

DIRECTORS' AND OFFICERS' INSURANCE AND OPPORTUNISM IN ACCOUNTING CHOICE

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ABSTRACT

In this paper, the focus is on how excessive directors' and officers' liability insurance coverage is associated with risk-taking behavior in financial reporting. This study examines the implications of two alternative hypotheses. The opportunism hypothesis predicts that the covered executive is overly buffered from recourse via securities litigation, which leads to aggressive accounting choices. The alternative hypothesis is the economic insurance hypothesis which predicts that firms will over-invest in directors' and officers' liability insurance coverage independent of their aptitude for accounting manipulation because of the managers' risk aversion. Aggressive accounting is measured using regulatory accounting enforcement actions and earnings restatements. I find evidence consistent with the opportunism hypothesis in both the enforcement action and restatement setting, suggesting that officers rely on excessive insurance in making financial reporting decisions. The findings have implications for managerial private information and its impact on financial reporting decisions.

JEL: M41, K3

KEYWORDS: Earnings Quality, Litigation, Insurance

INTRODUCTION

Directors' and officers' (D&O) liability insurance "is designed to protect executives, outside directors, as well as the companies they serve against liability arising from actions taken in the course of doing business" (Trautman and Altenbaumer-Price, 2012). The purpose of this study is to test whether protection from excessive D&O coverage helps explain aggressive accounting choices (tested using regulatory enforcement releases and earnings restatements). This study examines whether D&O insurance coverage (managerial private information in the United States) reflects opportunism and impacts risk-taking behavior in financial reporting. Officers and directors require the firm to purchase group D&O insurance on their behalf to minimize personal liability in the event of a lawsuit, and is purchased to approximate the firm-specific litigation risk. I predict that D&O coverage in excess of the expected coverage provides incentives for managers to engage in opportunistic behavior, measured via financial reporting. Opportunism in the D&O setting is predicted to occur when a manager is overly buffered from securities litigation when coverage is unusually high (above that expected given the firm's litigation risk) and increases the proclivity towards risk-taking behavior in financial reporting.

The alternative prediction to opportunism follows the economic theory on the demand for insurance, which states that investment in insurance is derived from the risk aversion of the covered individual. For investments like insurance, the firm chooses "certainty in preference to uncertainty" (Friedman and Savage, 1948) and is willing to sacrifice a small payment in the form of an insurance premium to secure certainty. Moreover, insurers serve as monitors, thereby protecting their coverage via a corporate governance role in the firm (O'Sullivan, 1997). In sum, the demand for insurance hypothesis predicts that firms will over-invest in insurance despite the low amount of risk-taking in accounting choice, i.e. low probability of aggressive financial reporting. D&O insurance covers managers, directors, and in some cases entire firms. A recent development in D&O insurance coverage is firm coverage. Firms can purchase coverage to

include the firm, along with its executives. It is intended to reduce the agency conflict and deter overly risk averse managerial decision-making by protecting managers against litigation. D&O coverage limits are not disclosed in the United States, whereas the coverage limit is mandatory disclosure internationally. Therefore, D&O is private information which can impact decision-making. According to the Tillinghast–Towers Perrin *Directors and Officers Liability Survey*, D&O coverage is virtually universal among survey participants, at 97%. Firms purchase an average of \$20.1 million in D&O coverage, which typically covers their directors and officers against liability arising from the course of their employment, such as employment discrimination and class action securities litigation.

Rather than employ a discretionary accruals measure or earnings quality estimation model, regulatory enforcement actions and accounting restatements are used to detect aggressive financial reporting. Although enforcement actions issued by the Securities and Exchange Commission and Department of Justice typically result from a serious accounting irregularity, the earnings restatements are not always the result of an accounting irregularity. Restatements may not necessarily come from active earnings management, but they are cases where the financial statement information is incorrect. A bias against finding results exists to the extent that not all earnings management activities are detected ex post.

The model of regulatory enforcement actions and earnings restatements uses an ex ante variable (the unexpected level of D&O coverage); therefore, it is truly a predictive model of enforcement actions and restatements. The first step in my methodology is to model the expected D&O coverage limit given the level of firm litigation risk. The findings indicate that the key predictor of coverage limits are total assets and market value of equity, market to book ratio, leverage, capital intensity, dividend payout ratio, and stock return volatility and skewness. The enforcement action prediction model is supplemented with financial statement variables from Dechow, Ge, Larson, and Sloan (2011) with the unexpected D&O coverage limit. The findings show that the dominant effect in enforcement action likelihood is consistent with the opportunism hypothesis: high unexpected D&O coverage is predictive of a higher probability of enforcement action ex ante.

With respect to the accounting restatement model, there is no clear cut set of determinants identified in extant literature (Agrawal and Chadha, 2005, Burns and Kedia, 2006, Efendi, Srivastava, and Swanson, 2007; Richardson, Tuna, and Wu 2002). The same financial statement variables from the Dechow et al. (2011) model are used to predict the likelihood of an accounting restatement given that the coefficient of interest is on the unexpected D&O insurance variable. The findings show that higher than expected levels of coverage are positively associated with the likelihood of an earnings restatement, suggesting that high levels of D&O insurance buffer against litigation recourse, and have adverse financial reporting consequences. The study proceeds as follows. Section 2 reviews prior research and empirical predictions. Section 3 details the sample and descriptives. Section 4 provides evidence on the relation between unexpected D&O coverage and the probability of an enforcement action and restatement. Section 5 concludes.

PRIOR RESEARCH AND EMPIRICAL PREDICTIONS

Institutional Background on D&O Insurance and Hypothesis Development

D&O insurance serves several purposes for the firm, its shareholders, managers, directors, and the agency conflict. Prior literature has found that D&O insurance: (1) reduces the agency conflict between shareholders and managers by adding convexity to a risk averse manager's utility function (Bhagat, Brickley, and Coles, 1987) and (2) represents a substitute monitoring device for other governance mechanisms that are costly for the firm (Holderness, 1990, O'Sullivan, 1997). As a recruitment tool, a covered officer is part of the D&O purchase decision because he is exposed to financial and reputational

loss. The board of directors also approves the purchase decision because an “excessive” amount of insurance detracts from the benefits of insurance (O’Sullivan, 1997).

