted from the DIB database. It is one of the five subcategories that make up the ICQ index.
CONTR_DIS	The number of controlling directors' dissensions divided by the total number of the board meetings in a given year
Crash risk	Down-to-up volatility as in Chen et al. (2001), Li et al. (2017), and Hu et al. (2020)
DO	An indicator variable that equals one if a firm carries D&O liability insurance coverage in a given year, and zero otherwise
Duality	An indicator variable that equals one if the CEO is the board chairperson
Firm age	The number of years since the firm was established
Firm size	The natural logarithm of the book value of total assets
Forced CEO turnover	An indicator variable that equals one if the CEO left the company for reasons not related to health or job change, and zero otherwise
Forecast error	The absolute difference between analysts' forecasted earnings per share and the actual earnings per share scaled by the price per share at the beginning of the year (Christie, 1987; Krishnaswami and Subramaniam, 1999)
Foreign insurer	An indicator variable that equals one if any of the underwriters of the D&O insurance policy is a foreign insurance company, and zero otherwise
ICQ Index	The Internal Control Quality Index from the DIB database
%INDEP directors	The proportion of independent directors on the board
INDEP_DIS	The number of independent directors' dissensions divided by the total number of the board meetings in a given year
INV	(Fixed assets$_t$ - fixed assets$_{t-1}$)/total assets$_t$
Lawsuit	An indicator variable that equals one if the listed firm is involved in lawsuits in the given year, and zero otherwise
#Lawsuits	The number of lawsuits in which a firm is involved in a given year
Lawsuit value	The natural logarithm of the total claim value in lawsuits in which a firm is involved in a given year plus one
Leverage	Total liabilities over total assets
NCONTR_DIS	The number of non-controlling directors' dissensions divided by the total number of the board meetings in a given year
OREC	Other receivables over total assets
OwnPct_DO	The percentage of common equity ownership by a company's directors and officers
OwnPct_TOP1	The percentage of common equity ownership by a company's largest shareholder
Overinvestment	The absolute value of ε when ε is greater than zero. ε comes from estimating the following equation: $INV_{it} = \beta_0 + \beta_1 \text{INV}_{it-1} + \beta_2 \text{Tobin's Q}_{it-1} + \beta_3 \text{Leverage}_{it-1} + \beta_4 \text{Cash}_{it-1} + \beta_5 \text{Size}_{it-1} + \beta_6 \text{Age}_{it-1} + \beta_7 \text{Stock Return}_{it-1} + d_k + d_t + \varepsilon_{it}$
Penalty	An indicator variable that equals one if a firm was disciplined by the China Securities Regulatory Commission (CSRC) in the previous and current years, and zero otherwise
Pledge	The percentage of shares pledged by insiders as collateral to obtain loans
Reporting Index	The Reporting Index is extracted from the DIB database. It is one of the five subcategories that make up the ICQ index.
ROA	Net profits over total assets
ROE	Net profits over equity
Sales growth	(Total Sales$_t$ - total Sales$_{t-1}$)/total Sales$_{t-1}$
Separation	Control rights minus cash flow rights
SOE	An indicator variable that equals one if a firm's largest shareholder is a state-owned enterprise (SOE), and zero otherwise
Stock return	Holding period return in a given year
Tobin's Q	(Market value of tradable shares + market value of non-tradable shares + market value of liabilities) / book value of total assets
Turnover	The number of shares traded annually over the number of total shares outstanding
Underinvestment	The absolute value of ε when ε is less than zero. ε comes from estimating the following equation: $INV_{it} = \beta_0 + \beta_1 INV_{it-1} + \beta_2 Tobin's\ Q_{it-1} + \beta_3 Leverage_{it-1} + \beta_4 Cash_{it-1} + \beta_5 Size_{it-1} + \beta_6 Age_{it-1} + \beta_7 Stock\ Return_{it-1} + d_k + d_t + \varepsilon_{it}$
Volatility	Annualized standard deviation of daily stock returns
Panel B: Director-level variables	
ACC	An indicator variable that equals one if a director has an accounting or finance background, and zero otherwise
Age	The natural logarithm of director age
Control	An indicator variable that equals one if the director is nominated by the largest shareholder, and zero otherwise.

(*continued on next page*)

Appendix I (*continued*)

Variable Name	Variable Description
DISSENT	An indicator variable that equals one if a director casts a vote that is not a "*FOR*" vote for the proposal, and zero otherwise
Independent	An indicator variable that equals one if the director is an independent director, and zero otherwise
Internal	An indicator variable that equals one if the director is an employee of the firm, and zero otherwise
Law	An indicator variable that equals one if the director has a legal background, and zero otherwise
Male	An indicator variable that equals one if a director is male, and zero otherwise
Non-control	An indicator variable that equals one if the director is nominated by a non-controlling shareholder, and zero otherwise
Pay	An indicator variable that equals one if a director receives a salary or bonus from the firm, and zero otherwise
Politics	An indicator variable that equals one if a director has political connections, and zero otherwise
Seats	The number of directorships of listed Chinese firms that a director holds
Share	The percentage of equity ownership by a director
Tenure	The number of years the director has been on the board

This appendix lists, in alphabetical order, descriptions of variables.

Appendix II
Hypothesized relations between firm characteristics and the likelihood of firms' carrying D&O insurance, and our findings.

Firm characteristics	Empirical proxies	Efficient-contracting hypothesis	Agency hypothesis	Our findings
Agency conflicts	OwnPct_TOP1		+	-*
	#Blockholders		–	ns
	Separation		+	ns
	OREC		+	ns
	Pledge		+	-**
Litigation risks	Firm size	+		+**
	Leverage	+		+***
	Volatility	+		ns
	Penalty	+		ns
	BH	+		+***
	Big4	+		+***
	ROA	–		ns
Financial distress	Cash	–		ns
Growth opportunities	Growth	+		ns
Other governance controls	%INDEP directors	+/-		+**
	Duality	+/-		-**
	Board size	+		ns
	OwnPct_DO	+/-	+	-***
Other firm characteristics	CEO tenure			ns
	SOE			ns

This appendix presents the empirical proxies for firm characteristics, the predicted signs between them, and the likelihood of firms' deciding to purchase D&O insurance based on the efficient-contracting hypothesis and the agency hypothesis, and our findings. *ns* denotes a statistically insignificant relation.

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