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董監事責任險、債務契約與盈餘保守性

Directors' and Officers' Liability Insurance, Debt Contracting, and Earnings Conservatism

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摘 要

本文探討董監事責任保險是否影響我國企業會計盈餘保守性，並進一步研究債務契約的影響是否得以解釋董監事責任保險對於企業會計盈餘保守程度的差異。本研究假設，當公司購買董監事責任保險時，代理衝突的增加會產生更多的會計盈餘保守性。實證研究結果顯示，購買董監事責任保險的企業中，承受較高外部融資壓力的公司報導更顯著的會計盈餘保守特性。本研究結果支持債務契約需求導致盈餘保守性假說，亦即會計盈餘保守性的實務需求主要來自於債權人對於降低代理衝突與促進契約效率有關。

【關鍵字】董監事責任保險、債務契約、盈餘保守性

Abstract

This study evaluates whether earnings conservatism increases when firms with high debt contracting demands purchase directors' and officers' insurance (D&O). We expect that the purchase of D&O insurance is positively associated with earnings conservatism only when firms have higher debt-based contracting demands. We find that firms having D&O insurance and higher external demand for debts report more earnings conservatism. These results are consistent with prior studies (Ahmed, Billings, Morton, & Stanford-Harris, 2002; Watts, 2003) that debtholders demand greater earnings conservatism as a means of addressing agency problems. This study also provides evidence that debtholders appear to be the primary driver of the demand for earnings conservatism.

【Keywords】D&O insurance, debt contracting, earnings conservatism.

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1. Introduction

This study investigates whether the purchase of directors' and officers' insurance (D&O) is positively associated with earnings conservatism when firms have the demand for debts. Prior studies argue that conservatism allows creditors to take quicker protective actions, and gives them the option to impose additional contractual restrictions, such as restrictions on additional borrowings, dividend payments and other activities that could potentially transfer wealth from creditors to shareholders (Zhang, 2008; Hsu, O'Hanlon, & Peasnell, 2011; Ahmed et al., 2002; Watts, 2003). This can help prevent further erosion of borrowers' debt quality through managers' suboptimal decisions, and inhibit the wealth expropriation behaviors of shareholders. Since the purchase of directors' and officers' (D&O) insurance can increase agency conflicts of debts through lower litigation risks and heightened managerial opportunism (Moral Hazard) (Core, 1997; Chalmers, Dann, & Harford, 2002; Kim, 2006; Chung & Wynn, 2008), we evaluate whether firms having high debt contracting demands change their earnings conservatism practices in response to firms' purchase of D&O insurance. These analyses contribute to our understanding of the importance of earnings conservatism in mitigating agency conflicts.

Specifically, we expect that the purchase of D&O insurance is positively associated with earnings conservatism only when firms have higher debt-based contracting demands. As D&O insurance reduces litigation constraints on managers' business decisions, this gives rise to managerial opportunism (Chung & Wynn, 2008). Prior studies have found that managerial opportunism increases the agency costs of debt, and that debtholders respond to these higher costs by increasing the use of covenants in debt contracts (Lehn & Poulsen, 1991; Klock, Mansi, & Maxwell, 2005). Managers in firms with higher debt contracting demands are likely to respond rationally to the higher agency conflicts by committing to not expropriating debtholders (Jayaraman & Shivakumar, 2013).

Specifically, earnings conservatism can mitigate agency conflicts faced by lenders in several ways. First, it mitigates incentives of managers to invest in high-risk projects and hence lowers the risks of asset substitution (Jayaraman & Shivakumar, 2013). Creditors do not benefit from managers' high-risk decisions except for more default risk. In situations where there are poor prospects for a firm, the lower expected payoffs to debtholders incentivize them to abandon these projects prematurely when decision rights are transferred to them. Second, earnings conservatism reduces managers' incentive to adopt negative-NPV investments, such as "pet projects" or empire-building projects (Ball & Shivakumar, 2005).

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Under earnings conservatism, if managers make negative-NPV investments it would soon reflect losses in financial reports during their tenure rather than in those of subsequent managers. This immediate reflection within the financial reports would increase managers' incentives to act quickly to limit such losses. Third, earnings conservatism also benefits debtholders by transferring decision rights to creditors more quickly and provides timely signaling of default risk when firms face financial distress by prematurely triggering covenants (Zhang, 2008). Both allow creditors to take preemptive action and give them the option to impose additional contractual restrictions, such as restrictions on extra borrowings, dividend payments and mergers and acquisitions (M&A) that could potentially transfer wealth from creditors to shareholders.

Thus, we assume that one way that managers can signal this higher commitment to debtholders is to bind themselves to a higher level of earnings conservatism (see Francis & Martin, 2010, for the governance role of conservatism). We identify firms with greater contracting demands as those that increase debt after purchasing D&O insurance. Prior studies (Ball, Robin, & Sadka, 2008; Jayaraman & Shivakumar, 2013) argue that earnings conservatism primarily exists for efficiency of contracting within debt markets rather than equity market. We expect that consideration of debt contracting affects the firm's accounting choice more than others. Since D&O insurance shields directors and officers from lawsuits and thus lowers the deterrent effect of litigation on moral hazard, this leads to more risk taking behavior. In response, rational lenders will protect themselves against higher default risk by demanding higher debt interest. Thus, we expect that managers who face higher external demand for debts would make efforts to lower the cost of debt. One approach that managers can take to mitigate the problem is to commit to debtholders and not to expropriate them, that is, to choose more earnings conservatism (Jayaraman & Shivakumar, 2013). Therefore, we hypothesize that the association between D&O insurance and earnings conservatism in firms with higher debt contracting demands is stronger than that in firms with lower debt contracting demands.

Additional studies (Chung & Wynn, 2008) have also examined the association between earnings conservatism and D&O insurance. Using a sample of Canadian firms, Chung and Wynn (2008) find that D&O insurance coverage can increase managerial opportunism while reducing earnings conservatism. This evidence is inconsistent with the conservatism literature (Watts, 2003; Ball & Shivakumar, 2005) that earnings conservatism can alleviate agency conflicts. One reason causing the inconsistent evidence may be that Chung and Wynn (2008) do not control for firm characteristics such as the need for external funding.

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In this study, we examine Taiwanese firms listed in the Taiwan Stock Exchange Corporation and the GreTai Securities Market during 2008-2010. Unlike in the U.S. or Canada, Taiwan has no clear definition of "indemnification" according to the Company Act of Taiwan. Once the Securities Investors and Futures Traders Protection (SIFTP) Act passed, the rising litigation risk faced by directors and officers caused D&O insurance to become more important in Taiwan. And thus, D&O insurance brings many benefits to directors and officers when compared to those of firms without D&O insurance. Furthermore, Taiwan provides an opportunity to perform such analyses because public companies are obliged to disclose the purchase of D&O insurance in the Market Observation Post System (M.O.P.S.). Moreover, because purchasing decisions by company are voluntary, evaluating differences between firms with D&O insurance and without D&O insurance serves as a meaningful test. For this study, we collect the accounting and market data for firms which disclose purchasing decisions regarding D&O insurance from Taiwan Economic Journal Database (TEJ) and arrived at a final sample consisting of 2,249 observations.

Our findings reveal that firms with D&O insurance and higher external demand for debts report more earnings conservatism while firms with D&O insurance and lower external demand for debts do not report earnings conservatism. In other words, the results are consistent with Ahmed et al. (2002) and Ball et al. (2008) that the debtholders' demand for earnings conservatism affects the firms' main accounting policy. This study adds to the understanding of the importance of earnings conservatism (Asymmetric Timeliness of Loss Recognition) in mitigating agency conflicts and provides evidence that debt contracting constitutes one important source of earnings conservatism.

This study offers several contributions to the existing literature. First, this study provides evidence that D&O insurance is associated with moral hazard and debtholders perceive D&O insurance as increasing agency conflicts. Second, this study adds to our understanding of how earnings conservatism mitigates agency conflicts between shareholders and debtholders. Finally, this study also supports the conclusion of Ball et al. (2008) that debt markets and not equity markets appear to be the primary driver of the demand for earnings conservatism.

The remainder of this paper proceeds as follows. In section 2, we provide a literature review and institutional background on D&O insurance in Taiwan. Section 3 provides the development of our hypothesis. In section 4, we explain our research design and justify our empirical proxies. Section 5 provides analysis of our empirical findings. Next, in section 6, we conduct an additional test. Finally, section 7 offers our conclusion on findings from this

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study.

2. Institutional Background and Literature Review

2.1 Institutional Background

2.1.1 The D&O Liability Insurance

On way that directors and officers receive protection from personal liability resulting from business decision is through D&O insurance (Chung & Wynn, 2008; Wynn, 2008).

D&O liability insurance is purchased by a firm and is payable to the directors and officers of a firm, or to the firm itself as indemnifications for certain losses resulting from legal costs for defending against alleged wrongful acts (generally refers to error, misstatement, misleading statement, omission or negligence) committed by directors and officers. In general, typical D&O policies include three basic types of coverage. First, individual level coverage protects each individual officer or director against covered losses when the corporation itself cannot legally indemnify them ("A-Side" coverage). Second, entity-level coverage protects the corporation itself from losses resulting from its indemnification payments to individual directors and officers ("B-Side" coverage). Third, optional entity-level coverage protects the corporation itself from losses incurred when the corporation itself is a defendant in a shareholder claim ("C-Side" coverage) (Baker & Griffith, 2007). However, in practice there are multiple combinations of different types of coverage under one policy when issued to different corporations. To conclude, general D&O insurance policies cover damages, settlement, judgments and proceedings expenses but exclude criminal fines or damages resulting from fraudulent acts.

High litigation risk is one of the main reasons that demand for D&O insurance in North America is high (Chung & Wynn, 2008). In common law nations, shareholders can more easily take legal action against the directors and officers or firms themselves. In contrast to the economic losses that a firm suffers when it pays for indemnification or the settlements of its own lawsuit, the D&O premiums a firm pays are relatively affordable. Also, both the CBCA or MBCA specify that a corporation may purchase and maintain insurance for the benefit of a director or officer against any liability incurred by the director or officer in his capacity as a director or officer of the corporation. Furthermore, D&O insurance does provide the final layer of protection for directors and officers when indemnification is not available (e.g., in a shareholder derivative suit) or when the firm is bankrupt and has no funds to indemnify (Boyer, 2005). Accordingly, in North America D&O has become a

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popular form of liability insurance purchased by firms to protect themselves as well as their directors and officers.

2.1.2 The Development of D&O Insurance in Taiwan

D&O insurance first became available in Taiwan in 1996. Only until recently has D&O insurance become popular among companies. The recent prevalence of D&O insurance is commonly explained by more competent regulatory authorities paying attention to corporate governance (Lai, 2011) and the rising awareness of investor protections (Chen & Pang, 2008).

