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Impact of D&O Insurance on Shareholder Wealth During Financial Restatement Announcements: An Empirical Study in Taiwan

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Abstract

This study investigates the influence of Directors' and Officers' Liability Insurance (D&O insurance) on shareholder wealth at the time of financial restatement announcements. Utilizing a dataset comprising 226 restatement announcements from firms listed on the Taiwan Stock Exchange (TWSE) and the Taipei Exchange (TPEx) spanning 2009 to 2021, our analysis demonstrates a statistically significant negative impact of D&O insurance coverage on shareholder wealth during these announcements. This supports the hypothesis that moral hazard-induced opportunism arises with D&O insurance coverage. Nevertheless, this detrimental effect is less significant in firms with strong other external monitoring mechanisms, such as active financial analyst coverage, substantial institutional investor ownership, and extensive media attention. These findings suggest that robust oversight can attenuate the potential negative repercussions associated with D&O insurance. Our research contributes to a deeper understanding of the role of D&O insurance within the framework of corporate information disclosure quality and its economic implications on financial restatements.

JEL classification numbers: G14, G22, G34, M41.
Keywords: Directors' and Officers' Liability Insurance, Financial Restatements, Corporate Governance, Moral Hazard, External Monitoring

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1. Introduction

Directors' and Officers' Liability Insurance (D&O insurance) is instrumental in risk mitigation, providing essential coverage for directors and key officers against third-party compensation claims. The insurance covers costs related to investigations, legal defenses, settlements, and court-awarded judgments incurred during the claims period. By absorbing these financial liabilities, D&O insurance helps protect the company or insured individuals from significant financial hardship, thus promoting organizational stability. The global market for D&O insurance, as estimated by Allianz Global Corporate & Specialty, is valued at approximately $10 billion in written premiums, indicating its widespread adoption across North America, Western Europe, and Asia (Li & Liao, 2014). In Taiwan, corporate governance regulations for publicly listed companies explicitly mandate the procurement of such insurance in 2003. Article 39, Paragraph 1 of the Guidelines for Corporate Governance of Listed Companies requires listed firms to secure liability insurance for their directors to manage potential liabilities and litigation risk encountered in the discharge of their official duties. This regulatory framework is supported by data from the Securities and Futures Investors Protection (SFIP) Center in Taiwan, which reports a significant increase in securities-related lawsuits naming directors and officers. The increasing focus on investor protection underscores the growing significance of D&O insurance in the corporate world (Lai & Tai, 2019; Lin, Guan, Ho, & Wang, 2022; Su, 2023).[5]

As the D&O insurance framework in Taiwan's securities market becomes increasingly sophisticated, paralleling the growing frequency of litigation against directors due to managerial crises or significant corporate scandals, the investigation into the implications of D&O insurance for corporate policy and economic valuation has become a vital area of academic inquiry. This research focus includes a wide array of topics that are crucial for understanding the broader impacts of D&O insurance on corporate governance and financial practices. Key areas of interest include corporate social responsibility (Cheng, Chang, & Chen, 2022), which examines how D&O insurance might influence corporate behavior towards ethical practices. Similarly, the competencies of senior management (Lin, Guan, Ho, & Wang, 2022) are scrutinized to assess how D&O insurance impacts decision-making at the highest levels of corporate leadership. The structure and characteristics of boards (Chiang & Chang, 2021; Huang & Chang, 2022) are also critical, as D&O insurance may affect how risks and responsibilities are managed within corporate boards. Additionally, the study delves into the correlation between executive compensation and performance (Wang & Chen, 2016), examining whether D&O insurance aligns managerial incentives with shareholder interests. Further, Corporate valuation techniques (Chen, Wang, Wu, & Wu, 2015; Lee, Tang,

[5] Reflecting the growing importance of corporate governance, the Financial Supervisory Commission, Taiwan's securities regulatory authority, has implemented a policy since 2018 mandating all new listings to obtain D&O insurance. This requirement was expanded in 2019 to include all listed companies, making D&O insurance a compulsory measure. This directive underscores the commitment to fostering a governance environment that encourages ethical management and robust oversight.

& Lu, 2020) and efficiency in capital investments (Li & Liao, 2014; Li, Li, Sun, & Huang, 2023) are another focal point, helping to elucidate whether D&O insurance contributes to more accurate and stable corporate valuations. Additionally, the investigation extends into the domain of earnings management, where principles of earnings conservatism (Liao, Tang, & Lee, 2016), patterns of earnings management by executives (Tang, Liao, & Lee, 2014), and behaviors related to financial restatements (Tang, Liao, & Lee, 2015; Weng, Chen, & Chi, 2017; Donelson, Monsen, & Yust, 2021) are analyzed to understand the earnings management aspects of D&O insurance. Finally, the dynamics of cash capital increases or IPO discount pricing (Kao, Chen, & Krishnamurti, 2020; Liao, Chuang, & Wang, 2022) and the pricing of seasoned equity offerings (Liao, Chuang, & Wang, 2022) are explored to determine if D&O insurance provides a safety net that influences financial strategies. Moreover, stock price synchronicity (Lo, Shieh, Shih, & Hsieh, 2023) and M&A announcement-period returns (Nguyen, Lin, Chin, & Hsieh, 2024) are also significant, each offering insights into how D&O insurance impacts financial investing decisions and market reactions. This broad spectrum of research areas not only enriches the understanding of D&O insurance's role in contemporary corporate finance but also underscores its potential to influence a range of corporate governance mechanisms and financial strategies.

Expanding on the existing body of research examining the influence of D&O insurance on corporate information disclosure and the quality of financial reporting (Lin, Officer, Wang, & Zou, 2013; Cao & Narayanamoorthy, 2014; Tang, Liao, & Lee, 2014, 2015; Chen, Li, & Zou, 2016; Liao, Tang, & Lee, 2016; Weng, Chen, & Chi, 2017; Chang, Ren, & Yeh, 2018; Donelson, Hopkins, & Yust, 2021), this paper seeks to delve into the influence of D&O insurance on the value implications of financial restatements, which are often indicators of poor-quality financial reporting and are associated with increased litigation risks (Jones & Weingram, 1997; Palmrose & Scholz, 2004). Specifically, the primary objective of this research is to assess whether D&O insurance serves as a mitigating or exacerbating factor in the corporate shareholder wealth during the announcements of financial restatements, by examining the corporate governance-based monitoring hypothesis versus the moral hazard-based opportunism hypothesis.

In the realm of corporate governance, D&O insurance plays a crucial role by mitigating litigation risks, which in turn increases directors' and management's propensity to undertake riskier initiatives. This insurance also aids in attracting skilled professionals to serve as external directors, thereby bolstering governance structures.[6] Moreover, robust governance frameworks are shown to significantly improve the quality of financial reporting. This is attributed to the effectiveness of boards and their committees, which serve as vigilant monitors of executive actions

[6] This effect is supported by a plethora of studies, including those by Priest (1987), Holderness (1990), Mayers & Smith (1990), Core (1997), O'Sullivan (1997), Chen & Pang (2008), Zou & Adams (2008), Baker & Griffith (2010), Boyer & Tennyson (2015), Liao, Tang, & Lee (2016), Yuan, Sun, & Cao (2016), Hwang & Kim (2018), Wang, Zhang, Huang, & Zhang (2020), and Cheng, Chang, & Chen (2022).

(Cohen, Krishnamoorthy, & Wright, 2004; Zhizhong, Juan, Yanzhi, & Wenli, 2011; Botti, Boubaker, Hamrouni, & Solonandrasana, 2014; Habib & Jiang, 2015; Hasnan, Mohd Razali, & Mohamed Hussain, 2020; Hasan, Aly, & Hussainey, 2022). Taken together, the presence of D&O insurance may signal to the market a firm's commitment to high-quality governance. This paper argues that such signals could mitigate the negative impact of financial restatements on shareholder wealth. This relationship is framed under the corporate governance-based monitoring hypothesis (H1), positing a positive correlation between D&O insurance and shareholder wealth during financial restatement periods, reflecting the broader benefits of enhanced corporate governance and financial integrity.

