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The Effect of Directors' and Officers' Insurance on Audit Fees: The Case of an Emerging Economy

Abstract

Purpose: The study examines the role of D&O insurance in audit pricing in Taiwan, an emerging market in which auditors face negligible litigation risk and intense competition.

Design/methodology/approach: It examines the association between audit fees and D&O insurance coverage.

Findings: Results indicate that audit fees are higher for clients with higher D&O coverage after controlling for other determinants. Further analysis shows that auditors charge additional audit fees for clients whose insurer is foreign-owned.

Originality/value: Overall, the study provides evidence that financial misstatement risks induced by D&O insurance is one of contributing audit risk factors in an emerging economy context.

Keywords: Directors' and Officers' (D&O) insurance; Audit fees

INTRODUCTION

The worldwide prevalence of directors' and officers' (hereafter D&O) insurance has been accompanied by the debate over its economic consequences. Prior studies have documented that D&O insurance serves as good proxy for the overall soundness of corporate governance (Chung and Wynn, 2014; Core, 1997; Lin *et al*., 2013; O'Sullivan, 1997; Wynn, 2008). Concretely speaking, D&O insurance causes executives to act opportunistically at the expense of shareholders' interest (Chalmers *et al*., 2002; Lin *et al*., 2011) or induces misreporting (Chung and Wynn, 2008; Lin *et al*., 2011; Lin *et al*., 2013). Recent studies further identify whether any other incremental costs of D&O insurance are likely to be incurred beyond these direct consequences by investigating how external auditors, as one of the important external corporate governance mechanisms, assess the D&O insurance in audit pricing. For example, O'sullivan (2009) documents that D&O insurance is associated with higher audit fees for UK firms. Chung and Wynn (2014) find a positive association between D&O premiums and audit fees based on Canadian firms.

Unlike O'sullivan (2009) and Chung and Wynn (2014), we focus on whether the cost arising from potential increased audit risk and attestation workload induced by D&O insurance is also transferred to clients in an emerging market, based on the data from Taiwan. Similar to many other emerging economics, the audit market in Taiwan is characterized by the low litigation risk associated with audit failures, low level of audit fees[1] and high competition[2] (Francis, 2004; La Porta *et al*., 1998; Aobdia, *et al*., 2015). The findings in these studies evidenced in the western common-law countries with high litigation risk regime, where the threat of litigation is a key driver of auditor conduct (e.g. Choi, *et al*., 2008; Francis and Krishnan, 1999). On the contrary, if auditors perceive the litigation threat to be low and

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[1] Aobdia *et al*. (2015) note that the level of audit fees in Taiwan is less than one-fourth of that in China and Hong Kong.

[2] The chairman of the National Federation of Certified Public Accountant Associations of the Republic of China notes the low-price strategy for client solicitation has prevailed in Taiwan.

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face intense competitive pressure, it is likely that they choose not to fully reflect the potential increased risk of D&O insurance in audit fees for the purpose of winning "bidding war". In other words, given these institutional features, it is not clear whether the auditors have enough incentives to respond to risk induced by D&O purchase. In summary, the first purpose in this paper is to investigate how auditors respond, in terms of audit fees, to the D&O insurance coverage in the case of Taiwan[3].

We further examine whether auditors' perception of increased audit risk arising from D&O insurance vary with the types of insurance firms because proponents of D&O insurance consider insurance firms to serve a monitoring role during the course of underwriting D&O insurance policies (Core, 2000; Holderness, 1990). Different insurers may have different reputations for scrutinizing risk assessment (Griffith, 2006). Specifically, because domestic insurers generally have a deeper understanding about the local culture, and more established relationships with customers, suppliers and other stakeholders (Skipper, 1997), they may have an information advantage over foreign insurers[4]. Accordingly, such insurers may be more effective in detecting the opportunism of directors and officers during the D&O insurance underwriting process and further educate the insureds to mitigate or even avoid risks. For example, Li and Liao (2014) find that the adverse effect of D&O insurance on investment efficiency is less pronounced if the D&O insurer is domestic-owned.

In this study, we focus on Taiwanese capital market for two reasons. The first one is due to institutional factors. As mentioned above, auditors in Taiwan face negligible litigation risk

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[3] Even though auditors face negligible litigation risk, managers are increasingly at risk of being sued due to fraud or misreporting in Taiwan. In the past decade, more and more lawsuits were filed against directors or managers since the Securities Investor and Futures Trader Protection Act was enacted. In addition, several recent well-known accounting scandals, such as Procomp Informatics and Infodisc, seriously damaged the investors' wealth. This rise in corporate litigation boosts the demand for D&O insurance rapidly. According to statistics compiled by the Taiwan Insurance Institute, the percentages of publicly-listed firms that maintain D&O policies were 32.09%, 47.09%, 55.94%, and 65.23% from 2005 to 2008, respectively. In other words, the insurance need doubled within four years, and hence, the prevalence of D&O insurance in Taiwan is foreseeable in the near future.

[4] Such a situation is similar to that faced by foreign investors in trading domestic stocks (Agarwal *et al.*, 2009; Chan *et al.*, 2007; Choe *et al.*, 2005).

(Francis and Wang, 2008). Specifically, investors in Taiwan are less able to sue auditors for negligence or misconduct (Francis, 2004; La Porta *et al*., 1998). The audit market in Taiwan is also highly competitive (Aobdia *et al*., 2015). Second, for most firms around the world (including in the US), detailed information about firm-level coverage of D&O insurance is not available, while related disclosure is mandatory in Taiwan[5]. Thus, we conduct empirical tests based on D&O insurance coverage limits[6] disclosed by Taiwan-listed firms during 2010 to 2013 and find that: (1) D&O insurance coverage is positively related to audit fees after controlling for other determinants, and (2) this positive association is weakened if the D&O insurer is domestic-owned. Additionally, we find the positive relationship between D&O insurance coverage and audit fees is also less pronounced for firms with higher director ownership, institutional ownership and a greater proportion of independent directors. Overall, our results suggest that earnings manipulation or financial misstatement risks induced by D&O insurance is one of contributing audit risk factors, and such impact of D&O insurance on audit pricing is affected by the effectiveness of external monitoring (i.e. insurance firms) in Taiwan.

This study makes two contributions. First, these results provide some insights into the role of D&O insurance in audit pricing in an emerging economy. The findings also complement with prior studies that investigate the association between the D&O insurance and audit fees in the western common-law countries with high litigation risk regime. Such evidence has clear implications to numerous countries in which the litigation risk against auditors is still not high, such as the Asia-Pacific regions or other emerging markets.

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[5] According to Taiwan Stock Exchange Corporation Rules Governing Information Filing by Firms with TWSE Listed Securities and Offshore Fund Institutions with TWSE Listed Offshore Exchange-Traded Funds or GreTai Securities Market Rules Governing Information Reporting by Companies with GTSM Listed Securities, the insurance enrollment of the previous year shall be filed by the 15th day after the close of each business year.
[6] Previous studies (e.g. Lin *et al*., 2013; Wynn, 2008) indicated that compared to the existence of D&O insurance, D&O insurance coverage conveys more information about the extent to which an insured firm's directors and officers are exposed to litigation risk.