Securities litigation reduces agency costs, because it is an ex post monitoring device available to investors; “the deterrence goals of corporate and securities law liability rules are achieved indirectly, through an insurance intermediary, if indeed they are achieved at all” (Baker and Griffith, 2007). D&O insurance potentially counteracts the benefits of the litigation threat, and thus inhibits the reduction of agency costs. It buffers the executive from being responsible for his actions, and effectively reduces the ex post settling up role of litigation. Even though insurance introduces convexity into the manager’s utility function, an excessive amount of insurance may give the manager an incentive for opportunistic behavior. Insurance permits the manager to take more risks and liberties with financial reporting at little personal cost. Aside from reputational loss, class action securities litigation rarely results in defendant monetary liability, because settlement amounts are funded by D&O insurance coverage (Kim, 2005). This supports the idea that insurance buffers the executive from investor recourse and responsibility from value-destroying actions. The purpose of this study is to test whether excessive D&O coverage helps explain aggressive accounting choices, which are identified using regulatory enforcement releases and earnings restatements. This opportunism hypothesis occurs when a manager is overly buffered from investor litigation recourse when D&O coverage is unusually high, i.e. when it considerably exceeds the firm’s litigation risk.

An alternate to the opportunism hypothesis follows the economic theory on the purchase of corporate insurance. The purchase of insurance is a negative net present value project, and is purchased because of the risk aversion of the executive. Risk aversion is the common explanation for the individual consumer’s demand for insurance; however, the explanation is not so simple for corporations, since their risk is diversifiable. (Dionne and Harrington, 1992, 190). An insurance firm has a “comparative advantage in risk bearing,” because the purchase of insurance allows for an efficient allocation of risk for the firms’ other claimholders (Dionne and Harrington, 1992). Moreover, D&O coverage is unobservable to investors in the United States; the amount of coverage is private information to the executive which may impact financial reporting decision-making. “Insiders’ use of corporate information for private benefit” is referred to as managerial opportunism (Chalmers, Dann and Harford, 2002). In many countries, the amount of D&O coverage purchased is mandatory disclosure. However, since the insurance purchase is not disclosed in the United States, “the insurance decision has few disclosure requirements and is not the subject of civil and criminal laws, and is therefore potentially more revealing of managers’ private information” (Chalmers et al., 2002). Therefore, the opportunism hypothesis predicts that an unusually high level of D&O coverage (unexpected, or excessive D&O coverage limit) leads to riskier accounting choices since it lowers the cost to the manager of these choices.

Opportunism with respect to financial reporting quality and D&O insurance have also been examined in two prior studies, which both use Canadian data where the decision to purchase D&O insurance is quite different given that it is mandatory disclosure. Chung and Wynn (2008) find that the threat of litigation, as measured by D&O insurance levels, has been linked to the level of accounting conservatism: “with other conditions held constant, managers would strategically determine the optimal level of conservatism, balancing the effect of their actions on the expected cost of a lawsuit and the expected benefits from less conservative (or more aggressive) reporting of earnings.” However, if a managers’ expected legal liability is reduced via D&O insurance and indemnification, the strategic choice would be to relax conservative reporting practices (Chung and Wynn, p. 138). Boubarkri, Ghalleb, and Boyer (2008) also find evidence of opportunism in financial reporting related to D&O insurance by examining the level of discretionary accruals and D&O purchases around seasoned equity offerings. Their results indicate that managers invest in D&O insurance in anticipation of the heightened discretionary accrual levels around equity offerings, and that insurers can distinguish between firms who purchase coverage for earnings management activities to those who purchase coverage due to the extreme risk aversion of the covered executives. My study is different from these two studies in that (a) the purchase of U.S. D&O insurance is private information in

the United States, (b) given that D&O coverage limits are slow to move from year to year as they often are multi-year policies, my study is based on a level rather than a changes research design, and (c) I examine errors and irregularities in accounting using regulatory enforcement actions and earnings restatements rather than an estimated model of conservatism or discretionary accruals.

The Use of Enforcement Releases and Earnings Restatements

Rather than employ a discretionary accruals measure or earnings quality estimation model, regulatory enforcement actions and earnings restatements are used to detect aggressive financial reporting. The SEC and DOJ have limited resources to investigate accounting manipulations, so the enforcement action sample is “likely to have a lower Type I error rate in the identification of misstatements than samples that infer misstatement from earnings-based measures such as abnormal accruals” (Dechow, Ge, and Schrand, 2010). There are likely to be many manipulating firms that go undetected by the SEC and DOJ; these observations are included in the non-manipulating firm-year sample, which adds noise to the accounting irregularity test sample. Firms want to avoid regulatory investigation because of the negative consequences identified in extant literature. For example, Leng, Feroz, Cao and Davalos (2011) find that AAER firms suffer from pre- and post- negative long-term returns. Another negative consequence is the termination of the executives involved in the enforcement release. Karpoff, Lee, and Martin (2008) find that 93% of responsible parties lose their jobs by the end of the regulatory enforcement period and most are explicitly fired. The probability of firing increases with the “cost of misconduct to shareholders and the quality of the firm’s governance” (Karpoff et al., 2008).