Conversely, a robust corpus of research suggests that D&O insurance might inadvertently lessen the rigor of governance vigilance required of executives and directors, thereby fostering a moral hazard. This perceived security may lead to a relaxation in governance responsibilities and an escalation of agency conflicts associated with managerial discretion (Gutierrez, 2003; Lin, Officer, & Zou, 2011; Lin, Officer, Wang, & Zou, 2013; Li & Liao, 2014; Boyer & Tennyson, 2015; Chen, Li, & Zou, 2016; Kao, Chen, & Krishnamurti, 2020; Donelson, Monsen, & Yust, 2021; Chiang & Chang, 2022). Moreover, additional studies highlight how D&O insurance may intensify disputes over earnings quality, resulting in less robust financial disclosures and adversely impacting corporate financial integrity (Kim, 2006; Chung & Wynn, 2008; Zou, Wong, Shum, Xiong, & Yan, 2008; Lin, Officer, Wang, & Zou, 2013; Boyer & Tennyson, 2015; Chen, Li, & Zou, 2016; Weng, Chen, & Chi, 2017; Chang, Ren, & Yeh, 2018; Donelson, Hopkins, & Yust, 2021). In the context of financial reporting and securities litigation, extensive research has elucidated the relationship between earnings announcements, the occurrence of securities class actions, and behaviors influenced by expected litigation costs (Ryan & Zarowin, 2003; Seetharaman, Srinidhi, & Swanson, 2005; Lev, Ryan, & Wu, 2008). Taken together, our study formulates the moral hazard-based opportunism hypothesis (H2), which posits that D&O insurance may prompt management to undertake earnings management activities that compromise financial reporting quality. Such actions could exacerbate negative market reactions during financial restatement announcements. This hypothesis contends that, ceteris paribus, D&O insurance may negatively impact shareholder wealth during these critical disclosure periods.

Our empirical analysis adheres to an event study methodology, analyzing a dataset comprised of 226 non-overlapping announcements of financial restatements by companies listed on both the Taiwan Stock Exchange (TWSE) and the Taipei Exchange (TPEx) from 2009 to 2021.[7] To ensure the robustness of our findings, we utilize two measures to quantify the level of D&O insurance coverage: the D&O insurance ratio, which is calculated as the personal coverage limit of the D&O

[7] Considering the diverse motivations behind financial restatement announcements, a single declaration can encompass multiple issues, potentially duplicating observations in the dataset. To mitigate confounding effects, we ensure each restatement is considered only once in our dataset. This methodological rigor enhances the reliability of our findings by preventing statistical distortion from repeated entries of the same announcement.

insurance policy scaled by the firm's total assets (*DOTA*), and by its average market value of equity within the year (*DOMV*). Moreover, to gauge the impact of restatement announcements on shareholder wealth, we compute the two-day cumulative abnormal return (*CAR*) around the announcement dates using the market model. The results of our empirical analysis yield two primary conclusions that align with the moral hazard-based opportunism hypothesis (H2), providing new insights into the repercussions of D&O insurance on financial restatement practices. Firstly, our univariate analysis reveals that firms with high levels of D&O insurance coverage, quantified by the *DOTA* measure, exhibit a mean two-day *CAR* of −1.915%. This is in sharp contrast to a CAR of −0.396% for firms without such coverage, indicating a significant differential of −1.519%. Further exploration through cross-sectional regression analysis solidifies the impact of D&O insurance coverage as a statistically significant and negative predictor of *CAR*. After controlling for a range of variables known to influence returns during the announcement period of restatements, the persistently negative effect of D&O insurance underscores its potential role in promoting earnings management behaviors. These behaviors, ostensibly influenced by the moral hazard introduced by insurance coverage, tend to degrade the quality of financial reporting, thereby adversely affecting shareholder wealth during these pivotal disclosure intervals. These empirical insights robustly support the moral hazard-based opportunism hypothesis (H2).

Secondly, in the context of corporate governance, a substantial body of literature highlights that D&O insurance might prompt managerial behaviors that lead to agency conflicts. However, these potential issues are often mitigated by various other external monitoring mechanisms such as financial analysts (Lin, Officer, Wang, & Zou, 2013), institutional investors (Li & Liao, 2014), and media coverage (Chen, Weng, and Chien, 2018). Drawing on these external oversight frameworks, this study posits that when firms are subject to strong external monitoring—for instance, significant following by financial analysts, high institutional investor ownership, or extensive media exposure—the potential agency conflicts implied by D&O insurance in decisions related to financial restatements are likely curtailed. This mitigation could lead to a reduction, or even elimination, of the negative influence of D&O insurance on *CAR* during financial restatement announcements. Building on this hypothesis, this paper conducts an in-depth analysis to assess how the negative impact of D&O insurance on *CAR* varies between firms with strong versus weak external monitoring. Our empirical findings suggest that in firms with robust external monitoring mechanisms (such as substantial analyst coverage, high institutional ownership, or significant media exposure), the negative effects of D&O insurance on *CAR* are not statistically significant. These results support the mediating effect of external monitoring mechanisms, suggesting that stronger external oversight can suppress the potential moral hazard and agency issues associated with D&O insurance, thus neutralizing the adverse impact on shareholder wealth during periods of financial restatement announcements.

The main contribution of our study is to seek to augment the current body of knowledge by analyzing the influence of D&O insurance on shareholder wealth during periods of financial restatements. Prior research has extensively explored the variables affecting shareholder wealth, particularly in response to financial restatement announcements, as delineated in studies by scholars such as Palmrose, Richardson, & Scholz (2004), Badertscher, Hribar, & Jenkins (2011), Gordon, Henry, Peytcheva, & Sun (2013), Myers, Scholz, & Sharp (2013), and recent analyses by Wans (2020) and Bartov, Marra, & Momenté (2021). Despite extensive investigations into various determinants, the specific role of D&O insurance—as both a monitoring mechanism and a potential enabler of managerial opportunism during financial restatements—has not been thoroughly examined. Our investigation addresses this oversight by providing novel empirical insights into how D&O insurance impacts the valuation effects associated with corporate financial restatements, thereby contributing significant new evidence to the discourse on corporate governance and risk management.

It is important to acknowledge that recent studies, such as those by Tang, Liao, & Lee (2015), Weng, Chen, & Chi (2017), & several recent studies, such as those by Tang, Liao, & Lee (2015), Weng, Chen, & Chi (2017), and Donelson, Hopkins, & Yust (2021), closely align with our research. These investigations contend that while excessive D&O insurance coverage may indeed foster a sense of impunity among management, leading to moral hazard-related agency problems, it also serves as an effective external monitoring mechanism that deters opportunistic earnings management practices. These studies primarily explore whether D&O insurance impacts the occurrence of financial restatements. Contrastingly, our research introduces a nuanced perspective by examining the adverse economic impacts of D&O insurance during financial restatement announcements. While existing literature offers mixed views on D&O insurance—with some scholars highlighting its protective benefits and others criticizing the managerial opportunism it enables—our study seeks to delineate the specific value implications of D&O insurance (Chang, Ren, & Yeh, 2018; Hwang & Kim, 2018). We propose that, despite its perceived benefits, D&O insurance appears to in fact have detrimental effects on shareholder value during financial restatement periods. This viewpoint echoes the findings of Weng, Chen, & Chi (2017), who investigated the restatement dynamics of Taiwan-listed firms and documented how D&O insurance, by reducing managerial legal liability, might incentivize managers to misstate earnings. Our study extends the current academic dialogue by offering fresh insights into the intricate interactions between corporate governance and managerial conduct in the context of D&O insurance coverage.

The structure of this paper is organized as follows: Section 2 reviews pertinent literature and delineates the hypotheses developed for this study. Section 3 offers a comprehensive description of the data utilized, clarifies the definitions of the variables, and details the empirical methodology employed. Section 4 presents the principal findings of the research. Section 5 concludes the paper by summarizing the key insights and implications of the study.

