Fair Value Accounting Standards and Securities Litigation

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ABSTRACT

We investigate the effect of fair value accounting standards on securities litigation risk. A variety of commentators have claimed the subjectivity inherent in fair value standards allows plaintiffs to "second guess" managers and auditors and allege opportunistic misstatements. However, fair value accounting involves complicated transactions and standards, and it can be difficult for plaintiffs to allege that subjective judgments in these settings were made in bad faith. We find that alleged violations of fair value standards are actually under-represented in lawsuits relative to their importance to sued firms. Further, we find no significant increase in litigation after the passage of new fair value standards for affected firms. Also, fair value allegations in lawsuits do not increase the risk that auditors will be named as defendants. Overall, our results suggest fair value standards are a relatively low litigation risk area of GAAP.

1. Introduction

We examine the effect of fair value accounting standards on securities litigation risk faced by firms and their auditors. This issue is important because standard setters have increasingly required firms to measure more assets and liabilities at fair value. Putting aside potential informational benefits or costs to investors, one concern raised by auditors, lawyers, and academics is that fair value accounting may increase litigation risk (e.g., Christensen et al. 2012, Bell and Griffin 2012, Hertz et al. 2008, and Laux and Leuz 2009). The argument is essentially that fair value estimates require significant judgment, are largely unverifiable, and can lead to volatility, which exposes managers and auditors to ex-post claims that the fair value measurements used were opportunistic and misleading. However, there is little to no existing empirical evidence to support, or refute, this point.

Further, there are reasons fair value accounting may *not* increase litigation risk. In GAAP-related securities litigation, plaintiffs must typically show that managers and auditors acted with "scienter" by either intentionally misstating the financials or acting recklessly by willfully ignoring signs of a misstatement. Some lawyers argue that it is difficult to show scienter with a broad, subjective accounting principle (versus a clear rule) because defendants can argue they made an honest misjudgment (Leone 2009). Determining "fair market value" is an example of a broad and often subjective principle. Relatedly, fair value accounting often involves complex underlying transactions (like derivatives, intangibles, securitizations, etc.). Further, fair value standards are often complex and require substantial implementation/interpretive guidance. Donelson et al. (2012) find that transaction complexity and increased guidance yield *lower* litigation risk as it is easier to argue that any misstatement was made in good faith and simply an error (i.e., no scienter) as transaction complexity and guidance in standards increases.

Taken together, these arguments suggest the effect of fair value accounting on securities litigation risk is unclear. To offer evidence on this issue, we identify all GAAP-related securities class action lawsuits from 1996 to 2017. This results in a sample of 1,185 lawsuits. In a GAAP-related securities class action, plaintiffs must make credible, factual allegations that a firm's financial statements were materially misstated. These allegations must be specific, which means plaintiffs must generally allege which accounting standards were violated. This is a critical feature of our design that allows us to identify exactly which standards are allegedly violated.

In our initial tests, we examine whether plaintiffs disproportionately target fair value standards in lawsuits. We compare standards cited in lawsuits to standards relied upon by sued firms. To identify standards relied upon by sued firms, we search their 10-Ks (or, alternatively in robustness analysis, the "Summary of Significant Accounting Policies" footnote) for specific keywords related to each standard (e.g., "derivative" for SFAS 133 or "leases" for SFAS 13) using an approach similar to Folsom et al. (2016). We classify standards as "fair value" standards if they are listed in SFAS 157 (codified in ASC 820) as involving fair value accounting.

In these tests, we find that fair value standards are significantly *less* likely to be named in lawsuits than they are to be relied upon by sued firms. For the average lawsuit in our sample, about 17% of standards cited by plaintiffs as being allegedly violated are fair value standards. Conversely, for the average sued firm, about 33% of the standards relied upon per their 10-K are fair value standards. This relative under-representation of fair value standards in GAAP-related lawsuits ($p < 0.01$) stands in contrast to revenue recognition standards, which are significantly over-represented in GAAP-related lawsuits ($p < 0.01$). As expected, we find that a significant portion of the under-representation of fair value standards in lawsuits can be explained by transaction complexity and the rules-based characteristics of these standards. Nevertheless, even

after controlling for these factors, fair value standards are still significantly under-represented. Finally, we find that for financial institutions (who hold more Level 2 and 3 fair value items), the under-representation of fair value standards in lawsuits shrinks but is still significant ($p < 0.01$).

To further triangulate these findings, we conduct differences-in-differences tests using passages of new fair value standards as staggered, differential "shocks" to some firms' exposure to fair value accounting. We identify seven new standards passed during our sample period that replaced existing standards and increased the recognition of fair value measures in financial statements. Using textual searches of keywords in 10-Ks similar to those described above, we classify as treatment (control) firms those that have a relatively high (low) exposure to the transaction underlying each standard. For example, firms that mention "goodwill" relatively frequently (infrequently) in their 10-K would be treatment (control) firms for the passage of SFAS 142. If fair value accounting increases firms' litigation risk, then after the passage of a fair value standard, we would expect to see a differential spike in GAAP-related litigation in the accounting area covered by the standard for treatment firms relative to control firms. On the other hand, if fair value standards are a relatively low litigation risk area in GAAP, as our tests above suggest, we would expect to see little change in litigation rates for treatment firms.

Consistent with our first set of results, in both univariate and multiple regression tests, we find no significant change in overall litigation rates for treatment firms after the passage of fair value standards. When we examine specific standards on a univariate basis, we do find some evidence of an increase in litigation for two of the seven standards in our sample (SFAS 133 and SFAS 142). However, these results are not robust to a logit model that accounts for rare events. Overall, we find little consistent, reliable evidence that new fair value standards increase litigation rates after passage.

Our last set of tests examines litigation risk faced by firms' auditors. Even if fair value standards do not appear to increase firms' exposure to GAAP-related litigation, it is possible that fair value accounting allegations may increase the likelihood of an auditor being named as a defendant in a lawsuit, conditional on the client firm being sued. This is of particular concern to audit practitioners and academics (see Christenson et al. 2012). However, auditors are rarely sued in our sample, which is consistent with prior descriptive evidence (Cornerstone 2018). Further, we find that conditional on the client being sued, allegations that fair value standards were violated have no significant effect on an auditor being named as a defendant in the suit. Instead, we find that shareholder damages and proxies for poor client health increase the risk that auditors are sued. Overall, across all three of our main tests, it appears that fair value accounting standards are an area of relatively low litigation risk for both firms and auditors.

To our knowledge, this study provides the first systematic evidence on the extent to which fair value accounting standards affect the risk of GAAP-related securities litigation. In doing so, we contribute to the literature on the costs and benefits of fair value accounting. This literature has primarily focused on the extent to which fair value information provides relevant and reliable information useful for capital market decisions (e.g., Landsman 2007). This study answers the call in Laux and Leuz (2009) to better understand how fair value accounting and its implementation interacts with institutions such as the legal system. Our findings suggest, at least with respect to fair value recognition standards currently in place, increased securities litigation risk does not appear to be a first-order concern.

This study also contributes to the literature on the nature of accounting standards and litigation risk. Prior work finds that clear rules and complex guidance appear to shield firms from litigation risk (Donelson et al. 2012). Fair value accounting often involves complex transactions

and guidance and in this respect our findings are consistent with prior work on rules-based accounting standards. However, determining "fair market value" also involves subjectivity and professional judgment, which many associate with "principles-based," not "rules-based," standards. This study suggests that these two factors – complex economics and the frequent lack of an objective measure of "true" market value –make it difficult for plaintiffs to convincingly allege that managers or auditors applied fair value standards in bad faith.

