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Effects of directors and officers liability insurance on accounting restatements

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ABSTRACT

This study investigates the relationship between directors and officers liability insurance (D & O insurance) coverage and the probability of accounting restatements. The results show that when managers are covered by relatively higher levels of D & O insurance, they are more likely to restate their financial reports. Moreover, the findings indicate that D & O insurance coverage is related to core earnings restatements and income overstatements, suggesting that managers' accounting policies are more aggressive when they have fewer legal liability concerns. Overall, these results provide consistent evidence that reducing managerial legal liability has the effect of encouraging managers to misstate reported earnings.

1. Introduction

Recent accounting scandals have been preceded by or have resulted in restatements (Ettredge, Scholz, Smith, & Lili, 2010). Moreover, worldwide media coverage regarding the collapses and scandals of corporate giants, such as Enron, WorldCom, and Olympus, appear to have shaken the confidence of investors. In the wake of these scandals, many of these companies saw their equity values drop along with their credit ratings (Agawal & Chadha, 2005). In recent years, as stock market valuations have increased, managers have had more incentives to maintain earnings momentum, thus increasing market prices (Barth, Elliot, & Finn, 1999; Myers, Myers, & Skinner, 2007). Moreover, such situations have allowed them to beat analysts' targets (DeGeorge, Patel, & Zeckhauser, 1999; Burgstahler & Eames, 2001).[1] However, litigation concerns tend to constrain aggressive financial reporting by managers. Prior research indicates that earnings restatements increase the risk of securities class actions (Kinney & McDaniel, 1989; Jones & Weingram, 1997; Sen, 2007), and that managers have incentives to conservatively report their financial situation to reduce expected legal liability (Stammerjohan, 2003; Watts, 2003; Chung & Wynn, 2008). Therefore, the objective of this study is to investigate the relationship between accounting restatements and directors' and officers' liability insurance (D & O insurance) coverage.

When a corporation announces a financial restatement, directors and officers face increased legal responsibilities, heightened time commitments, and lower investor tolerance for performance and governance failures. All of these factors potentially trigger and increase the litigation risk for directors and officers arising from shareholder suits. For the most part, earnings restatements are inherently difficult to defend since the defendants concede (by announcing the restatements) that they misrepresented material information regarding the company's financial condition and performance (Palmrose & Scholz, 2004). While the causes of a

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[1] Previous studies on earnings management have traditionally focused on incentives provided by explicit contractual arrangements such as bonus plans and debt covenants (e.g., Watts & Zimmerman, 1990; Dechow & Skinner, 2000).

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restatement may vary, according to Huron's 2004 Annual Review of Financial Reporting Matters, aggressive accounting policies are responsible for approximately 60% of financial restatements.[2] Prior studies indicate that, if managers are aggressive in earnings management, class action securities litigation will then increase, thus resulting in serious settlements (Stammerjohan, 2003; DuCharme, Malatesta, & Sefcik, 2004; Lev, Ryan, & Wu, 2008; Jones & Wu, 2010; Lin, Officer, Wang, & Zou, 2013). Thus, due to higher litigation risk faced by directors and officers, it could be extremely costly to manipulate financial reporting (Tillinghast–Towers Perrin, 2002).

Although accounting litigation, especially that precipitated by a restatement of earnings, is undoubtedly painful, the personal legal liability of directors and officers will be lessened if their company purchases D & O insurance and provides permissible cash indemnification. D & O insurance, which reimburses directors and officers for defense costs, judgments and settlements, is generally available even in cases where a company admits that its financial statements are materially misleading. Indeed, D & O insurance is intended to protect directors and officers against shareholder litigation by providing assurance that their personal assets will not be at risk (Boyer & Stern, 2012, 2014). Accordingly, most empirical studies find that D & O insurance is associated with managerial opportunism (Chung & Wynn, 2008; Wynn, 2008; Chen & Li, 2010; Lin et al., 2013). Since D & O insurance insulates directors and officers from the threat of litigation resulting from their decisions on behalf of the firms, it could induce unintended moral hazards and alter the risk attitudes of managers to act in the best interest of themselves (Chung, Hillegeist, & Wynn, 2015; Gillan and Panasian, 2015; Hwang & Kim, 2013). Therefore, due to the lower deterrent effect of shareholder litigation, managers have more incentives to choose an aggressive accounting policy when his/her personal legal liability is covered by D & O insurance and cash payments for indemnification.

To examine whether D & O insurance leads to low-quality financial reporting, this study employs accounting restatements to detect aggressive financial accounting practices and the effects of excessive. Because accounting restatements could capture extreme accounting outcomes, using accounting restatements to represent aggressive accounting increases the power to detect the effect of excessive D & O insurance coverage.

In addition, it focuses on a sample of Taiwanese companies. Taiwan provides an ideal setting to investigate D & O insurance coverage and accounting restatements for several reasons. First, D & O liability insurance is publicly disclosed in Taiwan, whereas D & O insurance coverage is not disclosed in the United States. In response to an increase in the number of shareholder claims against corporations, in 2002, the Taiwanese Securities and Futures Bureau (TSFB) announced a new ruling titled, “The Corporate Governance Best-Practice Principles for Listed Companies.” The ruling stipulates that a listed company takes out liability insurance for its directors and executives. Second, generally accepted accounting principles (GAAP) and generally accepted auditing standards (GAAS) in Taiwan are very similar to those under U.S. regulations since they are modeled after the U.S. GAAP and GAAS. Thus, the causes and types of accounting restatements in Taiwan during the 2007–2012 research period are generally the same as those in the United States.

The empirical evidence shows that reducing managerial legal liability has the effect of encouraging managers to misstate reported earnings, and even violate GAAP. In addition, D & O insurance may not be randomly assigned to firms, and excessive D & O insurance coverage has a tendency to mitigate managerial legal liability concerns and consequently increase the likelihood of core earnings restatements and income overstatements. Furthermore, there are potential endogeneity problems in this study. More specifically, one might be concerned that D & O liability insurance and accounting restatements appear to be related since they are both driven by complexities and fundamental firm risks. In other words, firms with more complexities or higher fundamental risks tend to have greater levels of D & O liability insurance coverage, and these firms have more difficulty selecting proper accounting policies.

To address the issue of potential endogeneity, this study employs a series of econometric analyses. First, it applies the matching sample approach based on the complexity of operations (i.e., number of subsidiaries or accounts receivable, and inventory). Second, it utilizes Heckman's (1979) model to control for self-selection bias. Regardless of the econometric methods used in the study, the documented results are not sensitive to potential endogenous D & O insurance purchases.

This study's findings contribute to the aggressive accounting literature by providing evidence regarding the association between managerial legal liability coverage and earnings restatements. Although extensive prior research examines whether a variation in managers’ legal liability exposure is associated with opportunistic accounting choices (Stammerjohan, 2003; Boubakri, Boyer, & Ghalleb, 2008; Chung & Wynn, 2008; Wynn, 2008), an empirical investigation of the relationship between managers’ legal liability exposure and accounting restatements is lacking. Thus, the study provides the empirical evidence that managerial legal liability coverage is a determinant of earnings restatements. Next, this study conjectures and finds that excessive D & O insurance coverage increases the incidence of earnings restatements more than excessive cash indemnification, meaning that D & O insurance will mitigate managerial legal liability concerns about earnings restatements, especially for core earnings restatements and income overstatements. Finally, this study explores and documents the significant effect of D & O liability insurance coverage on the incidence of accounting restatements by focusing on restatements arising from the violation of GAAP.