Restatements are also employed as the result of aggressive accounting choices. Earnings restatements are not necessarily the result of an accounting irregularity and therefore active earnings management, but they are cases where the earnings information is incorrect and suggestive of earnings management. A bias against finding results exists to the extent that not all earnings management activities are detected ex post. Restatements may result from: (i) accounting irregularities, including aggressive accounting practices, (ii) intentional and (iii) unintentional misuses of facts applied to financial statements, (iv) oversight or misrepresentation of accounting rules, or (v) fraud (GAO, 2003). Errors or irregularities resulting in restatements are generally reflective of internal control weaknesses (Plumlee and Yohn, 2010). Richardson et al. (2002) find that restatement firms manage earnings to attract external financing at a lower cost, and also to maintain consecutive periods of positive earnings growth and earnings surprises. Because earnings restatements often represent extreme accounting outcomes, using restatements to capture aggressive accounting increases the power of my tests to detect the existence of a D&O effect. Dechow et al. (2010) state that “as with the AAER sample, a significant benefit of using the restatement sample to identify firms with earnings quality problems is a lower Type I error rate in the identification of misstatements” (p. 374). As additional confirmation that restatements are bad accounting outcomes, many D&O underwriters have recently introduced a restatement clause in policies, which permits contract rescission by the insurer if the firm restates its earnings, regardless of the reason for restatement. Therefore, even if some restatements are a result of unintentional motives, from a D&O perspective, they are all negative.

METHODOLOGY

Directors’ and Officers’ Insurance Data

D&O data is gathered from Tillinghast-Towers Perrin as part of their annual D&O survey collection. Partnerships, international firms, nonprofits, and government organizations are excluded from the D&O sample. The original D&O sample size is 8,721 spanning from 1997 to 2002.

Enforcement Action Sample

The enforcement action data is the sample used in Karpoff et al. (2008). Their sample is 865 enforcement actions spanning from 1978 to 2007. The sample represents all regulatory enforcement actions issued by the Securities and Exchange Commission and Department of Justice that include at least one violation of either Section 13(b)(2)(A), 13(b)(2)(B), 13(b)(5) of the 1934 Securities Exchange Act or Rules 240.13b2-1 and 13b2-2 of the Code of Federal Regulations. These laws were enacted under the 1977 Foreign Corrupt Practices Act and are commonly known as the "books and records" and "internal controls" provisions of the FCPA and Securities Exchange Acts. Table 1, Panel A shows the progression of useable observations from the original enforcement action data after merging with *Compustat*, *Crsp*, and D&O data. This yields 35 enforcement action firms, and 1,494 non manipulation firm-years. A non enforcement action, or non-manipulating firm-year can include (i) a firm who has been subject to an enforcement action, but is not a violation year, or (ii) a firm who has not been subject to an enforcement action.

Table 1: Sample Selection

Panel A: Enforcement Action Tests	
Original number of unique enforcement actions spanning from 1978 to 2007	865 enforcement actions
Less: observations missing company identifier	123 observations
Less: observations missing <i>Compustat</i> data	259 observations
Less: observations missing <i>Crsp</i> data	242 observations
Less: observations missing D&O data	<u>206 observations</u>
Enforcement action occurrences with D&O data	35 observations
Non enforcement action firm years with D&O data	1,494 firm years
Panel B: Restatement Tests	
Original number of unique restatements spanning from 1997 to 2002	919 restatements
Less: observations missing company identifier	49 restatements
Less: observations missing <i>Compustat</i> data	223 restatements
Less: observations missing <i>Crsp</i> data	34 restatements
Less: observations missing D&O data	<u>551 restatements</u>
Number of restatements	62 restatements
Restatement firm years with D&O data	101 firm years
Non restatement firm years with D&O data	1,794 firm years

This table shows the sample formation process. Panel A reports sample formation: the progression from SEC and DOJ enforcement releases provided by Karpoff, Lee, and Martin (2008) from 1978 to 2007 to the ultimate sample used for regression analysis in Table 4. The sample consists of firm-years including a violation year as alleged in the enforcement release. Panel B reports sample formation of the restatement sample: the progression from the GAO database of restatements from 1997 to 2002 to the sample used for regression analysis in Table 6. The sample consists of firm-years that were amended as part of the restatement.

Table 2, Panel A provides descriptive statistics for the manipulation firm-years and non manipulation firm-years. Violation start and end dates contain manipulation firm-years. The violation start and end dates are independent of the regulatory enforcement release date. Descriptive statistics and variables used in the logit regressions are based on the manipulation firm-years rather than the regulatory release dates. Manipulation firm-years carry higher D&O coverage limits than non-manipulation firm-years (mean of \$66 million and \$38 million, respectively). Enforcement action firm-years are also larger in assets and market value of equity, which is consistent with the SEC and DOJ using limited resources to target larger firms. Non manipulation firm-years are more highly levered than manipulation firms, and are less likely to experience an issuance.

Accounting Restatement Sample

For a list of restatement firms, the General Accounting Office's 2002 study on Financial Statement Restatements is used. I then search Lexis-Nexis for periods restated, and include all restatements with

available company identifiers, D&O data, and data from *Compustat* and *Crsp*. Table 1, Panel B summarizes the progression of observations to the useable restatement sample (62 unique restatements covering 101 restated firm years and 1,794 non restatement firm years with all available data). Restatement announcement dates are provided from the GAO data. The restated firm year data are based on the firm-years amended by the firm rather than the firm-year in which the restatement is announced. Table 2, Panel B reports descriptive statistics of the restated firm-years and non restatement firm years. Restated firm years are slightly smaller in assets and market value of equity, have significantly higher volatility of stock returns and stock return skewness. Raw D&O coverage limits of the restatement sample and non restatement sample are similar at a mean of \$32.5 million and \$34.8 million, respectively (t-value of 0.51).