This study also contributes to the auditor litigation literature. Our results are consistent with prior work (e.g., Stice 1991) in that client financial health characteristics influence auditor litigation risk. However, this is the first study, to our knowledge, to examine the effect of the accounting standards involved in a lawsuit on the conditional probability that the auditor is sued along with the client firm. Our findings suggest that allegations that fair value accounting is involved in the alleged misstatement have no significant effect on auditor litigation risk.

The next section discusses background information and prior literature. Section 3 discusses the sample, while Sections 4 and 5 present the main results and robustness tests. Section 6 concludes.

2. Background and Prior Literature

2.1 Federal Securities Litigation

Before discussing fair value accounting and how it might affect the threat of securities litigation, we first provide an overview of this type of litigation. Securities litigation in the U.S. occurs when security holders allege financial losses caused by misstatements (or omissions) of material facts. Firms, along with their officers, directors, auditors, and underwriters, can all be held liable under Federal law under the Securities Acts. Since the late 1990s, under the Securities Litigation Uniform Standards Act, all securities actions must be filed in Federal court.

We focus on GAAP-related cases, so the alleged misstatements in our study involve financial statements that allegedly violated GAAP. However, there are many securities class actions that do not allege misstated financial statements (e.g., misleading disclosure cases). These types of cases are excluded from our study. The vast majority of GAAP-related securities involve Rule 10b-5, which requires plaintiffs to allege the misstatements were fraudulent or made with scienter. Thus, mere errors or bookkeeping mistakes are generally insufficient for liability in securities class actions.[1]

Since December 1995, securities class actions have been governed by the Private Securities Litigation Reform Act (PSLRA), which was passed to reduce frivolous cases. Under the PSLRA, plaintiffs must allege "with particularity facts giving rise to strong inference that the defendant acted with the required [fraudulent] state of mind" (15 U.S.C. section 78u-4(b)(2)). In a GAAP case, this means plaintiffs must be specific as to which standards in GAAP were allegedly violated and plead facts to support these allegations. After the suit is filed, defendants almost always file a motion to dismiss the case, which stops discovery until a judge rules on the motion. In ruling on this motion to dismiss, the key element in most cases is fraudulent intent (see Pritchard and Sale 2005). As discussed below, the nature of the accounting standard involved may be an important factor in assessing the likely intent of the managers.

2.2 Fair Value Accounting

One of the most controversial issues in standard setting over the last two to three decades has been an increasing requirement by the FASB to measure and re-measure assets and liabilities at fair value (Fornelli 2009). A sizable prior literature examines the value relevance and information content of fair value items in the financial statements (see Landsman 2007 for a

[1] Securities class actions can be brought under Section 11 of the 1933 Act, which does not require scienter on the part of the defendant. However, these cases require a misstatement in connection with a securities issuance, and are less common than cases with GAAP violations involving Rule 10b-5.

review). A general finding is that for items regularly sold in liquid markets, like securities, fair value measurements tend to be value relevant and or correlated with future payoffs, such interest income or realized gains and losses (see, e.g., Barth 1994; Evans et al. 2014). For less liquid items, however, the evidence is much more mixed, with recent studies finding that fair value estimates for these items are not value relevant and do not help predict future payoffs (see. e.g., Hann et al. 2007; Cantrell et al. 2013).

Some academics have expressed concern over the rise of fair value accounting. Watts (2003), for example, argues that fair value accounting reduces the reliability of financial statements, and contends managers will exploit the lack of verifiability to act opportunistically. Ramanna and Watts (2012) find some evidence for this contention with respect to goodwill accounting. In addition, part of the Enron scandal related to the use of opportunistic fair value accounting (Benston 2006). Kothari, Skinner, and Ramanna (2010) raise a similar concern regarding managerial opportunism and argue that agency conflicts between managers and outsiders give rise to a demand for verifiable accounting information. They therefore advocate against further expansion of fair value accounting in GAAP.

In addition to concerns about opportunism, contracting, and the information usefulness of fair value accounting, concerns have also been raised about fair value accounting and litigation, particularly after the passage of SFAS 157 (ASC 820) and the start of the financial crisis. Leuz and Laux (2009) conjecture that one reason banks may have felt compelled to use arguably distorted "fire sale" prices to value assets during the crisis stemmed from potential litigation risk related to less verifiable Level 2 and 3 fair value measurements. They call for more research on the interplay between fair value accounting and the litigation environment (pg. 833).

The audit literature has also raised concerns about fair value accounting and litigation.

Both Bell and Griffin (2012) and Christensen et al. (2012) link "high uncertainty" fair value estimates with higher auditor litigation risk, and both studies cite securities litigation against New Century Financial and their auditor, KPMG, which settled for over $100 million and involved (in part) fair value estimates. Further, Christensen et al. (2012) interviewed several Big N partners on how their firms audit uncertain fair value estimates and these partners indicated that perceived litigation risk plays a significant role in their audit judgments for these items.

During the financial crises, a number of practitioners and practitioner publications warned that the increasing recognition and disclosure of fair value estimates would inevitably lead to more litigation. For example, during a Directors' Roundtable meeting on fair value accounting (Hertz et al. 2008), one attorney stated:

> "From a litigation perspective, I see three key implications flowing from fair value accounting under FAS 157 and the related standards. The first is that we are likely to see an increase in accounting-related litigation. The second is that the judgment of financial statement preparers and auditors is going to be front and center in that litigation. And the third is that fair value accounting and other trends could bring to a head a conflict that's been brewing for some time between the evolution of financial reporting on the one hand and our litigation system on the other."

Likewise, the Institute of Management Accountants' magazine claimed that "[t]oday's investors are more likely to file lawsuits when faced with losses. If those losses can be linked to less precise and less reliable fair value information, the volume of lawsuits could increase greatly" (Campbell et al. 2008). Similar sentiments were expressed by the law firm Duane Morris LLP (Packer and Todd 2009) and the consulting firm Charles River Associates (Dharan et al. 2008).

To summarize, a variety of commentators – from academics, to auditors, to lawyers – have argued that fair value accounting increases litigation risk. While the arguments are not detailed in nature, the gist of the story is as follows. Fair value accounting involves significant subjectivity and judgment and can lead to volatility. This inherent estimation uncertainty

increases the chance that plaintiffs will "second-guess" preparers and auditors after the fact and attribute their losses to managerial opportunism or auditor recklessness.

While we are aware of no prior study on this issue, there is evidence in the audit literature that receivables and inventory – financial statement areas involving significant judgment – are associated with higher litigation risk (Stice 1991). On the other hand, as we discuss in Section 1, fair value standards tend to involve complex underlying transactions and possess rules-based characteristics: they have more detail and interpretive guidance. Donelson et al. (2012) find that rules-based standards are associated with lower litigation risk, likely because it is harder to argue that alleged GAAP violations in these complex areas are intentional. When combined with the significant uncertainty and subjectivity contained in many fair value estimates, it may be difficult for plaintiffs to demonstrate bad faith on the part of managers. In this (somewhat ironic) sense, the subjectivity inherent in fair value accounting that many contend increases litigation risk may actually have the opposite effect. In the next two sections, we provide evidence on these issues.