Second, we are the first to document preliminary evidence on the differential influence of D&O insurance on audit fees arising from the types of insurers. Because insurers are expected to play a monitoring role when underwriting D&O insurance, it is particularly intriguing to understand how auditors view the effect of such 'somewhat specialist opinion.' As our results indicate that the positive association between audit fees and D&O insurance is weakened for firms with a domestic-owned insurer, a clear practical implication is that managers who seek to mitigate auditors' concern over D&O insurance should purchase from a domestically-owned insurance firm.

The remainder of the paper is organized as follows. Section 2 provides a review of relevant prior research findings and the development of hypotheses. Section 3 explains the data and research design. Section 4 presents results for our primary hypothesis tests and supplemental analyses, and Section 5 concludes the paper.

PREVIOUS STUDIES AND HYPOTHESES DEVELOPMENT

The D&O insurance is considered part of managerial compensation and used to protect directors and officers from personal liability incurred by business decisions and to recruit highly qualified individuals[7]. Firms commonly bear the costs of litigation against directors and officers through D&O insurance and indemnification provisions (Daniels and Hutton, 1993; O'Sullivan, 1997, 2002; Priest, 1987). Specifically, D&O insurance usually (1) reimburses the firm for its indemnification payment for directors and officers, (2) covers individual directors and officers for their wrongful acts to the extent that they have not been indemnified by the firm, or (3) pays the firm to the extent that it is named as a defendant along with the directors and officers. Typical D&O policies cover damages, settlements,

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[7] *Corporate Governance Best-Practice Principles for TWSE/GTSM Listed Companies* is promulgated to assist firms in establishing a sound corporate governance system. Article 39 in this act states according to the articles of incorporation or resolution adopted in the shareholders meeting, a TWSE/GTSM listed firm may take out liability insurance for directors with respect to their liabilities resulting from exercising their duties during their terms of occupancy so as to reduce and spread the risk of material harm to the firm and shareholders arising from the wrongdoings or negligence of a director.

judgments, and litigation expenses, but not civil or criminal fines or penalties, punitive, or multiple damages.

The D&O insurance may influence the auditor's perception of audit risks, and thus audit fees in two aspects. First, the D&O insurance demand reflects the firm's internal evaluation of its exposure to litigation risk and the quality of corporate governance (e.g. Core, 1997; Lin *et al.*, 2013; O'Sullivan, 1997; Wynn, 2008). Specifically, Core (1997) finds that firms with greater litigation risk or distressed probabilities are more likely to purchase D&O insurance and carry higher limits and deductibles. O'Sullivan (1997) finds that firms are more likely to use D&O insurance as a means of monitoring when the corporate governance (e.g. ownership structure) is weak. The heightened litigation risk would cause auditors to increase audit effort or charge a risk premium (Bell *et al.*, 2001; Kim and Fukukawa, 2013) because investors might sue auditors to reimburse for their losses in case of a corporate failure (Palmrose, 1991; Wallace, 1985). Second, auditors are responsible under Taiwan Auditing Standards No. 48 (hereafter TSAS 48)[8] to understand the executive compensation scheme for the purpose of identifying potential risk-taking behavior or misreporting caused by such scheme[9]. As a common component of executive compensation packages, the D&O has been argued to induce greater aggressiveness or opportunism in financial reporting. For instance, using publicly available insurance data for Canadian firms, Chung and Wynn (2008) indicate that the higher the D&O coverage, the less conservative the firm's earnings. Boubakri *et al.* (2008) examine the relation between D&O insurance and managerial opportunism embedded in

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[8] The Auditing Standards Committee in Taiwan issued Statement on Auditing Standards No. 48 (i.e. TSAS 48), which referred to International Standards of Auditing (ISA) 315, in October 2010. Overall, TSAS 48 is similar to Auditing Standard No. 12.

[9] As specified in the previous footnote, TSAS 48 is similar to Auditing Standard No. 12, which is promulgated by PCAOB. As a response to a series of corporate scandals and the heated concern regarding the risk induced by compensation scheme, Auditing Standard No. 12, "Identifying and Assessing Risks of Material Misstatement," stipulates the requirements regarding the process of identifying and assessing risks of material misstatement in the financial statements. Paragraph 12 states that auditors should obtain an understanding of compensation arrangements with senior management, including incentive compensation arrangements, changes or adjustments to those arrangements, and special bonuses. Paragraph 16 states that the purpose of obtaining an understanding of the firm's performance measures is to identify performance measures, whether external or internal, that affect the risks of material misstatement.

earnings management. They find that managers tend to engage in opportunistic behavior by adopting an aggressive earnings management strategy when they are covered by a relatively higher D&O insurance limit, and managers purchase the D&O insurance coverage in anticipation of such opportunistic accounting choice. Similarly, Lin *et al.* (2011) find that the D&O insurance coverage impacts earnings restatements, i.e. managers are more likely to misstate earnings when they are covered by relatively higher excess liability coverage. In sum, auditors may charge higher audit fees to clients with D&O insurance policies or higher coverage to reflect greater corporate governance risk exposure.

Notably, some studies argue that insurers play a monitoring role when firms purchase the D&O insurance. For instance, both O'Sullivan (1997) and Griffith (2006) contend that, before issuing a D&O insurance policy, insurers are expected to undertake a thorough examination of the individuals for whom the insurance protection is sought, thus helping to ensure that the insured individuals pursue the interests of shareholders. So, some may consider the possibility that the purchase of D&O insurance will decrease the audit risk and decrease the audit fee. Though, as Chen, Li, and Zou (2016) indicate, the presence of such competing power would make it more difficult for us to find a positive association between the D&O insurance and audit fees.

On the other hand, prior studies suggest auditor liability regimes and competition pressure affect auditors' behaviors. For example, auditors have weaker incentives to provide higher audit quality in a negligence regime than in a strict litigation regime due to the diminished threat of liability (e.g. Chan and Pae, 1998; Dye, 1993). Choi *et al.* (2008) also document that an increase in expected litigation risk motivates auditors to charge risk premium. Numan and Willekens (2012) find that audit fees decreases as the competitive pressure increases. Accordingly, in the context of lower litigation risk accompanied with intense market competition, just as the case in Taiwan, the incentive for auditors to set low

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audit fees, which not fully reflected inputs or risk, is even strengthened. In sum, we propose the following hypothesis if auditors *really* consider the D&O insurance purchase is one of factors contributing to risk.

Hypothesis 1. Ceteris paribus, D&O insurance is positively related to audit fees.

We further examine whether insurers impact auditors' perception of the D&O insurance because some argue that insurers play a monitoring role when firms purchase the D&O insurance. For instance, both O'Sullivan (1997) and Griffith (2006) contend that before issuing an insurance policy, D&O insurers are expected to undertake a thorough examination of the individuals for whom insurance protection is sought, and then based on the knowledge for the insured, to communicate or educate the insured to help ensure that directors pursue the interests of shareholders. Baker and Griffith (2007) claim that the success of monitoring depends on whether D&O insurers employ people with the requisite knowledge and experience. If so, it would be particularly intriguing and practically insightful to understand under what circumstance is the insurer's assessment —somewhat as a source of the opinion of another specialist—increases or decreases the audit pricing.