Table 2: Descriptive Statistics

Panel A: Descriptive Statistics of Enforcement Action Manipulation Firm-Years Compared to Non-Manipulation Firm-Years					
Variable	Manipulation Firm-Years (N=35)		Non Manipulation Firm-Years (N=1,494)		T-stat for Diff in Means
	Mean	Median	Mean	Median	
<i>D&O coverage limit (\$ million)</i>	66.219	19.750	37.816	19.750	1.57
<i>ASSET_t (\$ million)</i>	6,381.26	426.29	2,459.64	386.92	1.86
<i>MVE_t (\$ million)</i>	8,949.70	338.84	3,492.69	403.46	1.71
<i>MB_t</i>	3.557	1.732	3.686	2.059	0.15
<i>LEVERAGE_t</i>	0.339	0.186	0.600	0.198	2.07
<i>DIVIDEND PAYOUT_t</i>	0.486	0.000	0.380	0.000	1.27
<i>PP&E_t</i>	0.513	0.431	0.560	0.441	0.65
<i>RETURN STD DEV_t</i>	0.046	0.042	0.043	0.038	0.72
<i>RETURN SKEWNESS_t</i>	0.008	0.209	0.408	0.355	1.59
<i>RSST ACCRUALS_t</i>	0.002	0.002	-0.002	0.012	0.13
<i>CHANGE IN RECEIVABLES_t</i>	-0.007	-0.002	0.005	0.003	1.12
<i>CHANGE IN INVENTORY_t</i>	-0.004	0.000	0.003	0.000	1.11
<i>% SOFT ASSETS_t</i>	0.568	0.603	0.475	0.492	3.19
<i>CHANGE IN CASH SALES_t</i>	0.146	0.062	0.160	0.063	0.25
<i>CHANGE IN RETURN ON ASSETS_t</i>	-0.007	-0.014	-0.012	-0.004	0.18
<i>ACTUAL ISSUANCE_t</i>	1.000	1.000	0.961	1.000	7.77
Panel B: Descriptive Statistics of Restated Firm-years Compared to Non-restated Firm-years					
Variable	Restated Firm-Years (N=101)		Non Restated		T-stat for Diff in Means
	Mean	Median	Mean	Median	
<i>D&O coverage limit (\$ million)</i>	32.518	26.500	34.773	19.750	0.51
<i>ASSET_t (\$ million)</i>	1,445.09	427.80	2,102.55	377.14	1.26
<i>MVE_t (\$ million)</i>	1,778.10	327.58	2,572.42	365.08	1.39
<i>MB_t</i>	3.095	2.022	3.442	2.033	0.53
<i>LEVERAGE_t</i>	0.733	0.294	0.534	0.212	1.45
<i>DIVIDEND PAYOUT_t</i>	0.139	0.000	0.327	0.000	5.18
<i>PP&E_t</i>	0.459	0.439	0.516	0.391	1.67
<i>RETURN STD DEV_t</i>	0.052	0.059	0.045	0.041	3.11
<i>RETURN SKEWNESS_t</i>	0.770	0.437	0.454	0.363	3.04
<i>RSST ACCRUALS_t</i>	0.020	0.034	-0.007	0.015	0.97
<i>CHANGE IN RECEIVABLES_t</i>	-0.022	-0.003	0.001	0.001	2.33
<i>CHANGE IN INVENTORY_t</i>	0.004	0.011	0.002	0.000	0.16
<i>% SOFT ASSETS_t</i>	0.583	0.600	0.492	0.515	3.58
<i>CHANGE IN CASH SALES_t</i>	0.254	0.040	0.149	0.051	1.61
<i>CHANGE IN RETURN ON ASSETS_t</i>	-0.029	0.007	-0.016	-0.005	0.91
<i>ACTUAL ISSUANCE_t</i>	0.851	1.000	0.945	1.000	2.61

Table 2, Panels A and B present descriptive statistics of the variables used in the regressions. All variables are winsorized at the 1% and 99% level. Variable definitions are provided in the appendix.

RESEARCH AND EMPIRICAL FINDINGS

Expected Coverage Limit Model

Using variables that approximate the firm specific litigation risk, D&O coverage limit is modeled to estimate the expected level of insurance. The risk taken on by the covered executive and the firm's litigation risk should correlate with the amount of coverage offered by the firm. The prediction is that firm size (measured using total assets and market value of equity) to explain much of the variation in the D&O coverage limit (Boyer and Delvaux-Derome, 2002, Wynn 2008), because firm size and D&O insurance are highly correlated (84%). Firm size is a concise summary measure of the firm's ability to pay, i.e. the presence of "deep pockets." The market capitalization measure is an estimate of the market's perception of the firm. Plaintiffs' attorneys use experience and market value of equity to gauge coverage limits (Woodruff Sawyer & Co). The other components of the coverage limit model are the market to book ratio, leverage (Boyer and Delvaux-Derome, 2002), the proportion of assets that are composed of property, plant, and equipment, and stock return skewness and volatility (Wynn, 2008). The usage of these variables encompass both (i) the ability to pay (total assets, market value of equity, percentage of PP&E to total assets, and dividend payout ratio), and (ii) risk (leverage, stock return volatility and skewness) (Kim and Skinner, 2012). Corporate governance quality is not employed as a metric for litigation risk in the D&O coverage model, because Daines, Gow, and Larcker (2010) find that corporate governance and transparency ratings, such as those produced by Risk Metrics/ISS, Governance Metrics International and the Corporate Library, do not have predictive power for identifying lawsuit filings. The following regression specification is used to model D&O coverage:

$$\begin{aligned} Lnlimit_t = & \alpha + \beta_1(Lnasset_t) + \beta_2(Lnmve_t) + \beta_3(MB_t) + \beta_4(Leverage_t) \\ & + \beta_5(Dividend Payout_t) + \beta_6(PP\&E_t) + \beta_7(Return Std Dev_t) \\ & + \beta_8(Return Skewness_t) + \varepsilon \end{aligned} \quad (1)$$

Ordinary Least Squares estimated were obtained. Table 3 presents the results of the D&O coverage limit determinants model (equation 1) for the enforcement action analysis in column I (1,983 observations including manipulation and non-manipulation firm-years) and restatement analysis in column II (2,521 observations including restatement and non restatement firm-years). The model of coverage limit has explanatory power of 70.49% and 71.16% for the enforcement action analysis and restatement analysis samples, respectively. The expected coverage limit model is provided to show how well the model does in predicting coverage limit. The error term is not added as an independent variable in this model for the prediction of enforcement releases and accounting restatements. Rather, the coverage limit and its determinants are used in the enforcement releases and accounting restatements models to represent the impact of unexpected coverage limit on the likelihood of an enforcement release and restatement. Total assets has stronger explanatory power (coefficients of 0.31 in column I and 0.24 in column II) than market value of equity (coefficients of 0.14 in column I and 0.16 in column II), which are both statistically significant at the 1% level or better. The D&O coverage limit appears to be a direct measure of the firm's ability to pay; higher coverage limits are associated with lower growth, higher levered, higher dividend paying, capital intensive firms with higher stock return volatility and lower return skewness.