This study differs from prior studies that examine the impact of D & O insurance on earnings quality since it employs various measures to proxy for earnings quality, including discretionary accruals and earnings conservatism (Boubakri et al., 2008; Chung and Wynn, 2008; Wynn, 2008). High accruals and less conservatism may proxy for the poor quality of financial restatements. However, they may not arise from a violation of GAAP. The distinctiveness of the present study is its exclusive focus on restatements arising

[2] In 2004, the five categories of aggressive accounting issues included: revenue recognition (16.4%); equity accounting (16%); reserves, accruals, and contingencies (14.1%); capitalization/expense of assets (7.7%); and inventory (3.5%). Two other categories comprise accounting for mergers or acquisitions, and securities transactions.

from the violation of GAAP, which arguably impose greater costs on firms and investors (e.g., Palmrose, Richardson, & Scholz, 2004).

The remainder of this study is organized as follows. Section 2 describes the institutional background in Taiwan and reviews the relevant literature, while Section 3 describes the research design and data sample. Section 4 reveals the empirical results and findings, and Section 5 presents the conclusions.

2. Literature review and background

2.1. D & O insurance in Taiwan

To protect the directors and officers from potentially bankrupting litigation, a company may provide an indemnification agreement protecting them from legal actions. The New York General Corporation Law in 1941 made New York the first state to create a statute authorizing indemnification by corporations. This leads to the establishment of the Delaware Corporate Law in 1943. Under the Delaware Corporate Law, a corporation may indemnify directors for damage amounts paid in settlements and legal expenses, as long as the director acted in good faith and in a manner reasonably believed to be in the best interests of the company. Since then, there have been indemnifications of mandatory and permissive provisions in most states. Mandatory indemnification provisions are applied in cases where the director or officer has been successful, based on the merits of the proceeding's outcome. In situations where mandatory indemnification is not applicable, companies can determine whether to provide permissible indemnification to directors and officers. In Taiwan, Article 546 of the Civil Code ensures that, if directors and officers act in good faith and in a manner reasonably believed to be in the best interests of the company, then they may demand compensation for injuries from the company. Although a general corporation law on indemnification does not exist, some firms have indemnity agreements specified in either the bylaws of the corporation or in the director/officer mandate contract.[3]

If indemnification provisions become unavailable to directors and officers, then D & O insurance provides an additional layer of protection. Moreover, D & O insurance policies do not only cover damages, settlements, judgments, and litigation expenses.[4] A significant advantage of D & O insurance is that extensions are available (on request) to provide coverage for securities and employment mismanagement claims against the company. In contrast to indemnification, neither corporate law nor securities law places limitations on the permissible scope of D & O coverage. This has special relevance for publicly listed companies in which securities claims can have a significant effect on a company's finances and even threaten its existence.

D & O insurance was first implemented in Taiwan at the end of the 1990s. With the increasing number of claims and large settlements against corporations, D & O insurance coverage provides important protection for directors and officers from shareholder litigation, which, in turn enhances a firm's ability to recruit and retain qualified officers and directors. Since 1998, the TSFB has tried its best to emphasize the importance of corporate governance to public companies. In 2002, the TSFB announced the “Corporate Governance Best-Practice Principles for Listed Companies,” which stipulated that a listed company may take out liability insurance for directors with respect to liabilities resulting from their duties. The intent was to reduce and spread the risk of material harm to the company and shareholders arising from the wrongdoings or negligence of the director.

2.2. Which areas are covered by D & O insurance in Taiwan?

Although the D & O insurance market in Taiwan, compared to that in the United States, is relatively young, the specific terms of D & O insurance contracts in the former are similar to those in the latter. D & O insurance coverage is payable to the directors and officers of a company as indemnification for certain damages (losses) or defense costs in the event that the insured suffers such a loss as a result of legal actions against alleged “wrongful acts.”[5] A typical insurance contract applied to a publicly listed company usually includes any of the following actions: (1) provides coverage to individual directors and officers for their own wrongdoings when they are not indemnified by companies; (2) reimburses the corporation for its indemnification payment for directors and officers; and (3) covers the corporation to the extent in which a legal action names it as a defendant along with the director and/or officer. Typical D & O insurance coverage includes compensatory damages, settlement amounts, and legal fees incurred in the defense of claims arising from the official acts of directors and officers.

While D & O insurance covers claims for damages, appurtenant defense costs, and punitive damages, it does not cover civil or criminal fines and penalties. The scope of coverage is heavily influenced by the types of proceedings encompassed within the policy's definition of “claim,” especially since a “claim” triggers certain rights under the policy and the insurer's duty to provide effective defense. Typical sources of claims include: shareholders, shareholder-derivative actions, customers, regulators (including those bringing civil and criminal charges), and competitors (for anti-trust or unfair trade practice allegations).

[3] Although corporate law in the United States and Canada permits firms to indemnify their directors and officers against most claims, certain claims (by law) may not be indemnified (e.g., shareholder derivative suits related to shareholders suing directors and officers on behalf of the company). Moreover, the company may be unable to provide indemnification due to financial distress, and succeeding managers may be unwilling to indemnify their predecessors, following a change in control (Core, 2000).

[4] D & O insurance policies do not cover civil or criminal fines/penalties or punitive/multiple damages (Chung & Wynn, 2008).

[5] A wrongful act is any actual or alleged breach of duty, breach of trust, statutory negligence, error, misstatement, misleading statement, omission, defamation, breach of warranty of authority, or other act as a director or officer in their respective capacities, as a director or officer in any outside entity or any matter claimed against them solely based on their status as a director or officer of a company.

2.3. The incentives and risks of misstated earnings

Although managers have incentives to report aggressive earnings to increase their compensation, avoid debt covenant violations, decrease the cost of capital and meet analyst or management forecasts (e.g., Watts & Zimmerman, 1986; Dechow & Skinner, 2000; Goldman & Slezak, 2006; Crocker & Slemrod, 2007), shareholder litigation based on the Taiwanese Securities and Exchange Act and Company Law has a deterrent effect on managers' aggressive accounting decisions. Prior studies find that, when managers are exposed to higher litigation risks, choosing an aggressive accounting policy and earnings management could be costly (Tillinghast-Towers Perrin, 2002; Durnev & Mangen, 2009; Bardos, Golec, & Harding, 2013). It even indicates that accounting restatements, which are employed as the extreme consequence of aggressive accounting, can lead to both decreases in expected future earnings and increases in the firm's cost of equity capital (Hribar & Jenkins, 2004), which, in turn, result in a substantial loss of market value (Dechow, Sloan, & Sweeny, 1996; Palmrose et al., 2004; Marciukaityte & Varma, 2008; Badertscher, Collins, & Lys, 2012). According to SEC Chairman Arthur Levitt (2000),"In recent years, countless investors have suffered significant losses as market capitalizations have dropped by billions of dollars due to restatements." Although accounting restatements are often the results of innocent mistakes, accounting rules require financial statements to be restated if they contain material misstatements due to unintentional errors. Nevertheless, restatements frequently trigger shareholder lawsuits or regulatory inquiries.

In addition, considering the enforcement patterns in the United States (in terms of the frequency of restatements), the number of restatement announcements peaked at 1784 in 2006. However, after the implementation of Section 404 of the Sarbanes-Oxley Act, which required issuers to publish information in their annual reports regarding the scope of the internal control structure, the number of restatement announcements rapidly declined. By 2009, 711 restatements were announced and the number remained near this level through 2012, thus indicating that the overall frequency of restatements had decreased. More specifically, the decline in the total number of restatements is mainly attributable to the precipitous drop in the severity of restatements. According to the "Financial Restatement Trends in the United States," approximately 1000 severe restatements were announced in 2005, but by 2012, there were only 225 (a 75% decline). Furthermore, the percentage of severe restatements declined from 61% in 2005 to 35% in 2012.