2. Literature Review and Hypothesis Development

The existing literature suggests that D&O insurance has two competing effects on corporate governance mechanisms. On one hand, the scholarly discourse on D&O insurance presents a spectrum of perspectives regarding its efficacy in transferring litigation risks and adding value to insured entities. Initial studies robustly argue that D&O insurance substantially enhances corporate value by offering several advantages. These include underwriting legal expenses for directors and senior executives during litigations, covering potential compensation for damages arising from lawsuits, bolstering internal monitoring frameworks, and motivating directors and senior management to undertake risk-oriented initiatives conducive to corporate expansion (Holderness, 1990; Mayers & Smith, 1990; Core, 1997; Zou & Adams, 2008; Baker & Griffith, 2010; Li, Yang, & Zhu, 2022).

On the other hand, contemporary research introduces a critical evaluation of D&O insurance, highlighting potential adverse effects. Recent studies indicate that substantial D&O coverage might precipitate moral hazard-related agency conflicts within corporate management. Manifestations of such conflicts include inadequate financial disclosures that compromise the quality of financial statements, opportunistic transactions involving overvalued equity sales, and self-serving risky investments by management (Lin, Officer, & Zou, 2011; Lin, Officer, Wang, & Zou, 2013; Li & Liao, 2014; Tang, Liao, & Lee, 2014, 2015; Chen, Li, & Zou, 2016; Kao, Chen, & Krishnamurti, 2020; Donelson, Monsen, & Yust, 2021; Chiang & Chang, 2022).

This body of literature delineates two distinct and opposing effects of D&O insurance on corporate governance. One perspective supports the view that D&O insurance fosters enhanced corporate governance by improving monitoring and oversight capabilities. The alternative perspective contends that it encourages managerial behaviors that are potentially detrimental to corporate interests due to the inherent agency risks associated with moral hazard. In light of these discussions, this paper proposes two competing hypotheses: the corporate governance-based monitoring hypothesis versus the moral hazard-based opportunism hypothesis. These hypotheses are designed to explore the financial implications of D&O insurance in contexts where firms are compelled to undertake financial restatements, often due to non-compliance or accounting errors that result in poor financial disclosure quality.

2.1 The Corporate Governance-based Monitoring Hypothesis: D&O Insurance Is Positively Related to Abnormal Returns During Restatements Announcement

In the domain of corporate governance, D&O insurance significantly mitigates litigation risks, which consequently bolsters the willingness of directors and management to engage in riskier ventures. Moreover, D&O insurance plays an instrumental role in attracting qualified professionals to serve as external directors,

thereby enhancing governance structures with their expertise. Notable references supporting this role include studies by Priest (1987), Holderness (1990), Mayers & Smith (1990), Core (1997), O'Sullivan (1997), Chen & Pang (2008), Zou & Adams (2008), Baker & Griffith (2010), Boyer & Tennyson (2015), Liao, Tang, & Lee (2016), Yuan, Sun, & Cao, (2016), Hwang & Kim (2018), Wang, Zhang, Huang, & Zhang (2020), and Cheng, Chang, & Chen (2022). For instance, Holderness (1990) and O'Sullivan (2002) outline several mechanisms through which D&O insurance facilitates improved oversight of managerial behavior. Firstly, insurers typically conduct comprehensive assessments of the directors before underwriting policies, offering shareholders a de facto screening process that helps identify potentially unsuitable directors. Secondly, the collective coverage provided by D&O insurance encourages mutual monitoring among board members, as any misconduct by one director impacts the liability of the entire board. Thirdly, the availability of D&O insurance enhances a company's ability to attract independent outside directors, who are often seen as more objective overseers of shareholder interests. Lastly, during litigation, insurers have the opportunity to thoroughly investigate the actions of directors involved in claims, providing an additional layer of scrutiny. These mechanisms suggest that D&O insurance not only shields individual directors but also fosters a more vigilant and transparent governance environment.

Additionally, research within the field of corporate governance has consistently indicated that robust governance structures significantly enhance the quality of financial reporting. This improvement is largely attributed to the effectiveness of boards of directors and their committees, which act as vigilant overseers of executive actions (Cohen, Krishnamoorthy, & Wright, 2004; Zhizhong, Juan, Yanzhi, & Wenli, 2011; Botti, Boubaker, Hamrouni, & Solonandrasana, 2014; Habib & Jiang, 2015; Hasnan, Mohd Razali, & Mohamed Hussain, 2020; Hasan, Aly, & Hussainey, 2022). According to Cohen, Krishnamoorthy, & Wright (2004) and subsequent studies by Botti, Boubaker, Hamrouni, & Solonandrasana (2014) and Habib & Jiang (2015), well-structured governance frameworks reduce the likelihood of financial misreporting and enhance corporate transparency. Hsu & Yang (2022) draw upon agency theory to argue that boards characterized by greater size, independence, and an absence of CEO duality are more likely to minimize information asymmetry, thus upholding high standards of financial reporting during challenging periods such as the pandemic. Zhizhong, Juan, Yanzhi, & Wenli (2011) similarly report that robust internal governance, exemplified by a board rich in independent directors and a proactive audit committee, can effectively prevent or mitigate accounting misstatements. External governance factors, such as significant shareholders and reputable external auditors, notably those from Big4 firms, also play a critical role in upholding financial integrity. D&O insurance, while transferring some litigation risk to insurers, requires directors and management to retain a portion of any claims, thus maintaining a degree of accountability. This co-sharing of risk ensures that D&O insurance does not lead to severe moral hazards but rather heightens the anticipated value of litigation among stakeholders, potentially increasing the likelihood of lawsuits. This dynamic, as suggested by

Bhagat, Brickley, and Coles (1987), could paradoxically reduce the incentive for management to manipulate financial statements in an effort to decrease the probability of litigation. In essence, D&O insurance, by mitigating some financial risk, indirectly promotes better corporate governance and, by extension, more accurate and reliable financial reporting.

Given this backdrop, it is reasonable to infer that the presence of comprehensive D&O insurance might be interpreted by investors as indicative of high-quality corporate governance. This paper posits that the corporate governance benefits implied by D&O insurance could convey positive signals during financial restatements, thereby attenuating the degree of negative abnormal returns during such announcements. We refer this argument as the corporate governance-based monitoring hypothesis.

Hypothesis (H1): The Corporate Governance-based Monitoring. Assuming all other factors are constant, there is a positive correlation between D&O insurance and the shareholder wealth value during periods surrounding financial restatement announcements.

2.2 The Moral Hazard-based Opportunism Hypothesis: D&O Insurance Is Negatively Related to Abnormal Returns During Restatements Announcement

The scholarly exploration of D&O insurance reveals that its foundational purpose is to shield executives from legal repercussions stemming from professional negligence (Finch, 1994). Nonetheless, a substantial body of research indicates that the provision of D&O insurance may inadvertently reduce the vigilance and supervisory zeal of executives and directors. This relaxation of governance can create a moral hazard, potentially causing managers to feel overly secure and disregard their responsibilities, thus intensifying agency conflicts associated with managerial discretion (Gutierrez, 2003; Lin, Officer, & Zou, 2011; Lin, Officer, Wang, & Zou, 2013; Li & Liao, 2014; Boyer & Tennyson, 2015; Chen, Li, & Zou, 2016; Kao, Chen, & Krishnamurti, 2020; Donelson, Monsen, & Yust, 2021; Chiang & Chang, 2022).