3. Sample Construction

The sample for all of our tests starts with GAAP-related securities class actions (lawsuits or cases). We download all lawsuit complaints filed from 1996 to 2017 from the Stanford Securities Class Action website. We use a script written in PHP to search these complaints for allegations that specify which GAAP standards (discussed below) were violated.[2] Thus, lawsuits that do not involve alleged GAAP violations (e.g., disclosure cases) are excluded from our sample. Overall, we identify 1,185 cases that allege specific GAAP violations over our sample period and where we can find matching identifiers from the COMPUSTAT and CRSP databases. Each of our tests that follow in Section 4 uses observations from this lawsuit sample. For our differences-in-differences tests, we also use observations from the COMPUSTAT/CRSP

[2] See Appendix A for more details on how we search complaints for alleged GAAP violations.

universe that were not sued. For all tests, where applicable, we obtain accounting variables from COMPUSTAT, stock price variables from CRSP, and 10-Ks from Bill McDonald's website.[3]

To identify GAAP violations in lawsuits, we start with the body of accounting standards from Folsom et al. (2016). These standards comprise all non-superseded *Accounting Research Bulletins* (ARB) issued by the Committee on Accounting Procedures, *Accounting Principles Board Opinions* (APB) issued by the Accounting Principles Board, and *Statements of Financial Accounting Standards* (SFAS) issued by the FASB. In addition, because revenue recognition is frequently contested in GAAP-related lawsuits, we also include several revenue-related standards that are often brought up in lawsuits but are not an ARB, APB, or an SFAS. These include FASB Concept Statements 5 and 6 (which provide conceptual guidance on revenue recognition), Staff Accounting Bulletin 101 (issued by the SEC staff), and Statement of Position 97-2 (covering software and issued by the American Institute of Certified Public Accountants).

Note that pronouncements that amend prior standards are not considered stand-alone standards themselves in our sample. Instead, for purposes of variable construction discussed in Section 4, these amending standards and their characteristics (e.g., whether they relate to fair values or transaction complexity) are assigned to the amended standard. We also add to this body of GAAP significant Accounting Standard Updates (ASU).[4] For a list of all accounting standards we identify in complaints, see Appendix A.

4. Empirical Tests and Results

We conduct three main tests below. Table 1 provides an overview of the samples for each

[3] Available at https://sraf.nd.edu/data/stage-one-10-x-parse-data/.

[4] To identify significant or major ASUs, we exclude any that: a) are part of the FASB's "simplification project" and allow a "practical expedient," b) only modify a sub-topic or clarify the scope of an ASC section or offers technical implementation guidance, c) defers the effective date of another ASU, d) is an "amendment" to a prior standard or ASU, e) is a technical correction to prior guidance, f) involves presentation or disclosure issues only, and g) involves only not-for-profit accounting. We also exclude any ASUs with an effective year after 2017.

test. First, in section 4.1, we compare the extent to which fair value standards are mentioned in lawsuits to the extent they are relied upon by sued firms per their 10-K. This analysis provides evidence on whether fair value standards are relatively common or uncommon in GAAP-related litigation. These tests use data only from firms named in a GAAP-related lawsuit.

Second, in section 4.2, we conduct differences-in-differences tests for firms differentially impacted by the passage of new fair value standards during our sample. These tests examine whether increases in the extent of required fair value accounting are associated with increases in litigation rates for affected firms. The sample here includes firm-year observations with data in COMPUSTAT and CRSP, with firm-years classified as treatment or control observations. We use a subset of observations from our lawsuit sample to measure litigation rates (the dependent variable).

Third, in section 4.3, we examine whether alleged violations of fair value standards in lawsuits increase the probability that auditors will be named as defendants. These tests use our lawsuit sample, with variation in the auditor being sued as the dependent variable.

4.1 How common are fair value allegations in GAAP lawsuits?

If fair value accounting is an area with above-average litigation risk, we would expect plaintiffs to disproportionately target fair value standards in GAAP lawsuits. Thus, relative to the body of standards upon which a firm relies, fair value standards should be over-represented in GAAP lawsuits, just as revenue standards and principles-based standards tend to be over-represented in GAAP lawsuits (Donelson et al. 2012). On the other hand, if fair value accounting is an area with below-average litigation risk, we would expect fair value standards to be under-represented in GAAP lawsuits.

To test this idea, we examine lawsuit complaints to identify all standards alleged to be

violated for the lawsuits, and then separately identify all standards sued firms rely on per their 10-K. For lawsuits, we search for the standards in Appendix A by name (see Appendix A for more details regarding this methodology). We use a name search in lawsuit complaints because, as discussed in Section 2, the PSLRA requires plaintiffs to be specific in their allegations, which in GAAP cases means they must specify which standards were violated. Beginning in the 2010s, plaintiffs began referring to the FASB Codification in addition to or in lieu of traditional standard names. We use the cross-reference tool on the FASB codification site to map codification references to traditional standard names. Thus, we capture references in complaints to both standard names and codification references.[5]

To measure the standards a firm relies upon, we search 10-Ks for keywords associated with each standard.[6] Our keyword list is based on Folsom et al. (2016), and the list of keywords for each standard is listed in Appendix A. As examples, firms that mention "lease" or "derivative" in their 10-K would be deemed to rely on SFAS 13 and SFAS 133. Folsom et al. (2016) perform extensive validation tests on their keyword list to ensure it captures firms' exposure to various accounting standards. We use a keyword approach to searching 10-Ks because firms are not required to name the specific accounting standards they rely upon and they often do not do so. For example, firms in their 10-K may note that inventory is carried at the lower of cost or market, which is required by ARB 43_4, but they almost never reference ARB 43_4. Conversely, in a GAAP lawsuit alleging a delayed or improper inventory write-off, plaintiffs almost always reference ARB 43_4. Following Folsom et al. (2016), we search the

[5] Many cases have multiple complaints because: a) multiple shareholders suffering damages may initially file suit prior to the case being consolidated, and b) the consolidated complaint is often amended as the case works its way through the legal process. If a lawsuit has multiple complaints, we search across all complaints. In this way, we pick up any and all GAAP allegations made by plaintiffs during the lawsuit.

[6] In cases with class periods that span multiple firm-years, we search the latest 10-K. So, for example, if a lawsuit spans both 2004 and 2005, we search inside 2005's 10-K filing.

entire text of the 10-K, but we also search only firms' summary of significant accounting policies in robustness tests, which we discuss in Section 5. In contrast to Folsom et al. (2016) who transform the number of keyword hits into a relative importance measure, for this particular test we transform keyword hits into binary indicators if a firm relies on a standard or not.

Table 2 presents the top 15 accounting standards most frequently named in GAAP lawsuits and the top 15 standards most frequently relied upon by those firms per the keyword search of their 10-Ks. Consistent with Donelson et al. (2012), revenue standards are commonly alleged to be violated in GAAP-related litigation, with four of the top 15 standards in GAAP lawsuits being revenue standards (CON5_6, SAB 101, FAS 48, SOP 97-2). Other areas frequently involved in GAAP-related litigation are contingent losses/write-offs (SFAS 5), inventory pricing (ARB 43_4), leases (SFAS 13), intangibles/goodwill (SFAS 142), and restatements/error correction (APB 20, SFAS 16, SFAS 154).[7] The most frequent areas of GAAP firms mention in their 10-Ks include taxes (SFAS 109), stock compensation (SFAS 123), leases (SFAS 13), depreciation (ARB 43_9a), contingencies (SFAS 5), consolidation (ARB 51), derivatives (SFAS 133), asset impairments (SFAS 144), revenue recognition (CON5_6), business combinations (SFAS 141), and intangibles/goodwill (SFAS 142).