The authorities' regulation of corporate governance in Taiwan has directly increased the demand for D&O insurance. For example, a new statute requiring independent directors was passed on February 22, 2002. Through an amendment to the "Taiwan Stock Exchange Corporation (GTSM) Rules Governing Review of Securities Listings", the TSEC (GTSM) added the provision that an applicant company must have at least two independent directors on its board to be accepted for listing[1]. That is, large companies which may apply to be listed would need to search for independent directors who may not already be familiar with the companies. Because outside directors are risk-averse, they usually require D&O insurance when other forms of pay are lower or when the shareholder litigation risk is high (Core, 1997). In this view, D&O insurance may provide a good incentive to recruit an independent director. As a result, more firms started to pay attention to D&O insurance and purchased D&O insurance as parts of their compensation plans to independent directors.[2]

The rising litigation risk faced by directors and officers also increases the demand of D&O insurance (Chen & Pang, 2008). Compared to common law countries, the class action suit in Taiwan was not as easy to file before 2003. However, the passage of the Securities Investors and Futures Traders Protection (SIFTP) Act[3] and the setup of the Securities and Futures Investors Protection (SIFP) Center provide a clear structure and mechanism that help shareholders file class action lawsuits. Under the act, the SIFP Center was set up to provide consultation on the trading of securities and futures as regulated by related laws and regulations, mediation of disputes arising from the trading of securities and futures, and litigation services on behalf of investors. In addition, the SIFP Center manages a protection

[1] Also, the "Corporate Governance Best-Practice Principles for TWSE/GTSM Listed Companies" encourages companies to pay attention to the need for D&O insurance.

[2] In practice, when firms purchase D&O insurance, most D&O policy covers all directors and officers of the firms.

[3] The Act was announced on July 17, 2002 and became effective on January 1, 2003.

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fund to compensate investors if a securities or commodities firm is unable to do so due to financial difficulties. As a result, the SIFTP Act raises awareness of shareholder protection which results in an increase of litigation risk for directors and officers.

Furthermore, the amendment of the SIFTP Act in 2009 lowered the thresholds of share requirements for class action suits and strengthened the investors' legal power causing directors and officers to face higher liability risk. Under the Act, when SIFP Center carries out procedures for handling civil disputes, it may request that supervisors (the board of directors) of the company institute an action against the director (supervisor) on behalf of the company. If the supervisors or the board of directors fail to institute an action, then the SIFP Center may institute the action on behalf of the company without regard to the restrictions (that shareholders must have been continuously holding 3% or more of the total number of outstanding shares of the company for over one year) of Article 214 of the Company Act. This significant amendment encourages shareholders to file class action lawsuits with the SIFP Center's assistance as long as they detect any directors' or officers' wrongful act which may cause shareholder losses.

In addition to the differences with how regulation has developed, another significant distinction in the legal environment between North America and Taiwan is that there is no clear definition of "indemnification" in the Company Act of Taiwan. Although firms may specify their indemnification policy through the corporate charter or compensation contract, there is no mandatory indemnification followed by law directly that can protect directors or officers from personal property losses resulting from business decisions. If a firm does not provide any indemnification for its directors or officers through contract, the other possible way that firms can offer protection for directors or officers against any liability incurred in his capacity as a director or officer of the corporation is through the use of D&O insurance.

To conclude, the passage of the Securities Investors and Futures Traders Protection Act (effective on January 1, 2003) expands civil liability for firms listed in TWSE or GTSM. This legislation substantially increases the potential litigation cost for directors and officers misbehavior and makes D&O insurance more important as a device to protect directors and officers from litigation risk. This exacerbates the difference in the costs of moral hazard between firms with (high) and without (low) D&O insurance coverage.

2.2 D&O Liability Insurance

There is an ongoing debate about the merits and costs of D&O insurance: the monitoring role and the managerial opportunism (Moral Hazard) arguments.

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2.2.1 D&O Insurance and Monitoring Mechanisms

Proponents argue that D&O insurance provides both direct and indirect monitoring mechanisms in corporate governance. Holderness (1990) argues that in order to reduce its exposure and charge higher premiums, the insurance company investigates the board and managers thoroughly before issuing a liability policy. Thus the entire board and managerial team members are examined by an independent third-party insurance company which provides such services more efficiently than shareholders themselves. Also, D&O insurance could make it easier for a firm to recruit outside directors who are more effective monitors than inside directors, thereby helping the board pursue shareholders' interests. Following Holderness' monitoring hypothesis, O'Sullivan (1997) analyzes the role of D&O insurance in corporate governance in companies in the United Kingdom. The results suggest that as firm size increases and external ownership becomes more costly compared to other monitoring mechanisms, firms are more likely to use outside directors and D&O insurance as governance choices. O'Sullivan's empirical evidence confirms Holderness' monitoring hypothesis by showing that executive ownership and D&O insurance are interchangeable monitoring mechanisms.

However, the monitoring role of D&O insurance has been seriously questioned recently. Theoretically, the D&O insurers do thorough assessments before issuing an insurance policy to minimize their risk as well as to monitor the company in order to prevent legal losses. Furthermore, the D&O insurers can manage the defense and settlement of corporate and securities lawsuits. However, according to Baker and Griffith's (2007) interviews of over forty people in the D&O insurance industry, they conclude that the D&O insurers neither monitor corporate governance during the life of insurance contracts nor manage litigation defense costs once claims arise. In practice, the managers choose and tend to buy D&O insurance without a strong level of monitoring and hence have more opportunity for aggressive financial reporting. From Baker and Griffith's findings, they further argue that the lack of monitoring in corporate governance and the protection given to directors and officers through D&O insurance encourages managerial risk-taking and seems likely to only increase the amount of shareholder losses due to securities law violations. In addition, this weak level of D&O insurance leads to other risks that enhance accounting measures of performance linked to managers' compensation but ultimately not those that would increase the long-term value of the firms; this may increase the probability of loss from the shareholders' perspective. Thus, Baker and Griffith's article strongly suggests that the prevailing form of D&O insurance benefits managers at shareholders' expense for the reason that managers buy

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D&O for self-serving reasons and the insurance provides almost no means of controlling the moral hazard, and hence reduces the extent to which shareholders' litigation aligns with managers' and shareholders' incentives.

2.2.2 D&O Insurance and Managerial Opportunism (Moral Hazard)

Actually, opponents have long argued that D&O insurance diminishes the effectiveness of litigation as a monitoring mechanism and leads to more moral hazard. First, as for the determinants of D&O insurance purchase decisions, managers with greater entrenchment purchase more D&O insurance. Core (1997) concludes that firms with higher excess director pay, or with higher litigation risk and distress probability, or with low inside ownership and high inside voting control are more likely to carry D&O insurance and purchase higher limits. Chalmers et al. (2002) examine whether the purchase of D&O insurance reveals managerial opportunism and hypothesize that if the managers behave opportunistically and take the company public when the IPO shares are overvalued, they would choose to purchase D&O insurance to protect them from being sued by stockholders. Consistent with this hypothesis, Chalmers et al. (2002) find a significant negative relation between the amount of D&O insurance purchased at the IPO and the 3-year post-IPO stock price performance of the firm, suggesting that managerial opportunism affects D&O insurance decisions. In other words, managers purchase insurance coverage in advance of poor future performance and managers use insurance to bolster their ability to exploit inside information for personal advantage. Using a sample of 249 Canadian firms, Boubakri, Boyer, and Ghalleb (2008) find that managers tend to purchase D&O insurance in anticipation of opportunistic earnings management around SEO events.

Studies discussing the managerial behaviors after the purchase of D&O insurance also indicate that D&O insurance leads to managerial opportunism (Moral Hazard)[4]. Boubakri et al. (2008) conclude that the D&O insurance market encourages opportunistic managerial behavior by finding that when managers are covered by higher D&O insurance they are more willing to engage in opportunistic behavior by adopting an aggressive earnings management strategy, though the insurers are able to detect the opportunistic behavior of firms and charge higher premiums. Kim (2006) also suggests that D&O insurance leads to

[4] Although Boyer (2005) argues that D&O insurance protects directors' wealth not as much as it protects the shareholders' wealth for directors are already protected under limited liability provisions and get more pay through corporate indemnification plans; hence he concludes that shareholders are more at risk within larger companies would benefit more from insurance protection. However, principal view of literatures is contrary to Boyer.

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aggressive accounting practices measured by the need to restate earnings. Wynn (2008) finds that Canadian firms that are cross-listed in the U.S. and under higher excess insurance coverage are less likely to provide bad news forecasts. Further, large cross-listed firms with high liability coverage provide less timely disclosures of bad news and the number of bad news forecasts decreases. Wynn (2008) concludes that when facing higher litigation risk, higher D&O insurance coverage could lead to managers engaging in opportunistic behavior. Lin, Officer, and Zou (2011) examine the effect of D&O insurance on the outcomes of mergers and acquisitions (M&A) decisions because M&A-related lawsuits are the principal litigation faced by directors and officers. Lin et al. (2011) conclude that under the protection of D&O insurance directors and officers are more likely to make imprudent decisions such as paying higher premiums which lead to realize lower M&A synergies. All prior findings are consistent with the argument that D&O insurance induces unintended moral hazard on the part of directors and officers by shielding them from the discipline of shareholder litigation.

Some studies examine how D&O insurance affects corporate financing. Chen, Li, and Zou (2011) investigate how investors perceive D&O insurance coverage and explore a potential mechanism through which D&O insurance increases the cost of equity capital: D&O insurance coverage is positively associated with the absolute value of performance adjusted discretionary accruals. They finally conclude that D&O insurance is associated with moral hazard problems and that investors penalize firms carrying excessive D&O insurance with a higher cost of equity capital. Furthermore, Lin, Officer, Wang, and Zou (2012) investigate how lenders perceive D&O insurance coverage by examining the impact of D&O insurance on a firm's cost of debt because a rational lender will reflect its evaluation of a firm's default risk on the demand of loan spreads. They further examine the effect of D&O insurance on corporate risk taking and on the quality of financial reporting. According to their evidence, they conclude that higher levels of D&O insurance coverage is associated with greater risk taking and higher probabilities of financial restatement due to aggressive financial reporting which then reflect a higher cost of debt financing. The perspective of stakeholders' responses to corporate capital cost also illustrates the managerial opportunism (Moral Hazard) role of D&O insurance.

2.3 Earnings Conservatism

Basu (1997) defines conservatism as "the accountants' tendency to require a higher degree of verification for recognizing good news than bad news in financial statements," which is called earnings conservatism. The contracting theory has been widely and deeply

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discussed as an important source of conservatism (Watts, 2003).

2.3.1 Earnings Conservatism and Agency Conflicts between Managers and Shareholders

Earnings conservatism constrains managerial opportunistic behavior and thus mitigates agency problems between shareholders and managers in three ways (Kothari, Ramanna, & Skinner, 2009). First, timely loss recognition introduces a contractual obligation through accounting standards for managers to disclose bad news even managers compensated on current performance are reluctant to volunteer bad news. Second, even more bad news disclosed may lead managers to undertake risky investments to reverse pool performance, timely loss recognition helps shareholders perceive signal more early and take actions to restrain management's potential value-destroying decisions. Also, timely loss recognition restricts managers' ability to delay bad news and prevents them from receiving overpayments due to delay bad news. Also, Ball and Shivakumar (2005) argue that the asymmetrically timely loss recognition reduces managers' incentive to adopt such "pet projects". Under conservative accounting, if managers make negative-NPV investments it would soon reflect losses in financial reports during their tenure rather than in those of subsequent managers. Consistent with Ball and Shivakumar (2005), Ahmed and Duellman (2011) find that firms with more conservative accounting have significantly higher profitability up to three-years in the future and a lower likelihood and magnitude of special items charges than firms with less conservative accounting. Also, Lafond and Roychowdhury (2008) provide evidence that there is a demand for earnings conservatism from the firm's shareholders when a firm's agency problem is higher measured as managerial ownership declines thus the severity of the agency problem increases.