Evidently, numerous studies focus on how D&O insurance can exacerbate conflicts concerning the quality of earnings disclosures. These conflicts manifest as less robust earnings statements or the provision of substandard financial information, which can negatively impact the financial integrity of the organization (Kim, 2006; Chung & Wynn, 2008; Zou, Wong, Shum, Xiong, & Yan, 2008; Lin, Officer, Wang, & Zou, 2013; Tang, Liao, & Lee, 2014, 2015; Boyer & Tennyson, 2015; Chen, Li, & Zou, 2016; Liao, Tang, & Lee, 2016; Yang, Tsai, Chuang, & Chang, 2016; Weng, Chen, & Chi, 2017; Chang, Ren, & Yeh, 2018; Donelson, Hopkins, & Yust, 2021). For instance, Zou et al. (2008) observed that firms with a pattern of extensive earnings manipulation, upon increasing their D&O insurance coverage, tend to face negative shareholder wealth effects, especially in environments where there is a

stark conflict of interest between controlling and minority shareholders. Further, Core (1997) and Boubakri, Ghalleb, Boyer (2008) noted that D&O insurance might reduce the anticipated legal liabilities of managers, leading them to adopt more aggressive accounting tactics. Chung and Wynn (2008) found that companies with excessive D&O insurance coverage typically report fewer conservative earnings and are slower to reflect adverse news. Boyer and Tennyson (2015) also demonstrated that higher amounts of D&O insurance correlate with more aggressive earnings management. Lin, Officer, Wang, & Zou (2013) linked higher levels of D&O insurance coverage with increased risk-taking and a greater likelihood of financial restatements due to aggressive financial reporting, which subsequently leads to increased loan spreads. Chen, Li, & Zou (2016) argued that D&O insurance could weaken the disciplining effect of shareholder litigation, thus deteriorating the quality of financial reporting and increasing the cost of equity. These insights underscore the complex role of D&O insurance in corporate governance, highlighting its dual capability to both shield and potentially compromise the financial stewardship within organizations.

Within the domain of financial reporting and securities litigation, a robust body of scholarly work has elucidated a correlation between earnings announcements, the occurrence of securities class actions, and managerial behaviors influenced by anticipated litigation costs. Notably, Lev, Ryan, and Wu (2008) illustrated that financial restatements that disrupt previously reported trends of positive earnings or growth often lead to negative market reactions and an increased likelihood of securities class action lawsuits. Seetharaman, Srinidhi, and Swanson (2005) observed a reduction in accounting conservatism following the enactment of the Private Securities Litigation Reform Act (PSLRA) of 1995, positing that reduced litigation risks subsequently modified managerial incentives towards less conservative reporting practices. Additionally, Ryan and Zarowin (2003) detected an increase in earnings overstatements in the period post-PSLRA, as compared to the preceding decade, attributing this to diminished expectations of litigation risks. D&O insurance, particularly in the context of financial restatements, might exacerbate the propensity of corporate management to obscure unfavorable information, especially during periods of financial downturns or underperformance. This tendency is often driven by personal incentives such as job security and compensation arrangements (Hackston & Milne, 1996; Healy & Palepu, 2001), resulting in financial statements of loss-incurred companies being less transparent and reliable than those of profitable ones (Ciccone, 2000). Thus, elevated levels of D&O insurance protection may foster managerial actions that prioritize personal gains over corporate transparency, notably through manipulative financial reporting practices. Against this background, our study articulates “the moral hazard-based opportunism hypothesis,” which proposes that D&O insurance may prompt management to engage in earnings management activities that compromise the integrity of financial reporting.

These actions can send adverse signals to the market, potentially intensifying the decline in abnormal returns during the periods when financial restatements are announced. This hypothesis contends that, holding other factors constant, D&O insurance might inversely impact shareholder wealth during these pivotal disclosure intervals.

Hypothesis (H2): The Moral Hazard-based Opportunism. Under equal conditions, there exists a negative relationship between D&O insurance and shareholder wealth effects surrounding financial restatement announcements.

3. Sample and Methodology

3.1 Sample Collection

To rigorously examine the issues delineated in this research, we select firms listed on the Taiwan Stock Exchange (TWSE) and Taipei Exchange (TPEx) that have disclosed financial restatements during the period from January 2009 to December 2021. This timeframe commences with the implementation of obligatory D&O insurance disclosures since 2008 in Taiwan, as identified by Wang and Chen (2016). Our analysis leverages data on D&O insurance and corporate annual reports extracted from the Taiwan Economic Journal (TEJ) database. Additionally, the dataset concerning financial restatement announcements is sourced from the same database.

We apply four stringent criteria to select our sample: (1) Only firms with complete financial statement records in the TEJ database are included for firms that issued restatements; (2) Firms within the financial sector are excluded owing to their unique financial reporting standards; (3) Firms that declare other significant financial decisions (such as mergers and acquisitions or share repurchases) three days before ($t = -3$) and three days after ($t = 3$) the initial restatement announcement date ($t = 0$) are omitted to prevent overlap; (4) As restatement announcements may vary widely in their underlying causes, any announcement that could potentially be counted more than once due to multiple reasons is considered only once to eliminate any confounding effects. Following these rigorous selection processes, our study compiles a comprehensive dataset consisting of 226 unique restatement announcements by companies on the TWSE and TPEx from 2009 to 2021, as detailed in Table 1.

Table 1: Sample Distribution: Announcements of Financial Restatements in Taiwan

Panel A: Sorted by Sample Year		
Sample Year	N	N%
2009	41	18.1
2010	33	14.6
2011	25	11.1
2012	18	8.0
2013	7	3.1
2014	14	6.2
2015	5	2.2
2016	5	2.2
2017	15	6.6
2018	17	7.5
2019	17	7.5
2020	23	10.2
2021	6	2.7
Total	226	100.0
Panel B: Sorted by Industry		
Industry	N	N%
Electronics	85	37.6
Textiles	25	11.1
Electric Machinery	13	5.8
Rubber	13	5.8
Constructions	13	5.8
Other	12	5.3
Steel & Iron	9	4.0
Plastics	8	3.5
Transportations	8	3.5
Chemical	7	3.1
Biotechnology	7	3.1
Foods	6	2.7
Cement	5	2.2
Department Store	4	1.8
Creative Economy	3	1.3
Tourism	3	1.3
Automobile	2	0.9
Electric Equipment	2	0.9
Glass	1	0.4
Total	226	100.0

This table delineates the distribution of restatement announcements from firms listed in the Taiwan stock market, categorized by sample year in Panel A and by industry in Panel B. The dataset comprises 226 announcements of restatements intended solely for the correction of misstatements, made by firms listed on the TWSE/TPEx from 2009 to 2021. Given that each restatement announcement may encompass various reasons for restatement, a single announcement could potentially include multiple instances of duplicated samples. To circumvent confounding effects, our study accounts for each announcement only once. The dates of these restatements were ascertained using the TEJ databank. N represents the sample size, and N% denotes the percentage of the total sample.

Table 1 presents the distribution of financial restatement announcements within our sample, categorized by year and industry, as detailed in Panels A and B, respectively. Panel A illustrates that the bulk of restatements by Taiwanese firms occurred in the years 2009, 2010, 2011, and 2020, constituting 18.1%, 14.6%, 11.1%, and 10.2% of the total sample, respectively. The period from 2009 to 2010 saw a concentration of financial restatement activities among firms listed in Taiwan, likely due to the financial impact of the 2008 global financial crisis. This crisis prompted numerous companies to reassess and correct their previously reported financial statements to reflect the true state of their financial conditions post-crisis. Furthermore, the COVID-19 pandemic in 2020 appears to have exacerbated the behavior of financial restatement among companies listed in Taiwan. This situation likely resulted from the significant economic disruptions and uncertainties caused by the pandemic, which impacted financial operations and led to subsequent corrections in previously reported financial data. Panel B categorizes the restatements by industry, highlighting that 37.6% of all announcements were made by companies in the electronics sector, which plays a pivotal role in Taiwan's economy.

3.2 Variable Definition

3.2.1 Main Independent Variable: D&O Insurance Coverage

Building upon existing scholarly work (e.g., Core, 1997; Chalmers, Dann, & Harford, 2002; Lin, Officer, & Zou, 2011), we employ two metrics to gauge D&O insurance coverage: (1) a continuous variable, hereafter referred to as *DOTA*, which is calculated as the personal coverage limit of the D&O insurance policy normalized by the book value of the firm's total assets for the year preceding the restatement announcement; (2) another continuous variable, denoted as *DOMV*, defined as the personal coverage limit of the D&O insurance policy normalized by the average market value of the firm's equity in the year preceding the restatement announcement.[8] As elucidated by Lin, Officer, and Zou (2011), the rationale for adjusting coverage by market value of equity lies in its capacity to approximate the firm's maximum potential liability exposure. This adjustment is crucial because both the scope of D&O insurance coverage and the potential magnitude of damage awards tend to correlate positively with the market value of equity, as indicated by Baker and Griffith (2007). In instances where a firm opts not to secure D&O insurance, the value assigned to these continuous variables is zero.