Table 3: Model of D&O Coverage Limit

Variable	(I) Enf. Action Analysis	(II) Restatement Analysis
	Coefficient Estimate	Coefficient Estimate
Intercept	0.011	0.330***
$LNASSET_t$	0.311***	0.238***
$LNMVE_t$	0.141***	0.163***
MB_t	-0.005	-0.009***
$LEVERAGE_t$	0.027*	0.060***
$DIVIDEND\ PAYOUT_t$	0.102***	0.091***
$PP\&E_t$	0.135***	0.327***
$RETURN\ STD\ DEV_t$	5.630***	3.990***
$RETURN\ SKEWNESS_t$	-0.028**	-0.057**
Adjusted R ²	70.49%	71.16%
Observation Count	1,983	2,521

Table 3 presents the directors' and officers' coverage limit prediction model. The estimated equation is: $LNLIMIT_t = \alpha + \beta_1(LNASSET_t) + \beta_2(LNMVE_t) + \beta_3(MB_t) + \beta_4(LEVERAGE_t) + \beta_5(DIVIDEND\ PAYOUT_t) + \beta_6(PP\&E_t) + \beta_7(RETURN\ STD\ DEV_t) + \beta_8(RETURN\ SKEWNESS_t) + \epsilon$. Variable definitions are provided in the appendix. ***, **, and * indicate p-values of 1%, 5%, and 10% respectively (based on two-tailed tests). The p-values are based on robust standard errors. Column I uses the set of enforcement action manipulation firm-years and non manipulation firm-years (1,983 observations). Column II uses the set of restatement firm-years and non restatement firm-years (2,521 observations). The coverage limit prediction model is presented to get an idea of model performance in predicting expected coverage limit. This table shows the regression estimate of the following equation:

Enforcement Action Prediction Model

D&O coverage limit is purchased to approximate litigation risk; for this reason, the coverage limit level itself, rather the unexpected level of coverage purchased is used to ascertain whether opportunism drives the purchase. The prediction model with financial statement variables (Table 4, model 1) in in Dechow et al. (2011) is supplement with the level of D&O coverage limit and its determinants. The following regression equation is used to identify the effect of unexpected coverage on enforcement action likelihood:

$$\begin{aligned}
 \text{Enf Action}_t = & \quad (\text{Enforcement action determinants}) & (2) \\
 & \alpha + \beta_1(RSST\ Accruals_t) + \beta_2(\text{Change in Receivables}_t) \\
 & + \beta_3(\text{Change in Inventory}_t) + \beta_4(\% \text{ Soft Assets}_t) \\
 & + \beta_5(\text{Change in Cash Sales}_t) \\
 & + \beta_6(\text{Change in Return on Assets}_t) + \beta_7(\text{Actual Issuance}_t) \\
 & \quad (\text{Coverage limit determinants}) \\
 & + \beta_8(Lnlimit_t) + \beta_9(Lnasset_t) + \beta_{10}(\text{Dividend Payout}_t) \\
 & + \beta_{11}(MB_t) + \beta_{12}(Leverage_t) + \beta_{13}(\text{Dividend Payout}_t) \\
 & + \beta_{14}(PP\&E_t) + \beta_{15}(\text{Return Std Dev}_t) + \beta_{16}(\text{Return Skewness}_t) + \epsilon
 \end{aligned}$$

Ordinary Least Squares Estimates were obtained. Table 4 presents the findings on the effect of unexpected D&O coverage on regulatory enforcement action likelihood. The coefficient on the unexpected D&O coverage limit is 0.726 (statistically significant at the 5% level; marginal effect of 0.013). The findings show that high unexpected D&O coverage is consistent with a higher probability of enforcement action ex ante (i.e. higher unexpected coverage predictive of a higher likelihood of AAER occurrence). Therefore, enforcement action firms appear to invest in higher D&O coverage limits in anticipation of the manipulation. The McFadden pseudo R² and Craig-Uhler pseudo R² are 11.32% and 2.44%, respectively. A number of other approaches are used to evaluate model predictive ability. One particular measure of note is the area under the receiver operating characteristic (ROC), or AUC (Hosmer and Lemeshow, 2000, Long and Freese, 2006). The ROC “plots the probability of detecting a true signal (sensitivity) and false signal

(1 – specificity) for the entire range of possible cutpoints” (Hosmer and Lemeshow, 2000). The AUC provides a measure of the model’s ability to discriminate. AUC is 0.785 which is larger than 0.5, indicative of acceptable discriminatory ability. A value of 0.5 indicates no ability to discriminate (might as well toss a coin) while a value of 1 indicates perfect ability to discriminate, so the effective range of AUC is from 0.5 to 1.0. Therefore, an AUC of 0.5 suggests no discriminatory ability, a range of 0.7 and 0.8 indicates acceptable discriminatory ability, 0.8-0.9 implies excellent discrimination, and above 0.9 is outstanding discrimination (Hosmer and Lemeshow, 2000). Furthermore, the Hosmer-Lemeshow chi-squared statistic is insignificant (p-value of 0.822) also indicative of good model fit (Hosmer-Lemeshow, 2000). These measures indicate that the model has good discriminatory ability and predictive ability.