Once we identify the standards allegedly violated in GAAP lawsuits, and those relied upon by those firms per their 10-K, we next measure the extent to which these standards involve fair value accounting. For each GAAP standard in Appendix A, we classify a standard as a fair value standard if it is referenced as a standard involving fair values per Appendix D to SFAS 157 (now codified as ASC 820). For standards and ASUs passed after SFAS 157, we classify them as

[7] APB 20, SFAS 16, and SFAS 154 are frequently cited when the defendant firm restates its class-period financial statements. The plaintiff will typically note that a restatement is allowed only to correct a misstatement, not for a change in estimate or change in accounting principle. Plaintiffs note this in the complaint because they are required to allege that the financials were misstated, and a firm announcing a restatement essentially stipulates this fact.

fair value standards if they require recognition of any item at fair value as defined in SFAS 157. Appendix A indicates which standards in our sample are considered fair value standards.

We code fair value standards as a "1" and non-fair value standards as a "0" and average across all standards alleged in a lawsuit and all standards relied upon by that firm per their 10-K. For each firm-lawsuit, this yields a measure of the extent to which fair value standards were involved in the lawsuit and the extent to which that firm relies on fair value accounting. We then take the difference, which we label "FV_DIFF." This variable captures the extent to which fair value accounting is over-represented or under-represented in a lawsuit *relative to* the standards relied upon by that firm. For example, if four standards were alleged to be violated in a lawsuit and one was a fair value standard, and the 10-K shows the firm relies on eight major standards, three of which are fair value standards, then FV_DIFF = (1/4) – (3/8) = – 0.125. Negative (positive) values imply under-(over)representation of fair value standards in a given lawsuit.

Panel A of Table 3 presents the average extent of FV standards mentioned in lawsuits, the average extent of fair value standards relied on by these sued firms, and their mean difference, which is just the mean of FV_DIFF across all lawsuits in the sample. Since we code each fair value standard dichotomously, the means have a natural interpretation as proportions. For example, on average, about 16.8% of standards alleged in lawsuits are fair value standards, while 32.8% of the standards firms are exposed to are fair value standards. This difference, which is just the mean of FV_DIFF, equals -16.0% ($t=-19.34$, $p < 0.01$), which implies that fair value standards are less likely to be mentioned in GAAP lawsuits than they are relied upon by firms.

To compare our findings to prior work, we also measure whether standards mentioned in GAAP lawsuits and relied upon per 10-Ks: a) involve revenue recognition, b) have rules-based

characteristics, and c) apply to complex transactions.[8] Using the same approach above, we average these characteristics across each lawsuit and 10-K, and calculate difference variables (REV_DIFF, RBC_DIFF, and COMPLEX_DIFF). These and all other variables in the study are defined in detail in Appendix B.[9]

These differences are presented in Panel A of Table 3 as well. Consistent with prior work (Donelson et al. 2012; Palmrose and Scholz 2004), revenue recognition is a relatively high litigation risk area. About 30% of alleged GAAP violations in lawsuits involve revenue recognition, while about 8% of the standards these firms rely upon involve revenue. Thus, the difference between revenue recognition standards in lawsuits versus 10-Ks, REV_DIFF, has a mean of 23.3% ($t = 23.08$, $p < 0.01$). Consistent with Donelson et al. (2012), we also find that standards with rules-based characteristics and those involving complex transactions are less likely to be involved in lawsuits. Thus, RBC_DIFF and COMPLEX_DIFF have means that are significantly negative ($t = -16.11$, $p < .01$; $t = -9.92$, $p < 0.01$).

In Sections 1 and 2, we conjecture that one reason fair value standards may not be named in a high number of lawsuits is because they often involve complicated underlying transactions, accompanied by a high volume of interpretive guidance (i.e., they are ruled-based). Thus, we would expect these constructs and the difference variables in Table 3 to be correlated. Panel B of Table 3 presents a correlation matrix between the difference variables in Panel A.

As expected, FV_DIFF and RBC_DIFF are positively correlated (0.51, $p < 0.01$), which means that when fair value standards are under-represented in lawsuits, so too are standards with

[8] Standards with rules-based characteristics are defined by Donelson et al. (2012) as having: 1) numeric, bright line thresholds, 2) scope and legacy exceptions, 3) a high level of detail, and 4) a high number of interpretive pronouncements. Each standard in GAAP has a score ranging from 0 to 4 for the presence of these characteristics.
[9] Appendix A identifies revenue standards, standards with complex transactions, and the rules-based characteristics (RBC) score for each standard in our sample.

higher rules-based characteristics (because fair value standards tend to be high RBC standards). Likewise, since most fair value standards do not involve revenue recognition, when revenue standards are over-represented in lawsuits, fair value standards tend to be under-represented.

Given that prior work finds that complexity and rules-based (revenue) standards tend to be under (over)-represented in lawsuits, it is natural to ask how much of the under-representation of fair value standards is statistically distinct from these other effects. To explore this, we estimate versions of the following regressions:

$$FV\_DIFF = \alpha + \varepsilon \quad (1a)$$

$$FV\_DIFF = \alpha + \beta_1 REV\_DIFF + \beta_2 RBC\_DIFF + \beta_3 COMPLEX\_DIFF + \varepsilon \quad (1b)$$

In (1a), the intercept (α) simply measures the mean of FV_DIFF, which corresponds to the t-test in Panel A of Table 3. In (1b), as we add differences in revenue, RBC, and complexity, the intercept captures how much of the average under-representation of fair value standards in lawsuits is left unexplained by these factors. In this sense, one can think about the intercept in these regressions as being akin to an "alpha" in an asset pricing regression. Results are presented in Panel A of Table 4.

As in Table 3, the first column shows that fair value standards are under-represented in lawsuits by about 16 percentage points. Including differences in RBC (column 3) reduces this effect by almost half (from 16.0% to 9.2%). This suggests that RBC may be a mediating variable or mechanism for why fair value standards are under-represented in lawsuits: these standards tend to be ruled-based, and rules-based standards tend not to be targeted by plaintiffs in GAAP lawsuits because proving intentional violations in these areas is difficult. When all characteristics are included in the model, the under-representation of fair value standards shrinks to about 6 percentage points, but is still significant ($t = -6.41$, $p < 0.01$). This implies that for a given

lawsuit, even if there were no under-representation of high RBC or complex standards, or over-representation of revenue standards, fair value standards are expected to under-represented by about 6 percentage points. One possible explanation for this incremental effect of fair value accounting is these standards embody a degree of complexity and/or ambiguity as to "true" market prices (incremental to our measures for RBC and transaction complexity) that make it difficult for plaintiffs to allege intentional GAAP violations.

We also examine the possibility that the under-representation of fair value standards varies cross-sectionally. Specifically, one might expect that since financial institutions are required to measure a larger proportion of their net assets at fair value and are more exposed to level 2 and 3 measurements than industrial firms, allegations of violations of fair value standards should be relatively more common in lawsuits against financial firms. We therefore compare mean FV_DIFF for financial and non-financial firms and present the results in Panel B of Table 4. As expected, the under-representation of fair value standards in GAAP-related lawsuits is 6.3 percentage points smaller for financial firms relative to industrial firms ($t = 2.96$, $p < 0.01$). Still, even for financial firms, alleged violations of fair value standards are still under-represented in lawsuits by about 10.8 percentage points ($t = -4.56$, $p < 0.01$).