[8] We obtain consistent results when employing either an indicator variable to signify whether the firm possesses a D&O insurance policy, or when using the D&O insurance coverage ratio, calculated as the personal coverage limit of the D&O insurance policy, normalized by the book value of the firm's equity for the year preceding the restatement announcement.

3.2.2 Main Dependent Variable: Shareholder Wealth during Restatement Announcements

In this research, we utilize the event study methodology to calculate the cumulative abnormal returns, a key indicator of shareholder wealth impact, following each financial restatement announcement. This methodology aligns with established research protocols, notably those described by Cichello & Lamdin (2006). Our approach involves setting an estimation window from 200 to 60 days before the official announcement of each restatement. During this period, we analyze the linear relationship between the stock returns R_{it} of the restating firm i on day *t* related to the restatement event and the market index returns R_{mt}. This analysis is conducted using the ordinary least squares (OLS) regression model, which facilitates a robust examination of the effects of restatement announcements on stock performance relative to market movements.

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \tag{1}$$

For the event window surrounding the official announcement date, the abnormal return (AR_{it}) for each individual day is calculated as the difference between the actual return of the stock and the expected return, as predicted by the market model described in Equation (1). This calculation is expressed mathematically as follows:

$$AR_{it} = R_{it} - (\hat{\alpha}_i + \hat{\beta}_i R_{mt}) \tag{2}$$

where $\hat{\alpha}_i$ and $\hat{\beta}_i$ are the coefficient estimates from the market model in Equation (1).

Finally, the cumulative abnormal return for each restating firm i is derived by summing the average abnormal returns over the event window:

$$CAR_{it} = \sum_{t=0}^{t=1} AR_{i,t} \tag{3}$$

In accordance with previous literature (e.g., Palmrose, Richardson, & Scholz, 2004), this study utilizes the two-day cumulative abnormal return (denoted as *CAR*) around the announcement day of financial restatements to assess the effect on shareholder wealth. That is, the *CAR* is thus the sum of the abnormal returns over the two-day event period, from the announcement day to one day thereafter.[9]

[9] Our findings reveal similar results whether *CAR* is calculated as the sum of abnormal returns over a three-day event period from one day before to one day after the announcement, or over a five-day event period from two days before to two days after the announcement.

3.2.3 Other External Monitoring Proxies

To explore the complementary or substitute effect of other external monitoring on the relationship between D&O insurance and shareholder wealth during corporate restatement periods, we utilize three proxies for other external monitoring: financial analyst coverage (*ANALYST*), institutional investor ownership (*IOR*), and media exposure (*MEDIA*). Financial analyst coverage (*ANALYST*) is quantified by the number of analysts tracking a firm at the end of the year preceding the restatement announcements. Institutional investor ownership (*IOR*) is determined by the shareholding percentage held by Taiwan's major institutional investors—including Qualified Foreign Institutional Investors (QFIIs), mutual funds, and securities dealers—at the end of the year before the restatement announcements. Media exposure (*MEDIA*) is measured as total number of news articles initiated by the press and published about a firm within a specific year. Our method involved a systematic review of articles from major Taiwanese media outlets that referred to firms in our sample, encompassing five prominent sources: the Commercial Times, Economic Daily News, DigiTimes, Wealth Magazine, and MoneyDJ.

3.2.4 Control Variables

In alignment with prior studies, our research methodologically accounts for a variety of firm-specific and corporate governance characteristics that potentially influence shareholder wealth during corporate restatements. The analysis includes firm characteristic controls such as the book value of total assets (*TA*), return on assets (*ROA*), total debt-to-total assets ratio (*DEBT*), book-to-market equity ratio (*BM*), dividend yield (*DIVD*), cash holdings (*CASH*), and firm age (*FAGE*).

Additionally, we examine managerial and corporate governance variables including the tenure of top managers (*TENURE*), managerial ownership (*MOR*), board size (*BSIZE*), board independence (*BIND*), the percentage of shares held by the board of directors (*BOR*), the proportion of board directors who also hold top management positions (*BDUAL*), and the percentage of shares held by the top 10 largest shareholders (*BLOCK*). We further consider the presence of corporate structures such as pyramid ownership structures (*PYR*) and cross-shareholding structures (*CROSS*), both represented by dummy variables.

Our study also incorporates characteristics of auditing practices as additional control variables, including whether the firm is audited by one of the Big Four accounting firms (*BIG4*), the industry-specific experience of auditors (*AIND*), the market share of the audit firm within the audited firm's industry (*AMKTR*), and the audit fees received by the audit firms (*AFEE*).

All these variables are based on data from the year preceding the restatement announcements. For detailed definitions and the construction of these variables, refer to the Supplementary Appendix. This comprehensive set of controls helps ensure the robustness of our findings by adequately accounting for various factors that might affect the outcomes of corporate financial restatements.

3.3 Summary Statistics

Table 2 provides summary statistics for the all variables used in our study. The mean values for the dependent variable, *CAR*, reflect a negative market reaction to the restatement announcements by firms, with a mean *CAR* of −0.842%. This finding is consistent with prior research by Palmrose, Richardson, & Scholz (2004) and He & Chiang (2013), which also documented negative reactions to restatements. In terms of the independent variables related to D&O insurance, the mean values for the D&O insurance coverage ratios—*DOTA* and *DOMV*—are 3.883% and 6.190%, respectively. These figures suggest that firms listed in Taiwan that are undergoing restatement processes have relatively modest levels of D&O insurance coverage. This level of coverage might indicate a general trend of underinsurance among Taiwanese firms, potentially influencing the extent to which these firms are protected against the financial impacts of restatement announcements.

We also examine the correlation between *CAR* and the *DOTA*, finding a significantly negative correlation coefficient of −0.445. This preliminary result suggests that firms with higher levels of D&O insurance coverage tend to experience more negative *CAR*. This finding lends preliminary support to the moral hazard-based opportunism hypothesis, which posits that greater D&O insurance coverage might incentivize riskier behavior or less diligent governance practices that could lead to adverse financial outcomes during restatements. A more formal analysis of these relationships will be undertaken in Section 4 of this paper.

Table 2: Descriptive Statistics

Variable	N	Mean	Median	STD	Correlation with *DOTA*	
Restatement Announcement-Period Returns						
CAR (%)	226	−0.842	−0.652	3.508	−0.445	***
D&O Insurance Coverage						
DOTA (%)	226	3.883	0.596	9.793	1.000	
DOMV (%)	226	6.190	1.094	32.716	0.488	***
Firm Characteristics Control Variables						
TA (NT$ Billion)	226	23.262	5.331	50.985	−0.159	**
ROA (%)	226	2.946	3.670	11.963	−0.416	***
DEBT (%)	226	45.403	45.840	19.096	−0.212	***
BM	226	1.014	0.877	1.164	−0.136	**
DIVD (%)	226	2.825	2.010	3.128	−0.222	***
CASH (%)	226	8.610	4.014	10.647	0.121	*
FAGE	226	16.787	16.787	8.488	−0.083	
Managerial Characteristics and Governance						
TENURE (Year)	226	8.507	7.715	4.529	−0.262	***
MOR (%)	226	1.157	0.206	1.982	0.026	
BSIZE	226	9.561	9.417	2.277	−0.134	**
BIND (%)	226	13.484	10.512	14.838	0.125	*
BOR (%)	226	20.649	19.335	11.194	−0.027	
BDUAL (%)	226	26.114	23.612	16.660	−0.042	
BLOCK (%)	226	22.515	19.937	13.259	−0.135	**
PYR (%)	226	27.482	0.000	43.805	−0.141	**
CROSS (%)	226	39.222	0.000	47.915	−0.211	***
Characteristics of Auditor and Audit Firms						
BIG4	226	0.822	1.000	0.486	−0.103	
AIND (Year)	226	8.512	7.000	6.127	−0.140	**
AMKTR (%)	226	20.734	15.970	21.010	−0.090	
AFEE (NT$ Million)	226	5.884	7.320	2.324	−0.034	
External Monitoring Proxies						
ANALYST	226	2.066	0.000	3.639	−0.164	**
IOR (%)	226	36.206	32.880	20.738	−0.184	***
MEDIA	226	39.039	28.000	62.045	−0.131	*

This table displays the descriptive statistics for the pertinent variables. Definitions of these variables are provided in detail in the Supplementary Appendix. All data utilized in this analysis were sourced from the TEJ database.

