Accounting & Taxation
Vol. 10, No. 1, 2018, pp. 23-38
ISSN: 1944-592X (print)
ISSN: 2157-0175 (online)

IBFR
www.theIBFR.com

PREDICTIVE ABILITY OF DIRECTORS' AND OFFICERS' LIABILITY INSURANCE COVERAGE FOR CLASS ACTION LAWSUIT SETTLEMENTS

Irene Y. Kim, Catholic University of America

ABSTRACT

The primary conclusion from prior literature is that firm size, as a measure of firm resources and capacity to pay, is a key predictor of class action securities settlement amount, and the merits of the case are less important in settlement negotiations. The purpose of this study is to shed additional light on the settlement determination process: given defendant incentives to avoid paying out of pocket and plaintiff incentives to settle quickly with maximum settlement, does directors' and officers' (D&O) insurance coverage limit explain variation in settlement amounts? I find that D&O coverage limit has predictive ability for settlement size, even when controlling for firm size. I also find that the association depends on the level of coverage; high D&O coverage has stronger explanatory power for settlements than low coverage, presumably due to the marginal benefits of plaintiff attorney effort at high levels of coverage to yield the big payoff. In sum, this paper contributes to the existing literature on predicting class action securities lawsuit settlements, which even though D&O coverage levels are unobservable to investors, impacts decision-making important to shareholders.

JEL: K4, M4

KEYWORDS: Accounting, Securities Litigation

INTRODUCTION

The purpose of this paper is to shed light on the role Directors' and Officers' (hereafter D&O) insurance coverage plays in the class action settlement determination process and to provide evidence on the importance of firm size in predicting the settlement amounts. The main conclusion of prior literature is that settlement amounts increase with firm size (Francis, Philbrick, and Schipper, 1994, Dunbar, Juneja and Martin, 1995, Skinner, 1996). The purpose of this study is to examine whether D&O insurance total coverage limit is a predictor of settlement amounts, above and beyond firm size. The tension in this rationale is that premiums will rise following a large claim to fund a class action lawsuit settlement; however, this cost is incurred by the firm (and therefore, the shareholders with an ownership interest at settlement payout), rather than a personal cost to the defendant executives. In prior literature (Francis, Philbrick, and Schipper, 1994, Dunbar, Juneja and Martin, 1995, Skinner, 1996), the firm's capacity to pay has been *indirectly* measured using firm total assets. In contrast, the policy coverage limit is independent of the merits of the plaintiffs' case and is a *direct* measure of the funds available to pay. Claims are more easily funded by insurance companies that are contractually required to fund coverage as opposed to individual defendants (Baker and Griffith, 2009). Naturally, the firm has incentives to settle without using its own money and its D&O insurance coverage. Therefore, this study contributes to the existing research on whether the merits of the individual case matter in determining class action securities settlements (Alexander, 1991, Francis et al., 1994, Skinner, 1996, Palmrose and Scholz, 2004, Donelson, Hopkins, and Yust, 2015). The goals of this paper are twofold.

First, I examine whether firm size is correlated with the amount of D&O coverage a firm carries and if so, whether firm size or D&O coverage limit has stronger explanatory power for class action lawsuit settlement size. Anecdotally, we know that plaintiff and defendant attorneys have incentives to settle class action lawsuits at or within coverage limits to avoid the use of firm resources to fund settlements and to avoid lengthy settlement negotiations (Alexander, 1991). To accomplish this goal, I compare the R-squared of a regression of settlement amount on D&O limit, to a regression of settlement amount on firm size, both controlling for the merits of the case. I find that coverage limit is statistically significant in explaining settlement amount, even when controlling for firm size. This result suggests that the D&O coverage limit contains information for settlements beyond firm size. Moreover, in a univariate regression, firm size (as a proxy for capacity to pay within the firm) does a better job of explaining settlement amounts than D&O coverage alone (as a proxy for capacity to pay using other peoples' money). This result is consistent with the idea that firm size is a useful summary measure to capture other (possibly unmeasurable or unobservable) variables in predicting settlement amounts. Consistent with the idea in Berk (1995) that firm size encompasses many unobservable factors; in this case, firm size proxies for many unobservable predictors of settlement size, potentially correlated with litigation risk and capacity to pay.

The second goal of my paper is to explore whether the predictive ability of D&O insurance for settlement size depends on the level of D&O coverage. I expect that there is a nonlinear impact of coverage limit and firm size on settlements. That is, for high levels of D&O coverage, I predict that the plaintiff attorneys undergo effort to use as much of the limit as possible. In contrast, at low levels of D&O coverage, the plaintiff attorney incentive system realizes the marginal benefit of their effort is low, and thus trade off a high settlement for a quick settlement. I test this prediction using piecewise linear regressions, and I find that the slope coefficient for high D&O firms is significantly larger than the slope coefficient for low D&O firms in the prediction of settlement size. To further explore whether the merits of the case matter for settlement determination in cases arising from errors and irregularities, i.e. earnings restatement, I also test whether the percentage change in earnings as a result of the restatement is a determinant for settlement amounts. The severity of the error or irregularity is predictive of settlement negotiations (a steeper drop in earnings has valuation implications for stockholders, and affects their expectation of future earnings). I find that a reduction in earnings is statistically significant in explaining settlement value, and the amount of earnings that were restated is a merit of the lawsuit that factors into settlement determination.

The contribution of this study is to provide large sample evidence on D&O insurance coverage limits for application to class action settlements. Furthermore, I confirm the intuitive anecdotal and theoretical evidence which suggests that plaintiffs' attorneys and defendants have interests to settle at or within coverage limits. Baker and Griffith (2009) use anecdotal evidence to conclude that "although securities settlements are influenced by some factors that are arguably merit related, such as the 'sex appeal' of a claim's liability elements, they are also influenced by many that are not, including, most obviously, the amount and structure of D&O insurance" (page 755). This paper's conclusions are that firm size is preeminent even when considering coverage limits because of the all-encompassing nature of firm size, i.e. largely because firm size captures many correlated factors of settlement determination, and coverage limit does play a role in explaining settlements, even when controlling for firm size. Intuitively, though, settlement amount and D&O coverage limits have a direct relationship, while firm size (representing a proxy for unobservable litigation risk variables and firm resources) and settlement amount have an indirect relationship. Plaintiffs' attorneys discover the defendant coverage limit after class certification, and have incentives to use the coverage limit as a target for the settlement amount to settle quickly and move onto their next case. Furthermore, the relationship between D&O and settlements is nonlinear: the association is even stronger at higher levels of D&O coverage, implying that plaintiff attorneys have higher incentives to get that large settlement and use the available coverage when the limit is substantial without wasting available coverage. Defendant attorneys also have strong reasons to settle within D&O coverage limits. Insurers pay the limit used less a deductible, and as long as executives do not incur personal liability, defendant attorneys are willing to use it. Interestingly, D&O insurers often agree to settle using the policy

limit, because defendants select defense counsel, rather than using insurer attorneys. This is in contrast to other types of insurance (Black, Cheffins, and Klausner, 2006).