Overall, the evidence from these tests in this section is inconsistent with the notion that fair value standards are a prime target for plaintiffs in GAAP lawsuits. If anything, these standards appear to be an area of GAAP with relatively low litigation risk.

4.2 Differences-in-Differences Test

For our second test, we examine whether the passage of new fair value standards increases the likelihood of GAAP-related litigation for firms more affected by the standard. We first identify standards passed during our sample period that are listed as a fair value standard in

Appendix D of FAS 157. We eliminate any standards that: a) are disclosure-only standards, or b) simply amend prior standards to provide implementation guidance, or c) require fair value measurement for a narrow or limited transaction.[10] We also require the standard to have a predecessor standard that was replaced so that we can identify GAAP-related litigation in that area in the pre-passage period for the applicable fair value standard. Overall, seven standards meet these requirements. Table 5 lists the standards, the date they were effective, the predecessor standard(s), and a brief description of the new accounting treatments required by each standard.

We next identify firms more likely to be affected by the passage of these new standards. We classify these firms as "treatment" firms. Firms less likely to be impacted by this standard are deemed "control" firms. To identify treatment and control firms, we use the same keyword list in Appendix A that we used in section 4.1. We search firms' 10-Ks (the first 10-K filed by a firm after a standard is effective) for the keywords for each of the seven standards in Table 5.[11] We use the keyword counts to calculate Folsom et al. (2016)'s relative importance measure and then partition observations above or below the median of relative importance. Firms with mentions of these keywords that are above (below) the median are deemed treatment (control) firms. For example, firms that mention "goodwill" or "intangibles" more (less) than the median firm in year t are more (less) likely to be impacted by SFAS 142; therefore, these are the treatment (control) firms for this standard.[12] We define the post-treatment (pre-treatment) period

[10] We require the conditions in c) to ensure the transactions are common enough to identify an adequate number of treatment observations. The two standards that were eliminated due to this requirement were SFAS 153, which amends APB 29 to remove a narrow exception to fair value accounting for non-monetary exchanges, and SFAS 160, which amends ARB 51. The only element of new fair value measurement in SFAS 160 involves retained ownership of a deconsolidated subsidiary, which we deemed to be too rare and difficult to detect in a firm's 10-K to be useful for our analysis.

[11] For example, FAS 133 is implemented for the fiscal periods after 6/15/1999. Thus, we search for FAS 133 keywords in the first 10-K each firm files after 6/15/1999.

[12] As an untabulated construct validity test, we compared the mean value of the following COMPUSTAT variables (scaled by total assets) for treatment versus control observations: current derivative assets (SFAS 133), receivables and loans (SFAS 140), cash paid for acquisitions (SFAS 141), goodwill (SFAS 142), PP&E (SFAS 144),

as the three years after (before) the effective year of the standard, with the first effective year (i.e., the implementation year) thrown out.

We identify GAAP-related litigation in the area of the standard by searching for complaints that cite either the relevant predecessor standard or superseding fair value standard. For example, for SFAS 133, litigation related to derivative accounting would be identified based upon lawsuits that cite either SFAS 119 or SFAS 133.[13] By using this approach, we can track the evolution of GAAP-related litigation in a specific area before and after a new fair value standard in that area is passed. The advantage of doing so is the potential for relatively clean identification: if fair value accounting does increase litigation risk, we should see spikes in litigation *in the area of the standard* around standard passage. One statistical downside, however, is that GAAP-related litigation in general is rare, and GAAP-related litigation in any particular area is rarer still. Thus, the number of lawsuits in an area (i.e., a "1" in our analysis) will be very small relative to non-lawsuits in that area (i.e., a "0" in our analysis), so the overall litigation rates will be very low.

Table 6 presents univariate 2 x 2 tables for each of the seven fair value standards as well as all standards pooled together in event time. Each cell in the 2 X 2 presents the mean litigation rate, with standard t-tests for differences in cell means. We note four main findings.

First, as we state above, the litigation rate for GAAP lawsuits in areas related to fair value accounting is very small. For any given firm year, the chance of a lawsuit in these areas of GAAP is less than 1% and sometimes less than 0.50%. Second, across many specifications, treatment firms – with more exposure to the event or transaction underlying a standard – have a

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restructuring charges (SFAS 146), and convertible debt and preferred stock (SFAS 150). All differences in means were significant at the 1% level.

[13] In order to capture all GAAP-related litigation in an area, we search for references to the predecessor standard even after the superseding standard is effective because sometimes plaintiffs will cite these older standards even after a new standard has been passed.

higher incidence of litigation in the pre-period or post-period relative to control firms. This means, for example, firms with more acquisitions or more restructurings have more litigation related to the accounting for these events than firms with fewer acquisitions or restructurings. This is not surprising, but offers some reassurance that we have accurately identified treatment versus control firms.

Third, across all standards pooled together in event time, there is no average treatment effect from the pre-period to the post-period. Thus, the change in litigation risk for treatment firms is not significantly different from the change in litigation risk for control firms. This is consistent with our findings in Section 4.1. Fair value accounting is a relatively low-risk area in terms of GAAP-related litigation, so one would expect that, on average, the introduction of new fair value standards should not increase litigation risk much for affected firms.

Finally, we do find a significant treatment effect from the pre to the post period for two of the seven standards: SFAS 133 (derivatives) and SFAS 142 (intangibles and goodwill). We note, however, that one should probably interpret these univariate findings with some caution. In all cells in Table 6, the overwhelming majority of observations are "0," and there are very few "1s." Thus, the distribution of these variables is highly skewed and non-normal, so the traditional cut-offs for statistical significance may not be valid.

We next examine these patterns in a logistic model. Since "rare events" (i.e., very few "1" observations) cause small sample bias in logit models (King and Zeng 2001), we use a Firth logit (also called a "penalized maximum likelihood" logit). Firth logits have become a common correction for rare event binary data (see Puhr et al. 2017).[14] We estimate the following model:

[14] We do not use a linear probability model (LPM), because the LPM as an approximation of a logit or probit generally works well when the predicted probability of an event ranges from 0.20 to 0.80: over this range the relation between the covariates and predicted probabilities given by a logit or probit is nearly linear (see Long 1997, Ch 3). However, in our case, the probability of GAAP-related litigation is extremely rare, and must have a non-

$$Pr(SUED = 1) = F(\alpha + \beta_1 Post + \beta_2 Treat + \beta_3 Post*Treat + \beta[Controls]) \quad (2)$$

SUED equals 1 if a firm has a GAAP lawsuit citing the relevant standard in the pre or post period. Treat equals 1 for a treatment firm and Post equals 1 for the three years after a fair value standard is passed. Control variables include the standard securities litigation risk determinants from Kim and Skinner (2012): an indicator for high litigation industry, size, sales growth, returns, volatility and skewness of returns, and share turnover. All variables are defined in detail in Appendix B.

Results of estimating equation (2) using a Firth logit are presented in Table 7. Panel A presents descriptive statistics, Panel B presents results for all seven standards pooled together in event time, and Panel C presents results just for SFAS 133 and SFAS 142, given the univariate findings of significance in Table 6 for these standards. For the models reported in Table 7, we find no significant effect for the Post*Treat variable in any specification, whether we look at all fair value standards together in Panel B or just SFAS 133 and 142 in Panel C.[15] Thus, the increase in litigation risk for SFAS 133 and 142 in Table 6 is not robust to estimation with a logit model that corrects for rare events.