We focus on the domicile status of insurers, i.e. whether an insurer is domestic- or foreign-owned, because it is one of the most distinct but rarely explored characteristics. Existing literature on the comparative edge of domestic and foreign insurers is sparse, but some indirect evidence is available. General industry research indicates that domestic investors have an edge over foreign ones in trading domestic stocks (Agarwal *et al.*, 2009; Chan *et al.*, 2007; Choe *et al.*, 2005), suggesting that local knowledge is crucial in any business discipline. Using data from US property-liability insurers between 1992 and 1998, Choi and Elyasiani (2011) analyze the strategy applied by foreign insurers to expand their

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market share in the US. Their results indicate that foreign-owned insurers mainly increase their market share by lowering prices below competitive levels instead of by providing broader and higher quality services. In other words, because some foreign-owned insurers can count on their advantage of scale economy, it may not be necessary for them to gain a thorough understanding of the insured firms before underwriting a policy. Griffith (2006) also mentions that the insurers who use low-price strategy to increase market share mitigate the concern for corporate governance of insured firms. Hence, investors should deliberate the D&O insurance information more diligently if contracted with such insurers

In contrast, domestic-owned insurers often have a deeper understanding of the local culture, more years of experience, and more established relationships with customers, suppliers and other stakeholders (Skipper, 1997). Li and Liao (2014) study whether D&O insurance has an adverse effect on investment decisions. They find that the adverse effect of D&O insurance on investment efficiency is less pronounced if the D&O insurer is domestic-owned and provided some indirect evidence that the monitoring effect is prominent for locals. In sum, we expect that auditors may perceive a decreased risk to litigation exposure arising from D&O insurance if the D&O insurer is domestic-owned. Our second hypothesis is put forward.

Hypothesis 2. Ceteris paribus, the positive relation between D&O insurance and audit fee is weakened if the D&O insurer is domestic-owned.

EMPIRICAL WORK

Data and Sample Construction

We focus on firms listed in the Taiwan Stock Exchange (TSE) and GreTai Securities Exchange (GTSE) from 2010 to 2013. All data, including audit fees, the D&O insurance data,

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financial and corporate governance metrics, are obtained from Taiwan Economic Journal (TEJ) database. Available information about the D&O insurance includes whether a firm purchases the D&O insurance in a given year, coverage limit and the names of insurance firms. Table 1 summarizes the process of sample construction. We start from 5,334 firm-years, and after dropping observations with incomplete data on audit fees or financial metrics, we have 4,285 observations used in the regression for testing Hypothesis 1. Furthermore, to test the Hypothesis 2, which examines whether foreign-owned and domestic-owned insurers affect auditors' perception of the D&O insurance differently, only observations that have D&O insurance are applicable; in addition, observations that purchase D&O insurance from foreign-owned and domestic-owned insurers at the same time should be dropped. As a result, the final sample used to test Hypothesis 2 comprises 2,720 firm-year observations.

Insert Table 1 about here

Basic Empirical Model

We adopt the specification used by prior literature on audit fees (e.g. Chaney *et al*., 2004; Hay *et al*., 2006; Simunic, 1980). Specifically, the following audit fee model is estimated.

$$
\begin{aligned}
LNFEE_{i,t} = {} & \beta_0 + \beta_1 DOICOV_{i,t} + \beta_2 BIGN_{i,t} + \beta_3 SIZE_{i,t} + \beta_4 SUB_{i,t} + \beta_5 ARINV_{i,t} + \beta_6 LEV_{i,t} \\
& + \beta_7 LOSS_{i,t} + \beta_8 CR_{i,t} + \beta_9 ROA_{i,t} + \beta_{10} CHGCHA_{i,t} + \beta_{11} ATURN_{i,t} \\
& + Year\ fixed\ effects + Industry\ fixed\ effects + \varepsilon_{i,t}
\end{aligned}
\tag{1}
$$

Taiwan has implemented the new disclosure policy of audit fee since 2009. *The Regulations Governing Information to be Published in Annual Reports of Public Companies* stipulates that firms may opt to disclose audit fees by individual amount or in ranges, (1) below $2,000 (in thousands of New Taiwan dollars), (2) from $2,000 to $4,000, (3) from $4,000 to $6,000, (4) from $6,000 to $8,000, (5) from $8,000 to $10,000, and (6) above

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$10,000 (FSC, 2007). In order to address the limitation, we follow Liao, Wang, and Chi (2012) and define *FEE* as the average of the minimum and maximum limit of each range for disclosures that fall in the former five ranges; for audit fee disclosed in the sixth range, *FEE* is defined as the average amount of audit fees for firms that disclose audit fee by individual amount and whose amount is greater than $10,000.[10] Following prior extant studies, we define the dependent variable (*LNFEE*) as the natural logarithm of *FEE* (e.g. Chaney *et al*., 2004; Hay *et al*., 2006; Simunic, 1980).

When testing Hypothesis 1, the primary variable of interest is *DOICOV* which is a proxy for potential earnings manipulation or financial misstatement risks (Chung and Wynn, 2014; Core, 1997; Lin *et al*., 2013; O'Sullivan, 1997; Wynn, 2008). It is defined as the total dollar amount of insurance coverage scaled by average total assets and set to be zero if a firm does not purchase D&O insurance policies in a given year, similar to prior studies (e.g. Chung and Wynn, 2008; Lin *et al*., 2013; Wynn, 2008). When testing Hypothesis 2, a dummy variable, *DOM*, is set to be 1 if the insurance firm is domestic-owned, and 0 otherwise. The related interaction term (*DOICOV×DOM*)) is also added to Model (1) in order to examine whether the auditor considers a domestic-owned insurance firm more effective in reducing a firm's moral hazard involved in the D&O insurance purchase. Several determinants of audit fees are included to reduce the potential problem of correlated omitted variables, and to improve comparability with prior studies. Firm size is measured as the natural logarithm of total assets (*SIZE*); leverage is the debt ratio (*LEV*); receivable and inventory intensity is measured as the sum of receivable and inventory divided by total assets (*ARINV*); current ratio (*CR*), whether the firm incurs a loss (*LOSS*), the natural logarithm of the number of subsidiaries plus one

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[10] For illustration, assume the following fee disclosures provided by the following eight firms. Firms A, B, and C report the audit fees in individual amounts, which are $6,600, $12,000, and $16,000, respectively. Firms D reports that its audit fee is within $2,000 and $4,000 range, while Firm E's reported audit fee is above $10,000. Accordingly, FEE for Firm D is computed as the average of $2,000 and $4,000, i.e. $3,000. As for Firm E, because no upper limit amount is available, the average is measured based on the amount that are disclosed individually and above $10,000, i.e., that are reported by Firms B and C. So, For Firm D, FEE is computed as the average of $12,000 and $16,000, i.e. $14,000.