The remainder of this paper proceeds as follows. In the next section, I provide institutional detail on D&O insurance and literature review, followed by a section on data description. The results follow, and I end with concluding comments.

LITERATURE REVIEW

Institutional Background on Directors' and Officers' Liability Insurance

D&O insurance covers managers, directors, and in some cases entire firms. The risk aversion of the firm's officers and directors results in the purchase of D&O insurance coverage as part of an executive compensation policy. D&O insurance serves several purposes for the firm, its shareholders, managers, and directors, such as: (1) reduces the agency problem between investors and management by introducing convexity to a manager's risk averse function (Bhagat, Brickley, and Coles, 1987), and (2) represents a substitute monitoring device for other governance mechanisms that are too 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 she is exposed to possible financial and reputational loss in the event of a filing, regardless of merit. According to the Tillinghast-Towers Perrin *Directors and Officers Liability Survey*, D&O coverage is virtually universal among survey participants, at 97%; however, it is difficult to know whether this coverage percentage extends to the broader population of firms. According to Tillinghast-Towers Perrin, the mean D&O coverage limit is $20.1 million. D&O coverage curbs managerial risk aversion, and covers employment discrimination, securities lawsuits, and other employment-related suits (Kim, 2015). Class action securities litigation reduces agency costs, because it is an ex post monitoring deterrent available to investors (Jennings, Kedia, and Rajgopal, 2011).

D&O insurance can offset the benefits of the litigation threat, which therefore suppresses the reduction of agency costs by buffering the manager from being responsible for his actions. The effect of these two forces inhibits the ex post settling up of securities litigation. The amount of D&O coverage carried is determined partially by the price a firm will pay for insurance because of price protection by insurers (in the form of the deductible, coverage, and premium) (Core, 2000, Cao and Narayanamoorthy, 2014). D&O insurance firms must evaluate the risks associated with insuring the firm, its industry, and the individual managers; monitoring costs come when a manager makes a misrepresentation and the insurers determine whether information used to establish the contract was incorrect. These contracting and monitoring costs are built into the premium charged, the deductible charged, and the coverage limit made available to the insured. The anecdotal evidence suggests that the insurers will not undersell the covered; rather, it will price protect to compensate them for the borne risk. Therefore, the amount of coverage purchased is purely a function of how much the firm (its executives) wants to purchase given the premium. However, Baker and Griffith (2009) find that, based on anecdotal evidence, once the policy is in place, "D&O insurers do almost nothing to monitor the risky activities of their corporate insureds and that, as a result, D&O insurance is a pure risk-spreading form of insurance, raising the attendant moral hazard concerns" (page 762). Similar to other types of insurance, this lends to the idea that defendants can use their D&O limit when necessary to cover securities claims.

The insurer's risk level is increasing in litigation settlements and coverage offered per firm, which is why multiple carriers generally insure a firm together, thereby spreading the risk among insurance companies. D&O insurance premiums have increased dramatically in the past several years due to the dramatic increase in securities litigation (Woodruff-Sawyer & Co). If it is brought to light that the information used to establish the D&O contract was misleading, the D&O contract may be revoked. For example, if a firm restates earnings and is found guilty of misleading investors in a securities trial, the information used to

prepare the contract is deemed incorrect, and contract rescission occurs. However, there is generally no admission of wrongdoing in a settled case, making it difficult for the insurer to rescind the contract. If an insurance provider refuses to pay the settlement amount, then the insurer can be held responsible for trial verdict amounts above coverage limits (Black et al., 2006). Thus, the plaintiff (attorneys), defendant (attorneys), and D&O insurers all have strong incentives to settle so that D&O resources can be used to fund the settlement (Romano, 1991, Black et al., 2006).

Extant empirical literature on *U.S.* D&O insurance is sparse, presumably because data generally are not available for U.S. firms. Baker and Griffith (2009) document that the D&O relationships are theoretically testable, but do not have access to reliable D&O information. Chalmers, Dann, and Harford (2002) use D&O insurance and post-offering returns to identify opportunism in U.S. IPO firms, by identifying a negative correlation between D&O coverage and post IPO returns. Furthermore, Cao and Narayanamoorthy (2004) perform a similar premiums determinant analysis to Core, except with U.S. data. This study draws comparison to Donelson et al. (2015). However, there are several reasons why I find the Donelson et al. (2015) results interesting as they relate to the D&O-settlement issue. To begin with, the Donelson et al. results and its implications are highly dependent on the lawsuit damages measure used. They purport that damages and other merits of the case have strong predictive power for settlements, whereas D&O coverage limits do not. The damages proxy does not contain a measure of share turnover (volume) during the manipulation period. In a rule 10b-5 case, a drop in market value during the class period is significant only if trades occurred. We know from prior literature that settlements are extremely highly correlated with firm size; the Pearson correlation coefficient reported in Donelson et al. (2015) between firm size (log assets) and damages (log) is extremely high at 0.81. The high correlation could certainly result in some multicollinearity issues and unstable coefficients. In contrast, this study uses a damages measure which encompasses impact – market drop with trading volume to capture both dimensions of investor loss. The Pearson correlation between damages and assets is only 0.4 in this paper, i.e. damages and assets contain different pieces of information.

Secondly, the Donelson et al. (2015) paper seems to suggest that D&O coverage limit and case merits are mutually exclusive in explaining settlement size. "Evidence that settlements are largely determined by insurance limit would be consistent with plaintiffs lacking confidence in their cases and their ability to win a jury trial" (Donelson et al. 2015). As we know from Alexander (1991), plaintiff attorneys have a menu of cases and a litigation settlement wrapped up expeditiously is ideal for both sides alike. Plaintiff attorneys have several reasons for targeting a settlement, namely D&O coverage often cannot be used in a losing adjudicated trial, reputation effects can worsen with a jury trial, and the marginal benefit of going to trial is low for settlement maximization purposes. If merits matter more for settlement negotiations, we would see many settlement amounts above the maximum D&O coverage; however, 96% of settlements are within the available policy coverage (Cox, Thomas, Bai, 2008). Therefore, it appears that there are more unanswered questions regarding the D&O settlement story. Additionally, the observation count used in Donelson et al. (2015) is 94, and regressions by quartile use only 23 observations. It is difficult to draw inferences from 23 or 94 observations; the paper tries to assess generalizability by comparing D&O sample descriptive statistics and regression coefficients with the D&O sample to the non D&O sample, but the prime variable of interest is missing. For these reasons, the contribution of this study is to continue to delve into the relation between settlement determination, D&O limits and case merits, an issue that has not fully been resolved.