We further explore the correlation between the *DOTA* and various regression variables, uncovering that firms with higher levels of D&O insurance generally exhibit characteristics typically associated with smaller firm size, reduced profitability, lower levels of debt, a decreased book-to-market ratio, and lower dividend yields. Additionally, these firms are characterized by larger cash reserves. In terms of governance structure, our analysis reveals that restating firms with higher D&O insurance coverage tend to have smaller board sizes but more independent directors, and they are less likely to be controlled by blockholders. It is also observed that top managers in these firms often have shorter tenures. Furthermore, these firms are less likely to have complex ownership structures such as pyramid or cross-shareholding arrangements.

Significantly, *DOTA* is found to be negatively correlated with measures of external monitoring: financial analyst coverage (*ANALYST*), with a correlation coefficient of −0.164; institutional investor ownership (*IOR*), with −0.184; and media exposure (*MEDIA*), with −0.131. These results suggest that firms with higher D&O insurance coverage may experience weaker external scrutiny. This pattern of weaker external monitoring could potentially explain why higher levels of D&O insurance correlate with adverse outcomes, as external monitors like analysts, institutional investors, and media play a crucial role in ensuring corporate accountability and transparency. This aspect will be further analyzed in Section 4.3.

4. Empirical Results

4.1 Univariate Analysis

To evaluate the influence of D&O insurance on shareholder wealth around financial restatement announcements, as represented by cumulative abnormal returns (*CAR*), we initiate with a univariate analysis. Table 3 illustrates the results of this analysis, stratifying the *CAR* across three subsamples differentiated by their levels of D&O insurance coverage, labeled as High, Low, and No. High (Low) group includes firms with D&O insurance coverage levels above (below) the median of either *DOTA* or *DOMV* among those with D&O insurance. We then employ difference-in-means tests to evaluate the disparities in *CAR* between the subsamples with High and No D&O insurance coverage. Table 3, presented in Panels A and B, details the outcomes using *DOTA* and *DOMV* as indicators of the extent of D&O insurance coverage.

Panel A of Table 3 indicates a clear trend where the mean value of *CAR* progressively decreases moving from the No insurance group to Low and then to High *DOTA* coverage subsamples. Specifically, firms within the High *DOTA* category demonstrate an average *CAR* of −1.915%, significantly lower than the −0.396% average observed within the No *DOTA* category. The difference-in-means test indicates a statistically significant decrease of −1.519% (with a *t*-statistic = −2.55) between the High and No *DOTA* coverage groups, significant at the 5% level. Similarly, Panel B exhibits parallel results when utilizing *DOMV* as a metric for D&O insurance coverage. These observations corroborate the moral hazard-based

opportunism hypothesis, positing that D&O insurance might project negative signals to the market, thereby exacerbating the reduction in abnormal returns during the periods when financial restatements are announced.

Table 3: D&O Insurance and Restatement Announcement-period Abnormal Returns

Panel A: Sorted by *DOTA*				
	High (N = 64)	Low (N = 66)	No (N = 96)	High − No
DOTA (%)	12.44	1.24	0.00	12.44
CAR (%)	−1.915	−0.451	−0.396	−1.519
t-value	(−2.89)***	(−1.30)	(−1.93)*	(−2.55)**
Panel B: Sorted by *DOMV*				
	High (N = 65)	Low (N = 65)	No (N = 96)	High − No
DOMV (%)	19.65	1.87	0.00	19.65
CAR (%)	−1.342	−1.002	−0.396	−0.946
t-value	(−2.15)**	(−2.39)**	(−1.93)*	(−1.66)*

This table reports the results of univariate analysis by showing the averages of restatement announcement-period abnormal returns (*CAR*) for subsamples sorted by the level of D&O insurance coverage, *DOTA* and *DOMV*, in Panels A and B, respectively. The sample contains 226 announcements of restatements (only restatements to correct misstatement are included) made by the TWSE/TPEx listed firms from 2009 to 2021. Announcement date of restatements are identified from the TEJ databank. Given that each restatement announcement may encompass various reasons for restatement, a single announcement could potentially include multiple instances of duplicated samples. To circumvent confounding effects, our study accounts for each announcement only once. Variable definitions and sources for all variables used in the table are summarized in the Supplementary Appendix. N is sample size. The difference in *CAR* mean between various subsamples are assessed adopting the *t* test. ***, **, and * indicate significances at the 1%, 5%, and 10% levels, respectively.

4.2 Cross-Sectional Regressions Analysis

To examine whether D&O insurance retains a significant explanatory power for negative *CAR* during the announcement periods of financial restatement, even after controlling for other potential influencing factors, this section conducts a cross-sectional regression analysis. The *CAR* is used as the dependent variable, with the D&O insurance coverage (either *DOTA* or *DOMV*) serving as the primary independent variable. The specific regression model employed is depicted in Equation (4) as follows:

$$CAR_i = \beta_0 + \beta_1 DOI_i + \mathbf{A}\boldsymbol{X}_i + \delta_j + \phi_y + \varepsilon_i \quad (4)$$

In the regression model, CAR_i represents the two-day abnormal returns of firm i surrounding the announcement of financial restatements. DOI_i, the D&O insurance

coverage for firm *i*, is measured at the fiscal year end immediately preceding the restatement announcement, quantified by either *DOTA* or *DOMV*. $\boldsymbol{X}_i$ denotes a set of control variables specific to firm *i*, which might include financial metrics, governance indicators, or other relevant factors. Additionally, the model incorporates δ_j and ϕ_y, which are industry-fixed and year-fixed dummies, respectively. These dummies are crucial for controlling the potential confounding effects of industry-specific trends and temporal macroeconomic conditions on the dependent variable. The regression coefficients are presented along with their corresponding *t*-statistics, which are adjusted for heteroskedasticity and firm clustering. Table 4 reports the results of estimation in Equation (4).

Table 4: Cross-Sectional OLS Regression Analyses of CAR Associated with D&O Insurance Coverage

	(1)	(2)
Intercept	−4.456	−7.648
	(−1.20)	(−1.65)*
DOTA	**−1.611**	
	(−3.85)* **	
DOMV		**−0.731**
		(−2.02) **
Ln*TA*	0.325	0.531
	(0.96)	(1.51)
ROA	0.014	0.039
	(1.74)*	(2.22)**
DEBT	0.030	0.045
	(1.62)	(2.38)**
BM	1.978	2.505
	(2.65)***	(3.30)***
DIVD	0.127	0.093
	(0.98)	(0.69)
CASH	0.090	0.083
	(2.65)***	(2.38)**
Ln*FAGE*	0.044	0.064
	(0.83)	(1.17)
TENURE	−0.095	−0.064
	(−1.21)	(−0.80)
MOR	0.260	0.293
	(1.69)*	(1.85)*
BSIZE	0.037	−0.022
	(0.22)	(−0.12)
BIND	0.050	0.053
	(1.86)*	(1.87)*
BOR	−0.017	−0.012
	(−0.63)	(−0.42)
BDUAL	0.017	0.010
	(0.65)	(0.37)