Overall, we find no significant effect on overall litigation risk from the passage of seven major fair value standards during our sample period. We find some evidence of an increase in litigation risk for two standards (SFAS 133 and SFAS 142), but these results are not robust to a multiple logit regression analysis with a correction for rare events. In general, the results from Sections 4.1 and 4.2 suggest that fair value accounting is not associated with a significant

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linear relation with potential covariates as the probability of litigation nears zero (otherwise predicted probabilities would fall below zero). See also Von Hippel (2017).

[15]Although Ai and Norton (2003) raise concerns about the interpretation of interaction terms in non-linear models such as logit or probit regressions, Puhani (2012) shows that in the special case of a non-linear differences-in-differences model, the treatment effect is identified by the coefficient on the interaction of the treatment and time-period variables. Thus, similar to Boone et al. (2014), we evaluate the significance of the interaction of POST*TREAT to identify the treatment effect in this study.

increase in GAAP-related litigation risk.

4.3 Auditor Litigation Risk

Even if fair value accounting standards do not appear to significantly increase the risk of GAAP-related litigation for firms, it is possible they may increase the threat of litigation against auditors. When a firm is sued in a securities class action, the firm and/or its officers and directors are named as defendants. In some cases, if there is a credible inference that the auditor acted with scienter, the auditor will be named as a defendant as well. Thus, one can think about auditor litigation risk as a product of two probabilities: a) the probability the client is sued and named as a defendant, and b) the probability (conditional on the client being sued) that the auditor is named as a defendant as well.

Our tests above indicate that fair value accounting does not appear to increase GAAP-related litigation risk for audit clients (i.e., the first probability above). If anything, fair value accounting seems to be a relatively low-risk area of GAAP in terms of litigation. However, it is possible that, conditional on a suit being filed, allegations that fair value standards were allegedly violated might increase the probability that the auditor is named as a defendant. In Section 2.2, we discussed concerns on the part of litigators, audit scholars, and audit partners that the inherent subjectivity of fair value accounting increases the risk that plaintiffs will allege that auditor failed to gather sufficient evidence to support their audit opinions. However, recall from Section 2.1 that plaintiffs must typically allege intent or recklessness in securities class actions, which is a "high bar" for plaintiffs in cases against auditors (see Coffee 2006). Still, it is conceivable that with high uncertainty fair value estimates, plaintiffs might be able to allege that an auditor knew – or willfully ignored – the fact that management's estimates were so imprecise or unreasonable that a substantial risk of misstatement existed. Overall, conditional on a GAAP suit being filed, it

is unclear whether alleged violations of fair value standards will increase the risk that a firm's auditor is named as a defendant.

To examine this possibility, we estimate the following model among our sample of filed GAAP-related securities class actions:

$$Prob(AUD\_NAMED=1) = F(\alpha + \beta_1 FV\_INT + \beta[Controls]) \quad (3)$$

Where F is the cdf of the logistic function, and AUD_NAMED equals 1 if the auditor is named as a defendant. The variable of interest is FV_INT, fair value intensity, which equals the proportion of standards allegedly violated in the complaint that are fair value standards. This variable is the same variable used in section 4.1 among lawsuit observations to construct FV_DIFF. If alleged violations of fair value standards increase the risk of auditors being sued in GAAP-related litigation, we expect the coefficient on FV_INT to be positive.

For control variables, we include revenue intensity (REV_INT), which measures the proportion of standards allegedly violated in the complaint that are revenue standards. This too is the same variable used in section 4.1 to construct REV_DIFF. We include the extent of revenue allegations because of the higher litigation risk in general for revenue cases, as well as the considerable judgment and subjectivity often involved in revenue recognition. If the subjectivity and judgment inherent in fair value accounting affect auditor litigation risk, it seems possible that the same factors may play a similar role with revenue accounting. The remaining variables are based upon prior research on auditor litigation (see, e.g., Stice 1991; Pratt and Stice 1994) and related to proxies for client size and financial health, auditor size, and potential damages suffered by plaintiffs. Overall, based upon prior work, we expect that the greater the damages incurred by plaintiffs, and the less healthy the client, the more likely the auditor will be named as a defendant. Detailed variable definitions for the control variables are provided in Appendix B.

Panel A of Table 8 presents descriptive statistics for the variables in equation (3). Similar to Table 3, for the average case, approximately 18% of alleged GAAP violations relate to fair value standards, while about 26% relate to revenue recognition violations. Also, we note that auditors are only named as defendants in about 16% of the GAAP lawsuits in our sample. Thus, in the vast majority of GAAP-related securities class actions over the last 20 years, auditors were not named as defendants. This is consistent with prior descriptive evidence (Cornerstone 2018), as well as Coffee's (2006) contention that auditors have "virtual immunity" in federal securities litigation.[16] Although the relative infrequency of auditor litigation at the federal level is well known among legal scholars, it may not be as well known among accounting scholars.

Panel B of Table 8 presents coefficient estimates from equation (3). The coefficient on FV_INT is not statistically significant (t = -0.56). Thus, inconsistent with concerns of practitioners and audit scholars, we do not find evidence that alleged violations of fair value standards increases the threat of litigation against auditors. Consistent with prior work, we find evidence that auditors are more likely to be named as defendants when investors suffer larger damages ($p < 0.10$, two-sided), clients report a loss ($p < 0.05$, two-sided), and the client is more highly levered ($p < 0.01$, two-sided). Interestingly, we find that Big N auditors are less likely to be named as defendants, which is inconsistent with the deep pockets hypothesis, but is consistent with Big N auditors potentially providing higher quality audits.

Overall, we find no evidence that GAAP-related lawsuits involving more fair value allegations are more likely to trigger auditor liability, conditional on the client being sued. When coupled with our prior evidence that fair value accounting standards do not appear to increase litigation risk for firms (i.e., audit clients), it does not appear that fair value accounting

[16] Cornerstone Research typically reports that auditors are named defendants in about 1 to 2% of *all* securities class actions, which includes more than just GAAP-related cases. If one restricts the analysis to GAAP cases, as we do, auditor suits do rise, but are still fairly rare.

significantly increases auditor litigation risk.

5. Robustness Tests

Summary of Significant Accounting Policies

Per APB 22, firms are required to disclose their significant accounting policies in the notes to the financial statements. This disclosure, as opposed to the full 10-K, provides an alternative to identify important standards upon which the firm relies.[17] As a sensitivity test, we use PHP to extract the summary of significant accounting policies from the 10-Ks used in section 4.1 and search only this extracted text for GAAP keywords.[18] We are able to do so for 739 lawsuits. In untabulated tests, we find very similar results using this approach. For example, mean FV_DIFF among these lawsuits is -11.5% ($t = -12.15$, $p < 0.01$), meaning that fair value standards are under-represented in lawsuits relative to firms' reliance upon these standards by about 12 percentage points. Also, the rank correlation between FV_DIFF using the full 10-K versus the summary of significant accounting policies for these 739 observations is 0.87 ($p < 0.01$, untabulated).

Using Terciles for Section 4.2

For our differences-in-differences tests in Section 4.2, we identify treatment and control firms using the frequency of applicable keyword hits above versus below the median. As a sensitivity test, we also tried an approach that used observations above (below) the top (bottom) tercile in keyword hits to identify treatment (control) observations. Results are very similar to

[17] We use a search of the entire 10-K for our main analysis because in our experience this more fully captures the standards upon which firms rely. As one example, business combinations are typically discussed in a separate footnote from the summary of accounting policies.