The Settlements Merits Issue

Accounting and legal literature has debated whether the settlement amount corresponds to (i) firm resources, or (ii) the strength of the plaintiff's legal case, otherwise known as the merits of the case. Beginning with Alexander (1991), research shows that settlement amounts often are not related to the merits of the case, but rather, firm size and loss in market value explain much of the variation in resolutions

(Francis et al., 1994, Dunbar and Hinton, 1995, DuCharme, Malatesta, and Sefcik, 2004). The linear correlation between damages filed and litigation outcomes is statistically insignificant (Francis et al., 1994, Dunbar and Hinton, 1995). An exception to this is Donelson et al. (2015), who find that the correlations between damages and settlements are highly significant at 71%, p-value <0.05 based on a two-tailed test. The presence of insured co-defendants and time to reach settlement are positively associated with settlements (Dunbar and Hinton, 1995). Thus, the primary conclusion from prior literature is that size (representing a proxy for resources) is the leading predictor of settlement amount. Dunbar et al. (1995) concludes that available assets are a better predictor of settlements than merits, while much of the variation in settlements remains unexplained. Furthermore to the merits issue, claims featuring easily identifiable indicia of wrongdoing or fraud–such as earnings restatements, insider selling, and concomitant regulatory investigations–settle higher than claims without such features (Baker and Griffith, 2009). Donelson et al. (2015) stretch the merits issue to represent a determinant of financial reporting fraud by stating that meritorious cases are a measure for accounting fraud. The sample in Donelson et al. is simply a sample of rule 10b-5 cases; therefore, the measure of fraud using merits is misleading due to the prevalence of non-accounting related cases and non accounting-related merits, e.g. insider trading.

Akin to the firm resources argument of firm size as a predictor of settlement amount, I investigate how D&O coverage affects litigation settlements (a joint decision by parties internal and external to the firm). The policy coverage limit is a direct measure of the firm's ability to pay (i.e. firm resources) and does not reflect the merits of the plaintiffs' case. "Size of insurance coverage does usually shape the final size of a settlement" (Savett, 1997). Defendants naturally have incentives to settle without using their own money, which lends to a natural link between settlements and D&O coverage. "[C]orporations possess a vested interest, only in settling cases *within policy limits*, which are often quite large. This has caused settlement amounts to skyrocket and removed incentives to control defense costs as well" (Keogh, 2002, emphasis added). Even if D&O coverage does not provide for all of the settlement amount, firms can cover the remainder without having to resort to the use of executives' money (Klausner, Hegland, and Goforth, 2011). D&O insurance coverage cannot be used to fund a negative adjudication, because policies routinely exempt losses from trials finding dishonest or misleading behavior. However, in the case of a settlement, the insurer generally cannot refuse to pay because there is no admission of guilt (Romano, 1991). Hence, in addition to the purchase of insurance, the corporate executives' risk aversion creates incentives to settle a lawsuit quickly, funding the settlement with D&O insurance coverage (Alexander, 1991, Romano, 1991). Defendants do not want the lawsuit to get to trial, with additional adverse reputation and monetary consequences. Premiums may rise following insurance funding of settlement, but any rise in premiums is essentially paid by investor ownership at the time of the cost increase (Romano, 1991).

On the opposing side, the class is represented by the plaintiff counsel, who is the major player in settlement negotiations with the defendant. As discussed in Alexander (1991), the high monitoring costs with pennies to the dollar expected recovery prohibit active monitoring by the class members of the plaintiff attorney. "Class actions are characterized by high agency costs: that is, a significant possibility that litigation decisions will be made in accordance with the lawyer's economic interests rather than those of the class" (Alexander, 1991). Plaintiffs' attorneys interests need not coincide with the shareholders' interests (Romano, 1991). Plaintiffs' counsel agree to settle within policy limits without pushing for a trial, because they have a menu of class actions to pursue, thus potentially trading off a slightly higher settlement amount for the opportunity cost of pursuing other class actions. "Plaintiffs' counsel will often settle with officer and director defendants who are usually the most culpable defendants within policy limits because there is little incentive to refuse a bird in the hand and go outside policy limits" (Savett, 1997).

Hence, following lawsuit certification by the court, both plaintiffs' attorneys and defendants have incentives to settle quickly and use the D&O coverage, which leads to Hypothesis 1. Settlement amounts are increasing in firm resources in the form of D&O coverage, ceteris paribus.Furthermore, I also expect that the prediction of D&O insurance and firm assets (size) for settlement amounts is nonlinear. For small firms

and low values of D&O insurance, it is logical that plaintiff attorneys trade off a lower settlement for a quicker one, which would imply a weaker association between settlement size, coverage limit, and firm size. However, the coefficient for limit on settlement amount should be larger (and different) for higher values of limit, because plaintiff attorneys want to settle as close to coverage limits as possible to garner the big payoff. The differential coefficients of limit on settlement amount lead to Hypothesis 2. There is a nonlinear relationship between D&O coverage limit and settlement amount, ceteris paribus.

Accounting Restatements

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 (General Accounting Office, 2003). There are several consequences of earnings restatements; for example, the market penalizes the firm for an earnings restatement, due to the valuation implications of altering the earnings into perpetuity (Palmrose, Richardson, and Scholz, 2004, Richardson, Tuna, and Wu, 2002). Furthermore, the market perceives that earnings restatements have earnings management implications. Palmrose et al. (2004) find a market reaction of –9.2% to quarterly and annual restatement announcements, while Richardson et al. (2002) find a market response of –11% to the announcement of an earnings restatement. Additional market penalty occurs when there is no quantification of the amount of the restatement, a large change in originally-filed income, insider trading by executives, or when the restatements affects multiple financial statement accounts (Palmrose et al., 2004, Badertscher, Hribar, and Jenkins, 2011). Hence, the market appears to penalize firms for restating earnings due to the valuation implications of altering past earnings.

Aside from stock valuation penalties from earnings restatements, Srinivasan (2005) and Carver (2014) confirm that penalties for earnings restatements come in the form of turnover. Srinivasan (2005) finds that board turnover is 51% for firms that restate earnings downwards, compared to 29% for positive restatement firms and 17% for technical restatement firms. These results provide evidence that directors are held accountable for financial reporting failures, such as earnings restatements. Another consequence of an earnings restatement is recourse in the form of securities litigation (Palmrose and Scholz, 2004). In a test of auditor litigation, they find that only 38% of restatement firms are sued, and they identify whether the litigation rate increases when a firm restates core earnings (normal, recurring earnings from operating activities) and has pervasive misstatements (the number of financial statement items affected by the restatement). Restatements involving core earnings items yield a higher litigation rate (51%) than non-core items (18%), and as expected, restatements related to revenue recognition items are the most predominant and have the highest litigation rate. Given prior evidence suggesting that a restatement of earnings has valuation implications, I examine whether firms face an additional consequence from an earnings restatement. In class action lawsuit cases arising from restatements, I expect that the amount of earnings that changed as a result of the restatement is a determinant of settlement amounts, i.e. that the severity of the error has implications for settlement negotiations. The amount of earnings that are restated predicts settlement amounts, ceteris paribus.