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(*SUB*), return on assets (*ROA*), and assets turnover (*ATURN*) are also well-documented determinants of audit fees. We also control for the auditor attributes: whether the auditor is Big 4 audit firm (*BIGN*), and whether there is an auditor change (*CHGCPA*). In addition, the potential systematic effects of year and industry are taken into account by including the *YEAR* and *INDUSTRY*[11] dummy variables in Model (1). Finally, to control for outliers, all the continuous variables are winsorized at the top and bottom 1 percent[12].

EMPIRICAL RESULTS

Descriptive Statistics

Table 2 provides the descriptive statistics on all variables used in the regression. As shown, the mean audit fee is 3,586 in thousands of New Taiwan dollars (about 0.12 million US dollars). Also, about 66% of sample observations purchased D&O insurance (*DOI*) during the sample period, indicating that the rate of purchasing D&O insurance in Taiwan is lower than that in Canadian firms (e.g. Chen, Li and Zou, 2016; Chung and Wynn, 2008), which is roughly 70%. The mean insurance coverage is 172,127 in thousands of New Taiwan dollars (about 5.64 million US dollars). The mean insurance coverage ratio is 4% of average total assets. In addition, 86% of sample observations are audited by Big 4, suggesting that the audit market for listed firms is dominated by the Big 4 firms.

Insert Table 2 about here

Table 3 presents the means, medians, and standard deviations of all variables based on the observations that buy D&O insurance from foreign- and domestic-owned insurers. About 58% of the sample observations purchased D&O insurance from domestic-owned firms,

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[11] The industry sectors are added by utilizing the Taiwan Economic Journal (TEJ) industry code.
[12] Our results are not affected without winsorizing.

suggesting that the domestic-owned firms grab a bigger market share in D&O insurance. As demonstrated, the two groups of firms differ significantly with respect to audit fees, D&O insurance coverage, auditor sizes, firm sizes, the number of subsidiaries, debt ratios, current ratios and asset turnover ratios. For instance, the mean audit fee for foreign-owned firms is 4,258, which is 669 in thousands of New Taiwan dollars higher than that for domestic-owned firms. The mean insurance coverage ratio for foreign-owned sample firms is 0.06, similar with one for domestic-owned firms. The differences in remaining variables (*ARINV*, *LOSS*, *ROA*) are not significant between the two groups.

Insert Table 3 about here

Results: Basic Fee Models

Table 4 presents the regression results, and we report coefficients and *t*-values based on robust standard errors. Our first hypothesis states that ceteris paribus, the D&O insurance is positively related to audit fees in a low litigation risk regime. Column 1 of Table 4 displays that *DOICOV* is significant and positive at the 1% level (coef. = 0.23, *t*-value = 2.75), supporting Hypothesis 1. The finding is consistent with auditors considering the D&O insurance purchase being one of factors contributing to risk, and hence charging higher audit fees for firms with higher level of D&O insurance coverage even in a low litigation risk environment and under competition pressure[13].

Hypothesis 2 states that the positive association between D&O insurance coverage and audit fees is less pronounced for firms that buy the D&O insurance from domestic-owned insurers. Columns 2 of Table 4 present results for how the types of insurance companies

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[13] **We also use the D&O indicator instead the level of D&O insurance or abnormal D&O coverage to check the robustness of main results. Untabulated results show the coefficient on the D&O insurance indicator is significantly positive, indicating that auditors charge higher fees for firms with D&O insurance policies than firms without ones. Thus, our results are qualitatively unchanged.**

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affects the association between audit fees and D&O insurance coverage. The main effect of *DOICOV* continues to be positive and significant in this specification. The results in Column 2 of Table 4 also show that the coefficient on the interaction term (*DOICOVxDOM*) is negative and significant (coef. = -0.32, *t*-value = -1.76). Thus, the results, consistent with Hypothesis 2, suggest that auditors charge higher audit fees for firms whose insurers are foreign-owned, consistent with domestic-owned insurers having a better understanding of clients, and hence, possessing an enhanced monitoring ability[14]. The empirical results for control variables are generally consistent with prior studies that examine the determinants of audit fees (e.g. Chaney *et al.*, 2004; Hay *et al.*, 2006). For instance, firm size (*SIZE*), complexity (*SUB*), auditor size (*BIGN*) are positively related to audit fee in all regressions.

Insert Table 4 about here

Additional Analysis and Robustness Check

We investigate whether the effect of D&O insurance coverage varies with the soundness of corporate governance. First, when the director and officer equity holdings are higher, it is more likely that the moral hazard impact of the D&O insurance will be smaller because the directors' and officers' interests are more tightly tied to those of the firm (Hudson *et al.*, 1992; Jensen and Meckling, 1976). Second, outside directors are usually considered to be more effective in monitoring firms' opportunism (Peasnell *et al.*, 2005; Ajinkya *et al.*, 2005), and hence, the increase in audit fees caused by the D&O insurance may be smaller for firms with

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[14] **To address the concern that firms may not randomly choose insurers, we apply the two-stage approach. First, *DOM* is equal to 1 if the firm chooses a domestic insurer, and 0 otherwise. *DOM* is explained by several determinants suggested by Pottier and Sommer (1999), including equity ratio, profitability, cash and investment holdings, size, and growth. Then, the fitted value of *DOM* is used to interact with *DOICOV*. After controlling for the potential selection bias, untabulated results show that that interaction term is significantly negative. So, our main findings are not affected. Additionally, the inverse mill ratio is significant, suggesting that firms may not randomly choose insurers. This result remains unexplored by prior studies, but as mentioned above, to our knowledge, it has no theoretical support. Thus, we hope this attention will help encourage future theoretical development.**

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more outside directors on the board. Third, executives and officers are more likely to refrain from negligent decision-making when the knowledgeable party is powerful. Extant studies have documented that institutional ownership involves sophisticated investment skills to monitor and discipline managers efficiently (Chung *et al*., 2002; Hartzell and Starks, 2003) and thus may facilitate the improvement of firms' internal control systems (Tang and Xu, 2010). In other words, institutional investors generally can understand the details of D&O clauses and evaluating their effectiveness in inducing executives' and officers' effort. The results of the above conjectures are presented in Table 5. As shown, the interaction between *DOICOV* and *HDS_OWN* (whether a firm's directors'/executives' equity holdings are relatively higher[15]), i.e. *DOICOV×HDS_OWN*, is negative and significant (coef. = -0.28, *t*-value= -1.88). The interaction between *DOICOV* and *INDP* (the percentage of outside directors on the board), i.e. *DOICOV×INDP*, is negative and significant (coef. = -0.93, *t*-value= -1.69). Similarly, the interaction between *DOICOV* and *HINST_OWN* (whether the institutional holdings are relatively higher[16]), i.e. *DOICOV×HINST_OWN*, is negative and significant (coef. = -0.35, *t*-value= -2.34). In sum, results in Table 5 suggest that for firms with more effective corporate governance mechanism, the increase in audit fees resulting from the D&O insurance is smaller.

Insert Table 5 about here

Alternative Measure of D&O Insurance Coverage

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[15] *HDS_OWN* is set to be 1 if a firm's directors'/executives' equity holdings are greater than 75% of the sample observations (i.e. 30.13%). Notably, we find that if the dummy variable is instead set to be 1 when directors'/executives' equity holdings are greater than 50% of the sample observations (i.e. 19.16%), the interaction term is not significant. That results are consistent with the assertion that convergence-of-interests effect will be valid while the directors'/executives' equity holdings are beyond a threshold (e.g. Morck, Shleifer and Vishny 1988) and suggest that only when the directors'/executives' equity holdings are fairly high enough would auditors consider the increase in audit risks caused by D&O insurance to be smaller.