In Taiwan, the same enforcement patterns can be seen. The number of restatement announcements peaked at 43 in 2005, subsequently declined to 13 by 2009, and remained near this level through 2012. The reason for such a decline is that, the Financial Supervisory Commission (Taiwan's securities regulator) adopted many new policies to strengthen financial reporting transparency, restore corporate integrity, and protect investors during the 2008 financial crisis. In particular, the percentage of severe restatements declined from 69.8% in 2005 to 30% in 2012. In sum, the enforcement patterns, especially in regard to the percentage of severe restatements in the United States, are similar to those in Taiwan.

In recent years, since litigation risk has become a potentially important explanation of market reaction to earnings announcements, empirical research has primarily focused on the impact of litigation concerns on accounting quality, especially for accounting restatements. Lev et al. (2008) find that restatements that eliminate or shorten histories of positive earnings (or earnings growth) trigger a negative market reaction to the restatement announcement and an increase in the likelihood of class action lawsuits. Other research on litigation indicates that earnings manipulation increases the risk of securities class actions, especially for earnings restatements (Kinney & McDaniel, 1989; Jones & Weingram, 1997). If managers manipulate the market's perception of the firm's value, then lawsuits are more likely to be filed, thus resulting in costly settlements (Jones & Wu, 2010; Donelson, Mcinnis, & Mergenthaler, 2013).

The majority of litigations involve securities class actions against the firms and its directors and officers. Palmrose and Scholz (2004) provide evidence that approximately 38% of restating companies are sued due to large earnings overstatements or unusually large stock price declines resulting from the announcement. Additionally, Grundfest and Perino (1997) find that, since the passage of the Private Securities Litigation Reform Act (PSLRA) of 1995, accounting matters comprise a greater share of securities litigations, with nearly half of the securities class action lawsuits filed between 1996 and 1999 containing accounting allegations, and nearly half of all companies sued for alleged financial chicanery (PricewaterhouseCoopers, 2000). Once directors and officers are exposed to higher litigation risks, due to more severe earnings manipulation and revenue overstatements (DuCharme et al., 2004), they may reduce their motivation to exaggerate reported earnings. As these findings and arguments suggest, managers have incentives to strategically determine the optimal level of aggressive accounting by considering the effect of their actions on the expected costs of a lawsuit and the expected benefits resulting from more aggressive earnings (Chung and Wynn, 2008).

Prior studies also provide evidence that lower expected litigation costs affect financial reporting decisions. Seetharaman, Srinidhi, and Swanson (2005) indicates that accounting conservatism declined after the PSLRA of 1995, suggesting that the reduced *ex ante* litigation risk influenced managers' willingness to report conservatively. Ryan and Zarowin (2003) find consistent results showing that earnings overstatements increased in the 1996–2000 period, compared to the 1986–1995 period. Their findings also indicate that firms facing a lower expected litigation risk show more exaggerated reported earnings.

2.4. Relationship between legal liability coverage and accounting practices

Although accounting litigation, especially that precipitated by a restatement of earnings, is undoubtedly painful, directors' and officers' accounting choices would be less conservative if their expected legal liability is reduced via D & O insurance coverage (Core, 1997; Boubakri et al., 2008; Chung & Wynn, 2008).

Since D & O insurance insulates directors' and officers' liabilities, it could affect general risk attitudes and increase risk-taking behaviors (Hwang & Kim, 2013; Gillan & Panasian, 2015). D & O insurance coverage is a tool used by firms to indemnify directors and officers for potential losses arising from litigations. Several studies have shown that D & O insurance reduces the expected legal

liability of managers and thus results in more aggressive accounting practices (Core, 1997; Boubakri et al., 2008; Chung & Wynn, 2008). In the same vein, Gillan and Panasian (2015) suggest that the decision to carry D & O insurance with higher coverage limits reflects *ex ante* managerial opportunism pertaining to legal liability. In addition, managers may have incentives to employ opportunistic disclosure policies when they are covered by abnormal D & O insurance (Chung & Wynn, 2008; Weng, Tseng, Chen, & Hsu, 2014; Boyer & Tennyson, 2015). Chung and Wynn (2008) provide evidence that firms with excess D & O insurance coverage and cash indemnification have less conservative earnings, and fail to recognize negative news in a timely manner. Cao and Narayanamoorthy (2011) find that excess D & O coverage is negatively related to the probability of bad-news management and earnings forecasts. Boyer and Tennyson (2015) show that the purchase of larger amounts of D & O insurance results in more aggressive earnings management. Hence, when managers are more insulated from the consequences of aggressive reporting decisions, they are more likely to provide low-quality financial reporting.

There are two reasons that D & O insurance could induce unintended moral hazards and increase the probability of earnings restatement. First, since managers protected by D & O insurance coverage are more likely to make opportunistic decisions, they may exert pressure on internal control systems to achieve their goals (Chung et al., 2015). Such behaviors will increase the risk of financial misstatement by rendering the firm's internal control mechanisms less effective in preventing or detecting material weaknesses related to financial reporting. Second, since D & O insurance may shield managers from lawsuits brought by shareholders, they may become effectively less risk-averse, thereby engaging in more risk-taking in pursuit of their own private objectives (Core, 1997; Lin et al., 2013). Since these opportunistic and risky projects that managers take on could be more difficult to make a proper accounting measurement, it can increase the risk of misstatement in financial reporting.

In sum, legal liability insurance tends to "over-cover" managers, which, in turn, leads to opportunistic behaviors. Therefore, if managers' expected legal liabilities are reduced via D & O insurance coverage, the accounting choice would be to relax conservative reporting practices, thereby enhancing a higher probability of enforcement action ex ante. Accordingly, we make the following hypothesis:

Hypothesis 1. Excess D & O insurance coverage is positively associated with accounting restatement.

3. Research design, sample selection, and data sources

This section first presents the regression models and then discusses the measures of accounting restatements and managerial legal liability coverage. Finally, it considers the data and the sample employed in this study.

3.1. The model for empirical analysis

This study begins by examining the relationship between accounting restatements and managerial legal liability coverage using the following probit regression model:

$$RES = \beta_0 + \beta_1 EXCOV + \beta_2 BOARDSIZE + \beta_3 OUTDIR + \beta_4 SIZE + \beta_5 LEV + \beta_6 ROA + \beta_7 MB + \beta_8 RAISA + \beta_9 FOREIGN + \delta YEAR + \phi INDUSTRY + \varepsilon \quad (1)$$

The dependent variable, *RES*,[6] is an indicator variable equal to one, if there is at least one restatement in the year prior to the effective date of a D & O insurance policy, and zero otherwise. This study uses a non-matched procedure to avoid the problems associated with non-random matched samples for infrequent events such as earnings restatements (Richardson, Tuna, & Wu, 2003; Cram, Stuart, & Karan, 2007; Cram, Karan, & Stuart, 2009). It alternatively uses the matched approach to test the expectations. For the matched approach, this study follows Myers, Myers, and Palmrose (2005) and identifies control firms by finding the firms closest in size to the restatement firms (as determined by total assets). In addition, it draws from the same Taiwan Economic Journal (TEJ) industry code and year in which the misstatement initially occurs. Since this study is interested in determining what leads to accounting restatements, it considers the probability of an accounting misstatement occurring at the time of the actual occurrence, and not at the time when the misstatement is publicly disclosed. Accordingly, all of the independent and dependent variables indicate auditor and firm characteristics at the time when the misstatement occurs, and not at the time when the misstatement is announced (Richardson et al. 2003; Myers et al., 2005; Barber, Kang, & Liang, 2006).