Data

D&O data is gathered from a highly proprietary industry source. The D&O sample starts with an observation count of 8,662. The relevant D&O limits and deductibles used for the settlement analysis are those prevailing during the class period, because the funding of settlements is based on the coverage in place during the class period. I use three sources for my settlement data. The first source is the *Securities Class Action Alert* paper service, which spans from 1990-2002. The second source is *Securities Class Action Clearinghouse*, which is sponsored by Stanford Law School and documents cases filed after the Private Securities Litigation Act of 1995. The third source is Woodruff-Sawyer & Co. The total number of settlements from these sources is 1,172, spanning from 1990-2002. Once merged with the D&O

observations, there are 151 remaining settlements. Tables 1-3 provide descriptive statistics for the D&O sample. Table 1 shows that a company's average annual premium is $470 million, while premiums as a percentage of coverage is 3.2%. D&O contracts often stretch more than one year; the average number of policy years is 1.2. Insurers often spread the risk of a firm over multiple insurers. For example, an insurer can cover the layer up to $10 million of liability, and another insurance company can cover the layer from $10 to $20 million of coverage for a firm. Table 1 shows that the average number of layers is 2.9.

Table 1: D&O Sample Premium and Coverage Descriptive Statistics

N=627	Mean	Median
Premiums ($ millions)	$469.6	$335.0
Premium/ Coverage	3.2%	2.8%
Number of Policy Years	1.2	1.0
Number of Layers	2.9	3.0

Premium data are available for 627 observations. Means and medians of premiums, premium per dollar of coverage limit, number of policy years covered in the policy, and number of insurers providing coverage to a firm (number of layers) are provided.

The purpose of Tables 2 and 3 is to identify whether there is a tradeoff between premiums and deductibles charged by the insurer. Table 2 is a correlation table of coverage year, deductibles per dollar of coverage, premiums per dollar of coverage, and the coverage limit. The correlation coefficient between coverage year and scaled premiums (about 50%) is much higher than the correlation between coverage year and scaled deductible (14%). This suggests that insurers have resorted to price protecting through premiums in more recent years than using deductibles.

Table 2: D&O Sample Tradeoff Analysis of Coverage Limit, Deductible, and Premium Correlation Coefficients

	CovYear	Deduc%	Prem%	Limit
		0.138***	0.497***	0.198***
CovYear		[0.003]	[<0.0001]	[<0.0001]
		455	454	455
	0.032		0.181***	–0.530***
Deduc%	[0.500]		[0.0001]	[<0.0001]
	455		454	455
	0.455***	–0.007		0.261***
Prem%	[<0.0001]	[0.880]		[<0.0001]
	454	454		454
Limit	0.111**	–0.018	0.108**	
	[0.017]	[0.695]	[0.022]	
	455	455	454	

, **, * indicate significance at the 10, 5, and 1 percent levels respectively. Limited premium and deductible data are available for the original D&O sample of 8,662. Pearson correlation coefficients are below the diagonal and Spearman correlation coefficients are above the diagonal. CovYear is the coverage year. Deduc% is the firm's total deductible scaled by the coverage limit. Prem% is the firm's total premium scaled by the coverage limit. Limit is the firm's total coverage limit in $millions.*

The Spearman correlation between premium and deductible per dollar of coverage is 18% (Pearson is not statistically significant). Insurers do not appear to tradeoff the premiums for deductibles; instead, they price protect using both mechanisms. As expected, the coverage limit and deductible per dollar of coverage are negatively correlated (Spearman correlation of –53%). Furthermore, the higher the coverage purchased, the higher the cost per dollar of coverage (Spearman correlation of 26%). Table 3 lists the descriptive statistics by coverage limit quartile. Consistent with the correlation coefficients, the median of the premiums per dollar of coverage increases as the coverage quartile increases, whereas deductibles per dollar of coverage limit gets smaller as the coverage limit quartile changes. Even though deductibles decrease and premiums increase as the coverage increases, there does not appear to be a tradeoff between the two. The correlation coefficient is positive at 18%.

Table 3: D&O Sample Tradeoff Analysis of Coverage Limit, Deductible, and Premium Descriptive Statistics by Coverage Limit Quartiles

		Deduc%	Prem%
Quartile 1	*Mean*	5.48%	2.55%
	Median	3.66%	2.30%
Quartile 2	*Mean*	3.14%	3.31%
	Median	2.50%	2.74%
Quartile 3	*Mean*	9.58%	3.30%
	Median	2.00%	3.04%
Quartile 4	*Mean*	2.07%	3.40%
	Median	1.25%	3.12%

Limited premium and deductible data are available for the original D&O sample of 8,662. CovYear is the coverage year. Deduc% is the firm's total deductible scaled by the coverage limit. Prem% is the firm's total premium scaled by the coverage limit. Limit is the firm's total coverage limit in $millions.

Descriptive statistics for the settlement sample are in Table 4. Settlement amounts are naturally very skewed. There is considerable variation in deductibles per dollar of coverage. Insurers not only price protect by charging higher premiums to riskier insureds (Core, 2000), but also charge higher deductibles to riskier clients. The sample firm with the largest limit ($350 million) during its class period has a relatively small deductible, at only $10 million. In contrast, the firm with the largest deductible ($50 million) has a limit of only $150 million. This suggests that insurers charge higher deductibles per dollar of limit to perceived riskier firms.