2.3.2 Earnings Conservatism and Agency Conflicts between Debtholders and Shareholders

Generally, a firm's debtholders usually have an asymmetric payoff with respect to net assets because debtholders could not receive any additional benefit from the higher total assets value exceeding their contract sum (Watts, 2003). Debtholders are concerned with the lower ends of the earnings and net asset distributions. Hence, timely loss recognition triggers the default risk more quickly and to restricts managerial action (such as borrowing, mergers and acquisitions and new investment) reducing the value of the loan sooner, thereby increasing the efficiency of debt contracting. Ball and Shivakumar (2005) find that earnings conservatism reduces managers' incentive to adopt negative-NPV investments because it would soon reflect losses in financial reports during their tenure. Earnings conservatism therefore increases managers' incentives to act quickly to limit economic losses, and thereby decreases downside risks for debtholders. Also, Kothari et al. (2009) and Zhang (2008)

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suggest that earnings conservatism (Timely Loss Recognition) helps debtholders perceive signal more early and take actions to restrain managers' potential value-destroying decisions.

Moreover, Ball et al. (2008) argue that debt markets- not equity markets[5]- are the primary source of demand for financial reporting by pointing out four differences between debt and equity markets affecting demands for financial reporting. First, debt markets are more likely to demand timely recognition because many of their rights are couched in terms of financial statement variables, while shareholders care less about the information that is reflected in the financial statement. Second, equity markets may gain more information from non-financial disclosures and prefer less timely reporting of new information, whereas the debt markets have greater demand for timely recognition within financial statements. Third, debt contracts are written in terms of an individual firm's financial statement variables, and thus, the timely financial statement is more relevant to the debt markets than to the equity markets. Fourth, the value of debt claims is more asymmetrically sensitive to decreases in firm value because debt covenants are violated by losses. Ahmed et al. (2002) also suggest that bondholders demand more earnings conservatism when conflicts over dividend policy are more severe. Ball and Shivakumar (2005) also argue that conservatism mitigates agency problems by providing more accurate information to lenders during contracting processes. Beatty, Weber, and Yu (2008) investigate whether lenders' demands for conservatism can be accommodated through contract modifications and conclude that "when lenders are likely to have a relatively larger demand for financial reporting conservatism, the firm prepares more conservative reports" (p. 156) and that "lenders use contractual modifications in conjunction with conservative accounting choices to meet their demands" (p. 174). That is, the debtholders' demand influence firms' accounting policy more than other stakeholders.

Earnings conservatism benefits both lenders and borrowers. Firms adopt more earnings conservatism not only because of demand from debtholders' desire for self-protection but also because of the real economic benefits that result. If firms are less conservative, the increased conflict leads debtholders to demand a higher rate of return to compensate for this additional risk. By using Standard and Poor's (S&P) senior debt ratings as proxy for the cost of debt, Ahmed et al. (2002) find that there is a tradeoff between earnings conservatism and debt costs, that is, increased earnings conservatism directly lowers firms' cost of debt. Li (2010) also concludes that the earnings conservatism level of a country's financial reporting

[5] Also, Lafond and Roychowdhury (2008) provide evidence that there is a demand for conservatism from the firm's shareholders when a firm's agency problem is higher measured as managerial ownership declines thus the severity of the agency problem increases.

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system effectively reduces its firms' cost of debt by using an international setting of observations covering 31 countries. On the other hand, more conservative borrowers are more likely to violate debt covenants, and this increased likelihood of covenant violation benefits lenders by providing them an opportunity to reduce risk by taking protective actions. That is, borrowers would share the benefits with lenders by receiving lower interest rates (Zhang, 2008).

2.4 Can D&O Insurance Reduce or Increase Earnings Conservatism?

Using D&O insurance amount and cash for indemnification together as a proxy for managerial legal liability coverage, Chung and Wynn (2008) examine the effect of managerial legal liability coverage on earnings conservatism. Managers have an incentive to report earnings aggressively to increase their compensation, avoid debt covenant violations, and decrease the firm's cost of capital; however, litigation concerns constrain managers' aggressive reporting behavior. Chung and Wynn (2008) find that higher managerial liability coverage, which decreases the expected legal risk of directors and officers, results in less conservative accounting choice.

In light of the issue described above, D&O insurance reduces the effectiveness of litigation as a monitoring mechanism and leads to managerial opportunism (Moral Hazard). Since D&O insurance protects managers from personal liability incurred by business decision, managers would not be risk-averse (Core, 1997) and cautious. On the other hand, managers would pursue high-risk investment and aggressive strategy, such as less conservative accounting to achieve their self-serving interest when their compensation are based on financial statement. Also, managers may adopt high-risk investment without prudent evaluation to pursue rapid growth of sales volume which help managers create their own reputation in the managerial labor market. That is, the agency conflicts arise.

It is well-known that conservative accounting contributes to efficient contracting and stewardship (Watts, 2003) and an efficient contract minimizes costs of moral hazard. Particularly, the role of earnings conservatism in reducing agency costs associated with debt financing has been recognized and studied (Guay, 2008). Evidence that earnings conservatism leads to more efficient debt contracting is reported by Ahmed et al. (2002) and Zhang (2008).

There is an inconsistency between Chung and Wynn (2008) and Ahmed et al. (2002) or Zhang (2008). Chung and Wynn (2008) emphasizes the litigation explanation on earnings conservatism and argue that D&O insurance decreases the effect of litigation as monitoring

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mechanism on managers' moral hazard and leads to less earnings conservatism. On the other hand, conservatism literatures provide evidence that earnings conservatism mitigates agency problems between shareholders and managers (Kothari et al., 2009) and problems between debtholders and managers (Ahmed et al., 2002; Zhang, 2008). That is, when shareholders or debtholders perceive more severe agency conflicts they would take steps to protect their interests, such as demand more earnings conservatism. Especially, debtholders demand more earnings conservatism since they do not share directly in firm value increases.

Hence, the relation between D&O insurance and earnings conservatism may depend on firms' characteristics. When firms purchasing D&O insurance which arises stakeholders' concern, how firms' reporting responses may be influenced by firms characteristics, such as the need for external demand for debts.

3. Hypothesis Development

This study investigates whether an association between D&O insurance and earnings conservatism increases with the degree of external demand for debts in a firm. We expect to observe a more pronounced positive association between D&O insurance and earnings conservatism when a firm's external demand for debts is higher. This hypothesis is based on three reasons.

First, D&O insurance can increase managerial opportunism (Moral Hazard). Recent literature argues that D&O insurance reduces the effectiveness of litigation as a managerial control device by insulating directors and officers from the threat of litigation and personal financial liability (Chung & Wynn, 2008; Chen et al., 2011; Lin et al., 2011). In other words, D&O insurance shields directors and officers from lawsuits brought on by shareholders and others, thereby lowering the deterrent effect litigation on moral hazard (Chen et al., 2011). Hence, such unintended moral hazard can lead to directors and officers engaging in excessive risk taking behavior and reporting overly optimistic financials (Lin et al., 2012). Thus, the purchase decision of D&O insurance or the D&O insurance coverage limits can be a proxy for managerial opportunism (Moral Hazard) (Core, 1997; Chalmers et al., 2002; Kim, 2006; Chung & Wynn, 2008).

In particular, managerial opportunism (Moral Hazard) arising from D&O insurance may be more pronounced in Taiwanese firms than in Canadian or U.S. firms. In U.S. or Canada directors and officers are indemnified legal expenses via bylaws or charters as long as directors and officers have acted in good faith and serve in the best interests of the firm. In

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contrast, directors and officers in Taiwan can only be shielded from personal liability in the event of litigation through D&O insurance. Furthermore, the passage of the Securities Investors and Futures Traders Protection Act (effective on January 1, 2003.) expands civil liability for firms listed in on the TWSE or GTSM. This legislation substantially increases the potential litigation cost for directors' and officers' misbehavior and makes D&O insurance an important device to protect directors and officers from litigation risk. This exacerbates the difference in the costs of moral hazard between firms with (high) and without (low) D&O insurance coverage. As a consequence, the purchase of D&O insurance has become a cleaner signal of potential moral hazard to creditors following the enactment of the Futures Traders Protection Act.

Second, managerial opportunism (Moral Hazard) is associated with agency costs of debts. The increased managerial opportunism (Moral Hazard) is likely to aggravate potential agency conflicts between debtholders and shareholders (managers) due to self-interested managers taking excessive risks and reporting overly optimistic financials (Lin et al., 2012). The agency costs of debt are primarily described in terms of risk-shifting or problems with asset substitution (Jensen & Meckling, 1976). The fact that shareholders of a corporation with outside debt have a call option on the corporate assets and can influence the underlying risk creates a moral hazard problem (Klock et al., 2005). Shareholders may expropriate wealth from debtholders by investing in new projects that are riskier than those presently held in the firm's portfolio (Anderson, Mansi, & Reeb, 2003). If the high-risk projects payoff, shareholders capture most of the gains, while debtholders bear most of the cost (Fama & Miller, 1972). The costs arising from the unavoidable divergent interests of shareholders and debtholders are the agency costs of debt. Firms typically mitigate this problem by using restrictive covenants (Lehn & Poulsen, 1991). However, contracting, monitoring, and enforcing these covenants can entail real costs including those associated with missed opportunities and inefficient constraints (Klock et al., 2005). Covenants that restrict managers' ability to invest in negative NPV projects are much more difficult to monitor and enforce. It is impossible to contract for all future contingencies and even severe constraints will still leave open opportunities to shift risks (Jensen & Meckling, 1976). Consequently, as these agency costs of debt increase, debtholders charge a higher premium to cover costs that they anticipate will be imposed on them. That is, increased managerial opportunism (Moral Hazard) leads to higher debt financing costs.

Third, prior literatures argue that earnings conservatism can mitigate agency cost of debts. Earnings conservatism mitigates incentives of managers to invest in high-risk projects

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and hence lowers the risks of asset substitution (Jayaraman & Shivakumar, 2013). Creditors do not benefit from managers' high-risk decisions except for more default risk. In situations where there are poor prospects for a firm, creditors with decision rights have incentives to abandon projects prematurely. Such inefficient abandonment is more likely under earnings conservatism because of the earlier transfer of decision rights to creditors. As a consequence, when choosing among alternative projects, shareholders factor the ex-post effects of early abandonment under conservatism and lower their expected payoffs from adopting high-risk projects. In addition, earnings conservatism reduces managers' incentive to adopt negative-NPV investments, such as "pet projects" or empire-building projects (Ball & Shivakumar, 2005). Under earnings conservatism, if managers make negative-NPV investments it would soon reflect losses in financial reports during their tenure rather than in those of subsequent managers. Earnings conservatism therefore increases managers' incentives to act quickly to limit economic losses, and thereby decreases downside risks for debtholders (Jayaraman & Shivakumar, 2013). Finally, earnings conservatism also benefits debtholders by transferring decision rights to creditors more quickly and provides timely signaling of default risk when firms face financial distress by prematurely triggering covenants (Zhang, 2008). Both allow creditors to take preemptive action and give them the option to impose additional contractual restrictions, such as restrictions on extra borrowings, dividend payments and mergers and acquisitions (M&A) that could potentially transfer wealth from creditors to shareholders.