3.2. Measurement of D & O insurance coverage

Prior studies suggest that D & O insurance coverage that lower directors' and officers' personal legal liabilities, might also affect voluntary disclosures and earnings conservatism (Chung & Wynn, 2008; Wynn, 2008). Thus, the present study uses excess D & O liability coverage (*EXCOV*) as the proxy for managerial legal liability coverage. It also estimates the excess D & O liability coverage (beyond the expected coverage that a firm would carry) by using the residuals from the regression of D & O insurance coverage on the

[6] The incident year is the year of the restatement announcement, rather than the year of the aggressive earnings management. Since D & O insurance insulates directors and officers from the threat of litigation and personal financial liability, it can reduce their awareness of misleading financial reporting, while enhancing the likelihood of accounting restatement. Due to their less effective monitoring, directors and officers face greater risks of claims for damages or losses from shareholders in the event of restatement announcement.

determinants of D & O insurance coverage limits.[7] Moreover, it tests the relationship between accounting restatements and excess managerial liability coverage.

3.3. Control variables

Dechow et al. (1996) posit that larger boards may result in ineffectual monitoring, due to a proclivity toward communication breakdowns and inefficiencies. Abbott, Parker, and Peters (2004) show a positive relationship between board size and the incidence of restatement. Thus, the present study includes *BOARDSIZE* as a control variable, and defines it as the number of board members. Beasley (1996) suggests that outside directors have reputational capital incentives to actively monitor management and minimize managerial actions that require a subsequent restatement. In this regard, the present study includes *OUTDIR* and defines it as the percentage of outside directors serving on the board. In this case, a negative relationship between *OUTDIR* and restatement is expected. Next, *SIZE* is included as a control variable since prior studies indicate that large firms are more likely to make restatements (Myers et al., 2005; Barber et al., 2006). Here the variable *SIZE* equals the natural logarithm of market value. *ROA* and *LEV* are also included, since prior research finds that restatement companies tend to be less profitable (*ROA*) and have higher leverage (*LEV*) than non-restating companies (Kinney & McDaniel, 1989; DeFond & Jiambalvo, 1991). *ROA* equals the net income (before extraordinary items) divided by total assets, whereas *LEV* equals the total liabilities divided by total assets. Firm growth is controlled for by including market-to-book ratio (*MB*) as an additional independent variable (Richardson et al. 2003). Furthermore, *RAISE* is included in Eq. (1), since restatement firms are typically active in external capital markets (Richardson et al., 2003). *RAISE* is defined as the sum of additional cash raised from the issuance of common and preferred stocks as well as the issuance of long-term debt, deflated by average total assets. Since the companies with international activities are more complex (Fisch & Oesterle, 2003), they are more likely to misstate their financial reporting. Thus, the present study also includes the variable *FOREIGN* and defines it as the proportion of total sales from foreign operations. Finally, *YEAR* includes a set of dummy variables representing the fiscal year, while *INDUSTRY* includes a set of dummy variables representing the industry.

3.4. Sample selection and data sources

The sample in this study consists of Taiwanese firms listed on the Taiwan Stock Exchange from 2007 to 2012. Since the end of 2007, the TSFB has required firms to disclose the existence of a D & O insurance policy. Thus, the D & O insurance data for the firms in this study are publicly available in proxy statements. Financial data and accounting restatements are obtained from the TEJ database.

The initial sample consisted of 207 events announced by 176 firms, identified by the TSFB or companies/auditors from 2007 to 2012. As detailed in Panel A of Table 1, 54 restatement observations were eliminated from the initial sample due to accounting changes as well as changes in the reporting entity. Moreover, 5 restatement observations were excluded due to required and routine revisions of prior results such as mergers and acquisitions, etc. Finally, 6 observations were excluded due to delisting, while 13 observations were excluded due to the lack of sufficient financial data. After the exclusions, the final sample included 129 restatement observations and 6139 non-restatement observations.

4. Empirical results

4.1. Distribution of sample and descriptive statistics

Panel B of Table 1 presents the restatement categories for the sample, which are tabulated by two types of restatements initiators. Every event is assigned to a single category that reflects the main (but not exclusive) error or irregularity, which is the focus of the accounting restatement. Regarding the types of reasons, Panel B shows that 51 of 129 restatement observations involve revenue recognition issues, while 36 restatement samples include cost or expense issues. Additionally, regarding the initiator of the restatement, 46 restatement observations were identified by the TSFB, while 83 were identified by the company or auditor. Panel B also classifies the restatement sample into interim and annual restatements. For the type of financial restatement, 76 of 129 restatement observations misstate quarterly financial statements, while 53 observations misstate annual financial statements.

Panel C of Table 1 details the industry composition of the restatement firms. The industry that is most heavily represented (53.49% of the sample observations) is electronics. Restatements are also relatively common among firms involved in the production of constructions, textiles, and electrical equipment, with 8.53%, 7.75%, and 6.20% of the restatement sample, respectively, coming from these three industries.

In Table 2, Panel A reports the means and medians for restatement observations and matched samples. Except for board size (*BOARDSIZE*), all of the other variables are winsorized at the 1st and 99th percentiles. Consistent with this study's predictions, the restatement and non-restatement firms significantly differ ($p < 0.01$) in terms of excess D & O coverage (*EXCOV*), with significantly more firms among the restatement sample having excess coverage compared to the non-restatement sample. The remaining variables in Panel A also indicate several significant differences regarding the economic characteristics of the companies in the two subsamples.

[7] Following Lin, Officer, and Zou (2011), the present study defines "excess coverage" as the coverage scaled by market value. The determinants of excess D & O coverage include: firm size (*SIZE*), debt ratio (*LEV*), a cross-listing status (*CROSS*), the percentage of outside directors on the board of directors (*OUTDIT*), volatility of stock returns (*RETVOL*), membership in the high-tech industry (*HIGHTECH*), and cash holdings (*CASH*).

Table 1
Sample selection and distribution of restatements of financial reports.

Panel A: Sample selection

Total number of restatements announced from 2007 to 2012	207
Less: Changes in principle or in reporting entity	(54)
Required and routine restatements (e.g., dividend distributions, mergers and acquisitions, etc.)	(5)
Delisting	(6)
Observations without the other financial data	(13)
Subtotal for companies with required information available—final sample	129
Add: non-restatement samples	6,139
Number of company-years in the final sample	6,268

Panel B: Frequency of Restatement Causes by Trigger Category

	TSFB- initiated	Companies- or Auditor- initiated	Total
Type of Reasons			
Revenue recognition	19	32	51
Expense	14	22	36
Restructurings and write-downs	5	12	16
Reclassification	4	7	11
Tax Related	2	6	7
Others	2	4	7
	46	83	129
Type of Financial Statements Restated			
Quarterly-only	24	52	76
Annual	22	31	53
	46	83	129

Panel C: Industry Compositions

	TSFB- initiated		Companies- or Auditor- initiated		Total	
Industry	N	%	N	%	N	%
Cement	1	2.17	1	1.20	2	1.55
Foods	1	2.17	2	2.41	3	2.33
Plastics	0	0.00	1	1.20	1	0.78
Textiles	4	8.70	6	7.23	10	7.75
Electric	4	8.70	4	4.82	8	6.20
Steel & Iron	0	0.00	4	4.82	4	3.10
Rubber	1	2.17	3	3.62	4	3.10
Constructions	3	6.52	8	9.64	11	8.53
Transportations	1	2.17	4	4.82	5	3.87
Department Store	0	0.00	2	2.41	2	1.55
Biotechnology	0	0.00	1	1.20	1	0.78
Internet & Communication	2	4.35	3	3.62	5	3.87
Electronics	27	58.70	42	50.60	69	53.49
Miscellaneous	2	4.35	0	0.00	2	1.55
Other	0	0.00	2	2.41	2	1.55
Total	46	100.00	83	100.00	129	100.00

The mean and median value of financial leverage (*LEV*) is significantly larger for restatement companies than for matched companies. Moreover, restatement companies are significantly less profitable than control companies, while the mean and median *MB* is significantly greater for restatement companies.