Table 4: Settlement Sample Descriptive Statistics

Variable	Units	Obs	Mean	Minimum	Median	Maximum
SETTLEMENT VARIABLES						
Sett	Millions	151	17.09	0.00	7.75	490.00
Shr	Millions	14	6.36	0.12	1.47	53.5
Ins Pmt	Millions	27	20.51	1.25	7.25	196.00
Co Pmt	Millions	28	13.01	0.00	0.00	294.00
Atty Fees	%	148	29.6%	3.69%	30.0%	40.00%
Atty Expenses	Millions	88	0.53	1.60%	0.32	5.85%
Damages	Millions	145	577.24	1.00	69.37	12,914.66
D&O VARIABLES ASSOCIATED WITH SETTLEMENT SAMPLE						
Limit	Millions	160	35.56	0.18	20.00	350.00
Deductible	Millions	161	2.36	0.03	0.28	50.00
DATES ASSOCIATED WITH SETTLEMENT SAMPLE						
Beg Class Per		169	1995	3/1988	8/1996	4/2002
End Class Per		169	1996	5/1990	7/1997	12/2002
Filing Date		90	1996	6/1990	7/1996	12/2001
Settle Date		166	1998	12/1991	1/2001	4/2003
FIRM CHARACTERISTICS OF SETTLEMENT SAMPLE						
Size	Millions	111	8,579	2.20	548	259,260
RESTATEMENT VARIABLE						
Rest Ni	%	169	–0.014	–0.53	0.00	0.062

Descriptive statistics are for firms that settled a class action lawsuit case, and also have available D&O coverage limits. Sett is measured as the total cash settlement award, excluding consideration of attorney fees and expenses ($millions). Ins Pmt is the portion of cash settlement covered by D&O insurer(s), if data is available. Co Pmt is the amount of cash settlement paid by the firm directly, if data is available. Atty Fees is the percentage of cash settlement awarded to the plaintiff attorney for fees. Atty Exps is expenses awarded to plaintiff, which is distributed out of cash settlement ($millions). Limit is the average coverage limit prevailing during the class period. The coverage limit at settlement is not the relevant limit, since the limit prevailing when the fraud occurred is used to pay the settlement. Deductible is the firm's deductible under the D&O relevant policies. Settle Date is the month and year of the settlement announcement. Filing Date is the month and year of the class action filing date. Beg Class Per is the class period beginning date. End Class Per is the class period ending date. Size is the average of beginning class period total assets and ending class period assets. Rest NI is the percentage of restated earnings, i.e. [(Restated NI– Originally Filed NI)/Originally Filed Total Assets]. If no restatement, REST NI is set to 0. Damages is an estimate of damages computed in equation [4].

Estimated damages are also very skewed. The average amount of net income that decreased as a result of the restatement is about 1.4% of total assets. Plaintiff attorney fees seem to be rather standard, at about 30% of settlement amounts. Plaintiff attorney fees and expenses come out of the settlement fund, and must

be approved by the district court. Consistent with extant literature, alleged accounting problems are the leading cause of settled cases (Table 5).

Table 5: Frequencies of Settlement Sample Count Variables

FirmDef	**Yes**	**127**
	No	3
Cause	Accounting	71
	Failure to Warn	58
	False Forecast	33
	Acquisition	21
	Offering	19
	Business	8
District Ct (Top 6)	CA	66
	NY	16
	IL	8
	OH	5
	PA	6
	TX	7

Frequencies are for firms that settled a class action lawsuit case and also have available D&O coverage limits. FirmDef =1 if the firm was named as defendant in the class action filing, and 0 otherwise. Cause is the list of causes for the suit, as detailed in the filing press release. District Ct is the district court where the class action suit was originally-filed.

Pearson and Spearman correlation coefficients are shown in Table 6. As expected, the correlation between *LnSize* and *LnLimit* is quite high, at about 0.66. Settlement amounts, firm size, coverage limits, and estimated damages are all highly correlated, with correlation coefficients of 40–50%.

Table 6: Settlement Sample Correlation Coefficients

	LnSett	**LnSize**	**LnLimit**	**LnDamages**	**Rest NI**
LnSett		0.459***	0.477***	0.486***	–0.065
		[<0.001]	[<0.001]	[<0.001]	[0.414]
		151	160	139	162
LnSize	0.494***		0.704***	0.451***	0.103
	[<0.001]		[<0.001]	[<0.001]	[0.199]
	151		155	136	158
LnLimit	0.438***	0.661***		0.447***	0.109
	[<0.001]	[<0.001]		[<0.001]	[0.161]
	160	155		142	166
LnDamages	0.402***	0.395***	0.405***		0.016
	[<0.001]	[<0.001]	[<0.001]		[0.848]
	139	136	142		145
Rest NI	–0.120	0.139*	0.095	0.062	
	[0.129]	[0.081]	[0.223]	[0.462]	
	162	158	166	145	

, **, * indicate significance at the 10, 5, and 1 percent levels respectively. Pearson and Spearman correlation coefficients for firms that settled a class action lawsuit case, and also have available D&O coverage limits. Pearson correlation coefficients are below the diagonal. LnSett is the natural log of the total cash settlement award, excluding consideration of attorney fees and expenses ($millions). LnSize is the natural log of the average of beginning class period total assets and ending class period assets in $millions. LnLimit is the natural log of the coverage limit prevailing during the class period in $millions. The coverage limit prevailing at settlement is not the relevant limit, since the limit prevailing when the fraud occurred is used to pay the settlement. LnDamages is the natural log of an estimate of damages constructed using equation [4]. Rest NI is [(Restated NI– Originally Filed NI)/Originally Filed Total Assets]. If no restatement, Rest NI is set to 0.*

RESULTS

Federal Regulation

The Private Securities Litigation Reform Act of 1995 (PSLRA) was passed to encourage a reduction of abusive litigation and coercive settlements (Foster, Martin, Juneja, and Dunbar, 1999). The PSLRA is a federal law, so it does not affect cases filed in the states. Pre-PSLRA, there was a preference given to the

first attorney to file; however, the PSLRA reduces this first mover advantage. Another key change is the strengthening of the scienter requirement. The desired effects of these two key changes is to reduce the number of filings by increasing the chance of an early dismissal and raising the standard for liability, and to curb a quick filing without cause (Foster et al., 1999). The desired effects and actual consequences of the Act are quite divergent (Foster et al., 1999). The number of cases filed drastically increased post-PSLRA, along with a significant increase in the number of cases dismissed. These changes would have presumably increased the average settlement amount, because the reduced number of cases getting through the dismissal stage and reaching settlement is of higher merit, all else equal. However, since the desired effects were not achieved, I do not distinguish between settlements in the pre- and post- PSLRA regimes in my research design.

Settlement Prediction

The insurer(s) paid 100% of the settlement in 33 of the 56 cases in my sample where the settlement allocation between D&O underwriter(s) and the firm is known. In many cases, the firm's contribution is to dilute earnings per share by contributing common shares to the settlement fund (non cash portion of the settlement). The regressions to test Hypotheses 1 and 2 take the following form:

$$LnSett = \beta_0 + \beta_1(LnSize) + \beta_2(LnLimit) + \varepsilon \quad (1)$$

$$LnSett = \beta_0 + \beta_1(LnLimit) + \beta_2(LnDamages) + \varepsilon \quad (2)$$

$$LnSett = \beta_0 + \beta_1(LnLimit) + \beta_2(LnDamages) + \beta_3(Rest\ NI) + \varepsilon \quad (3)$$

where

LnSett is the natural log of the cash portion of the class action lawsuit settlement amount;

LnLimit is the natural log of the firm's coverage limit for the class period;

LnDamages is the natural log of estimated damages; and

Rest NI is [(Restated NI– Originally Filed NI)/Originally Filed Total Assets]. If no restatement, Rest NI is set to 0.