Because of these three reasons, we hypothesize that firms with greater reliance on external demand for debts are more likely to benefit from increased earnings conservatism, and therefore expect the purchase of D&O insurance to result in an increased demand for earnings conservatism in firms with higher external demand for debts. If lenders view D&O insurance coverage as increasing credit risk (Lin et al., 2012) rational lenders will protect themselves against higher default risk by demanding higher debt premium. We expect that managers who face higher external demand for debts would make efforts to lower the cost. One approach that managers can take to mitigate the problem is to commit to debtholders and not to expropriate their debt, that is, to choose more conservative accounting (Jayaraman & Shivakumar, 2013). The increased earnings conservatism causes borrowers to violate debt covenants more likely following a negative price shock. Only managers who benefit from higher earnings conservatism are likely to make the commitment. And thus, we expect to observe a more pronounced positive association between D&O insurance and earnings conservatism when a firm's external demand for debts is higher.

Thus, our hypothesis is as follows:

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H1: The association between directors' and officers' (D&O) insurance and earnings conservatism in firms with higher external demand for debts is more pronounced than in those firms with lower external demand for debts.

4. Methodology and Sample

4.1 Earnings Conservatism Measure

Following prior studies (Ball & Shivakumar, 2005; Ball et al., 2008), we use a model proposed by Basu (1997) to capture earnings conservatism:

$$NI_{it} = \alpha_0 + \alpha_1 DR_{it} + \alpha_2 R_{it} + {}_{\alpha 3} R_{it} \times DR_{it} + \varepsilon_{it} \quad (1)$$

Where NIit is net income scaled by share price at the beginning of the fiscal year end; Rit denotes the buy-and-hold return over the year; and DRit is an indicator variable that equals 1 if Rit is negative and 0 otherwise. Basu (1997) proposes three kinds of returns that are: (1) inter-announcement period returns ; (2) market-adjusted returns ; (3) fiscal year returns. Our test adopts inter-announcement period returns as a measure and follows the regulation of announcement date as specified by Taiwan's Securities and Exchange Act[6], the Rit would be the annual return of firm i over the twelve month period from the fifth month of fiscal year t to the fourth month of fiscal year *t +1*.

In equation (1), the slope coefficient $\alpha 2$ measures the timelines of earnings response to gains (good news); and the coefficient on $R_{it} \times DR_{it}$ ($\alpha 3$) is the incremental earnings response to losses (bad news). According to Basu (1997), positive $\alpha 3$ evidences asymmetric timeliness of earnings.

4.2 Estimation Models

Our paper is aimed at investigating whether the purchase of D&O insurance would cause the stakeholders to demand more earnings conservatism, especially when a firm issues debt. However, purchase of D&O insurance may be an endogenous choice when a firm

[6] Article 36 of Securities and Exchange Act was amended on 2 June 2010 and enforced beginning 1 January 2012. According to the revised version, "an issuer under this Act shall perform public announcement and registration with the Competent Authority within three months after the close of each fiscal year, publicly announce and register with the Competent Authority financial reports duly audited and attested by a certified public accountant, approved by the board of directors, and recognized by the supervisors. " However, our data period is during the period 2008-2010 and hence, the inter-announcement period should be the annual return of firm i over the twelve month period from the fifth month of fiscal year *t* to the fourth month of fiscal year *t +1* in accordance with the previous version.

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chooses to buy D&O insurance according to its earnings conservatism. In order to address this endogeneity, we adopt the two-stage approach proposed by Heckman (1979).

4.2.1 Determinant Model

In the first stage, we estimate the probit model as follows:

$$\begin{aligned} Prob\ (DO_{it}) = {} & \beta_0 + \beta_1 BDSZ_{it} + \beta_2 BDSH_{it} + \beta_3 IND_{it} + \beta_4 DUAL_{it} + \beta_5 INST_{it} \\ & + \beta_6 FINST_{it} + \beta_7 DEVIATION_{it} + \beta_8 SIZE_{it} + \beta_9 LEV_{it} \\ & + \beta_{10} BM_{it} \end{aligned} \quad (2)$$

Where,

DO_{it} = an indicator equal to one if the firm buys director insurance and zero otherwise for firm i in year t ;

$BDSZ_{it}$ = the logarithm of board size in seat number;

$BDSH_{it}$ = the shareholding by board of directors;

IND_{it} = the proportion of independent directors of a firm's board;

$DUAL_{it}$ = equals to one when the CEO serves as chair of the board and zero otherwise;

$INST_{it}$ = the percentage of stocks by domestic financial institutions;

$FINST_{it}$ = the percentage of stocks by foreign financial institutions;

$DEVIATION_{it}$ = the deviation of seat control rights relative to cash flow rights, scaled by cash flow rights;

$SIZE_{it}$ = the natural logarithm of total assets for firm i at year t;

LEV_{it} = the ratio of total liabilities to total assets;

BM_{it} = the ratio of book value to market value of stockholders' equity measured for firm i at the end of period t.

Our probit model includes the determinants of a firms' decision to purchase D&O insurance as independent variables. Following O'Sullivan (1997) and Core (1997), we include firm size (*SIZE*), outside director members (*IND*) and financial distress factors given by the ratio of book to market value (*BM*) and the ratio of total liabilities to total assets (*LEV*).

In addition, since the purchase of D&O insurance can increase agency conflicts through lower litigation risks and heightened managerial opportunism, the purchase of D&O insurance may be associated with corporate governance factors (Chen & Pang, 2008; Lin, 2010; Wei, 2010; Lai, 2011; Huang, 2011). We include other corporate governance variables

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that focus on the independence and monitoring incentives of the board of directors and officers in the probit model.

4.2.2 Earnings-return Regression (Insurance Purchase Decision Model)

In the second stage, we include a dummy variable (DO_{it}) and the inverse Mills ratio computed in the first-stage estimation of Eqation (2) in the earnings-return regression (3) as follows:

$$NI_{it} = \beta_0 + \beta_1 DR_{it} + \beta_2 R_{it} + \beta_3 R_{it} \times DR_{it} + \beta_4 DO_{it} + \beta_5 DR_{it} \times DO_{it} + \beta_6 R_{it} \times DO_{it} + \beta_7 R_{it} \times DR_{it} \times DO_{it} + \beta_8 Mills + \varepsilon_{it} \quad (3)$$

Where,

NI_{it} = consolidated net income divided by beginning-of-period market value of equity for firm i in year t ;

R_{it} = annual return over the 12-month interval from the fifth month of fiscal year t till the fourth month of fiscal year $t+1$;

DR_{it} = a dummy variable that takes the value of one when R_{it} is negative, and zero otherwise;

DO_{it} = an indicator equal to one if the firm buys director insurance and zero otherwise for firm i in year t;

$Mills$ = the inverse Mills ratio obtained from estimation of Equation (2).

To explore the role of debtholders demand for earnings conservatism, we examine whether increases in earnings conservatism are related to increases in external debt financing after purchasing D&O insurance. We therefore split the sample based on whether or not firms issue more debt after purchasing D&O insurance. We define debt issue (higher demand for debts) as those firms that have experienced an increase in total long-term debt between the D&O insurance fiscal year and the previous year. The long-term debt includes bonds payable and long-term loans from banks.

According to hypothesis H1, we compare firms with debt issue against firms without debt issue and expect the coefficient of $R_{it} \times DR_{it} \times DO_{it}$ (β_7) is significantly positive only in subsample of firms with debt issue while that is not significantly positive in subsample of firms without debt issue.

Furthermore, we incorporate three control variables into the Basu (1997) model as follows:

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$$NI_{it} = \beta_0 + \beta_1 DR_{it} + \beta_2 R_{it} + \beta_3 R_{it} \times DR_{it} + \beta_4 DO_{it} + \beta_5 DR_{it} \times DO_{it} + \beta_6 R_{it} \times DO_{it}$$
$$+ \beta_7 R_{it} \times DR_{it} \times DO_{it} + \beta_8 BM_{it} + \beta_9 DR_{it} \times BM_{it} + \beta_{10} R_{it} \times BM_{it} + \beta_{11} R_{it} \times DR_{it} \times BM_{it}$$
$$+ \beta_{12} LEV_{it} + \beta_{13} DR_{it} \times LEV_{it} + \beta_{14} R_{it} \times LEV_{it} + \beta_{15} R_{it} \times DR_{it} \times LEV_{it} + \beta_{16} SIZE_{it}$$
$$+ \beta_{17} DR_{it} \times SIZE_{it} + \beta_{18} R_{it} \times SIZE_{it} + \beta_{19} R_{it} \times DR_{it} \times SIZE_{it} + \beta_{20} Mills + \varepsilon_{it} \quad (4)$$

The variables are the same as previously defined. As for control variables, we include (1) firm size (*SIZE*), (2) leverage (*LEV*) and the (3) book-to-market (*BM*) ratio.[7]

Larger firms may produce more public information than smaller firms (Ball & Shivakumar, 2005) and hence reduce the information asymmetry problem between directors and debtholders. As a consequence, debtholders may require less earnings conservatism. Therefore, we control firm size (*SIZE*) as an explanatory variable which is measured by the natural logarithm of market value of total assets.

Moreover, we include (*LEV)* ratio as a control variable, which is measured as the ratio of the total liabilities to total assets. While our study tests whether the demand for "new" debts can increase accounting conservatism, prior research indicates that accounting conservatism is associated with current level of leverage (Khan & Watts, 2007; Jayaraman & Shivakumar, 2013). Accounting conservatism provides ex post contracting benefits to lenders by allowing them to renegotiate loan terms when the borrower's financial position deteriorates (Zhang, 2008). Therefore, we further control for leverage (LEV_{it}) to ensure the robustness of our tests.

Also, we include the ratio of book value to market value of stockholders' equity (*BM*) as a control variable. Fama and French (1995) argue that firms with high BM ratios tend to be persistently distressed, so high BM ratios will serve as a proxy for financial risk. That is, high BM ratios could be a proxy if there are fewer assets left for creditors when firms are in distress. Therefore, the (*BM)* ratio of a firm may affect the degree of creditors' demand for earnings conservatism.

In Equation (4) we still split the sample based on whether or not firms issue more debt after purchasing D&O insurance and pay attention to the coefficient of $R_{it} \times DR_{it} \times DO_{it}$ (β_7). We predict that the coefficient of $R_{it} \times DR_{it} \times DO_{it}$ (β_7) would be significantly different between the two subsamples. Our primary hypothesis is that firms with D&O insurance and higher debt pressure are more likely to recognize economic losses in a timely manner than firms

[7] While Roychowdhury and Watts (2007) show that asymmetric timeliness of earnings is associated with market-to book ratio over short periods, we are not able to test the regression models over 3-year horizons due to the limitation of sample availability.

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with D&O insurance and lower debt pressure. We identify firms with greater contracting demands as those that increase debt after purchasing D&O insurance. Prior studies in the conservatism literature find that conservatism is an important feature that affects lenders' decision on private debt market (Zhang, 2008). In addition, the bond market is relatively small in Taiwan (less than 20% observations issuing corporate bonds), primarily limited to banks and conglomerate firms. Most listed firms in Taiwan rely on private banks loans. Thus, we focus on new private bank loans.[8][9]Since most listed firms in Taiwan rely on private banks loans, we also report the results using the mean interest rates for new loans as a proxy for the cost of private debts in Table 6.