The enforcement action sample used in this paper is quite different from the sample used in Dechow et al. (2011). Table 4 includes 35 manipulating firms whereas the Dechow et al. paper uses 494 manipulating firm-years. The difference is largely due to the D&O data restriction on the sample used in this paper; also, the Dechow et al. sample does not appear to use DOJ enforcement actions. The coefficient of interest tested in this paper is that on the unexpected coverage limit. Because of the differences in samples, the coefficients on the enforcement action determinants identified in Dechow et al. (2011) are quite different than those presented in Table 4. The weaker results on the financial statement accrual variables are consistent with the findings in Stubben (2010). The study examines the efficacy of revenue-based models compared to accrual-based models in predicting manipulation using SEC enforcement actions, and finds that revenue-based models do a better job of detecting manipulation than accrual models. However, the statistics indicate decent discriminatory ability and predictive ability, suggesting confidence in the inferences on the impact of unexpected coverage limit on enforcement action probability.

Table 4: Effect of Unexpected D&O Coverage Limit on Enforcement Action Likelihood

Variable	Coefficient Estimate	Marginal Effect
Intercept	-20.571***	
RSST ACCRUALS _{<i>t</i>}	0.143	0.003
CHANGE IN RECEIVABLES _{<i>t</i>}	-3.908*	-0.071
CHANGE IN INVENTORY _{<i>t</i>}	-5.460*	-0.099
% SOFT ASSETS _{<i>t</i>}	1.857**	0.033
CHANGE IN CASH SALES _{<i>t</i>}	-0.026	-0.0004
CHANGE IN RETURN ON ASSETS _{<i>t</i>}	0.580	0.011
ACTUAL ISSUANCE _{<i>t</i>}	12.345***	0.371
LNLIMIT _{<i>t</i>}	0.726**	0.013
LNASSET _{<i>t</i>}	0.716***	0.012
LNME _{<i>t</i>}	-0.066	-0.001
MB _{<i>t</i>}	0.060	0.001
LEVERAGE _{<i>t</i>}	-0.647***	-0.012
DIVIDEND PAYOUT _{<i>t</i>}	0.401	0.007
PP&E _{<i>t</i>}	0.315	0.006
RETURN STD DEV _{<i>t</i>}	33.606***	0.609
RETURN SKEWNESS _{<i>t</i>}	-0.375**	-0.007
Pseudo R ² (McFadden)	11.32%	
Pseudo R ² (Craig-Uhler)	2.44%	
Area under ROC Curve	0.785	
Hosmer-Lemeshow p-value	(0.822)	
Observation Count	1,529	

Table 4 presents the effect of unexpected D&O coverage limit on the probability of a regulatory enforcement action. The estimated equation is: $ENF ACTION_t = \alpha + \beta_1(RSST ACCRUALS_t) + \beta_2(CHANGE IN RECEIVABLES_t) + \beta_3(CHANGE IN INVENTORY_t) + \beta_4(\% SOFT ASSETS_t) + \beta_5(CHANGE IN CASH SALES_t) + \beta_6(CHANGE IN RETURN ON ASSETS_t) + \beta_7(ACTUAL ISSUANCE_t) + \beta_8(LNLIMIT_t) + \beta_9(LNASSET_t) + \beta_{10}(LNME_t) + \beta_{11}(MB_t) + \beta_{12}(LEVERAGE_t) + \beta_{13}(DIVIDEND PAYOUT_t) + \beta_{14}(PP\&E_t) + \beta_{15}(RETURN STD DEV_t) + \beta_{16}(RETURN SKEWNESS_t) + \epsilon$. Variable definitions are provided in the appendix. ***, **, and * indicate p-values of 1%, 5%, and 10% respectively (based on two-tailed tests). The p-values are based on robust standard errors that control for heteroskedasticity and serial correlation. Marginal effects of the coefficients are reported next to the coefficients. The first set of coefficients, β_1 through β_7 , represent enforcement action determinants, whereas the coefficients β_9 through β_{16} are the D&O coverage limit determinants. The coefficient of interest is β_8 . This table shows the regression estimate of the following equation:

To further investigate the D&O coverage limit of enforcement action firms, Table 5 summarizes the change in coverage limit around the enforcement period. In general, coverage limits do not change much from year to year; insurance policies can cover multiple years. In the entire sample of firms with D&O coverage limits (not conditional on *Compustat* or *Crsp* data availability), over 60% of the one-year change in coverage limit is zero percent, and the sample's average annual change in coverage is 19%. The stickiness of D&O coverage limits from year to year is confirmed by the statistic at the bottom of Table 5; the annual percentage change in D&O coverage for manipulation and non manipulation firm years is on average 0.0%. Therefore, changes in coverage limit are infrequent and are not large from year to year. However, Table 5 shows that there is some opportunism with respect to the coverage limit around the misreporting period (violation periods of enforcement actions can span multiple years). The mean annualized change in purchased coverage during the violation period is 28.39% indicating that firms may raise their coverage during the manipulation period opportunistically. The mean percentage change in coverage limit from the year before to the first year of manipulation is 67.54%, which implies that firms ramp up their coverage in anticipation of the manipulation. To this point, one of the enforcement release firms increased their D&O coverage limit by 449% from year t-1 (year prior to violation period) to year t (first year of violation period). Enforcement action firms subsequently lower coverage by 1.34% from the last year of the violation to the year after the enforcement action period. Given the fact that coverage limits are slow to move and infrequently change from year to year, these changes prior to and during the violation period display opportunism using D&O with regard to financial reporting manipulation.