The value of stock awarded during negotiations, at settlement, and at payout may all be different. These different stock values could drastically skew the settlement amount, and the relation between D&O insurance and the settlement value. I am studying the relation between D&O insurance coverage limits and the cash part of the settlement amount. The firm issues the class common shares at settlement payout, whereas the D&O insurers do not pay any part of the common stock awarded. Since I am only studying the relation between D&O coverage and settlement amounts, it makes sense to only include the cash value, or insurable, portion of the settlement in the analysis. Hence, I estimate the settlement amount using the cash value only, because valuing the stock portion is an ambiguous process (especially with dilution considerations). The estimated damages measure is a proportional trading model, adapted from Jones and Weingram (1996). Estimated damages are calculated using equation [4] below.

$$Estimated\ Damages = -MVE_t * MRET_{i,t} * (1 - (1 - Turnover)^x \quad (4)$$

The end of the class period is usually marked by some disclosure that leads to the class action filing. The MVE_t measure represents the market capitalization before the stock price response to the disclosure. $MRET_{i,t}$ is the cumulative market-adjusted stock return over the class period. The last measure is a volume

measure, and is an estimate of the number of shares that were bought and sold during the class period (deflated by the total number of shares outstanding). x is the number of days in the class period. Estimated damages are constrained to be nonnegative; hence, if $MRET_{i,t}$ is greater than or equal to zero, I set damages equal to one million dollars.

Table 7 provides regression results for Hypothesis 1 and 3. I begin by confirming that the result identified in prior literature holds with my sample. Firm size is statistically significant in explaining settlement amount, significant at the 1% level (model *a*). Firm size appears to do a better job in explaining settlement amounts than coverage limit (R^2 of 24% and 19%, respectively). The coefficient in the regression with *LnLimit* is 0.47 as shown in model *b* (significant at the 1% level). After controlling for size, coverage limit is still significant in explaining settlement amounts (model *c*), which is a significant finding especially given the correlation between size and limit. Since the correlation coefficient between coverage limit and size is 0.66, multicollinearity may be a concern in the regression with both explanatory variables. Some diagnostics of multicollinearity include: (i) coefficients may have low significance levels even though they are jointly significant and the R^2 for the regression is quite high; (ii) coefficients have the wrong sign or magnitude; (iii) the condition index is over thirty; and (iv) the variance inflation factor is above ten (Greene, 2000, Gujarati, 1995). The coefficients for *LnSize* and *LnLimit* are statistically significant, and the R^2 of 22% is not much higher than the univariate regressions (17% and 19%, respectively). The coefficients have the expected sign. A confidence index between ten and thirty suggests moderate to severe collinearity (Gujarati, 1995). The confidence index is 10.57, which suggests moderate collinearity. According to Gujarati (1995), a variance inflation factor of over ten suggests a problem. The variance inflation factor is two for both variables. There is no clear cut test for collinearity. However, the various symptoms of multicollinearity do not suggest an extreme problem in this case.

Prior research has concluded that size is the leading determinant of settlement amounts, but coverage limit is also a significant determinant. *LnLimit* has a coefficient of 0.17 when controlling for size, and is significant at the 5% level. These findings reject the null of Hypothesis 1. Model *d* shows that coverage limit is also statistically significant (coefficient of 0.32, p-value of 0.02%) when controlling for estimated damages (coefficient of 0.14, p-value of 0.05%), suggesting that coverage limit also contains information beyond estimated damages. This result is in contrast to the findings in Donelson et al. (2015), who find that damages are the strongest predictor of settlement amounts, and there is no relationship between D&O coverage limit and estimated damages. Regression model *e* uses *LnLimit*, *LnSize*, *LnDamages*, and *Rest NI* as the explanatory variables to explain settlement amount. *Rest NI* is statistically significant and negative (coefficient of –5.03 with a p-value of 0.7%). This is a significant result unidentified in prior literature; a decrease in originally-reported net income has valuation implications, and translates into a higher settlement amount, all else equal. Prior literature has concluded that the lawsuit's merits do not necessary have implications for settlement amounts, but restated net income results in a larger settlement amount. This finding sufficiently rejects the null of Hypothesis 3. Interestingly, in lawsuits arising from restatements, merits in the form of the correction of net earnings determines settlement amounts, while the resources variable of D&O coverage limit is not a statistically significant explanatory variable.

Table 7: H1 and H3 Regression Results Determinants of Class Action Lawsuit Settlement Amount

$$LnSett = \beta_0 + \beta_1(LnSize) + \beta_2(LnLimit) + \beta_3(LnDamages) + \beta_4(Rest\ NI) + \beta_5(Auditor) + \beta_6(FirmDef) + \beta_7(Under) + \beta_8(Offer) + \beta_9(Class\ Per) + \varepsilon$$

	Expected Sign	*A*	*B*	*C*	*D*	*E*	*F*
Intercept		0.440* [0.072]	0.632** [0.011]	0.219 [0.397]	0.491* [0.051]	−0.073 [0.783]	−0.526 [0.498]
LnSize	+	0.261*** [<0.0001]		0.216*** [<0.0001]		0.257*** [<0.0001]	0.254*** [<0.0001]
LnLimit	+		0.466*** [<0.0001]	0.170** [0.046]	0.318*** [0.0002]	0.015 [0.889]	0.057 [0.302]
LnDamages	+				0.138*** [0.0005]	0.099*** [0.009]	
Rest NI	−					−5.029*** [0.007]	
Auditor	+/0						0.549 [0.244]
FirmDef	+/0						0.496 [0.494]
Under	+/0						0.936 [0.237]
Offer	+/0						0.733* [0.057]
Class Per	+/0						0.001*** [0.010]
ADJ R^2		23.91%	18.67%	27.25%	23.94%	34.98%	34.68%
NO. OF OBS.		151	160	149	137	128	99

, **, * indicate significance at the 10, 5, and 1 percent levels respectively. P-values are reported below the coefficients. The sample used in these regressions is only firms that have settled a class action lawsuit case during the sample period. These regressions are of settlement amount on firm size, coverage limit, and other variables that characterize the lawsuit. The dataset is a cross-sectional sample for the period 1991 – 2003. The dependent variable is LnSett, which is the natural log of the total cash settlement award, excluding consideration of attorney fees and expenses ($millions). LnSize is the natural log of the average of beginning class period total assets and ending class period assets in $millions. LnLimit is the natural log of the coverage limit prevailing during the class period in $millions. The coverage limit prevailing at settlement is not the relevant limit, since the limit prevailing when the fraud occurred is used to pay the settlement. Auditor takes a value of 1 if the firm's auditor is named as a defendant in the filing. Firm Def takes a value of 1 if the firm is named as a defendant in the filing. Under takes a value of 1 if the offering underwriter is named in the filing. Offer takes a value of 1 if the filing is associated with a stock offering. Class Per is the length of the class period in days. LnDamages is the natural log of an estimate of damages constructed using equation [4]. Rest NI is [(Restated NI– Originally Filed NI)/Originally Filed Total Assets]. If no restatement, Rest Ni is set to 0.*