[18] We extract all the text in the summary of significant accounting policies footnote in 10-K filings and exclude any observations for which we cannot identify this footnote. While the majority of 10-Ks retain this as footnote one, some do not. As such, we searched for this footnote within the first five footnotes in each 10-K. We also allow the name of this footnote to vary. For example, most firms may call the footnote "Summary of Significant Accounting Policies" but some use other labels, such as "Significant Accounting Policies" or "Summary of Accounting Policies".

those reported in Section 4.2. For example, in the Firth logit for the pooled regression, the coefficient on POST*TREAT is insignificant (p = 0.31, untabulated).

Selection Bias in Auditor Tests

Estimating the impact of alleged fair value accounting violations on the conditional probability of auditor liability using only the sample of filed suits raises the possibility of a selection bias similar to Heckman (1977). The concern is that cases are not filed randomly and that cases that appear to have poor prospects using observables (like damages or client health) likely have good prospects related to unobservables (i.e., items in the residual, like case-specific facts). This could create a correlation between observable independent variables in the auditor litigation equation and the residual, which could bias coefficients.

To address this concern, in untabulated tests, we also estimate a lawsuit selection equation using the COMPUSTAT/CRSP universe over our sample period. We use a logit model to estimate the probability a firm is sued using the lagged, ex-ante risk factors identified by Kim and Skinner (2012): an indicator for high-risk industries, logged assets, sales growth, returns, return skewness, return volatility, and share turnover. This model is estimated jointly along with equation (3) from section 4.3, allowing for correlation in the residuals across equations. All of the Kim and Skinner (2012) variables come through significantly (except lagged return magnitude) in the predicted direction. However, we find no significant correlation across equations in the residuals (t = 0.75, untabulated), and the coefficient on FV_INT from equation (3) is insignificant as well (t = -0.13, untabulated), similar to Table 8.

6. Conclusion

We investigate the effect of fair value accounting standards on GAAP-related securities litigation risk. Inconsistent with concerns on the part of academics, practitioners, and lawyers,

we do not find that fair value accounting increases litigation risk faced by firms or their auditors. If anything, we find that fair value accounting standards are a relatively low-risk area of GAAP with respect to litigation. Fair value standards are significantly less likely to be named in GAAP lawsuits than they are relied upon by firms (as proxied by discussion in 10-Ks).

Further, we examine the passage of seven new fair value standards over our sample period and find no consistent evidence that these fair value standards led to a significant spike in litigation for firms differentially impacted by these standards. Finally, consistent with prior work, we find that auditors are infrequently (about 16% of the time) named as defendants in GAAP-related lawsuits. Importantly, while proxies for damages and client distress increase the chance that auditors will be sued, allegations that fair value standards were violated do not. Collectively, the evidence in our study suggests that fair value accounting standards do not appear to significantly increase securities litigation risk for firms or auditors.

Our findings are subject to two important caveats, however. First, our findings are only applicable to fair value accounting as currently implemented in U.S. GAAP. Our results cannot necessarily speak to what would happen to the litigation environment if, for instance, the FASB decided to fair value all inventory for industrial firms. Second, we examine federal securities litigation, which is by far the most common type of GAAP-related litigation examined in the accounting literature. For SEC registrants (that is, public companies), this is by far the largest source of GAAP-related litigation risk. There is also a small source of risk in the form of state corporate law through derivate lawsuits, but this is largely redundant with federal law for public companies (see Erickson 2011). As such, our findings should generalize to these state law cases.

However, accounting-related litigation does exist in a more meaningful sense for auditors at the state level in the form of negligence (malpractice) suits (see Donelson 2013). When

auditing public companies, these cases are more rare than securities litigation and (to our knowledge) there is no database that makes complaint-level data on accounting standards available for these cases. Further, "privity" is required on the part of the plaintiff, which limits auditor liability in these cases. Regardless, our findings are based on federal securities litigation and may not generalize to state-level negligence cases. Examining the effect, if any, of fair value accounting on state-level litigation against auditors is a potential avenue for further research.

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Appendix A – Standards Used

Parent Standard	FV	REV	RBC	CMPLX	Parent Standard	FV	REV	RBC	CMPLX
APB 14			0	1	FAS 121			1	
APB 16			4	1	FAS 123			4	1
APB 17			1	1	FAS 125	1		3	1
APB 18	1		3		FAS 13			4	1
APB 2			0		FAS 130			1	
APB 20			2		FAS 133	1		3	1
APB 21	1		1		FAS 140	1		4	1
APB 23			2		FAS 141	1		3	1
APB 25			1	1	FAS 142	1		3	1
APB 26	1		1	1	FAS 143	1		2	1
APB 29	1		2		FAS 144	1		3	1
APB 30			1		FAS 146	1		0	
APB 4			0		FAS 15	1		2	
APB 9			1		FAS 150	1		3	
ARB 43 Ch 10a			0		FAS 154			0	
ARB 43 Ch 11a			0		FAS 159	1		0	
ARB 43 Ch 11b			0		FAS 16			0	
ARB 43 Ch 11c			0		FAS 19	1		3	
ARB 43 Ch 12			0		FAS 2			1	
ARB 43 Ch 3a			0		FAS 34			0	1
ARB 43 Ch 3b			0		FAS 35	1		1	1
ARB 43 Ch 4			0		FAS 43			1	
ARB 43 Ch 7a			0		FAS 45	1		0	
ARB 43 Ch 7b			0		FAS 47			1	
ARB 43 Ch 9a			0		FAS 48		1	1	
ARB 43 Ch 9b			0		FAS 49			1	
ARB 45		1	0		FAS 5			1	
ARB 51	1		3		FAS 50			0	
ASU 2012-01			0		FAS 51			0	
ASU 2013-07	1	0	1	0	FAS 52			2	1
Concepts 5 & 6		1	1	1	FAS 53			0	
EITF 00-19			1		FAS 57			1	
EITF 00-21		1	1	1	FAS 60	1		1	
EITF 94-03			1	1	FAS 61	1		0	
EITF 99-19	0	1	0	0	FAS 63	1		0	
FAS 123r			2	1	FAS 65	1		1	

Appendix A, cont.

Parent Standard	FV	REV	RBC	CMPLX	Parent Standard	FV	REV	RBC	CMPLX
FAS 141r	1		2	1	FAS 66	1		3	1
FAS 91		1	1		FAS 67	1		1	
FAS 101			0		FAS 68	1		1	
FAS 105			1	1	FAS 7			0	
FAS 106	1		4	1	FAS 71			2	
FAS 107	1		1	1	FAS 77			1	
FAS 109			4	1	FAS 80			1	1
FAS 113			0	1	FAS 86			1	
FAS 115	1		3		FAS 87	1		4	1
FAS 116	1		1						
FAS 119			0	1					

This appendix lists the standards in US GAAP used in this study.

Variable Definitions

- FV = one if the standard is a fair value standard (listed in Appendix D of SFAS 157)
- REV = one if the standard is a revenue standard
- RBC = a value between 0 and 4 from Mergenthaler (2012) measuring the presence of rules-based characteristics in standards
- CMPLX = one if the standard involves complex transactions following Donelson et al. (2012)

Identifying Standards Cited in Lawsuits

Similar to Folsom et al. (2016), we identify allegations of GAAP violations by searching lawsuit complaints for mentions of GAAP standards by name. For example, to identify a lawsuit that alleges violation of FAS 125, we search for: (SFAS {or} FAS {or} FASB {or} Statement of Financial Accounting Standards {or} Financial Accounting Standards Board) {up to two words} (125). We allow up to two words between standard prefix and number because there is no standardized method to cite standards in lawsuits. For example, one lawsuit may cite "SFAF 125" while another may cite "SFAS No. 125." If plaintiffs cite the Accounting Standards Codification (ASC) in lieu of numbered standard references, we use the cross-reference tool on the FASB's Codification website to map these references to numbered standards.