4.2.3 Earnings-return Regression (Insurance Amount Model)

We further investigate whether the D&O insurance coverage amount affects the degree of earnings conservatism. We replace the DO_{it} (a dummy variable indicates if the firm buys D&O insurance or not) into the $AMOUNT_{it}$ (the amount of D&O insurance) in the Equation (3) as follows:

$$NI_{it} = \beta_0 + \beta_1 DR_{it} + \beta_2 R_{it} + \beta_3 R_{it} \times DR_{it} + \beta_4 AMOUNT_{it} + \beta_5 DR_{it} \times AMOUNT_{it} + \beta_6 R_{it} \times AMOUNT_{it} + \beta_7 R_{it} \times DR_{it} \times AMOUNT_{it} + \beta_8 Mills + \varepsilon_{it} \quad (5)$$

Where,

NI_{it} = consolidated net income divided by beginning-of-period market value of equity for firm i in year t ;

R_{it} = annual return over the 12-month interval from the fifth month of fiscal year t till the fourth month of fiscal year $t+1$;

DR_{it} = a dummy variable that takes the value of one when R_{it} is negative, and zero otherwise;

$AMOUNT_{it}$ = the amount of director insurance, scaled by total market value of the firm at the beginning of period for firm i in year t;

$Mills$ = the inverse Mills ratio obtained from estimation of Equation (2).

In line with Equation (3), the variable of our interest in the Equation (5) is the coefficient of $R_{it} \times DR_{it} \times AMOUNT_{it}$ (β_7). As discussed above, we compare firms with debt

[8] For robustness, we also include new issuance of bonds. The results are the same.

[9] Our regression model examines the contemporaneous relation between D&O and conservatism due to the 3-year sample availability. To address the cause-effect of D&O on conservatism, we re-examine our tests using 2009-2010 and test the association between conservatism at time t and D&O at time $t-1$. The results are the same.

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issue against firms without debt issue and expect the coefficient of $R_{it} \times DR_{it} \times AMOUNT_{it}(\beta_7)$ is significantly positive only in subsample of firms with debt issue while that is not significantly positive in subsample of firms without debt issue.

The final model is incorporating three control variables into the Equation (5) as follows:

$$\begin{aligned} NI_{it} = {} & \beta_0 + \beta_1 DR_{it} + \beta_2 R_{it} + \beta_3 R_{it} \times DR_{it} + \beta_4 AMOUNT_{it} + \beta_5 DR_{it} \times AMOUNT_{it} \\ & + \beta_6 R_{it} \times AMOUNT_{it} + \beta_7 R_{it} \times DR_{it} \times AMOUNT_{it} + \beta_8 BM_{it} + \beta_9 DR_{it} \times BM_{it} \\ & + \beta_{10} R_{it} \times BM_{it} + \beta_{11} R_{it} \times DR_{it} \times BM_{it} + \beta_{12} LEV_{it} + \beta_{13} DR_{it} \times LEV_{it} \\ & + \beta_{14} R_{it} \times LEV_{it} + \beta_{15} R_{it} \times DR_{it} \times LEV_{it} + \beta_{16} SIZE_{it} + \beta_{17} DR_{it} \times SIZE_{it} \\ & + \beta_{18} R_{it} \times SIZE_{it} + \beta_{19} R_{it} \times DR_{it} \times SIZE_{it} + \beta_{20} Mills + \varepsilon_{it} \end{aligned} \quad (6)$$

The variables are the same as defined above. In Eq. (6) we still focus on the coefficient of $R_{it} \times DR_{it} \times AMOUNT_{it}(\beta_7)$. We also split the sample based on whether or not firms issue more debt after purchasing D&O insurance. Consistent with our primary hypothesis, we predict that the coefficient of $R_{it} \times DR_{it} \times AMOUNT_{it}(\beta_7)$ would show different degree of losses timely recognition between the two subsamples.

4.3 Sample

This study is entirely based on Taiwanese firm data. Taiwan provides an opportunity to perform such analysis because public companies are obliged to disclose the purchase of D&O insurance in the Market Observation Post System (M.O.P.S.)[10].

We collect accounting and market data for firms listed in Taiwan Stock Exchange Corporation and the GreTai Securities Market during 2008-2010 from the Taiwan Economic Journal Database (TEJ). We choose firms which disclosure whether purchasing D&O insurance or not and excluded firms in the financial and insurance industries as both are highly regulated sector and adopts different accounting practices from others. We also deleted observations with missing values for accounting and market data and arrived at the final sample consisting of 2,249 observations.

[10] On December 31, 2008, both the TWSE and GTSM amended their "Rules Governing Information Reporting by Companies with TWSE (GTSM) Listed Securities" by adding the content, "Information on the liability insurance that the TWSE (GTSM) listed company carries on its directors and supervisors should report the insurance enrollment status for the previous year within 15 days from the close of each business year."

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5. Empirical Results

5.1 Descriptive Statistics

Table 1 Panel A reports descriptive statistics of main variables for the full sample. NI_{it} is consolidated net income divided by beginning-of-period market value of equity for firm i in year t and R_{it} is the annual return over the 12-month interval from the fifth month of fiscal year t till the fourth month of fiscal year $t+1$. The mean values for NI_{it} and R_{it} are 0.041 and 0.157 respectively. $AMOUNT_{it}$ is the amount of D&O insurance scaled by beginning-of-period market value of equity for firm i in year t. The mean and median values of $AMOUNT_{it}$ are 0.053 and 0.004. As for control variables, the mean values of LEV_{it} and BM_{it} are 0.384 and 0.972. The average $SIZE_{it}$ of sample firms is 14.912. The mean value of $BDSZ_{it}$ is 2.228. The mean value of shareholding by board of directors is 23.41. And the average proportion of independent directors of sample firms is 0.178. The mean value of $DUAL_{it}$ is 0.287. The average percentage of stocks by domestic financial institutions and foreign financial institutions are 1.903 and 7.257 respectively.

In Panel B, the sample is partitioned based on whether the firm issues new debts or not. Compared to firms not issuing new debts, firm issuing new debts have higher net incomes, lower returns, lower leverage, smaller size, high book-to-market ratio, and higher proportion of independent directors.

The mean (median) differences of all variables between the two groups are not significant, except for it shows that firm-years with internal control material weaknesses are associated with lower compensation than firm-years with effective internal controls, and this effect holds for both CEO/CFOs and other executives in all types of compensation.

Table 2 reports the Pearson product-moment and Spearman rank-order correlations between the variables. To facilitate discussion, we focus on Pearson correlations. The DO_{it} is negatively correlated with BM_{it}, $BDSH_{it}$, $DEVIATION_{it}$ and positively correlated with LEV_{it}, $BDSZ_{it}$, IND_{it}, $INST_{it}$ and $FINST_{it}$. The $AMOUNT_{it}$ is negatively correlated with NI_{it}, LEV_{it}, BM_{it}, $BDSZ_{it}$, $FINST_{it}$ and positively correlated with R_{it}, $BDSH_{it}$, IND_{it}, and $DUAL_{it}$. We find that $SIZE_{it}$ is positive with both DO_{it} and $AMOUNT_{it}$ but not significantly.

Table 3 shows the probit analysis of Eq. (2). The probit analysis show that the proportion of independent directors (*IND*), the percentage of stocks by domestic financial institutions (*INST*) and foreign institutions (*FINST*), and the total liabilities to total assets (*LEV*) are positively associated with the purchase of D&O insurance (*DO*), where shareholding by director holders (*BDSH*), the deviation of seat control rights relative to the

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cash flow rights (*DEVIATION*) and the ratio of book value to market value of stockholders' equity (*BM*) are negatively associated with the purchase of D&O insurance (*DO*). However, our analysis indicate that board size by seat number (*BDSZ*), whether the CEO serves as chair of the board (*DUAL*), and the size of firms (*SIZE*) are not significantly associated with the purchase decision. This suggests that firms with good governance tend to purchase D&O insurance.

5.2 Earnings-return Regressions

Table 4 reports the findings of the relation between the purchase of D&O insurance and the earnings conservatism under different levels of external demand for debts. Panel A reports the results for the full sample. We then split the sample into a group with external demand for debts (debt issue) and a group without (no debt issue). Panel B presents results for the subsample of firms with increases in debt and Panel C presents results for the subsample of firms without increases in debt.

Column (1) Panel A, column (1) Panel B and column (1) Panel C reports the results of Eq. (3). For the full sample, column (1) shows that the coefficient on $R_{it} \times DR_{it} \times DO_{it}$ is significantly positive. The results suggests that earnings conservatism is positively associated with the purchase of D&O insurance, which is inconsistent with Chung and Wynn (2008). One main reason is that the institutional environment in Taiwan might be different from that in Canada. In Taiwan, the passage of the Securities Investors and Futures Traders Protection (SIFTP) Act and the setup of the Securities and Futures Investors Protection (SIFP) Center results in an increase of litigation risk for directors and officers. Another significant distinction in the legal environment between North America and Taiwan is that there is no clear definition of "indemnification" in the Company Act of Taiwan.

Panel B presents results for the subsample of firms with increases in debt and Panel C presents results for the subsample of firms without increases in debt. In column (1) Panel B, the findings that the coefficient on $R_{it} \times DR_{it} \times DO_{it}$ is 0.724 (t = 2.73), which suggests that a higher degree of earnings conservatism is positively associated with the purchase of D&O insurance when firms increase debt. In column (1) Panel C, the findings that the coefficient on $R_{it} \times DR_{it} \times DO_{it}$ is -1.166 (t = -0.27) which indicates that there is no asymmetric timeliness of losses recognition for firms with the purchase of D&O insurance and that do not increase debt.

In Table 4, column (2) Panel A, Panel B and Panel B further controls for BM_{it}, LEV_{it} and $SIZE_{it}$. Across three columns, the result of column (2) has the higher adjusted R^2 than column

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(1). In addition, BM_{it} is positively associated with earnings conservatism (e.g., 0.744, t = 3.92 in Panel B) whereas LEV_{it} and $SIZE_{it}$ are negatively associated with earnings conservatism. In column (2) Panel B, the coefficient on $R_{it} \times DR_{it} \times DO_{it}$ is 0.649 (t = 2.39) and in column (2) Panel C the coefficient on $R_{it} \times DR_{it} \times DO_{it}$ is -1.185 (t = -0.34), which indicate the same results as column (1) that earnings conservatism is positively associated with the purchase of D&O insurance only when firms' debt increase. Moreover, the coefficients on BM_{it}, LEV_{it} and $SIZE_{it}$ show the same correlation with purchase of D&O insurance when compared between Panels B and C.

We employ an F test to determine whether the coefficient on $R_{it} \times DR_{it} \times DO_{it}$ is the same between firms issuing new debts and firms without issuing new debts. A formal test of the equality produces an F value of 5.18, which supports that the coefficient for firms issuing new debts is much higher than firms without new debts.

Table 5 reports the findings of the relation between the amount of D&O insurance and the earnings conservatism under different levels of external demand for debts. In column (1) and (2) Panel A, the coefficient on $R_{it} \times DR_{it} \times AMOUNT_{it}$ are 0.396 (t = 1.94) and 0.234 (t = 2.11) respectively, which suggest a higher degree of significance in the positive association between the amount of D&O insurance and earnings conservatism. On the other hand, Panel B presents results for the subsample of firms that do not issue debt. The coefficient on $R_{it} \times DR_{it} \times AMOUNT_{it}$ in column (1) and (2) are -0.202 (t = -0.24) and -0.248 (t = -0.33) respectively, which indicate that there is no significant earnings conservatism for firms with D&O insurance and that do not increase their debt.