[16] *HINST_OWN* is equal to 1 if a firm's institutional holdings are greater than 75% of the sample observations (i.e. 52.53%). The interaction term remains significant when the dummy variable is instead defined as 1 if a firm's institutional holdings are greater than 50% of the sample observations (i.e. 33.11%)

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We use two-stage regression models to estimate the excess insurance coverage. In the first stage, total insurance coverage is regressed on its determinants based on prior studies (e.g. Chalmers *et al.*, 2002; Wynn, 2008), and the excess coverage (*EXDOICOV*) is defined as the difference between actual insurance coverage and predicted coverage. Specifically, the first-stage model shows as follow.

$$
\begin{aligned}
DOICOV_{i,t} = {} & \beta_0 + \beta_1 SIZE_{i,t-1} + \beta_2 LEV_{i,t-1} + \beta_3 SLACK_{i,t-1} + \beta_4 EXFIN_{i,t} + \beta_5 MA_{i,t} \\
& + \beta_6 BLOCK_{i,t-1} + \beta_7 INDP_{i,t-1} + \beta_8 INST_{i,t-1} + Year\ fixed\ effects \\
& + Industry\ fixed\ effects + \varepsilon_{i,t}
\end{aligned}
\tag{2}
$$

In the second stage, we replace *DOICOV* with *EXDOICOV* and re-implement all regressions. As shown in Table 6, the coefficient on *EXDOICOV* in Column (1) is still positive and significant (coef. =0.28, *t*-value= 3.16). As for hypothesis 2, the coefficient on the interaction term (*EXDOICOVxDOM*) is significantly negative (coef. = -0.37, *t*-value= -1.75). Overall, the results are qualitatively unchanged.

Insert Table 6 about here

Additional Control Variables

To ascertain that the positive effect of D&O variable is not driven by correlated omitted variables, we add additional independent variables, including the non-audit fee (*LNNFEE*), the audit opinion in the previous year (*OPI*), and the stock return in the current year (*RETURN*) to Model (1) (DeFond *et al.*, 2002; Francis *et al*, 2005; Whisenant *et al*, 2003). Thus, additional data required for this test reduces the sample size to 4,080 observations. In testing Hypothesis 1, the un-tabulated results show that *DOICOV* is still significantly positive (coef. = 0.19, *t*-value = 2.30) after controlling for additional independent variables; as for Hypothesis 2, the *t*-statistic for interaction term is still at 1.71 (p < 0.1). Overall, our main results are not affected by the above adjustments.

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Alternative Specifications of Audit Fees

Concerns may be raised about the measurement of audit fees because any firm disclosing in the $10,000+ fee band is assigned as the mean of firms disclosing fees above $10,000.We conduct additional tests to at least partially alleviate potential problems from such disclosure limitations. First, we reconstruct our sample by excluding 25 observations whose audit fee are disclosed in the sixth range and re-estimate our main models. As for Hypothesis 1, the un-tabulated results show that *DOICOV* is still significantly positive (t-value = 4.29). As for Hypothesis 2, the results show that the coefficient on the interaction term is negative and significant (t-value= -1.86).

Second, we transform continuous (i.e. firms disclosing by individual amount) or categorical (i.e. firms disclosing in bands) audit fee data into ordinal data according to following ranges, (1) below $2,000 (in thousands of New Taiwan dollars), (2) from $2,000 to $4,000, (3) from $4,000 to $6,000, (4) from $6,000 to $8,000, (5) from $8,000 to $10,000, and (6) above $10,000. Concretely speaking, we assign a value of '1' to firms with audit fees below $2,000, '2' to firms with audit fees from $2,000 to $4,000 and so on. We use the ordered probit models, repeat all empirical analyses, and once again, the un-tabulated results show that the coefficient on the main variable of interest (*DOICOV*) remains significantly positive at the 0.006 level for overall samples; the coefficient on the interaction term is negative and significant (*z*-value= -1.69). Collectively, our main results are qualitatively similar to those reported in Table 4.

Additional other tests

To deal with the potential endogeneity problem (i.e. the risk determines the purchase of D&O insurance), we use the Heckman inverse-Mills ratio (1979) method. In the first-stage, the decision to purchase the D&O insurance is regressed on several determinants suggested by prior studies (e.g. Core 1997; Lin *et al.* 2013; Chung and Wynn 2014). These determinants

include size, risk, growth, corporate governance variables. We obtain the inverse-Mills ratio from the first-stage, add it to the second-stage regression, and re-conduct the empirical analysis. Untabulated results show that all of our primary variables of interest remain unaffected after considering the possible sample selection bias, i.e., *DOICOV* is significantly positive and *DOICOV×DOM* is significantly negative.

We also try to differentiate the signal channel and risk inducing channel by examining the association between D&O insurance and accounting misstatements (donated as *RES*). *RES* is an indicator variable equal to one if the firms restate financial statements at least once in fiscal years t through t+2, and zero otherwise. We estimate the probability of earnings restatements (*RES*) as a function of D&O coverage and restatement determinants identified in the prior literature, including Chin and Chi (2009) and Lin et al. (2013). Untabulated results show that the association between D&O insurance coverage and the incidence of accounting restatements is significantly positive, suggesting at least part of the higher audit fee represents a restatement risk premium.

CONCLUSION

In this study, we investigated how the D&O insurance affects audit pricing in Taiwan, an emerging market in which auditors face negligible litigation risk and intense competition. Using the D&O insurance data from Taiwan firms that were mandated to disclose during the period 2010-2013, the results indicate: (1) on average, D&O insurance coverage is positively related to audit fees after controlling for other determinants, (2) based on interaction analysis, this positive association is weakened for firms that purchase from a domestic-owned insurer, consistent with auditors considering the D&O insurance purchased from domestic-owned insurers exacerbating the problem of moral hazard or misreporting to a smaller degree.

This paper has three important implications. First, we show that auditors perceive the D&O insurance as having the potential of inducing corporate governance risk (e.g. increasing the possibility of moral hazard) even if they perceive the litigation threat to be low, complementing other studies based on the firms in the western common-law countries with high litigation risk (Chung and Wynn, 2014; O'sullivan, 2009). Second, we are the first to

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document preliminary evidence on the differential influence of the D&O insurance on audit fees arising from the type of insurers, and based on our results, managers who seek to mitigate auditors' concern over the D&O insurance should make the purchase from a domestic-owned insurance firms. Finally, our findings suggest that the disclosure of the D&O insurance should be made mandatory, which has been constantly argued by earlier studies (Baker and Griffith, 2007; Gupta and Prakash, 2012). We demonstrate the adverse effect of D&O insurance policies on audit pricing, and such effect varies in magnitude with the size of auditors, or the characteristics of insurers. The conclusion has been suggested but not directly documented by earlier or concurrent work. Consequently, the release of such D&O information is also beneficial to capital market participants.