Panel B shows the Pearson correlations among the regression variables. The results show that the dummy variable for accounting restatement (*RES*) is positively and significantly associated with excess D & O insurance (*EXCOV*), thus indicating that firms with abnormally high D & O insurance are more likely to restate their financial reporting. The findings also indicate that companies with higher financial leverage (*LEV*), lower profitability (*ROA*), and more international activities (*FOREIGN*) are inclined to restate their earnings. In sum, these results preliminarily support the management opportunism hypothesis in which managers with excess D & O insurance have more incentives to choose aggressive accounting policies.

Finally, Panel C reveals the results of the determinants of excess D & O insurance coverage. It shows that the coefficients of *SIZE*, *LEV*, *CROSS*, *RETVOL*, and *HIGHTECH* are significantly positive, thus implying that companies with the following characteristics are more likely to be covered by D & O insurance: those in the high-tech industry that are larger in firm size, have higher financial

Table 2
Descriptive statistics.

Panel A: Descriptive statistics for restatements vs. matched-samples

	Sample of Restatements (n = 129)		Sample of Non-Restatements (n = 6,139)			
Variables	Mean	Median	Mean	Median	Mean diff*	Median diff*
EXCOV	0.066	0.018	-0.024	-0.023	4.679***	3.885***
BOARDSIZE	9.388	9.000	9.651	9.000	-0.785	-1.045
OUTDIR	0.426	0.429	0.438	0.500	-0.424	-0.470
SIZE	8.256	8.227	8.230	8.158	0.399	0.572
LEV	0.455	0.437	0.382	0.357	2.826**	2.694**
ROA	0.170	1.570	7.383	6.630	-5.327***	-4.972***
MB	1.658	1.600	1.459	0.930	1.063	1.729*
RAISE	0.025	0.001	0.024	0.000	0.035	0.569
FOREIGN	0.583	0.512	0.495	0.456	1.684*	1.777*

Panel B: Correlation coefficients of variables for sample of restatements (n = 129)*

Variable	*(1)*	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*
(1)RES									
(2)EXCOV	0.190 (0.001)								
(3)BOARDSIZE	-0.036 (0.350)	-0.178 (0.000)							
(4)OUTDIR	-0.017 (0.621)	0.102 (0.005)	-0.119 (0.057)						
(5)SIZE	0.041 (0.560)	-0.065 (0.616)	0.229 (0.000)	-0.308 (0.000)					
(6) LEV	0.189 (0.000)	0.007 (0.801)	-0.213 (0.001)	-0.052 (0.406)	-0.022 (0.729)				
(7) ROA	-0.204 (0.000)	-0.196 (0.000)	0.049 (0.433)	-0.136 (0.029)	0.114 (0.068)	-0.218 (0.000)			
(8)MB	0.091 (0.145)	0.121 (0.000)	-0.020 (0.748)	0.006 (0.919)	-0.089 (0.151)	0.061 (0.330)	0.230 (0.002)		
(9)RAISE	0.046 (0.482)	0.039 (0.436)	-0.034 (0.583)	0.085 (0.173)	-0.091 (0.145)	0.162 (0.009)	-0.031 (0.622)	0.229 (0.000)	
(10) FOREIGN	0.125 (0.092)	0.048 (0.507)	-0.067 (0.210)	0.200 (0.001)	0.250 (0.000)	0.190 (0.001)	0.133 (0.083)	0.079 (0.165)	0.032 (0.608)

Panel C: The determinants of excess D & O coverage (*EXCOV*)

$$COVERAGE = \alpha_0 + \alpha_1 SIZE + \alpha_2 LEV + \alpha_3 CROSS + \alpha_4 OUTDIT + \alpha_5 OUTOWN + \alpha_6 RETVOL + \alpha_7 HITECH + \alpha_8 CASH + \delta \times INDUSTRY + \phi \cdot YEAR + \varepsilon \quad (1')$$

	Predicted sign	**Coefficient**	**t-value**
SIZE	+	0.137	6.39***
LEV	+	0.155	2.36**
CROSS	+	0.206	4.47***
OUTDIT	+	0.056	1.03
RETVOL	+	0.002	2.21**
HIGHTECH	+	0.078	2.90***
CASH	+	0.081	1.20
INTERCEPT	?	0.863	5.59***

(continued on next page)

Table 2 *(continued)*

Panel C: The determinants of excess D & O coverage (*EXCOV*)	
YEAR	included
INDUSTRY	included
Adj R^2	0.113
N	6,268

RES = 1 if the firm is a restatement firm, and 0 otherwise; *EXCOV* = the residual from the regression of adjusted D & O liability insurance coverage on determinants of D & O liability insurance; *BOARDSIZE* = the number of board members; *OUTDIR* = the percentage of outside directors serving on the board; *SIZE* = ln (market value at year-end); *LEV* = total liabilities divided by total assets at year-end; *ROA* = net income before extraordinary items divided by total assets; *MB* = the ratio of the company's market value divided by the company's book value of net assets; *RAISE* = is the sum of additional cash raised from the issuance of common and preferred stock and the issuance of long-term debt and scaled by average total assets; *FOREIGN* = *is* proportion of total sales from foreign operations; *COVERAGE* = is the D & O liability coverage scaled by market value; *CROSS* = is a dummy variable that takes the value 1 if the firm is cross-listed in exchanges outside of Taiwan and 0 otherwise; *OUTDIR* = represents the percentage of outside directors on the board; *RETVOL* = represents stock return volatility measured by the natural logarithm of the annualized variance of daily returns over the current fiscal year; *HITECH* = is a dummy variable that takes the value 1 if the firm is classified as a high-tech company and 0 otherwise; *CASH* = is the sum of cash, cash equivalents, and short-term investments scaled by lagged total assets.
Numbers in parentheses below the Pearson correlation coefficients are *p*-values. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 3
The results of accounting restatements on management legal Liability coverage.

		Column (1) *Non-matched sample*		Column (2) *Matched sample*	
	Predicted sign	**Coefficient**	**z-value**	**Coefficient**	**z-value**
Experimental Variables					
EXCOV	+	5.096	2.91***	5.895	6.46***
Control Variables					
BOARDSIZE	+	-0.032	-0.33	-0.045	-0.81
OUTDIR	−	-0.793	-3.19***	-0.567	-2.89***
SIZE	−	0.365	1.81*	0.392	1.90**
LEV	+	1.423	2.92*	1.606	2.05**
ROA	−	-0.060	-7.22***	-0.065	-2.50***
MB	+	0.005	0.95	-0.083	1.04
RAISE	+	2.509	0.83	1.021	0.66
FOREIGN	+	0.375	1.68*	0.057	1.70*
INTERCEPT	?	-1.827	-0.56	-2.078	-0.41
YEAR		included		included	
INDUSTRY		included		included	
Pseudo R^2		0.178		0.272	
N		6,268		258	

RES = 1 if the firm is a restatement firm, and 0 otherwise; *EXCOV* = the residual from the regression of adjusted D & O insurance limits on determinants of D & O insurance; *BOARDSIZE* = the number of board members; *OUTDIR* = the percentage of outside directors serving on the board; *SIZE* = ln (market value at year-end); *LEV* = total liabilities divided by total assets at year-end; *ROA* = net income before extraordinary items divided by total assets; *MB* = the ratio of the company's market value divided by the company's book value of net assets; *RAISE* = is the sum of additional cash raised from the issuance of common and preferred stock and the issuance of long-term debt scaled by average total assets; *FOREIGN* = *is* proportion of total sales from foreign operations; *YEAR* is a set of dummy variables that represent year; *INDUSTRY* is a set of dummy variables that represent industry. Results for the dummy variables representing year and industry are not reported.
z-value computed using robust standard errors adjusted for clustering by company. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively

leverage, are cross-listed in exchanges outside of Taiwan, and have more volatility in stock returns.