To sum up, the coefficients on $R_{it} \times DR_{it} \times DO_{it}$ ($AMOUNT_{it}$) are significantly different between firms with and without debt issue. The results are consistent with our prediction that debt contracting demand for earnings conservatism as earnings conservatism can reduce agency conflicts of debt.

6. Additional Test

6.1 C Score

Although Basu's measure is widely used in empirical research, the lack of a firm-year measure of earnings conservatism can limit the nature of hypotheses testing that can be conducted. For this reason, Khan and Watts (2007) construct the C-score, a firm-year specific measure of earnings conservatism or incremental bad news timeliness by drawing on Basu's (1997) measure of asymmetric timeliness of earnings and incorporating other

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variables (size, market-to-book, and leverage). Following Khan and Watts (2007), we use two steps to analyze the relation between a firm's C-Score and D&O insurance. In the first step, we estimate a C-Score for each firm-year. And then we regress the C-Score on the variables concerned in this paper.

First, we estimate equation (7) with annual cross-sectional regressions.

$$\begin{aligned} NI_{it} &= \alpha_0 + \alpha_1 DR_{it} + \alpha_2 R_{it}(\mu_0 + \mu_1 SIZE_{it} + \mu_2 MB_{it} + \mu_3 LEV_{it}) \\ &+ \alpha_3 DR_{it} \times R_{it}(\lambda_0 + \lambda_1 SIZE_{it} + \lambda_2 MB_{it} + \lambda_3 LEV_{it}) \\ &+ (\delta_0 SIZE_{it} + \delta_1 MB_{it} + \delta_2 LEV_{iv} + \delta_3 DR_{it} \times SIZE_{iv} + \delta_4 DR_{it} \times MB_{it} + \delta_5 DR_{it} \times LEV_{it}) + \varepsilon_i \end{aligned} \quad (7)$$

Where MB_{it} is the market to book ratio of shareholders' equity, the other variables are the same as previous defined.

We derive the yearly parameters for λ_0, λ_1, λ_2 and λ_3 from Equation (7) and then we calculate $Cscore_{it}$ for each firm-year observation using the following Equation (8). According to Khan and Watts (2007), firms with higher C-score are more conservative in their financial reporting.

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(*AMOUNT*) as variables respectively. Columns (3) and (4) report results for low external demand for debts group adopting the purchase of D&O insurance (*DO*) and the amount of D&O insurance (*AMOUNT*) as variables respectively. In columns (1) and (2), we find that both the coefficients on DO_{it} and $AMOUNT_{it}$ are significantly positive. Taking together the results for the augmented Basu (1997) specification in Table 4-5 and C-Score in Table 6 together, we find strong evidence that DO_{it} and $AMOUNT_{it}$ are positively related to earnings conservatism under debt contracting pressure.

6.2 Other Conservatism Measures

We assess the robustness of our results using two alternative measures of accounting conservatism –the extent to which earnings include negative total accruals before depreciation (Givoly & Hayn, 2000), and the extent to which earnings include negative non-operating accruals (Givoly & Hayn, 2000). The two accounting measures are not based on stock returns, and do not suffer from the volatility of stock market during financial crisis. Both indicators are scaled by net assets at the beginning period. The untabulated results show that the coefficients on DO_{it} and $AMOUNT_{it}$ are significantly negative for firms issuing new debts. However, the coefficient on DO_{it} and $AMOUNT_{it}$ is insignificant for firms not issuing new debts. The results are consistent with our main hypotheses.

7. Conclusions

This study evaluates whether firms having high debt contracting demands report earnings conservatism in response to firms' purchase of D&O insurance. Using Basu (1997) asymmetric timeliness of loss recognition model, we find that firms having D&O insurance and higher external debt contracting demand report more earnings conservatism while firms having lower external debt contracting demand do not report earnings conservatism.

The results are consistent with Watts (2003) that stakeholders demand greater earnings conservatism as a means of addressing agency problems arising from purchasing D&O insurance. In addition, the results of investigating the influence of debt contracting on earnings conservatism are consistent with Ahmed et al. (2002) showing that debtholders demand more earnings conservatism facing more severe agency conflicts. Also, the results of this test are consistent with Beatty et al. (2008) that "when lenders are likely to have a relatively larger demand for financial reporting conservatism, the borrower prepares more conservative reports." (p. 156)

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Overall, the results of this paper provide evidence on the importance of debt in explaining earnings conservatism in financial reporting. The results reconfirm Ball et al. (2008) that demand of debtholders significantly influences firms' financial reporting. This study has the following limitations and future research opportunities. First, this study uses a relatively short time period because data regarding directors' and officers' insurance has not been available for long periods of time. Second, this study only includes Taiwanese corporations and the results may not be generalizable to other countries. A re-examination of our findings using Taiwanese corporations for longer periods of time or using corporations in different countries may provide more clear insight to this subject.

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Table 1 Descriptive Statistics

Panel A: Full Sample

Variables	Mean	Std. Dev.	Q1	Median	Q3
NI_{it}	0.041	0.130	0.000	0.000	0.100
R_{it}	0.157	0.551	-0.169	0.022	0.315
DO_{it}	0.533	0.499	0.000	1.000	1.000
$AMOUNT_{it}$	0.053	0.135	0.000	0.004	0.051
LEV_{it}	0.384	0.243	0.200	0.391	0.542
$SIZE_{it}$	14.912	1.521	13.851	14.754	15.824
BM_{it}	0.972	0.888	0.400	0.800	1.300
$BDSZ_{it}$	2.228	0.229	2.079	2.197	2.303
$BDSH_{it}$	23.410	14.688	12.640	19.590	30.160
IND_{it}	0.178	0.193	0.000	0.167	0.333
$DUAL_{it}$	0.287	0.452	0.000	0.000	1.000
$INST_{it}$	1.903	4.244	0.000	0.030	2.020
$FINST_{it}$	7.527	12.588	0.220	2.145	8.540
$DEVIATION_{it}$	48.652	42.242	20.450	38.390	64.300

Panel B: Two Subsamples

	Debt Issue		No Debt Issue		Difference	
	Mean	Median	Mean	Median	T test	Median
NI_{it}	0.05	0.00	0.03	0.00	4.052***	8.463***
R_{it}	0.01	-0.04	0.30	0.15	-16.995***	-14.873***
DO_{it}	0.53	1.00	0.54	1.00	0.538	0.539
LEV_{it}	14.54	14.37	15.28	15.09	-15.265***	-15.544***
$SIZE_{it}$	0.42	0.42	0.35	0.33	8.545***	8.946***
BM_{it}	1.32	1.10	0.63	0.60	25.83***	24.808***
$BDSZ_{it}$	2.23	2.20	2.23	2.20	-0.158	0.185
$BDSH_{it}$	23.77	20.19	23.06	18.95	1.486	1.651
IND_{it}	0.20	0.22	0.16	0.00	5.289***	4.972***
$DUAL_{it}$	0.28	0.00	0.29	0.00	-0.880	-0.378
$INST_{it}$	1.85	0.05	1.96	0.02	-0.763	0.755
$FINST_{it}$	7.78	2.28	7.28	1.97	1.212	1.268
$DEVIATION_{it}$	48.88	39.41	48.43	37.66	0.325	0.518

[a] NI_{it} is consolidated net income divided by beginning-of-period market value of equity for firm *i* in year *t*; R_{it} is annual return over the 12-month interval from the fifth month of fiscal year *t* till the fourth month of fiscal year *t+1*; DO_{it} is an indicator equal to one if the firm buys director insurance and zero otherwises for firm *i* in year *t*; $AMOUNT_{it}$, the amount of director insurance, scaled by beginning-of-period market value of equity for firm *i* in year *t*; LEV_{it} is measured as the ratio of the total liabilities to total assets for firm *i* in year *t*; $SIZE_{it}$ is the natural logarithm of market value of total assets for firm *i* in year *t*; BM_{it} is the ratio of book value to market value of stockholders' equity measured for firm *i* at the end of period *t*. $BDSZ_{it}$ is the logarithm of board size in seat number; $BDSH_{it}$ is the shareholding by board of directors; IND_{it} is proportion of independent directors; $DUAL_{it}$ equals to one when whether the CEO serves as chair of the board and zero otherwise; $INST_{it}$ indicates the percentage of stocks by domestic financial institutions; $FINST_{it}$ is the percentage of stocks by foreign financial institutions; $DEVIATION_{it}$ is the deviation of seat control rights relative to the cash flow rights, scaled by the cash flow rights.

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Table 2 Correlation Matrix

	NI_{it}	R_{it}	DO_{it}	$AMOUNT_{it}$	LEV_{it}	$SIZE_{it}$	BM_{it}	$BDSZ_{it}$	$BDSH_{it}$	IND_{it}	$DUAL_{it}$	$INST_{it}$	$FINST_{it}$	$DEVIATION_{it}$
NI_{it}	1.000	0.127	-0.044	-0.068	0.092	-0.019	0.115	0.004	-0.008	0.049	-0.057	0.102	0.104	0.007
	.	(0.000)	(0.037)	(0.001)	(0.000)	(0.362)	(0.000)	(0.852)	(0.695)	(0.019)	(0.006)	(0.000)	(0.000)	(0.739)
R_{it}	0.887	1.000	-0.035	0.036	0.089	-0.097	-0.110	0.005	0.022	-0.022	-0.030	-0.027	0.007	0.028
	(0.000)	.	(0.092)	(0.084)	(0.000)	(0.000)	(0.000)	(0.801)	(0.301)	(0.295)	(0.158)	(0.189)	(0.730)	(0.187)
DO_{it}	-0.031	-0.032	1.000	0.911	0.167	0.000	-0.097	0.112	-0.132	0.283	-0.013	0.227	0.177	-0.160
	(0.137)	(0.129)	.	(0.000)	(0.000)	(0.994)	(0.000)	(0.000)	(0.000)	(0.000)	(0.534)	(0.000)	(0.000)	(0.000)
$AMOUNT_{it}$	-0.040	0.182	0.349	1.000	-0.045	-0.022	-0.085	0.036	-0.072	0.293	0.038	0.100	-0.009	-0.081
	(0.054)	(0.000)	(0.000)	.	(0.030)	(0.286)	(0.000)	(0.082)	(0.001)	(0.000)	(0.069)	(0.000)	(0.670)	(0.000)
LEV_{it}	0.132	0.027	0.172	-0.224	1.000	0.004	-0.313	0.288	-0.163	-0.099	-0.137	0.454	0.644	-0.300
	(0.000)	(0.205)	(0.000)	(0.000)	.	(0.840)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$SIZE_{it}$	-0.031	-0.061	0.015	0.029	0.021	1.000	0.190	-0.021	0.011	-0.112	-0.056	0.010	0.050	-0.054
	(0.138)	(0.003)	(0.481)	(0.171)	(0.319)	.	(0.000)	(0.306)	(0.599)	(0.000)	(0.007)	(0.618)	(0.018)	(0.010)
BM_{it}	-0.113	-0.157	-0.076	-0.048	-0.303	0.008	1.000	-0.007	-0.034	-0.103	0.005	-0.043	-0.055	-0.015
	(0.000)	(0.000)	(0.000)	(0.021)	(0.000)	(0.719)	.	(0.736)	(0.105)	(0.000)	(0.811)	(0.039)	(0.008)	(0.462)
$BDSZ_{it}$	0.007	-0.033	0.087	-0.042	0.367	-0.026	-0.031	1.000	0.036	0.108	-0.098	0.236	0.200	-0.177
	(0.723)	(0.110)	(0.000)	(0.042)	(0.000)	(0.217)	(0.141)	.	(0.081)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$BDSH_{it}$	0.041	0.018	-0.101	0.054	-0.091	0.072	-0.056	0.082	1.000	-0.019	-0.029	-0.093	-0.168	0.401
	(0.049)	(0.391)	(0.000)	(0.010)	(0.000)	(0.001)	(0.008)	(0.000)	.	(0.374)	(0.159)	(0.000)	(0.000)	(0.000)
IND_{it}	0.042	0.011	0.267	0.117	-0.079	-0.019	-0.061	0.050	-0.008	1.000	-0.021	0.123	-0.031	0.159
	(0.043)	(0.591)	(0.000)	(0.000)	(0.000)	(0.358)	(0.003)	(0.018)	(0.691)	.	(0.306)	(0.000)	(0.144)	(0.000)
$DUAL_{it}$	-0.065	-0.019	-0.013	0.061	-0.142	-0.031	0.005	-0.109	-0.057	-0.024	1.000	-0.069	-0.083	0.084
	(0.002)	(0.365)	(0.534)	(0.003)	(0.000)	(0.144)	(0.808)	(0.000)	(0.006)	(0.248)	.	(0.001)	(0.000)	(0.000)
$INST_{it}$	0.011	-0.023	0.160	0.015	0.254	-0.020	-0.022	0.237	0.035	0.094	-0.057	1.000	0.367	-0.195
	(0.596)	(0.270)	(0.000)	(0.480)	(0.000)	(0.334)	(0.303)	(0.000)	(0.092)	(0.000)	(0.007)	.	(0.000)	(0.000)
$FINST_{it}$	0.062	-0.026	0.179	-0.068	0.583	0.008	-0.087	0.224	-0.049	0.028	-0.070	0.148	1.000	-0.283
	(0.003)	(0.222)	(0.000)	(0.001)	(0.000)	(0.702)	(0.000)	(0.000)	(0.018)	(0.173)	(0.001)	(0.000)	.	(0.000)
$DEVIATION_{it}$	0.040	0.012	-0.099	0.021	-0.259	-0.008	-0.014	-0.166	0.287	0.226	0.080	-0.098	-0.183	1.000
	(0.054)	(0.561)	(0.000)	(0.319)	(0.000)	(0.715)	(0.510)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	.