Table 5: Opportunism within the Misreporting Period

Enforcement action obs: mean annualized change in D&O coverage limit during enforcement period	+28.39%
Enforcement Action obs: mean percentage change in D&O coverage limit from year t-1 to year t	+67.54%
Enforcement action obs: mean percentage change in D&O coverage limit from year t to year t+1	- 1.34%
All obs (enforcement action and non enforcement action) firms: average percentage in D&O coverage limit	0.00%

Annual change in D&O coverage limit for enforcement action observations around enforcement period in comparison to all observations' change in limit

Accounting Restatement Prediction Model

There is mixed evidence on accounting restatement determinants. It is not clear whether corporate governance factors are predictive of restatements; CEO equity incentives do not appear to predict restatements but the sensitivity of CEO's option portfolio to stock price and CEO holdings of in the money stock options may be related to restatements (Burns and Kedia, 2006, Efendi et al., 2007). Similarly, the percentage of independent directors on the board is not a restatement determinant, but a dual CEO-chairman of the board or CEO-founder is predictive of restatements (Agrawal and Chadha, 2005, Efendi et al., 2007). Because of the mixed findings on restatement determinants, The enforcement action model variables are used as restatement determinants. The following regression equation estimates the effect of unexpected coverage on restatement likelihood:

$$\begin{aligned}
 Restatement_t = & \alpha + \beta_1(Lnasset_t) + \beta_2(Lnasset_t) + \beta_3(Lnmve_t) + \beta_4(MB_t) \\
 & + \beta_5(Leverage_t) + \beta_6(Dividend Payout_t) + \beta_7(PP\&E_t) \\
 & + \beta_8(Return Std Dev_t) + \beta_9(Return Skewness_t) + \varepsilon
 \end{aligned}
 \tag{3}$$

The following regression specification supplements equation [3] with the enforcement action determinants:

$$\begin{aligned}
 Restatement_t = & \alpha + \beta_1(RSST Accruals_t) + \beta_2(Change in Receivables_t) + \\
 & \beta_3(Change in Inventory_t) + \beta_4(\% Soft Assets_t)
 \end{aligned}
 \tag{4}$$

$$\begin{aligned}
 &+ \beta_5(\text{Change in Cash Sales}_t) \\
 &+ \beta_6(\text{Change in Return on Assets}_t) + \beta_7(\text{Actual Issuance}_t) \\
 &+ \beta_8(\text{Lnlimit}_t) + \beta_9(\text{Lnasset}_t) + \beta_{10}(\text{Dividend Payout}_t) \\
 &+ \beta_{11}(\text{MB}_t) + \beta_{12}(\text{Leverage}_t) + \beta_{13}(\text{Dividend Payout}_t) \\
 &+ \beta_{14}(\text{PP\&E}_t) + \beta_{15}(\text{Return Std Dev}_t) + \beta_{16}(\text{Return Skewness}_t) + \epsilon
 \end{aligned}$$

Ordinary Least Squares estimates were obtained for both equations 3 and 4. Table 6 models the likelihood of aggressive accounting (detected using earnings restatements). The first set of results includes D&O coverage limit and its determinants as predictors of restatements; positive unexpected coverage is predictive of an earnings restatements (coefficient of +0.533, statistically significant at the 1% level based on a two-tailed test). Adding in the financial statement determinants, the coefficient on unexpected coverage limit remains positive and statistically significant (coefficient of +0.631, statistically significant at the 5% level based on a two-tailed test). Both models have acceptable discrimination (AUC of 0.707 and 0.785, respectively).

Table 6: Effect of Unexpected D&O Coverage Limit on Restatement Likelihood

Variable	Unexpected Coverage Limit Only Model		Full Model	
	Coefficient Estimate	Marginal Effect	Coefficient Estimate	Marginal Effect
Intercept	-9.980***		-5.556***	
RSST ACCRUALS _t			1.712***	0.080
CHANGE IN RECEIVABLES _t			-7.989***	-0.375
CHANGE IN INVENTORY _t			5.133**	0.241
% SOFT ASSETS _t			1.862***	0.087
CHANGE IN CASH SALES _t			0.402**	0.019
CHANGE IN RETURN ON ASSETS _t			-0.382	-0.018
ACTUAL ISSUANCE _t			-1.245**	-0.058
LNLIMIT _t	0.533***	0.032	0.631**	0.030
LNASSET _t	0.471***	0.028	0.277	0.013
LNLMVE _t	-0.478***	-0.028	-0.257	-0.012
MB _t	0.042*	0.002	0.025	0.001
LEVERAGE _t	-0.157*	-0.009	0.015	0.001
DIVIDEND PAYOUT _t	-0.366	-0.022	-1.605***	-0.075
PP&E _t	-0.660***	-0.039	0.429	0.020
RETURN STD DEV _t	-7.532	-0.449	8.967	0.421
RETURN SKEWNESS _t	0.403**	0.024	0.275**	0.013
Pseudo R ² (McFadden)	6.08%		12.68%	
Pseudo R ² (Craig-Uhler)	2.92%		1.51%	
Area under ROC Curve	0.7072		0.7851	
Hosmer-Lemeshow p-value	(<0.0001)		(0.329)	
Observation Count	2,521		1,895	

Table 6 presents the effect of unexpected D&O coverage limit on the probability of an accounting restatement. The estimated equation (unexpected coverage limit only) is: $RESTATEMENT_t = \alpha + \beta_1(LNLIMIT_t) + \beta_2(LNASSET_t) + \beta_3(LNLMVE_t) + \beta_4(MB_t) + \beta_5(LEVERAGE_t) + \beta_6(DIVIDEND PAYOUT_t) + \beta_7(PP\&E_t) + \beta_8(RETURN STD DEV_t) + \beta_9(RETURN SKEWNESS_t) + \epsilon$. The estimated equation (full model) is: $RESTATEMENT_t = \alpha + \beta_1(RSST ACCRUALS_t) + \beta_2(CHANGE IN RECEIVABLES_t) + \beta_3(CHANGE IN INVENTORY_t) + \beta_4(\% SOFT ASSETS_t) + \beta_5(CHANGE IN CASH SALES_t) + \beta_6(CHANGE IN RETURN ON ASSETS_t) + \beta_7(ACTUAL ISSUANCE_t) + \beta_8(LNLIMIT_t) + \beta_9(LNASSET_t) + \beta_{10}(LNLMVE_t) + \beta_{11}(MB_t) + \beta_{12}(LEVERAGE_t) + \beta_{13}(DIVIDEND PAYOUT_t) + \beta_{14}(PP\&E_t) + \beta_{15}(RETURN STD DEV_t) + \beta_{16}(RETURN SKEWNESS_t) + \epsilon$. Variable definitions are provided in the appendix. ***, **, and * indicate p-values of 1%, 5%, and 10% respectively (based on two-tailed tests). The p-values are based on robust standard errors that control for heteroskedasticity and serial correlation. Marginal effects of the coefficients are reported next to the coefficients. In the unexpected coverage limit only model, the coverage limit and its determinants are the sole predictors of a restatement firm-year. In the full model, the first set of coefficients, β_1 through β_7 , represent restatement determinants, whereas the coefficients β_9 through β_{16} are the D&O coverage limit determinants. The coefficient of interest is β_8 .