REFERENCES

Aobdia ,D., Lin, C. J. and Petacchi, R. (2015), "Capital market consequences of audit partner quality", *The Accounting Review*, Vol. 90, No. 6, pp. 2143–2176.

Agarwal, S., Faircloth, S., Liu, C. and Rhee, S. G. (2009), "Why do foreign investors underperform domestic investors in trading activities?" Evidence from Indonesia. *Journal of Financial Markets*, Vol. 12, No.1, pp.32–53.

Ajinkya, B., Bhojraj, S. and Sengupta, P. (2005), "The association between outside directors, institutional investors and properties of management earnings forecasts", *Journal of Accounting Research*, Vol.43, No. 3, pp. 343–376.

Baker, T. and Griffith, S. J. (2007), "The missing monitor in corporate governance: The directors'and officers' liability insurer", *Georgetown Law Journal,* Vol.95, 1795–1842.

Bell, T., Landsman, W., and Shackelford, D. (2001), "Auditors' perceived business risk and audit fees: analysis and evidence", *Journal of Accounting Research,* Vol.39, No. 1, pp.35–43.

Boubakri, N., Ghalleb, N. and Boyer, M. M. (2008), "Managerial opportunism in accounting choice: Evidence from directors' and officers' liability insurance purchases", Working paper, available at SSRN: http://ssrn.com/abstract=1109254.

Chalmers, J., Dann, L. and Harford, J. (2002), "Managerial opportunism? Evidence from directors' and officers' insurance purchase", *Journal of Finance*, Vol.57, No. 2, pp.609–636.

Chan, K. L., Menkveld, A. J. and Yang, Z. (2007), "Are domestic investors better informed than foreign investors?", Evidence from the perfectly segmented market in China. *Journal of Financial Markets*, Vol.10, No. 4, pp. 391–415.

Chan, D. and Pae, S. (1998), "An analysis of the economic consequences of the proportionate liability rule", *Contemporary Accounting Research*, Vol.15, No. 4, pp. 457–480.

Chaney, P. D., Jeter, D. C. and Shivakumar, L. (2004), "Self-selection of auditors and audit pricing in private firms", *The Accounting Review*, Vol.79, No. 1, pp. 51–72.

Chen, Z., Li, O. Z. and Zou, H. (2016), "Directors' and officers' liability insurance and the cost of equity", Journal of Accounting and Economics, Vol.61, No.1, pp. 100-120.

Chin, C. L. and Chi, H. Y. (2009), " Reducing restatement with increased industry expertise", Contemporary Accounting Research, Vol. 26, pp. 729-765.

Choe, H., Kho, B. C. and Stulz, R. M. (2005), "Do domestic investors have an edge? The trading experience of foreign investors in Korea", *Review of Financial Studies,* Vol.18, No. 2, pp. 795–829.

Choi, J. H., Kim, J. B., Liu, X. and Simunic, D. (2008), "Audit pricing, legal liability regimes, and Big 4 premiums: Theory and cross country evidence", *Contemporary Accounting Research*, Vol.25, No. 1, pp. 13–46.

Choi, B. and Elyasiani, E. (2011), "Foreign-owned insurer performance in the US property-liability Markets", *Applied Economics*, Vol.43, No. 3, pp. 291–306.

Chung, R., Firth, M. and Kim, J. B. (2002), "Institutional monitoring and opportunistic earnings management", *Journal of Corporate Finance*, Vol.8, No. 1, pp. 29–48.

Chung, H. H. and Wynn, J. P. (2008), "Managerial legal liability coverage and earnings conservatism", *Journal of Accounting and Economics*, Vol.46, No. 1, pp. 135–153.

Chung, H. H. and Wynn, J. P. (2014), "Corporate governance, directors' and officers' insurance premiums and audit fees", *Managerial Auditing Journal*, Vol. 29, No. 2, pp. 173–195.

Core, J. E. (1997), "On the corporate demand for directors' and officers' insurance premium: An outside assessment of the quality of corporate governance", *Journal of Risk and Insurance,* Vol. 64, No. 1, pp. 63–87.

Core, J. E. (2000), "The director's and officers' premium: An outside assessment of effectiveness of corporate governance", *Journal of Law Economics and Organization,* Vol. 16, No. 2, pp. 449–447.

Daniels, R. and Hutton, S. (1993), "The capricious cushion: The implications of the directors and insurance liability crisis on Canadian corporate governance", *Canadian Business Law Journal,* Vol. 22, pp. 182–230.

DeFond, M., Raghunandan, K. and Subramanyam, K. R. (2002), "Do non-audit services affect auditor independence? Evidence from going-concern audit opinions", *Journal of Accounting Research,* Vol. 40, No. 4, pp. 1247–1274.

Dye, R. (1993), "Auditing standards, legal liability, and auditor wealth", *Journal of Political Economy,* Vol. 101, No. 5, pp. 887–914.

Francis, J. (2004), "What do we know about audit quality?" *British Accounting Review,* Vol. 36, No. 4, pp. 345–368.

Francis, J. and Krishnan, J. (1999), "Accounting accruals and auditor reporting conservatism", *Contemporary Accounting Research,* Vol. 16, No. 1, pp. 135–165.

Francis, J., Reichelt, K. and Wang, D. (2005), "The pricing of national and city-specific reputations for industry expertise in the U.S. audit market", *The Accounting Review,* Vol. 80, No. 1, pp. 113–136.

Francis, J. and Wang, D. (2008), "The joint effect of investor protection and big 4 audits on earnings quality around the world", *Contemporary Accounting Research,* Vol. 25, No. 1, pp. 157–191.

Gupta, M. and Prakash, P. (2012), "Information embedded in directors and officers insurance purchases", *The Geneva Papers on Risk and Insurance Issues and Practice,* Vol. 37, No. 3, pp. 429–451.

Griffith, S. J. (2006), "Uncovering a gatekeeper: Why the SEC should mandate disclosure of details concerning directors' and officers' liability insurance policies," *University of Pennsylvania Law Review,* Vol. 154, No. 5, pp. 1147–1208.

Hartzell, J. C. and Starks, L.T. (2003), "Institutional investors and executive compensation", *Journal of Finance*, Vol. 58, No. 6, 2351–2374.

Hay, D., Knechel, W. R. and Wong, N. (2006), "Audit fees: A meta-analysis of the effect of supply and demand attributes", *Contemporary Accounting Research,* Vol. 23, No.1, pp. 141–192.

Holderness, C. (1990), "Liability insurers as corporate monitors", *International Review of Law and Economics,* Vol. 10, pp. 115–129.

Hudson, C., Jahera, J. and Lloyd, W. (1992), "Further evidence on the relationship between ownership and performance", *The Financial Review*, Vol. 27, No. 2, pp. 227–239.

Jensen, M.C. and Meckling, W.H. (1976), "Theory of the firm: managerial behavior, agency costs and ownership structure", *Journal of Financial Economics*, Vol. 3, No. 4, pp. 305–360.