4.2. Results from the regression of restatements on D & O insurance

Table 3 presents the estimation results after controlling for other factors that could affect accounting restatements. In testing the statistical significance of the coefficient estimates, this study uses robust standard errors adjusted for clustering, which means that observations from the same companies are not treated as independent. Adjusting for clustering does not affect the coefficient estimates, but it tends to produce larger standard errors and lower test statistics (Rogers, 1993). In all of the regressions, a two-tailed test is used for the coefficients, and dummy variables representing year and industry are included. For the sake of brevity, the results of the year and industry are untabulated.

As shown in the non-matched sample in Column (1) of Table 3, the coefficient of excessive D & O coverage (*EXCOV*) is significantly positive for restatement firms at the 1% significance level. This result indicates that managers with higher excess coverage are more likely to behave opportunistically and restate financial statements, especially since their legal liability concerns are already mitigated by D & O insurance coverage. In other words, a manager tends to adopt a more aggressive accounting method when his/her personal legal liability is covered by D & O insurance.

This study further tests the impact of excess D & O coverage in the matched sample. To create the matched pairs, firm size is used as the control for size-related differences after which 258 observations are obtained. The coefficients of *EXCOV* are also significantly positive for restatements firms in Column (2). Again, the results demonstrate that managers with higher levels of liability coverage are more opportunistic and more likely to restate their firms' earnings since their legal liability concerns are alleviated.[8]

To interpret the economic importance of this result, this study estimates the change in the odds of a company having accounting restatements in response to a one-unit increase in the corresponding independent variables. The findings show that the change in odds for excess D & O coverage (*EXCOV*) is 489.58%, suggesting that the increase in the odds of having accounting restatements for each one-standard-deviation increase in *EXCOV* is economically significant.[9] These results clearly show that excessive D & O coverage (*EXCOV*) has an impact on accounting restatements.

[8] Several Taiwanese firms cross-listed in the United States are subject to U.S.-style litigation risk. To reduce the impact of these firms, this study drops eight cross-listed firms in the U.S., including Lemel, GiGaByte, SPIL, ProMos, ASUS, EPISTAR, YAGEO, and Chia Hsin, and reruns the model. The findings show that the coefficients on *EXCOV* are still significantly positive in the non-matched and matched samples, thus indicating that the results remain unchanged after controlling for the cross-listed Taiwanese firms.

[9] The change in odds equals [exp ($s_i b_i$) − 1], where s_i is the sample standard deviation of continuous variable i (or 1 for dummy variable i) and b_i is the estimated regression coefficient for variable i (Greene, 2008). Some studies estimate the change in odds in response to a one-standard-deviation increase in the continuous independent variable (e.g., DeFond & Hung, 2003).

Regarding the control variables, Table 3 indicates that the coefficients of company size (*SIZE*), financial leverage (*LEV*), and international activity (*FOREING*) are significantly positive, whereas the percentage of outside directors (*OUTDIR*) and return on assets (*ROA*) is significantly negative. These results are consistent with the findings of previous studies (Chin & Chi, 2009; DeFond & Jiambalvo, 1991; Myers et al., 2005). The pseudo-R^2 shows that the independent variables explain approximately 17.8% and 27.2% of the variation in the non-matched and matched samples, respectively. Generally, the explanatory powers for the matched approach are consistently and significantly higher than those for the non-matched approach. This finding is consistent with the results of Zmijewski (1984).

4.3. Results of controlling for the endogeneity effect

At this point, this study has found that managers with more D & O insurance coverage have higher probabilities of restating their financial reports. However, an important concern regarding the present model is the endogeneity issue. It is possible that firms with restated financial reports tend to purchase higher D & O insurance coverage for reasons unrelated to their aggressive accounting choices, and that the control variables in this study did not capture them. Therefore, this section performs robustness checks using different econometric analyses. First, there could be a significant endogeneity problem since D & O insurance coverage and accounting restatement appear to be related, based on their levels of complexity. That is, the more complex the business operation, the higher the litigation risk and need for D & O insurance. Additionally, since firms with more complexities can make it more difficult to choose proper accounting policies, more accounting restatements could occur. To reduce the concern regarding the impact of such complexities, this study applies the matching sample approach to control for this significant endogeneity problem. Furthermore, to create the matched pairs, we use two variables to capture the complexity of the operations: (1) number of subsidiaries of overseas branches (Business Complexity 1) (Craswell & Francis, 1999; Francis, LaFond, Olsson, & Schipper, 2005; Choi, Kim, Liu, & Simunic, 2008); and (2) the sum of accounts receivables and inventory divided by total assets (Business Complexity 2) (Francis et al., 2005; Choi, Kim, Kim, & Zang, 2010a; Choi, Kim, & Zang, 2010b; Zerni, 2011). Each restated company is matched with a non-restated company that is in the same year and industry, and the most similar regarding operational complexity. These procedures yield a total of 258 observations. Using the matched samples, the primary analyses are repeated, the findings of which are presented in Columns (1) and (2) of Table 4. As shown in Table 4, the results corroborate the previous findings that the relationship between accounting restatement and D & O insurance coverage is significant, even after controlling for business complexity.

Second, there could be self-selection bias. As stated earlier, purchasing insurance may not be randomly assigned to firms. To deal with this issue, this study uses Heckman's two-stage self-selection model to control for the self-selection bias induced by firms' choices of purchasing insurance. In addition, following the studies of Core (1997) and Chung and Wynn (2008), the present study controls for potential self-selection bias related to a firm's demand for D & O insurance purchase in the first stage.

$$P(PURCHASE = 1) = \gamma_0 + \gamma_1 SIZE + \gamma_2 MB + \gamma_3 LEV + \gamma_4 EXCASH + \gamma_5 ACQUIRER + \gamma_6 DIVESTOR + \gamma_7 CROSS + \gamma_8 CEOOWN + \gamma_9 OUTBLOCK + \gamma_{10} HIGHTECH + \varepsilon \quad (2)$$

where *PURCHASE* denotes the *ex ante* probability of a firm purchasing D & O insurance that is *ex post* coded as one if a firm purchases D & O insurance, and zero otherwise.

In the first stage, the following variables are included in Eq. (2): the firm's total assets (*SIZE*), the firm's growth opportunity (*MB*), the debt ratio (*LEV*), the excess of cash holding (*EXCASH*), increases in the book value of total assets (*ACQUIRER*), decreases in the book value of total assets (*DIVESTOR*), cross-listings in overseas countries (*CROSS*), the percentage of shares held by the CEO (*CEOOWN*), the percentage of shares held outside shareholders (*OUTBLOCK*), and high technology (*HIGHTECH*). The fitted values from the logistic regression are then obtained after which the inverse Mills ratio is calculated (Heckman, 1979). To correct for potential self-selection bias, the inverse Mills ratio (λ) is used as an additional explanatory variable in Eq. (1).