As a robustness check, I add in other variables which prior literature has classified as merit variables, since they are predicted to add to the plaintiffs' claim. The number of observations with non missing variables in regression model *f* is only ninety-nine. Hence, the coverage limit variable is not statistically significant with such a small observation count. Furthermore, consistent with prior literature, these variables, for the most part, are not significant in explaining settlement amount. Cases resulting from stock offerings are associated with higher settlement amounts, all else equal. Class periods spanning years yield larger settlements as compared to class periods that arise from one-day price drops.

Piecewise Linear Regressions

Hypothesis 2 predicts that the slope coefficient for varying levels of D&O insurance on settlement varies based on the level of coverage. This is due to the larger marginal benefits to the plaintiff attorneys' efforts at higher levels of D&O insurance coverage. The regression specification to test Hypothesis 2 takes the form of equation [5] below. I also test the slope coefficient at varying levels of firm size (equation 6 below).

$$LnSett = \beta_1(LnSize) + \beta_2(Low\ Limit) + \beta_3(Mid\ Limit) + \beta_4(High\ Limit) + \varepsilon \quad (5)$$

$$LnSett = \beta_1(LnLimit) + \beta_2(Low\ Size) + \beta_3(Mid\ Size) + \beta_4(High\ Size) + \varepsilon \quad (6)$$

Low Limit, *Mid Limit*, and *High Limit* take a value of 1 if the observation is in the low, mid, and high tercile of D&O coverage limit, respectively; *Low Size, Mid Size,* and *High Size* take a value of 1 if the observation is in the low, mid, and high tercile of firm size, respectively; and other variables are as defined earlier.

Results for equations [5] and [6] are shown in Table 8. The D&O Coverage Limit Portfolio regressions show that the coefficient on the limit variables are different for the three portfolios of coverage, and monotonically increase from smallest to largest limit portfolio, even when controlling for firm size. The coefficient on *Low Limit* is 1.18, 1.90 for the *Mid Limit* group, and by far, the strongest for the *High Limit* group, with a coefficient of 2.8 (all statistically significant at the 1% level). These findings indicate that D&O coverage limit plays a more crucial role at larger D&O coverage values; plaintiff attorneys presumably put forth more effort when they know there is potential for a large payoff, i.e. high total coverage limit. D&O coverage limit plays a less important role in predicting settlements at lower D&O limit levels.

Table 8: H2 Regression Results Piecewise Linear Ordinary Lease Squares Regressions of Settlement Amount on Firm Size and D&O Coverage Limit

	D&O Coverage Limit Portfolios		**Firm Size Portfolios**	
LnSize		0.202***		
		[0.000]		
LnLimit				0.408***
				[<0.0001]
Low Size			1.723***	0.692**
			[<0.0001]	[0.026]
Mid Size			1.916***	0.763***
			[<0.0001]	[0.005]
High Size			2.759***	1.124**
			[<0.0001]	[0.011]
Low Limit	1.179***	0.390		
	[<0.0001]	[0.182]		
Mid Limit	1.897***	0.786**		
	[<0.0001]	[0.011]		
High Limit	2.810***	1.051**		
	[<0.0001]	[0.024]		
ADJ R^2	78.13%	79.63%	74.63%	78.32%
NO. OF OBS.	160	149	151	149

, **, * indicate significance at the 10, 5, and 1 percent levels respectively. P-values are reported below the coefficients. The sample used in these regressions is only firms that have settled a class action lawsuit case. The dataset is a cross-sectional sample for the period 1991 – 2003. The dependent variable is LnSett, which is the natural log of the total cash settlement award, excluding consideration of attorney fees and expenses ($millions). LnSize is the natural log of the average of beginning class period total assets and ending class period assets ($millions). LnLimit is the natural log of the coverage limit prevailing during the class period ($millions). The coverage limit prevailing at settlement is not the relevant limit, since the limit prevailing when the fraud occurred is used to pay the settlement. Low Size, Mid Size, and High Size take a value of 1 if the observation is in the low, mid, and high tercile of firm size, respectively; and Low Limit, Mid Limit, and High Limit take a value of 1 if the observation is in the low, mid, and high tercile of D&O coverage limit, respectively.*

Results for the firm size portfolio regressions are similar. Firm size, as a proxy for firm resources, plays a more important role in predicting settlement when the firm is large, even when controlling for D&O coverage limit. The coefficient is 1.72, 1.92, and 2.76 on *Low Size, Mid Size,* and *High Size*, respectively. These results indicate that there is a nonlinear relationship between firm size and coverage limit in the prediction of lawsuit settlement amount. This is not surprising given that firm size is a proxy for many indirect measures of firm resources.

CONCLUDING COMMENTS

This paper broadens our understanding of how Directors' and Officers' liability insurance affects class action lawsuit settlements. I provide empirical evidence to show that D&O coverage affects the settlement decision. This study uses scarce U.S. D&O coverage limit data prevailing during the lawsuit manipulation period as a key determinant of settlement amount. I find evidence suggesting that D&O is a key determinant of settlement, and the relationship is nonlinear. Firm size remains a strong predictor of settlement amounts, even when controlling for coverage limits. A direct relationship between settlement amounts and coverage limits is intuitive; plaintiff's attorneys discover coverage limits and both sides have incentives to settle within the limit. Firm size has an indirect relationship with settlement amounts, and encompasses many factors associated with settlements. I also find there is a stronger association between coverage limit and settlement size at higher levels of coverage limit; a similar higher association exists for cases with mid D&O insurance limits than low levels of coverage limit. This suggests that there is a nonlinear relationship between coverage limit and settlement. If settlement amount can proxy for the plaintiff attorney's effort, these findings imply that plaintiff attorneys realize the marginal benefits of additional effort are higher when the firm has high coverage.

The limitations of this paper are twofold: (1) the small sample size given data restrictions (149 cases in the limited regression sample and 99 in the full regression sample), and (2) the age of the data. However, despite the high correlation (over 60%) between firm size and coverage limit, D&O coverage limit contains information in explaining settlement amounts beyond size. My study has implications for how undisclosed D&O insurance has an unexpected impact on decisions made jointly by internal and external parties to the firm. Future research could explore other effects D&O has on managerial decision-making.