Kim, H. and Fukukawa, H. (2013), "Japan's big 3 firms' response to clients' business risk: Greater audit effort or higher audit fees?" *International Journal of Auditing,* Vol. 17, No. 2, pp. 190–212.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R. W. (1998), "Law and finance", *Journal of Political Economy,* Vol. 106, No. 6, pp. 1139–1155.

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Li, K. F. and Liao, Y. P. (2014), "Directors' and officers' liability insurance and investment efficiency: evidence from Taiwan", *Pacific-Basin Finance Journal*, Vol. 29, pp. 18–34.

Liao, H. M., Wang, C. C. and Chi, W. C. (2012), "What does the complete disclosure of audit fee information tell us in Taiwan?" *Taiwan Accounting Review,* Vol. 8, No. 1, pp. 49–88.

Lin, C., Officer, M. S. and Zou, H. (2011), "Directors' and officers' liability insurance and acquisition outcomes", *Journal of Financial Economics,* Vol. 102, No. 3, pp. 507–525.

Lin, C., Officer, M. S., Wang, R. and Zou, H. (2013), "Directors' and officers' liability insurance and loan spreads", *Journal of Financial Economics,* Vol. 110 , No. 1, pp. 37–60.

Morck, R., Shleifer, A., and R. Vishny. (1988), "Management Ownership and Market Valuation: An Empirical Analysis", *Journal of Financial Economics,* Vol. 20, pp. 293–316.

Numan, W., and Willekens, M. (2012), "An empirical test of spatial competition in the audit market", *Journal of Accounting and Economics*, Vol. 53, pp. 450–465.

O'Sullivan, N. (1997), "Insuring the agents: The role of directors' and officers' insurance in corporate governance", *Journal of Risk and Insurance,* Vol. 64, No. 3, pp. 545–556.

O'Sullivan, N. (2002), "The demand for directors' and officers' insurance by large UK firms", *European Management Journal,* Vol. 20, No. 5, pp. 574–583.

O'Sullivan, N. (2009), "The impact of directors' and officers' insurance on audit pricing: Evidence from UK firms", *Accounting Forum,* Vol. 33, No. 2, pp. 146–161.

Palmrose, Z-V. (1991), "Trials of legal disputes involving independent auditors", *Journal of Accounting Research,* Vol. 29, pp. 149–185.

Peasnell, K.V., Pope, P.F. and Young, S. (2005), "Board monitoring and earnings management: Do outside directors influence abnormal accruals?" *Journal of Business Finance and Accounting*, Vol. 32, No. 7-8, pp. 1311–1346.

Pottier, S.W. and Sommer, D.W. (1999), "Property-liability insurer financial strength ratings: differences across rating agencies", *Journal of Risk and Insurance*, Vol. 66, No. 4, 621–642.

Priest, G. L. (1987), "The current insurance crisis and modern tort law", *Yale Law Journal,* Vol. 96, No. 7, pp. 1521–1590

Simunic, D. A. (1980), "The pricing of audit services: Theory and evidence", *Journal of Accounting Research,* Vol. 18, No. 1, pp. 27–35.

Skipper, H. (1997), "Foreign insurers in emerging markets: Issues and concerns", *Center for Risk Management and Insurance, Occasional paper,* pp. 97–102.

Tang, A.P. and Xu, L. (2010), "Institutional ownership and internal control material weakness", *Quarterly Journal of Finance and Accounting*, Vol. 49, No. 2, 93–117.

Wallace, W. A. (1985), *Auditing monographs*. Macmillan Inc. New York.

Whisenant, S., Sankaraguruswamy, S. and Raghunandan, K. (2003), "Evidence on the joint determination of audit and non-audit fees", *Journal of Accounting Research*, Vol. 41, No. 4, pp. 721–744.

Wynn, J. P. (2008), "Legal liability coverage and voluntary disclosure", *The Accounting Review,* Vol. 83, No. 6, pp. 1639–1669.

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APPENDIX

VARIABLE DEFINITION

Variable name	Definition
FEE	Total audit fee (in thousands of New Taiwan Dollars)
LNFEE	Natural logarithm of total audit fees
D&O insurance	
DOI	The dummy variable is equal to one if the firm has D&O insurance in the current year, zero otherwise.
Coverage	The firm's total D&O coverage limit in thousands of New Taiwan Dollars
DOICOV	The firm's total D&O coverage limit, scaled by average total assets
EXDOICOV	The excess coverage, defined as the residual from the regression of *DOICOV* on (lagged) firm size (*Size*), (lagged) leverage (*LEV*), (lagged) the sum of lagged cash and short-term investment (*SLACK*), the sum of new equity and debt issues, deflated by average total assets in the current year (*EXFIN)*, a MandA indicator (*MA*), (lagged) the percentage of the common stock owned by the blockholders (*BLOCK*), (lagged) the portion of independent directors on the board (*INDP*), (lagged) the percentage of the common stock owned by the institutional investors (*INST*), and industry and year fixed effects.
DOM	Dummy variable coded "one" if the insurance firm is domestic-owned, and zero otherwise.
BIGN	Dummy variable coded "one" if the auditor is a Big 4 audit firm, and zero otherwise
SIZE	The natural logarithm of total assets
SUB	The natural logarithm of the number of subsidiaries plus one
ARINV	The sum of receivables and inventory, deflated by average total assets
LEV	The total liabilities to total assets, measured at the end of current year
LOSS	Dummy variable coded "one" if operating income is negative in the previous year, and zero otherwise.
CR	The current assets to current liabilities, measured at the end of current year
ROA	The return on assets, defined as income before extraordinary and discontinued scaled by average total assets.
CHGCPA	Dummy variable coded "one" if the firm changed auditor during year t, and zero otherwise
ATURN	Asset turnover, measured as the net sales to average total assets
LNNFEE	Natural logarithm of total non-audit fees
OPI	Dummy variable coded "one" if the firm receives a going concern opinion in the previous year, and zero otherwise
RETURN	Stock return over the current fiscal year

TABLE 1
Sample Construction

Selection criteria	Number of firm-year observations
Total observations from 2010 to 2013	5,334
Less:	
Observations without disclosing audit fee	(22)
Observations with missing values in TEJ	(1,027)
Observations used to test hypothesis 1	4,285
Observations without buying D&O insurance	(1,456)
Observations buying D&O insurance from foreign-owned and domestic-owned insurers simultaneously	(109)
Observations used to test hypothesis 2	2,720

TABLE 2
Descriptive Statistics (N=4,285)

	Mean	Std. dev	Percentiles		
			25th	50th	75th
FEE	3,586.03	4,472.84	2,000.00	3,000.00	3,690.00
LNFEE	7.94	0.63	7.60	8.01	8.21
DOI	0.66	0.47	0.00	1.00	1.00
Coverage (In thousands of New Taiwan dollars)	172,127.37	362,955.67	0.00	87,390.00	203,000.00
DOICOV	0.04	0.08	0.00	0.01	0.05
BIGN	0.86	0.35	1.00	1.00	1.00
SIZE	15.31	1.46	14.30	15.10	16.13
SUB	1.92	1.00	1.39	1.95	2.56
ARINV	0.34	0.19	0.20	0.32	0.45
LEV	0.41	0.18	0.27	0.40	0.53
LOSS	0.23	0.42	0.00	0.00	0.00
CR	2.72	2.62	1.43	1.91	2.96
ROA	0.03	0.09	0.00	0.04	0.08
CHGCPA	0.04	0.19	0.00	0.00	0.00
ATURN	0.95	0.60	0.56	0.83	1.17

Notes: All variables are as defined in the appendix.