After the selection bias is controlled in the second stage, the results indicate that the coefficient of *EXCOV* (coefficient = 0.370; z-statistic = 2.16) is both positive and significant, which is consistent with the results of Table 3. Therefore, after correcting for selectivity bias, the findings show that the association between managerial legal liability coverage and earnings restatement is still significant with a positive sign. This indicates that managerial legal liability concerns have already been mitigated by liability coverage, and that firms with such coverage are more likely to restate financial statements arising from opportunistic behaviors in which aggressive earnings are reported.

4.4. Additional analysis: types of accounting restatements and D & O insurance coverage

This section focuses on misstatements that are most likely to be of consequence to stakeholders. Moreover, it further investigates the effects of D & O insurance on different restatement characteristics.

First, managers have more incentives to manage higher core earnings, thus resulting in aggressive financial reporting behaviors. Such actions can increase litigation risks and lawsuit settlements for directors and officers (Palmrose & Scholz, 2004).[10] As mentioned

[10] Palmrose and Scholz (2004) show that a misstatement of core earnings and income results in higher litigation risks and higher lawsuit settlements. Between 1995 and 1999, the mean lawsuit settlement was $57.1 million for core restatements and $10.7 million for non-core restatements. Evidently, the misstatements of core earnings are more important not only to users, but also to plaintiffs, especially those who anticipate that the judicial process will perceive these cases as more meritorious.

Table 4
Results of controlling endogeneity.

		Column (1) *Business Complexity1*		Column (2) *Business Complexity2*		Column (3) *Heckman Model*	
	Predicted sign	Coefficient	z-value	Coefficient	z-value	Coefficient	z-value
Experimental Variables							
EXCOV	+	2.781	3.07 ***	4.454	4.11 ***	0.370	2.16 **
Control Variables							
BOARDSIZE	+	-0.010	-0.18	-0.018	0.33	-0.009	-0.30
OUTDIR	−	-0.397	-2.54 ***	-0.616	-2.83 ***	-0.011	-2.26 **
SIZE	−	-0.379	-1.87 *	-0.051	-0.17	-0.030	-1.83 *
LEV	+	0.595	2.01 **	0.121	0.16	0.066	1.95 *
ROA	−	-0.071	-4.62 ***	-0.056	-3.91 ***	-0.002	-4.50 ***
MB	+	0.069	1.58	0.138	2.85 ***	0.001	1.82 *
RAISE	+	0.828	1.60	0.511	3.03 ***	-0.588	-1.20
FOREIGN	+	0.076	1.59	0.461	2.17 ***	-0.071	-1.70 *
Lambda	?					0.015	0.38
INTERCEPT	?	-3.081	-1.12	-1.199	-1.47	-0.553	-2.21 **
YEAR		included		included		included	
INDUSTRY		included		included		included	
Pseudo R^2		0.142		0.140			
Wald χ^2						48.30 ***	
N		258		258		6,268	

RES = 1 if a firm is a restatement firm, and 0 otherwise; *EXCOV* = the residual from the regression of adjusted D & O insurance limits on determinants of D & O insurance; *BOARDSIZE* = the number of board members; *OUTDIR* = the percentage of outside directors serving on the board; *SIZE* = ln (market value at year-end); *LEV* = total liabilities divided by total assets at year-end; *ROA* = net income before extraordinary items divided by total assets; *MB* = the ratio of the company's market value divided by the company's book value of net assets; *RAISE* = is the sum of additional cash raised from the issuance of common and preferred stock and the issuance of long-term debt scaled by average total assets; *FOREIGN* = is proportion of total sales from foreign operations; *Lambda* obtained in the first step as the inverse of the Mills' ratio; *YEAR* is a set of dummy variables that represent year; *INDUSTRY* is a set of dummy variables that represent industry. Results for the dummy variables representing year and industry are not reported. *z*-value are computed using robust standard errors adjusted for clustering by company. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively

earlier, managerial legal liability coverage is generally available to reimburse directors and officers for defense costs, judgments and settlements, even in cases where a company admits that its financial statements are materially misleading. Therefore, managers may have more core earnings restatements when they are protected against the higher litigation risk associated with severe restatements. Following Palmrose et al. (2004), the present study defines core earnings restatements as those involving revenue, cost of sales or ongoing operating expenses. Moreover, non-core earnings are defined as those from all other activities. Column (1) of Table 5 analyzes the effect of core earnings restatements on excess legal liability coverage (*EXCOV*). It reveals that the coefficient of *EXCOV* is statistically significant (coefficient = 2.975; *z*-statistic = 2.79). A one-standard-deviation increase in *EXCOV* changes the odds of having accounting restatements by 59.68%. This result indicates that D & O legal liability concerns about core earnings restatements could be mitigated by D & O insurance coverage.

Second, recent press reports indicate that the incentive to misstate earnings has increased (Bartov & Mohanram, 2004) due to some forms of incentive compensation that prompt managers to use aggressive accounting to inflate stock prices. However, another important consideration is capital market motivations such as the need to maintain positive earnings surprises and the need for a lower cost of capital (Dechow et al., 1996; Richardson et al., 2003). The focus on income overstatement is motivated by several public policy concerns regarding earnings management, which are addressed in the literature (Palmrose et al., 2004; Srinivasan, 2005; Desai, Hogan, & Wilkins, 2006). As Chung and Wynn (2008) show, once directors and officers have more insurance coverage, their accounting policies will be less conservative and more aggressive. To test the differential effects of D & O insurance coverage on income overstatement and understatement, this study classifies the restatements as either income overstatements or income understatements by using an indicator variable. *INCOME-RESTATEMENT* is an indicator variable that takes on a value of one if a firm has an income overstatement and zero if a firm has an income understatement. In Table 5, Column (2) shows that the coefficient *EXCOV* is significantly positive (coefficient = 4.012; *z*-statistic = 3.80), indicating that managers tend to be more opportunistic and they consequently overstate their income when their legal liabilities are covered by D & O insurance.

Third, although regulators have expressed concerns regarding the occurrence of accounting restatements, there are variations in the severity of the responses to restatements (e.g., Palmrose et al., 2004). Following Kinney, Palmrose, and Scholz (2004), the present study defines misstatement as "material" if its absolute size is greater than or equal to 5% of the absolute value of the net income or loss originally reported.[11] Additionally, this study includes a variable for the persistence of misstatements, as measured by the number of years the firm has issued financial restatements (Palmrose et al., 2004). In Columns (3) and (4) of Table 5, the results reveal that excess D & O insurance coverage is significantly associated with "Material Restatements," instead of "Persistence." This

[11] Of the 129 restatements issued during the sample period, 38 meet this materiality threshold.

Table 5
The types of accounting restatements on management legal liability coverage.