REFERENCES

Alexander, J. (1991) "Do the Merits Matter? A Study of Settlements in Securities Class Actions," *Stanford Law Review*, vol. 43(3), February, p. 497-598

Badertscher, B., S. Hribar, and N. Jenkins (2011) "Informed Trading and the Market Reaction to Accounting Restatements," *The Accounting Review*, vol. 86(5), May, p. 1519-1547

Baker, T. and S. Griffith (2009) "How the Merits Matter: Directors' and Officers' Insurance and Securities Settlements," *University of Pennsylvania Law Review*, vol. 157(3), February, p. 755-832

Berk, J. (1995) "A Critique of Size-Related Anomalies," *The Review of Financial Studies*, vol. 8(2), April, p. 275-286

Bhagat, S., J. Brickley, and J. Coles (1987) "Managerial Indemnification and Liability Insurance: The Effect on Shareholder Wealth," *The Journal of Risk and Insurance*, vol. 54(4), December, p. 721-736

Black, B., B. Cheffins, and M. Klausner (2006) "Outside Director Liability," *Stanford Law Review*, vol. 58(4), February, p. 1055-1110

Cao, Z. and G. Narayanamoorthy (2014) "Accounting and Litigation Risk: Evidence from Directors' and Officers' Insurance Pricing," *Review of Accounting Studies*, vol. 19(1), March, p. 1-42

Cao, Z. and G. Narayanamoorthy (2004) "The Determinants of Directors' and Officers' Liability Insurance Premium," Working Paper

Carver, B. (2014) "The Retention of Directors on the Audit Committee Following An Accounting Restatement," *Journal of Accounting and Public Policy*, vol. 33(1), January-February, p. 51-68

Chalmers, J., L. Dann, and J. Harford (2002) "Managerial Opportunism? Evidence from Directors' and Officers' Insurance Purchases," *The Journal of Finance*, vol. 57(2), April, p. 609-636

Core, J. (2000) "The Directors' and Officers' Insurance Premium: An Outside Assessment of the Quality of Corporate Governance," *Journal of Law Economics & Organization*, vol. 16(2), October, p. 449-477

Cox, J., R. Thomas, and L. Bai (2008) "There are Plaintiffs…There are Plaintiffs: an Empirical Analysis of Securities Class Action Settlements," *Vanderbilt Law Review*, vol. 61(2), March, p. 355-386

Donelson, D., J. Hopkins, and C. Yust (2015) "The Role of Directors' and Officers' Insurance in Securities Fraud Class Action Settlements," *The Journal of Law & Economics*, vol. 58(4), November, p. 747-778

DuCharme, L., P. Malatesta, and S. Sefcik (2004) "Earnings Management, Stock issues, and Shareholder Lawsuits," *Journal of Financial Economics*, vol. 71(1), January, p. 27-49

Dunbar, F. and P. Hinton (1995) "The Securities Litigation Environment: Will Reform Make a Difference?," National Economic Research Associates, Inc.

Dunbar, F., V. Juneja, and D. Martin (1995) "Shareholder Litigation: Deterrent Value, Merit and Litigants' Options," National Economic Research Associates, Inc.

Foster, T., D. Martin, V. Juneja, and F. Dunbar (1999) "Trends in Securities Litigation and the Impact of PSLRA," National Economic Research Associates, Inc.

Francis, J., D. Philbrick, and K. Schipper (1994) "Determinants and Outcomes in Class Action Securities Litigation," Working Paper

General Accounting Office (2003) "Financial Statement Restatements: Trends, Market Impacts, Regulatory Responses, and Remaining Challenges," Washington, D.C.

Greene, W. (2000) *Econometric Analysis.* New Jersey: Prentice Hall

Gujarati, D. (1995) *Basic Econometrics.* New Jersey: Prentice Hall

Holderness, C. (1990) "Liability Insurers as Corporate Monitors," *International Review of Law and Economics*, vol. 10(2), September, p. 115-129

Jennings, J., S. Kedia, and S. Rajgopal (2011) "The Deterrent Effect of SEC Enforcement and Class Action Litigation," Working Paper

Jones, C. and S. Weingram (1996) "The Effect of Insider Trading, Seasoned Equity Offerings, Corporate Announcements, Accounting Restatements, and SEC Enforcement Actions on 10b-5 Litigation Risk," Working Paper

Keogh, D. (2002). *D&O Entity Coverage Had Its Downsides.* Retrieved May 25, 2017, from http://www.propertycasualty360.com/2002/11/12/do-entity-cover-had-its-downsides?ref=navbar-next

Kim, I. (2015) "Directors' and Officers' Insurance and Opportunism in Accounting Choice," *Accounting & Taxation*, vol. 7(1), January, p. 51-66

Klausner, M., J. Hegland, and M. Goforth (2011) "How Protective is D&O Insurance in Securities Class Actions?−An Update," Stanford Law and Economics Oliln Working Paper No. 446

O'Sullivan, N. (1997) "Insuring the Agents: the Role of Directors' and Officers' Insurance in Corporate Governance," *The Journal of Risk and Insurance*, vol. 64(3), September, p. 545-556

Palmrose, Z. and S. Scholz (2004) "The Circumstances and Legal Consequences of Non-GAAP Reporting: Evidence from Restatements," *Contemporary Accounting Research*, vol. 21(1), March, p. 139-180

Palmrose, Z., V. Richardson, and S. Scholz (2004) "Determinants of market reactions to restatement announcements," *Journal of Accounting & Economics*, vol. 37(1), February, p. 59-89

Richardson, S., I. Tuna, and M. Wu (2002) "Predicting earnings management: the case of earnings restatements," Working Paper

Romano, R. (1991) "The Shareholder Suit: Litigation Without Foundation," *The Journal of Law, Economics, & Organization*, vol. 7(1), Spring, p. 55-87

Savett, S. (1997) "The merits matter most and observations on a changing landscape under the Private Securities Litigation Reform Act of 1995," *Arizona Law Review*, vol. 39(1), p. 1-7

Skinner, D. (1996) "Why is Stockholder Litigation Ties to Accounting and Disclosure Problems?" Working Paper

Srinivasan, S. (2005) "Consequences of Financial Reporting Failure for Outside Directors: Evidence From Accounting Restatements and Audit Committee Members," *Journal of Accounting Research*, vol. 43(2), March, p. 291-334

Tillinghast-Towers Perrin (2001) "Directors and Officers Liability Survey: U.S. and Canadian Results," Chicago, IL.

BIOGRAPHY

Dr. Kim is an associate professor of accounting at Catholic University of America in Washington DC. Her research appears in the *Journal of Accounting & Economics, The Accounting Review, Journal of Accounting, Auditing, and Finance, and Accounting & Taxation.* Her contact information is: kimiy@cua.edu; (202) 319-6556.