[a] NI_{it} is consolidated net income divided by beginning-of-period market value of equity for firm *i* in year *t*; R_{it} is annual return over the 12-month interval from the fifth month of fiscal year *t* till the forth month of fiscal year *t+1*; DO_{it} is an indicator equal to one if the firm buys director insurance and zero otherwises for firm *i* in year *t*; $AMOUNT_{it}$, the amount of director insurance, scaled by beginning-of-period market value of equity for firm *i* in year *t*; LEV_{it} is measured as the ratio of the total liabilities to total assets for firm *i* in year *t*; $SIZE_{it}$ is the natural logarithm of market value of total assets for firm *i* in year *t*; BM_{it} is the ratio of book value to market value of stockholders' equity measured for firm *i* at the end of period *t*; $BDSZ_{it}$ is the logarithm of board size in seat number; $BDSH_{it}$ is the shareholding by board of directors; IND_{it} is proportion of independent directors; $DUAL_{it}$ equals to one when whether the CEO serves as chair of the board and zero otherwise; $INST_{it}$ indicates the percentage of stocks by domestic financial institutions; $FINST_{it}$ is the percentage of stocks by foreign financial institutions; $DEVIATION_{it}$ is the deviation of seat control rights relative to the cash flow rights, scaled by the cash flow rights. [b] Two-tailed *p*-values are in parentheses.

Table 3 Determinants of Purchasing D&O Insurance

	Dummy Variable(DO_{it})
INTERCEPT	0.204
	(0.65)
$BDSZ_{it}$	-0.124
	(-0.93)
$BDSH_{it}$	-0.009
	(-3.96)***
IND_{it}	2.080
	(12.60)***
$DUAL_{it}$	0.094
	(1.49)
$INST_{it}$	0.033
	(4.60)***
$FINST_{it}$	0.011
	(3.74)***
$DEVIATION_{it}$	-0.003
	(-3.49)***
Control variables:	
$SIZE_{it}$	0.013
	(0.75)
LEV_{it}	0.878
	(2.97)**
BM_{it}	-0.037
	(-2.32)*
Control for Industry	Yes
N	2249
adj. R^2	0.089

Notes: t-statistics are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively in a two-tailed test. The dependent variable is DO_{it}, an indicator which equals one if the companies purchase director insurance, and zero if otherwise; $BDSZ_{it}$ is the logarithm of board size in seat number; $BDSH_{it}$ is the shareholding by board of directors; IND_{it} is proportion of independent directors; $DUAL_{it}$ equals to one when whether the CEO serves as chair of the board and zero otherwise; $INST_{it}$ indicates the percentage of stocks by domestic financial institutions; $FINST_{it}$ is the percentage of stocks by foreign financial institutions; $DEVIATION_{it}$ is the deviation of seat control rights relative to the cash flow rights, scaled by the cash flow rights; LEV_{it} is total liabilities to total assets; $SIZE_{it}$ is the natural logarithm of total assets at year *t*; BM_{it} is the ratio of book value to market value of stockholders' equity measured for firm *i* at the end of period *t*.

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Table 4 Asymmetric Timeliness of Earnings and D&O Insurance (DO)

Panel A: Full Sample

		(1)		(2)	
	Pred. Sign	Coeff	t-statistics	Coeff	t-statistics
Intercept		0.051	(9.54)***	0.039	(2.51)*
DR_{it}		0.001	(0.12)	0.001	(0.04)
R_{it}		-0.009	(-1.41)	-0.004	(-0.33)
$R_{it}\times DR_{it}$	+	0.221	(7.12)***	0.162	(2.51)*
DO_{it}		-0.006	(-0.27)	-0.014	(-0.41)
$DR_{it}\times DO_{it}$		0.006	(0.35)	0.017	(0.74)
$R_{it}\times DO_{it}$		-0.004	(-0.09)	-0.005	(-0.02)
$R_{it}\times DR_{it}\times DO_{it}$	+	0.230	(1.99)**	0.213	(2.08)**
BM_{it}				0.003	(0.60)
$DR_{it\times}BM_{it}$				0.017	(6.11)***
$R_{it\times}BM_{it}$				-0.000	(-0.34)
$R_{it\times}DR_{it}\times BM_{it}$	+			0.065	(8.24)***
LEV_{it}				-0.002	(-0.37)
$DR_{it}\times LEV_{it}$				0.001	(0.17)
$R_{it}\times LEV_{it}$				0.000	(0.07)
$R_{it}\times DR_{it}\times LEV_{it}$	+			0.024	(2.04)*
$SIZE_{it}$				0.010	(2.06)*
$DR_{it}\times SIZE_{it}$				-0.000	(-0.12)
$R_{it}\times SIZE_{it}$				-0.001	(-1.48)
$R_{it}\times DR_{it}\times SIZE_{it}$				-0.002	(-0.38)
Mills		-2.456	(-1.09)	-4.389	(-1.51)
N			2249		2249
adj. R^2			0.141		0.246

[a] NI_{it} is consolidated net income divided by beginning-of-period market value of equity for firm *i* in year *t*; R_{it} is annual return over the 12-month interval from the fifth month of fiscal year *t* till the fourth month of fiscal year *t+1*; DR_{it} is a dummy variable that takes the value of one when R_{it} is negative, and zero otherwise; DO_{it} is an indicator equal to one if the firm buys director insurance and zero otherwises for firm *i* in year *t*; LEV_{it} is measured as the ratio of the total liabilities to total assets for firm *i* in year *t*; $SIZE_{it}$ is the natural logarithm of market value of total assets for firm *i* in year *t*; BM_{it} is the ratio of book value to market value of stockholders' equity measured for firm *i* at the end of period *t*.

[b] t-statistics are based on standard errors clustered by firm and by year. ***, **, * indicate statistical significance at 1%, 5%, and 10% level respectively for one-tailed t-tests of coefficients with predicted signs and two-tailed t-tests otherwise.

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Table 4 Asymmetric Timeliness of Earnings and D&O Insurance (DO)

Panel B: Debt Issue

		(1)		(2)	
	Pred. Sign	Coeff	t-statistics	Coeff	t-statistics
Intercept		5.290	(44.28)***	5.495	(14.22)***
DR_{it}		-0.353	(-1.73)	-0.253	(-0.48)
R_{it}		-0.539	(-3.46)***	-0.836	(-2.12)*
$R_{it}\times DR_{it}$	+	4.094	(6.02)***	5.142	(3.39)***
DO_{it}		-0.569	(-1.17)	-0.961	(-1.09)
$DR_{it}\times DO_{it}$		0.418	(1.21)	0.583	(1.08)
$R_{it}\times DO_{it}$		0.074	(1.06)	0.115	(0.86)
$R_{it}\times DR_{it}\times DO_{it}$	+	0.724	(2.73) **	0.649	(2.39)**
BM_{it}				0.008	(0.05)
$DR_{it\times}BM_{it}$				0.298	(4.31)***
$R_{it\times}BM_{it}$				0.001	(0.03)
$R_{it\times}DR_{it}\times BM_{it}$	+			0.744	(3.92)***
LEV_{it}				-0.340	(-2.51)*
$DR_{it}\times LEV_{it}$				0.080	(0.88)
$R_{it}\times LEV_{it}$				0.041	(1.94)
$R_{it}\times DR_{it}\times LEV_{it}$	+			-0.348	(-1.30)
$SIZE_{it}$				0.117	(0.97)
$DR_{it}\times SIZE_{it}$				-0.057	(-0.96)
$R_{it}\times SIZE_{it}$				-0.013	(-0.65)
$R_{it}\times DR_{it}\times SIZE_{it}$				-0.106	(-0.60)
Mills		-3.021	(-0.07)	-5.045	(-0.37)
N			1348		1348
adj. R^2			0.121		0.216

[a] NI_{it} is consolidated net income divided by beginning-of-period market value of equity for firm *i* in year *t*; R_{it} is annual return over the 12-month interval from the fifth month of fiscal year *t* till the fourth month of fiscal year *t+1*; DR_{it} is a dummy variable that takes the value of one when R_{it} is negative, and zero otherwise; DO_{it} is an indicator equal to one if the firm buys director insurance and zero otherwises for firm *i* in year *t*; LEV_{it} is measured as the ratio of the total liabilities to total assets for firm *i* in year *t*; $SIZE_{it}$ is the natural logarithm of market value of total assets for firm *i* in year *t*; BM_{it} is the ratio of book value to market value of stockholders' equity measured for firm *i* at the end of period *t*.

[b] t-statistics are based on standard errors clustered by firm and by year. ***, **, * indicate statistical significance at 1%, 5%, and 10% level respectively for one-tailed t-tests of coefficients with predicted signs and two-tailed t-tests otherwise.