The full model has a McFadden pseudo R² of 12.68%, and a Hosmer-Lemeshow p-value of 0.329. The implication of these results is that managers opportunistically rely on excessive coverage for financial-reporting decision-making, because higher than expected D&O coverage increases the probability of an earnings restatement, all else equal. D&O insurance therefore does not alleviate the moral hazard problem

given that managers' opportunism affects financial reporting decisions. Therefore, the opportunism hypothesis is confirmed in the enforcement action and restatement settings. The findings indicate that opportunism in financial reporting can be detected using excess coverage amounts, testing the existence of aggressive accounting using AAERs and earnings restatements.

CONCLUSION

This study expands our understanding of the role managerial private information (directors' and officers' liability insurance) plays in financial reporting decisions. This paper provides evidence on whether opportunism from D&O insurance coverage results in an overly-buffered executive increasing the probability of aggressive accounting choices. To test the research question, the study uses survey data on D&O insurance coverage limits, enforcement actions from the DOJ and SEC, earnings restatements from the GAO, and financial statement variables from Compustat. The findings show that litigation risk proxies like firm size, market capitalization, capital intensity, growth, dividend payout, leverage, return skewness and volatility are determinants of the amount of coverage. Furthermore, opportunism in financial reporting can be detected using excess coverage amounts in the prediction of enforcement actions and accounting restatements. The likelihood of an enforcement action or earnings restatement is increasing in unexpected coverage, suggesting that executives rely on the insulation from investor recourse when making financial reporting decisions. There are a few limitations to my study.

To the extent that the need for restatement or cause for an enforcement action goes undetected in some firms, the non-restatement and non-manipulation samples contain firms that should be in the test samples. Furthermore, using the excess value of coverage limit in predicting earnings restatements and regulatory action relies on the fact that the model of coverage is correctly specified. Also, the enforcement action sample (due to the D&O data requirement) is small in comparison to the sample used in Dechow et al. (2011), resulting in different inferences on the financial statement variables used in their model. Overall, this study has implications for how D&O insurance can have an unexpected impact on managerial decision-making, and has potential policy implications for disclosure of coverage limit in the United States.

APPENDIX

Variable Definitions

The following provides definitions of the variables used in the tables in alphabetical order. For all enforcement action tests, year t represents the violation year for manipulation firms, and the firm-year for non manipulation firms. For all restatements tests, year t represents the amended year for restatement firms, and the firm-year for non restatement firms.

Variable	Definition
ENF_ACTION_t	Equals 1 if a violation period of a regulatory enforcement action occurred during the year, and 0 otherwise
$ACTUAL_ISSUANCE_t$	As defined in Dechow et al. (2011): Equals 1 if the firm issued securities during year t
$CHANGE_IN_CASH_SALES_t$	As defined in Dechow et al. (2011): percentage change in cash sales in year t (sales – accounts receivable)
$CHANGE_IN_INVENTORY_t$	As defined in Dechow et al. (2011): $\Delta inventory /$ average total assets in year t
$CHANGE_IN_RECEIVABLES_t$	As defined in Dechow et al. (2011): $\Delta accounts\ receivable /$ average total assets in year t
$CHANGE_IN_RETURN_ON_ASSETS_t$	As defined in Dechow et al. (2011): $(earnings_t /$ average total assets $_t) - (earnings_{t-1} /$ average total assets $_{t-1})$
$DIVIDEND_PAYOUT_t$	Dividend payout ratio in year t
$LEVERAGE_t$	Debt to equity ratio in year t
$LNASSETS_t$	Natural log of total assets at the end of year t
$LNLIMIT_t$	Natural log of the firm's total directors' and officers' insurance coverage limit less deductible at the end of year t
$LNMBVE_t$	Natural log of market value of equity at the end of year t
MB_t	Market value of equity scaled by book value of equity at the end of year t
$\% \text{ SOFT ASSETS}_t$	As defined in Dechow et al. (2011): $(Total\ assets - PP\&E - cash\ and\ cash\ equivalents) /$ total assets in year t
$PP\&E_t$	Property, plant and equipment at the end of year t scaled by beginning of year t total assets
$RESTATEMENT_t$	Equals 1 if a firm restated (amended) its financial statement for the year, and 0 otherwise

Variable Definitions, *Continued*

<i>RETURN SKEWNESS_t</i>	Skewness of the Firm's 12-Month Return
<i>RETURN STD DEV_t</i>	Standard deviation of the firm's 12-month returns
<i>RSST ACCRUALS_t</i>	As defined in Dechow et al. (2011): (DWC + DNCO + DFIN)/average total assets in year t, where
	WC = [current assets – cash and short-term investments] – [current liabilities – debt in current liabilities];
	NCO = [total assets – current assets – investments and advances] – [total liabilities – current liabilities – long-term debt];
	FIN=[short-term investments + long-term investments]–[long-term debt + debt in current liabilities + preferred stock]

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