BLOCK	−0.014	−0.008
	(−0.49)	(−0.29)
PYR	−0.006	−0.010
	(−0.61)	(−0.96)
CROSS	0.005	0.007
	(0.58)	(0.74)
BIG4	0.461	0.536
	(2.02)**	(2.19)**
AIND	−0.081	−0.065
	(−1.74)*	(−1.82)*
AMKTR	−0.036	−0.038
	(−1.94)*	(−2.00)**
AFEE	−0.093	−0.092
	(−0.62)	(−0.59)
Industry-Fixed Dummies	Yes	Yes
Year-Fixed Dummies	Yes	Yes
N	226	226
Adjusted R^2	48.30%	44.60%

This table reports cross-sectional OLS regression analyses of two-day announcement period abnormal returns (*CAR*) on D&O insurance coverage and control variables for the sample of financial restatement announcements. The model we estimate is as follows:

$$CAR_i = \beta_0 + \beta_1 DOI_i + \mathbf{A}\boldsymbol{X}_i + \delta_j + \phi_y + \varepsilon_i$$

where CAR_i is announcing firm *i*'s two-day announcement period abnormal returns around financial restatement announcements. DOI_i is announcing firm *i*'s D&O insurance coverage at the fiscal year ending immediately prior to the restatement announce, measured by *DOTA* and *DOMV*. $\boldsymbol{X}_i$ is set of control variables for firm *i*. δ_j and ϕ_y are industry-fixed dummies and year-fixed dummies, respectively. The dataset includes 226 restatement announcements (solely those aimed at correcting misstatements) issued by firms listed on the TWSE/TPEx from 2009 to 2021. Dates of these restatements are sourced from the TEJ databank. Given that each restatement announcement may encompass various reasons for restatement, a single announcement could potentially include multiple instances of duplicated samples. To circumvent confounding effects, our study accounts for each announcement only once. Definitions and sources for all variables used are detailed in the Supplementary Appendix. The *t*-statistics, presented in parentheses, are adjusted for heteroskedasticity and firm clustering. N signifies the number of observations. The symbols ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. All data employed in this analysis were collected from the TEJ.

In Model (1) presented in Table 4, we explore the relationship between the *DOTA* and *CAR*, incorporating a comprehensive set of control variables. The regression results indicate a significantly negative coefficient for *DOTA* at −1.611, with a *t*-statistic of −3.85, confirming its substantial adverse impact on shareholder wealth during financial restatement announcements at the 1% significance level. Proceeding to Model (2) of the same table, the *DOMV* is examined as the primary independent variable. Here, the coefficient for *DOMV* is also significantly negative at −0.731, with a *t*-statistic of −2.02, affirming its negative influence at the 5% significance level.

Overall, the regression analysis results from Table 4 are consistent with the univariate analysis results from Table 3, providing compelling evidence to support the moral hazard-based opportunism hypothesis. This hypothesis posits that market participants perceive the D&O insurance as an indicator of potential managerial moral hazard, leading to negative evaluations of firms with high D&O insurance coverage during their financial restatement announcements. This perception, in turn, exacerbates the decline in abnormal returns observed during the announcement period.

4.3 Mediating Effect of External Monitoring Mechanism

Our research findings underscore the role of D&O insurance as an indicator of potential managerial moral hazard, which contributes to negative evaluations of firms with high coverage during their financial restatement announcements. This observation is pertinent in the realm of corporate governance, suggesting that D&O insurance may encourage managerial behaviors that exacerbate agency conflicts. However, our analysis also highlights that such adverse effects may be mitigated by effective external monitoring mechanisms, such as those provided by financial analysts, institutional investors, and media coverage, as evidenced by studies including Lin, Officer, Wang, & Zou (2013), Li & Liao (2014), and Chen, Weng, and Chien (2018). Leveraging these insights into external oversight, this section hypothesizes that when firms are under stringent external monitoring—evidenced by significant scrutiny from financial analysts, substantial institutional investor ownership, or widespread media exposure—the likelihood of agency conflicts related to D&O insurance in the context of financial restatements may be significantly reduced. This reduction could potentially diminish or even nullify the adverse impact of D&O insurance on *CAR* during financial restatement announcements.

To substantiate this hypothesis, we undertake a detailed analysis to determine how the influence of D&O insurance on *CAR* differs between firms subjected to varying levels of external monitoring. We perform this analysis using cross-sectional regression outlined in Equation (4), with *CAR* as the dependent variable. The primary independent variables are the *DOTA* and *DOMV* ratios, analyzed across two subsamples differentiated by their degree of external monitoring. To ensure robustness, three proxies—financial analysts (*ANALYST*), institutional investor ownership (*IOR*), and media exposure (*MEDIA*)—are used to gauge the extent of external monitoring. In Panel A of Table 5, the proxy for external monitoring is the presence of financial analysts (*ANALYST*), with the sample divided into two groups: those with *ANALYST* above zero and those below. Panel B uses institutional investor ownership (*IOR*) as the proxy, segmenting the sample based on whether *IOR* is above or below the median. Similarly, Panel C employs media exposure (*MEDIA*) as the proxy, dividing the sample into those with *MEDIA* exposure above or below the median. The subsamples with high *ANALYST*, high *IOR*, or high *MEDIA* are viewed as those with greater extent of external monitoring. This approach allows for a nuanced examination of the relationship between D&O insurance, external monitoring, and *CAR* during financial restatement periods.

Table 5: Effect of D&O Insurance on CAR: Considering External Monitoring

Panel A: External Monitoring Proxied by *ANALYST*				
	Main Ind. Var. = *DOTA*		Main Ind. Var. = *DOMV*	
	High *ANALYST*	Low *ANALYST*	High *ANALYST*	Low *ANALYST*
DOTA	−0.622	−2.555		
	(−0.95)	(−3.08)***		
DOMV			−0.754	−1.533
			(−0.66)	(−2.52)**
Controls	Yes	Yes	Yes	Yes
Industry-Fixed Dummies	Yes	Yes	Yes	Yes
Year-Fixed Dummies	Yes	Yes	Yes	Yes
N	101	125	101	125
Adjusted R^2	68.6%	77.8%	68.1%	74.9%
Difference in Coefficient	1.933***	–	0.779*	–
p-value of *F*-test	<0.01	–	0.07	–
Panel B: External Monitoring Proxied by *IOR*				
	Main Ind. Var. = *DOTA*		Main Ind. Var. = *DOMV*	
	High *IOR*	Low *IOR*	High *IOR*	Low *IOR*
DOTA	−0.700	−1.745		
	(−0.64)	(−2.77)***		
DOMV			−0.502	−1.211
			(−0.43)	(−2.43)**
Controls	Yes	Yes	Yes	Yes
Industry-Fixed Dummies	Yes	Yes	Yes	Yes
Year-Fixed Dummies	Yes	Yes	Yes	Yes
N	112	114	112	114
Adjusted R^2	68.1%	70.3%	67.7%	69.5%
Difference in Coefficient	1.045**	–	0.709*	–
p-value of *F*-test	0.04	–	0.08	–
Panel C: External Monitoring Proxied by *MEDIA*				
	Main Ind. Var. = *DOTA*		Main Ind. Var. = *DOMV*	
	High *MEDIA*	Low *MEDIA*	High *MEDIA*	Low *MEDIA*
DOTA	0.442	−1.451		
	(0.27)	(−3.06) ***		
DOMV			−0.249	−1.584
			(−0.30)	(−2.59)**
Controls	Yes	Yes	Yes	Yes
Industry-Fixed Dummies	Yes	Yes	Yes	Yes
Year-Fixed Dummies	Yes	Yes	Yes	Yes
N	114	112	114	112
Adjusted R^2	69.9%	73.9%	70.8%	72.4%
Difference in Coefficient	1.893***	–	1.335**	–
p-value of *F*-test	<0.01	–	0.02	–

This table presents the cross-sectional OLS regression outcomes for *CAR*, using D&O insurance as the primary independent variable. The analysis is segmented into two subsamples characterized by high and low degrees of external monitoring. The regression is based on the following model:

$$CAR_i = \beta_0 + \beta_1 DOI_i + \mathbf{AX}_i + \delta_j + \phi_y + \varepsilon_i$$

For the sake of conciseness, constants, coefficients on control variables, industry-fixed dummies, and year-fixed dummies are omitted. The *t*-statistics, presented in parentheses, are adjusted for heteroskedasticity and firm clustering. The *F*-tests are employed to compare the coefficients for $LnDOI_i$ across the subsamples characterized by high and low degrees of external monitoring. Three proxies represent the degree of external monitoring: *ANALYST*, *IOR*, and *MEDIA*. The dataset includes 226 restatement announcements (solely those aimed at correcting misstatements) issued by firms listed on the TWSE/TPEx from 2009 to 2021. Dates of these restatements are sourced from the TEJ databank. Given that each restatement announcement may encompass various reasons for restatement, a single announcement could potentially include multiple instances of duplicated samples. To circumvent confounding effects, our study accounts for each announcement only once. Definitions and sources for all variables used are detailed in the Supplementary Appendix. N signifies the number of observations. The symbols ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. All data employed in this analysis were collected from the TEJ.