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Table 4 Asymmetric Timeliness of Earnings and D&O Insurance (DO)

Panel C: No Debt Issue

		(1)		(2)	
	Pred. Sign	Coeff	t-statistics	Coeff	t-statistics
Intercept		5.822	(10.31)***	3.621	(3.18)**
DR_{it}		-0.480	(-0.50)	0.036	(0.03)
R_{it}		0.447	(0.69)	0.245	(0.40)
$R_{it}\times DR_{it}$	+	3.762	(2.34)**	2.581	(2.68) **
DO_{it}		-0.801	(-0.35)	-0.620	(-0.31)
$DR_{it}\times DO_{it}$		0.571	(0.34)	0.378	(0.27)
$R_{it}\times DO_{it}$		0.066	(0.21)	0.036	(0.13)
$R_{it}\times DR_{t}\times DO_{it}$	+	-1.166	(-0.27)	-1.185	(-0.34)
BM_{it}				-0.057	(-0.25)
$DR_{it}\times BM_{it}$				-0.029	(-0.23)
$R_{it}\times BM_{it}$				0.038	(1.13)
$R_{it}\times DR_{it}\times BM_{it}$	+			0.126	(2.21) **
LEV_{it}				0.196	(0.67)
$DR_{it}\times LEV_{it}$				-0.196	(-0.85)
$R_{it}\times LEV_{it}$				-0.018	(-0.46)
$R_{it}\times DR_{it}\times LEV_{it}$	+			-0.031	(-0.85)
$SIZE_{it}$				-0.227	(-0.94)
$DR_{it}\times SIZE_{it}$				0.112	(0.75)
$R_{it}\times SIZE_{it}$				0.068	(2.16)*
$R_{it}\times DR_{it}\times SIZE_{it}$				-0.172	(-2.35) **
Mills		-6.439	(-0.62)	-4.956	(-0.59)
N			901		901
adj. R^2			0.151		0.220

[a] NI_{it} is consolidated net income divided by beginning-of-period market value of equity for firm *i* in year *t*; R_{it} is annual return over the 12-month interval from the fifth month of fiscal year *t* till the fourth month of fiscal year *t+1*; DR_{it} is a dummy variable that takes the value of one when R_{it} is negative, and zero otherwise; DO_{it} is an indicator equal to one if the firm buys director insurance and zero otherwises for firm *i* in year *t*; LEV_{it} is measured as the ratio of the total liabilities to total assets for firm *i* in year *t*; $SIZE_{it}$ is the natural logarithm of market value of total assets for firm *i* in year *t*; BM_{it} is the ratio of book value to market value of stockholders' equity measured for firm *i* at the end of period *t*.

[b] t-statistics are based on standard errors clustered by firm and by year. ***, **, * indicate statistical significance at 1%, 5%, and 10% level respectively for one-tailed t-tests of coefficients with predicted signs and two-tailed t-tests otherwise.

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Table 5 Asymmetric Timeliness of Earnings and D&O Insurance (Amount)

Panel A: Debt Issue

		(1)		(2)	
	Pred. Sign	Coeff	t-statistics	Coeff	t-statistics
Intercept		4.974	(26.75)***	2.930	(3.14)**
DR_{it}		-0.925	(-2.88)**	0.175	(0.15)
R_{it}		0.662	(3.39)***	0.482	(0.89)
$R_{it}\times DR_{it}$	+	1.168	(2.94) **	2.080	(2.56)**
$AMOUNT_{it}$		-0.315	(-3.50)***	-0.129	(-0.52)
$DR_{it}\times AMOUNT_{it}$		0.144	(1.95)	0.054	(0.29)
$R_{it}\times AMOUNT_{it}$		0.043	(3.54)***	0.017	(0.50)
$R_{it}\times DR_{it}\times AMOUNT_{it}$	+	0.396	(1.94) **	0.234	(2.11)**
BM_{it}				0.098	(0.42)
$DR_{it}\times BM_{it}$				0.169	(1.30)
$R_{it}\times BM_{it}$				0.019	(0.63)
$R_{it}\times DR_{it}\times BM_{it}$	+			0.341	(1.15)
LEV_{it}				0.137	(2.58)**
$DR_{it}\times LEV_{it}$				0.052	(0.30)
$R_{it}\times LEV_{it}$				0.014	(0.42)
$R_{it}\times DR_{it}\times LEV_{it}$	+			-0.212	(-0.37)
$SIZE_{it}$				-0.072	(-0.38)
$DR_{it}\times SIZE_{it}$				-0.116	(-1.09)
$R_{it}\times SIZE_{it}$				0.067	(2.56)*
$R_{it}\times DR_{it}\times SIZE_{it}$				-0.392	(-1.97)*
Mills		-0.572	(-0.11)	-4.999	(-0.37)
N			1348		1348
adj. R^2			0.148		0.267

[a] NI_{it} is consolidated net income divided by beginning-of-period market value of equity for firm *i* in year *t*; R_{it} is annual return over the 12-month interval from the fifth month of fiscal year *t* till the fourth month of fiscal year *t+1*; DR_{it} is a dummy variable that takes the value of one when R_{it} is negative, and zero otherwise; $AMOUNT_{it}$ is the amount of director insurance, scaled by total market value at the beginning of period for firm *i* in year *t*; LEV_{it} is measured as the ratio of the total liabilities to total assets for firm *i* in year *t*; $SIZE_{it}$ is the natural logarithm of market value of total assets for firm *i* in year *t*; BM_{it} is the ratio of book value to market value of stockholders' equity measured for firm *i* at the end of period *t*;

[b] t-statistics are based on standard errors clustered by firm and by year. ***, **, * indicate statistical significance at 1%, 5%, and 10% level respectively for one-tailed t-tests of coefficients with predicted signs and two-tailed t-tests otherwise.

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Table 5 Asymmetric Timeliness of Earnings and D&O Insurance (Amount)

Panel B: No Debt Issue

		(1)		(2)	
	Pred. Sign	Coeff	t-statistics	Coeff	t-statistics
Intercept		5.946	(7.66)***	3.783	(2.72)**
DR_{it}		-0.736	(-0.53)	-0.282	(-0.15)
R_{it}		0.349	(0.44)	0.186	(0.26)
$R_{it}\times DR_{it}$	+	3.753	(2.92)**	2.674	(2.54)**
$AMOUNT_{it}$		-0.201	(-0.48)	-0.191	(-0.46)
$DR_{it}\times AMOUNT_{it}$		0.163	(0.48)	0.143	(0.46)
$R_{it}\times AMOUNT_{it}$		0.021	(0.38)	0.019	(0.35)
$R_{it}\times DR_{it}\times AMOUNT_{it}$	+	-0.202	(-0.24)	-0.248	(-0.33)
BM_{it}				-0.048	(-0.18)
$DR_{it\times}BM_{it}$				-0.026	(-0.18)
$R_{it\times}BM_{it}$				0.036	(0.95)
$R_{it\times}DR_{it}\times BM_{it}$	+			0.092	(2.13)**
LEV_{it}				0.246	(0.67)
$DR_{it}\times LEV_{it}$				-0.224	(-0.81)
$R_{it}\times LEV_{it}$				-0.026	(-0.51)
$R_{it}\times DR_{it}\times LEV_{it}$	+			0.053	(0.07)
$SIZE_{it}$				-0.243	(-0.88)
$DR_{it}\times SIZE_{it}$				0.134	(0.79)
$R_{it}\times SIZE_{it}$				0.069	(1.89)
$R_{it}\times DR_{it}\times SIZE_{it}$				-0.190	(-0.34)
Mills		-6.886	(-0.63)	-5.721	(-0.59)
N			901		901
adj. R^2			0.151		0.219

[a] NI_{it} is consolidated net income divided by beginning-of-period market value of equity for firm *i* in year *t*; R_{it} is annual return over the 12-month interval from the fifth month of fiscal year *t* till the fourth month of fiscal year *t+1*; DR_{it} is a dummy variable that takes the value of one when R_{it} is negative, and zero otherwise; $AMOUNT_{it}$ is the amount of director insurance, scaled by total market value at the beginning of period for firm *i* in year *t*; LEV_{it} is measured as the ratio of the total liabilities to total assets for firm *i* in year *t*; $SIZE_{it}$ is the natural logarithm of market value of total assets for firm *i* in year *t*; BM_{it} is the ratio of book value to market value of stockholders' equity measured for firm *i* at the end of period *t*;

[b] t-statistics are based on standard errors clustered by firm and by year. ***, **, * indicate statistical significance at 1%, 5%, and 10% level respectively for one-tailed t-tests of coefficients with predicted signs and two-tailed t-tests otherwise.

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Table 6 C-score and D&O Insurance

	Debt Issue		No Debt Issues	
	(1)DO	(2)AMOUNT	(3)DO	(4)AMOUNT
INTERCEPT	1.255	1.243	1.284	1.264
	(12.28)***	(11.96)***	(10.33)***	(10.03)***
DO_{it}	0.074		0.029	
	(3.80)***		(1.25)	
$AMOUNT_{it}$		0.010		0.006
		(2.83)**		(1.43)
$BDSZ_{it}$	-0.048	-0.050	0.003	0.003
	(-1.13)	(-1.18)	(0.05)	(0.06)
$BDSH_{it}$	0.002	0.002	0.001	0.001
	(2.68)**	(2.60)**	(0.63)	(0.61)
IND_{it}	0.106	0.122	0.024	0.021
	(2.00)*	(2.31)*	(0.36)	(0.30)
$DUAL_{it}$	0.018	0.018	0.001	-0.000
	(0.91)	(0.87)	(0.03)	(-0.01)
$INST_{it}$	-0.006	-0.005	-0.000	-0.000
	(-2.77)**	(-2.62)**	(-0.09)	(-0.06)
$FINST_{it}$	-0.001	-0.001	0.001	0.001
	(-1.38)	(-1.11)	(1.18)	(1.28)
$DEVIATION_{it}$	-0.000	-0.000	0.000	0.000
	(-0.98)	(-1.05)	(0.46)	(0.46)
$SIZE_{it}$	-0.227	-0.225	-0.244	-0.242
	(-39.82)***	(-38.97)***	(-37.51)***	(-37.30)***
LEV_{it}	-7.613	-7.608	-7.775	-7.776
	(-82.13)***	(-81.89)***	(-66.52)***	(-66.57)***
MB_{it}	-0.116	-0.116	-0.133	-0.133
	(-22.00)***	(-22.04)***	(-20.62)***	(-20.60)***
Control for Industry	YES	YES	YES	YES
Mills	0.091	-0.019	0.351	0.381
	(0.18)	(-0.04)	(0.78)	(0.84)
N	1348	1348	901	901
adj. R^2	0.685	0.724	0.686	0.786

Notes: t-statistics are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% level, respectively in a two-tailed test. The dependent variable is $CSCORE_{it}$ is the firm-year measure of conditional conservatism based on Khan and Watts (2007) for firm *i* in year *t*. DO_{it} is an indicator which equals one if the companies purchase director insurance, and zero if otherwise; $AMOUNT_{it}$, the amount of director insurance, scaled by beginning-of-period market value of equity for firm *i* in year *t*;. $BDSZ_{it}$ is the logarithm of board size in seat number; $BDSH_{it}$ is the shareholding by board of directors; IND_{it} is proportion of independent directors; $DUAL_{it}$ equals to one when whether the CEO serves as chair of the board and zero otherwise; $INST_{it}$ indicates the percentage of stocks by domestic financial institutions; $FINST_{it}$ is the percentage of stocks by foreign financial institutions; $DEVIATION_{it}$ is the deviation of seat control rights relative to the cash flow rights, scaled by the cash flow rights; LEV_{it} is total liabilities to total assets; $SIZE_{it}$ is the natural logarithm of total assets at year *t*; MB_{it} is the market to book ratio of shareholders' equity.

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