TABLE 3
Univariate Results

Variable name	Foreign-owned insurers (n=1147)			Domestic-owned insurers (n=1,573)			Diff. in mean	Diff. in median
	Mean	Std.	Median	Mean	Std.	Median		
FEE	4,258	4,347	3,000.00	3,589	4,798	3,000.00	669***	0***
LNFEE	8.12	0.64	8.01	7.94	0.60	8.01	0.18***	0***
Coverage	257,293	262,163	159,950	228,697	439,777	145,150	28,596**	14,850***
DOICOV	0.06	0.08	0.03	0.06	0.09	0.03	-0.00	0.00
BIGN	0.92	0.27	1.00	0.88	0.32	1.00	0.04***	0.00***
SIZE	15.61	1.52	15.49	15.20	1.39	14.99	0.41***	0.50***
SUB	2.17	1.02	2.08	1.90	0.95	1.95	0.27***	0.13***
ARINV	0.34	0.18	0.32	0.33	0.19	0.32	0.01	0.00
LEV	0.42	0.17	0.41	0.40	0.18	0.40	0.02***	0.01***
LOSS	0.24	0.42	0.00	0.24	0.43	0.00	-0.00	0.00
CR	2.46	2.02	1.87	2.82	2.65	1.97	-0.36***	-0.10***
ROA	0.03	0.09	0.04	0.03	0.09	0.03	0.00	0.01
CHGCPA	0.02	0.15	0.00	0.04	0.20	0.00	-0.02***	0.00***
ATURN	1.02	0.60	0.89	0.94	0.62	0.82	0.08***	0.07***

Notes: (1) ***, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively (All tests are two-tailed). (2) All variables are defined in the appendix.

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TABLE 4
D&O Insurance Coverage and Audit Pricing

	H1	H2
	(1)	(2)
DOICOV	0.23	0.35
	(2.75)***	(2.06)**
DOM		0.01
		(0.23)
DOICOVxDOM		-0.32
		(-1.76)*
BIGN	0.26	0.25
	(13.73)***	(8.99)***
SIZE	0.20	0.20
	(22.92)***	(16.09)***
SUB	0.12	0.11
	(19.32)***	(14.98)***
ARINV	-0.07	-0.05
	(-1.50)	(-0.79)
LEV	-0.10	-0.14
	(-1.68)*	(-1.71)*
LOSS	0.04	0.03
	(2.50)**	(1.30)
CR	-0.01	-0.01
	(-3.95)***	(-2.33)**
ROA	-0.24	-0.23
	(-2.59)***	(-1.95)*
CHGCPA	-0.04	-0.05
	(-1.04)	(-1.20)
ATURN	0.04	0.03
	(2.58)***	(1.42)
Intercept	4.08	3.86
	(27.32)***	(15.60)***
Year fixed effects	Yes	Yes
Industry fixed effects	Yes	Yes
Adjusted R-squared	0.57	0.56
N	4,285	2,720

Notes: (1) T-statistics are presented in parenthesis below the coefficients and are based on robust standard errors. (2) ***, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively (All tests are two-tailed). (3) All variables are as defined in appendix. (4) To control for outliers, all the continuous variables are winsorized at the top and bottom 1 percent.

TABLE 5
D&O Insurance Coverage, the Structure of Corporate Governance and Audit Pricing

	Director ownership	Outside directors	Institutional holdings
DOICOV	0.38	0.35	0.36
	(3.12)***	(3.18)***	(3.24)***
HDS_OWN	-0.02		
	(-1.12)		
DOICOVxHDS_OWN	-0.28		
	(-1.88)*		
INDP		0.14	
		(2.06)**	
DOICOVxINDP		-0.93	
		(-1.69)*	
HINST_OWN			0.02
			(0.85)
DOICOVxHINST_OWN			-0.35
			(-2.34)**
BIGN	0.26	0.26	0.26
	(13.67)***	(13.48)***	(13.74)***
SIZE	0.20	0.20	0.20
	(23.01)***	(23.02)***	(22.78)***
SUB	0.11	0.12	0.11
	(18.97)***	(19.40)***	(19.08)***
ARINV	-0.07	-0.07	-0.07
	(-1.61)	(-1.45)	(-1.54)
LEV	-0.09	-0.10	-0.09
	(-1.58)	(-1.75)*	(-1.56)
LOSS	0.05	0.04	0.04
	(2.61)***	(2.54)**	(2.53)**
CR	-0.01	-0.01	-0.01
	(-4.04)***	(-3.98)***	(-3.99)***
ROA	-0.22	-0.26	-0.22
	(-2.33)**	(-2.77)***	(-2.35)**
CHGCPA	-0.04	-0.04	-0.04
	(-1.07)	(-1.02)	(-1.14)
ATURN	0.04	0.04	0.04
	(2.70)***	(2.53)**	(2.61)***
Intercept	4.08	4.09	4.09
	(27.06)***	(27.44)***	(27.44)***
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Adjusted R-squared	0.57	0.57	0.57
N	4,285	4,285	4,285

Notes: (1) T-statistics are presented in parenthesis below the coefficients and are based on robust standard errors. (2) ***, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively (All tests are two-tailed). (3) All variables are as defined in appendix. (4) To control for outliers, all the continuous variables are winsorized at the top and bottom 1 percent.

TABLE 6
D&O Insurance Coverage and Audit Pricing: Excessive D&O Coverage

	H1	H2
	(1)	(2)
EXDOICOV	0.28	0.43
	(3.16)***	(2.32)**
DOM		-0.01
		(-0.40)
EXDOICOVxDOM		-0.37
		(-1.75)*
BIGN	0.26	0.25
	(13.81)***	(9.12)***
SIZE	0.20	0.20
	(23.18)***	(17.14)***
SUB	0.12	0.11
	(19.34)***	(14.89)***
ARINV	-0.07	-0.05
	(-1.58)	(-0.85)
LEV	-0.10	-0.14
	(-1.61)	(-1.72)*
LOSS	0.04	0.03
	(2.44)**	(1.19)
CR	-0.01	-0.01
	(-3.89)***	(-2.35)**
ROA	-0.23	-0.22
	(-2.44)**	(-1.86)*
CHGCPA	-0.04	-0.05
	(-1.02)	(-1.22)
ATURN	0.04	0.03
	(2.67)***	(1.48)
Intercept	4.15	3.89
	(28.55)***	(16.77)***
Year fixed effects	Yes	Yes
Industry fixed effects	Yes	Yes
Adjusted R-squared	0.57	0.57
N	4279	574

Notes: (1) T-statistics are presented in parenthesis below the coefficients and are based on robust standard errors. (2) ***, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively (All tests are two-tailed). (3) All variables are as defined in appendix. (4) To control for outliers, all the continuous variables are winsorized at the top and bottom 1 percent.