As illustrated in Panel A of Table 5, the coefficient for *DOTA* remains significantly negative among firms with low *ANALYST*, recorded at −2.555 with a *t*-statistic of −3.08. Conversely, among firms with high *ANALYST*, the coefficient for *DOTA* becomes statistically insignificant, standing at −0.622 with a *t*-statistic of −0.95. An *F*-test comparing the coefficients across subsamples indicates a notable difference (difference in coefficient for *DOTA* = 1.933 with a *p*-value <0.01), suggesting that the negative impact of D&O insurance on *CAR* during financial restatement announcements is less pronounced under heightened external scrutiny. Further exploration using *DOMV* as the primary independent variable shows a consistent pattern. The differences in coefficients for *DOMV* between the high and low *ANALYST* subsamples are also significant (difference in coefficient for *DOMV* = 0.779 with a *p*-value = 0.07), reinforcing the observation that greater analyst attention can mitigate the negative effects of D&O insurance on shareholder wealth during periods of financial disclosure adjustments.

Further examination involving *IOR* and *MEDIA* as proxies for external monitoring, detailed in Panels B and C of Table 5, reveals a similar trend. The detrimental effect of D&O insurance on *CAR* during financial restatement periods is less (more) marked among subsamples with higher (lower) institutional investor ownership and media exposure.

Collectively, the findings presented in Table 5 underscore that the adverse influence of D&O insurance on shareholder wealth during financial restatements is particularly significant among firms subject to less external monitoring. Conversely, this negative association diminishes in firms under more rigorous external oversight. This aligns with our hypothesis that the presence of financial analysts, substantial institutional investor ownership, and significant media coverage can act as alternative governance mechanisms. By serving as vigilant external monitors, these entities can effectively mitigate D&O insurance-driven managerial discretion in earnings management, thereby reducing the adverse impacts of D&O insurance on *CAR* during periods of financial restatement.

5. Conclustions

D&O insurance serves as a critical mechanism in mitigating risks associated with management decisions, particularly against claims for compensation by third parties. The insurance provides coverage for costs related to investigations, legal defenses, settlements, and judgments incurred during the claims period, effectively shielding the company and its key officers from severe financial repercussions, and thus promoting organizational resilience. This mandate underscores the significance of D&O insurance in fortifying corporate governance and safeguarding investor interests, a priority reflected in the growing litigation involving corporate directors and officers.

The research into D&O insurance extends into how it affects financial reporting quality and investor responses to financial restatements. Financial restatements often signal underlying issues in financial reporting that could attract litigation, making D&O insurance a potential mitigator or exacerbator of related risks. This study focuses on this dual potential of D&O insurance by testing two hypotheses: the governance-based monitoring hypothesis (H1) and the moral hazard-based opportunism hypothesis (H2). H1 posits that D&O insurance, by promoting robust governance, may shield shareholder wealth from the adverse effects of financial restatements. Conversely, H2 suggests that D&O insurance may reduce governance vigilance, thereby exacerbating managerial malpractices and negatively impacting corporate valuation during financial restatements.

Our empirical analysis utilizes an event study methodology on a dataset of 226 financial restatements from Taiwanese listed companies. Our findings reveal a statistically significant negative impact of D&O insurance coverage on shareholder wealth during restatements, supporting the moral hazard-based opportunism hypothesis. However, this negative effect is mitigated in firms with strong external monitoring such as the presence of financial analysts, substantial institutional investor ownership, and significant media coverage, suggesting that robust oversight mechanisms can neutralize the potential downsides of D&O insurance.

This study contributes to the nuanced understanding of D&O insurance's role in corporate finance, especially during financial restatements. It highlights the complex interplay between corporate governance mechanisms and managerial behaviors influenced by D&O insurance. By providing empirical insights into these dynamics, the research enriches the academic discourse on corporate governance and risk management, challenging conventional views on the protective benefits of D&O insurance and underscoring its potential drawbacks in certain governance contexts.

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Supplementary Appendix.

This table provides definitions of variables used in this paper.

Variable	Definitions
Restatement Announcement-Period Returns	
CAR	Two-day (0, 1) restatement announcement-period cumulative abnormal return, calculated using the market model. The model procedure with parameters is estimated over the period (−200, −60).
D&O Insurance Coverage	
DOTA	The personal coverage limit of the D&O insurance policy normalized by the book value of the firm's total assets for the year preceding the restatement announcement.
DOMV	the personal coverage limit of the D&O insurance policy normalized by the average market value of the firm's equity in the year preceding the restatement announcement.
Firm Characteristics Control Variables	
TA	Book value of the firm's total assets for the year preceding the restatement announcement.
ROA	Return on assets for the year preceding the restatement announcement.
DEBT	Total debt ratio for the year preceding the restatement announcement.
BM	Book-to-market equity ratio for the year preceding the restatement announcement.
DIVD	Dividend yield for the year preceding the restatement announcement.
CASH	Cash holding normalized by the book value of the firm's total assets for the year preceding the restatement announcement.
FAGE	Firm age (the years since the firm's IPO) for the year preceding the restatement announcement.
Managerial Characteristics and Governance	
TENURE	Managerial job tenure in year for the year preceding the restatement announcement.
MOR	Managerial ownership at the end of the year preceding the restatement announcement.
BSIZE	board size for the year preceding the restatement announcement.
BIND	board independence for the year preceding the restatement announcement.
BOR	Percentage of shares held by the board of directors for the year preceding the restatement announcement.
BDUAL	Proportion of board directors who also hold top management positions for the year preceding the restatement announcement.
BLOCK	percentage of shares held by the top 10 largest shareholders for the year preceding the restatement announcement.
PYR	Dummy variable on pyramid ownership structures for the year preceding the restatement announcement.
CROSS	Dummy variable on cross-shareholding structures for the year preceding the restatement announcement.
Characteristics of Auditor and Audit Firms	
BIG4	Dummy variable on the firm that is audited by one of the Big Four accounting firms for the year preceding the restatement announcement.
AIND	Industry-specific auditing experience (in year) of auditors for the year preceding the restatement announcement.
AMKTR	Market share of the audit firm within the audited firm's industry for the year preceding the restatement announcement.
AFEE	Audit fees received by the audit firms for the year preceding the restatement announcement.

External Monitoring Proxies	
ANALYST	Number of analysts tracking a firm at the end of the year preceding the restatement announcements
IOR	Shareholding percentage held by Taiwan's major institutional investors, including Qualified Foreign Institutional Investors (QFIIs), mutual funds, and securities dealers, at the end of the year before the restatement announcements.
MEDIA	Number of news articles initiated by the press and published about a firm within a specific year. Our method involved a systematic review of articles from major Taiwanese media outlets that referred to firms in our sample, encompassing five prominent sources: the Commercial Times, Economic Daily News, DigiTimes, Wealth Magazine, and MoneyDJ.