		Column (1) *Core earnings*		Column (2) *Income overstatement*		Column (3) *Material restatement*		Column (4) *Persistence*		Column (5) *Restatements initiators*	
	Predicted sign	Coefficient	z-value	Coefficient	z-value	Coefficient	z-value	Coefficient	z-value	Coefficient	z-value
Experimental Variables											
EXCOV	+	2.975	2.79***	4.012	3.80***	2.568	3.01***	1.015	0.47	2.599	2.53***
Control Variables											
BOARDSIZE	+	-0.020	-0.62	0.056	0.63	-0.043	-0.50	0.075	0.53	0.123	1.75*
OUTDIR	−	-0.330	-2.01**	-1.562	-1.85*	-3.927	-4.15***	2.140	1.58	0.270	2.01**
SIZE	−	0.401	0.20	0.243	0.25	-1.538	-2.70***	-1.289	-1.70*	-0.556	-1.73*
LEV	+	3.179	1.83*	0.372	2.13**	0.013	0.20	-0.989	-0.80	-0.260	-0.49
ROA	−	-0.052	-2.022**	-0.030	-2.77***	-0.035	-1.48	0.047	1.38	-0.071	-1.87*
MB	+	0.215	1.35	0.635	1.70*	0.120	0.77	-0.177	-1.03	0.117	1.30
RAISE	+	3.427	0.60	4.881	1.87*	5.612	0.97	4.020	0.51	-3.021	-0.88
FOREIGN	+	0.038	1.78*	0.052	1.25	0.093	1.03	0.112	1.80*	0.070	1.11
INTERCEPT	?	-2.162	-0.70	-3.902	-2.16**	-5.120	-0.27	9.620	2.01**	2.725	0.79
YEAR		included		included		included		included		included	
INDUSTRY		included		included		included		included		included	
Pseudo R^2/ Adj R^2		0.319		0.435		0.230		0.066		0.046	
N		129		129		129		129		129	

CORE_EARNINGS = 1 if a firm has a core restatement, and 0 otherwise; *INCOME_RESTATEMENT* = 1 if a firm has an income overstatement, and 0 if a firm has an income understatement; *Material restatement* = if absolute value of difference in restated net income and net income originally reported scaled by net income originally reported is greater than or equal to 0.05; *Persistence* = is the number of years' financials restated; *Restatements initiators* = 1 if a firm's restatement is required by TSFB, and 0 otherwise; *EXCOV* = the residual from the regression of adjusted D&O insurance limits on determinants of D&O insurance.
z-value computed using robust standard errors adjusted for clustering by company. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively

Table 6
Alternatives measures for D & O Legal Liability Coverage.

		Column (1) *COVERAGE = The natural log of insurance coverage*		Column (2) *COVERAGE = Insurance coverage divided by asset*		Column (3) *COVERAGE = Insurance coverage divided by market value*	
	Predicted sign	Coefficient	z-value	Coefficient	z-value	Coefficient	z-value
Experimental Variables							
COVERAGE	+	6.832	2.01 **	6.956	2.16 **	7.029	3.16 ***
Control Variables							
BOARDSIZE	+	0.050	0.82	0.057	0.42	0.092	0.69
OUTDIR	−	-0.615	-2.78 ***	-0.449	-2.42 **	-0.818	-2.69 ****
SIZE	−	-0.321	-1.66 *	-0.182	-1.89 *	-0.540	-1.92 *
LEV	+	1.936	1.98 **	2.165	2.58 ***	2.406	1.71 *
ROA	−	-0.070	-2.63 ***	-0.072	-2.71 ***	-0.068	-2.52 ***
MB	+	0.072	1.69 *	0.086	1.89 *	0.092	1.96 *
RAISE	+	1.002	0.97	0.965	0.93	1.027	1.01
FOREIGN	+	0.849	1.82 *	0.802	1.69 *	0.828	1.78 *
INTERCEPT	?	-3.047	1.58	-3.335	-1.70 *	-2.359	-1.48
YEAR		included		included		included	
INDUSTRY		included		included		included	
Pseudo R^2		0.212		0.223		0.259	
N		258		258		258	

RES = 1 if a firm is a restatement firm, and 0 otherwise; *BOARDSIZE* = the number of board members; *OUTDIR* = the percentage of outside directors serving on the board; *SIZE* = ln (market value at year-end); *LEV* = total liabilities divided by total assets at year-end; *ROA* = net income before extraordinary items divided by total assets; *MB* = the ratio of the company's market value divided by the company's book value of net assets; *RAISE* = is the sum of additional cash raised from the issuance of common and preferred stock and the issuance of long-term debt scaled by average total assets; *FOREIGN* = is proportion of total sales from foreign operations; *Lambda* obtained in the first step as the inverse of the Mills' ratio; *YEAR* is a set of dummy variables that represent year; *INDUSTRY* is a set of dummy variables that represent industry. Results for the dummy variables representing year and industry are not reported. *z*-value is computed using robust standard errors adjusted for clustering by company. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively

suggests that excessive D & O insurance coverage has a tendency to mitigate managerial legal liability concerns and consequently increase the likelihood of significant amounts of restatements.

Finally, according to Article 6 of the Securities and Exchange Law Enforcement Rules (SELER), the TSFB requires companies to restate financial reporting when misstatements meet the restatement threshold. Attribution to the TSFB indicates that company monitoring functions not only failed to prevent, but failed to identify and correct material misstatements. Thus, TSFB-initiated restatements are generally perceived to be more serious or material than those initiated by other restatements, which are voluntarily made by both companies and auditors. Furthermore, this study reruns the model in which the dependent variable is an indicator equal to one if the restatement is initiated by the TSFB, and zero if the restatement is initiated by the company or auditor. Column (5) of Table 5 shows a significantly positive relationship between excess D & O insurance coverage and "Restatement Initiators," indicating that, for the restatement sample, firms are more likely to be required to restate financial reporting by the TSFB when their directors and officers are covered by excess legal liability insurance.

4.5. Sensitivity analysis: alternative measures for D & O insurance

This section considers the use of original D & O insurance coverage (instead of excess coverage) in explaining accounting restatement. In order to explore whether definitions matter, this study compares the differences in accounting restatement across alternative definitions of D & O's legal liabilities, and applies three measurements (1) the log transformation of D & O insurance coverage; (2) D & O insurance coverage divided by assets; and (3) D & O insurance coverage divided by market value. As shown in Table 6, the coefficient of *COVERAGE* is still significantly positive in the three regressions, which implies that reducing D & O's legal liability via higher insurance coverage could affect the possibility of accounting restatements.

5. Conclusion

The TSFB requires that listed firms disclose more information about their D & O insurance than non-listed firms. This publicly available data provided this study with a foundation to examine how managerial legal liability coverage affects the incidence of earnings restatements. Moreover, this study used a sample of listed firms in Taiwan where publicly-owned companies are required to disclose the details of their insurance policies, and employed the sum of excessive D & O insurance coverage and cash for indemnification as a proxy for managerial opportunism.

Previous studies on the effect of managerial legal liability on earnings quality adopt various measures to proxy for earnings quality, such as discretionary accruals and earnings conservatism (Chung & Wynn, 2008; Boubakri et al., 2008). Although high accruals and less conservatism may proxy for the poor quality of financial restatements, these may not arise from a violation of GAAP.

Thus, present study exclusively focused on accounting restatements arising from the violation of GAAP, since these restatements arguably impose greater costs on firms and investors (e.g., Palmrose et al., 2004).

The results of this study add to the current understanding of managers' accounting policies, and the relationship between managerial legal liability coverage and the probability of company misstatements. The findings show that firms with more managerial liability coverage, as measured by the excess D & O insurance coverage, are more likely to restate their earnings. As this relationship indicates, managers' accounting policies are more aggressive when they have fewer legal liability concerns.

Although the findings in this study clearly reveal the significant effect of excessive D & O insurance coverage on earnings restatement, the scope of this research still includes some limitations. First, although it attempted to solve the endogenous problems, some unknown factors may have simultaneously influenced both excessive D & O insurance coverage and earnings restatements. Second, the TSFB requires that firms disclose the existence of D & O insurance policies and make them publicly available in the firms' proxy statements. However, since firms only disclose their D & O liability insurance coverage, instead of the premiums paid, this study only obtained the information regarding D & O insurance coverage in Taiwan. Thus, future studies should consider using the premiums paid as well as excessive coverage (even with the D & O insurance to premium ratio) in explaining earnings restatements. Given that limited information of D & O premiums paid is available, such research can provide more insight into insurers' actions when firms purchase excessive D & O liability insurance.

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