Identifying Reliance on Standards by Firms

To measure the standards a firm relies upon, we search 10-Ks for keywords associated with each standard. Our keyword list is based on Folsom et al. (2016), and the list of keywords for each standard can be found at https://drive.google.com/open?id=1ddFTzN3SvXBv_CQpMD-

bDeFSAzksh9oX. As examples, firms that mention “lease” or “derivative” in their 10-K would be deemed to rely on SFAS 13 and SFAS 133. A firm that mentions a standard’s keyword at least once in its 10-K is deemed to rely on that particular standard.

Full List of Sub-Standards

For a list of sub-standards (e.g., amending standards) for each standard above, see https://drive.google.com/open?id=1ddFTzN3SvXBv_CQpMD-bDeFSAzksh9oX.

Appendix B

Variable Definitions

Section	Variable	Definition [Data Source]
4.1	FV_DIFF	For each firm-lawsuit, this equals the difference between the extent to which the lawsuit alleges violations of fair value standards and the extent to which that firm relies on fair value standards per the 10K. The extent to which a lawsuit mentions fair value is calculated by assigning a "1" ("0") to all (Non) fair value standards in Appendix A and taking the mean across all standards in a lawsuit. The extent to which a firm relies on fair values is calculated in a similar way: we take the mean across all standards whose keywords from Appendix A are mentioned in the 10K.
	REV_DIFF	Same as FV_DIFF, but we denote standards as involving revenue recognition or not. See Appendix A for standards that are revenue standards.
	RBC_DIFF	Same as FV_DIFF, but we use the RBC score for each standard from Mergenthaler (2012). See Appendix A for the RBC measures for each standard.
	COMPLEX_DIFF	Same as FV_DIFF, but we denote standards as involving complex transactions or not. To identify complex underlying transactions, we use the same approach as Donelson et al. (2012): we perform a keyword search for stem words such as "complic" or "complex" and search for instances where standard setters refer to the underlying transaction as complex. See Appendix A for standards that are coded as complex.
	FINANCIAL FIRM	All firms with an SIC code between 6000 and 6999.
4.2		
	SUED_*	equals one if firm i's year t is part of the class period of a securities fraud class action lawsuit that alleges violation of the focal standard, and zero otherwise
	TREAT	An indicator variable equal to 1 for firms with relatively high exposure to the transaction underlying each standard and zero for firms with relatively low exposure to the transaction underlying the same standard. We identify the level of exposure to a particular standard by: (1) searching a firm's 10-K for keywords associated with the particular standard (see Appendix A for keywords), (2) calculating Folsom et al. (2016)'s relative importance measure, and (3) categorizing firms above the median as treatment firms and below the median as control firms. We search for keywords inside the first 10-K after the effective date for each particular standard. For example, FAS 133 is implemented for the fiscal periods after 6/15/1999. Thus, we calculate the relative importance using FAS 133 keywords in the first 10-K each firm files after 6/15/1999.
	POST	An indicator variable equal to 1 for the years t+1 to t+3 and zero for the years t-3 to t-1, where year t is the first year after implementation of a particular standard. For example, FAS 133 is implemented for the fiscal periods after 6/15/1999. Thus, POST equals 1 for all fiscal years-ended between June 16, 2000 to June 15, 2003 and zero for all fiscal years-ended between June 16, 1996 to June 15, 1999.
	FPS	equals one if firm i in year t is part of the biotech (SIC 2833 to 2836 or 8731 to 8734), computer (SIC 3570 to 3577 or 7370 to 7374), electronics (SIC 3600 to 3674), or retail (SIC 5200 to 5961) industries, and zero otherwise (Kim and Skinner 2012)
	SIZE	the natural log of total assets for firm i in year t

	SALES_GROWTH	total sales in year t less total sales in year t-1, all scaled by total sales in year t-1 for firm i
	RETURN	the CRSP value-weighted index adjusted buy-and-hold return over year t for firm i
	RET_SKEW	the skewness of firm i's raw return over year t
	RET_STD	the standard deviation of firm i's raw return over year t
	TURNOVER	the aggregate trading volume of firm i's shares over year t scaled by total shares outstanding at the beginning of year t, all scaled by 1,000,000 for expositional convenience
4.3		
	AUD_NAMED	Indicator variable equal to 1 if the firm's auditor was named as a defendant. We identify auditors as defendants using the RiskMetrics database, the Advisen database, and textual searches of all complaints for auditor names
	FV_INT	Fair value intensity, equals the extent to which fair value standards were alleged to be violated in the lawsuit. This is the same variable used to construct FV_DIFF
	REV_INT	Revenue intensity, same as FV_INT, but we measure the extent to which revenue standards were alleged to be violated in the complaint.
	LNMVE	Natural log of market value of equity
	BIGN	Indicator variable equal to 1 is the firm employs a BIG N auditor.
	LNMAX_DAMAGES	Natural log of the difference between the highest market value of equity during the class period of the lawsuit and the market value of equity at the end of the class period.
	LOSS	An indicator variable equal to 1 if income before extraordinary items is negative (per COMPUSTAT)
	LOW_MTB	An indicator variable equal to 1 if the market to book ratio is less than 1.
	LEV	total liabilities / total assets, per COMPUSTAT

Table 1
Overview of Main Tests

Section 4.1: How common are fair value allegations in GAAP-related lawsuits?		
GAAP Lawsuits		1,185
Less: Missing CIKs on COMPUSTAT and 10-Ks on Edgar	(252)	
Total N for Tests in 4.1		933
Section 4.2: Does the passage of new fair value standards increase litigation?		
Total N for Tests in 4.2 (Treatment and control firm-years for DiD standards)		49,508
Sued Observations:		
GAAP Lawsuits	1,185	
Less: Missing control variables and lawsuits not involving DiD standards	(921)	
Observations where SUED = 1	264	
Section 4.3: Do fair value allegations increase auditor litigation risk?		
GAAP Lawsuits		1,185
Less: Missing data for control variables	(100)	
Total N for Tests in 4.3		1,085

This table provides an overview of the samples used in our tests in Section 4. All tests use observations from our lawsuit sample. This lawsuit sample contains all GAAP-related cases from the Stanford Securities Class Action database from 1996-2017, with a matching gvkey and permno from COMPUSTAT and CRSP. This lawsuit sample contains 1,185 firm-years. In section 4.1 (Tables 3 and 4), we use this sample, requiring non-missing CIKs and 10-Ks from EDGAR. In section 4.2 (Tables 5-7), we use the universe of COMPUSTAT/CRSP firm-years with available data, classified as treatment or control firms around the passage of 7 new fair value standards. The dependent variable in these tests (SUED) equals one if firm-years are sued in the area of the fair value standard. We use applicable observations from our lawsuit sample to construct this dependent variable. In section 4.3 (Table 8), we use observations from our lawsuit sample (requiring data from COMPUSTAT and CRSP for control variables) to investigate whether fair value allegations increase the probability that auditors will be named as defendants in a GAAP-related lawsuit.

Table 2
Top 15 Standards in Lawsuits and 10-Ks

Most Frequent Standards Named in GAAP-Based Lawsuits		Most Frequent Standards Relied Upon by Sued Firms per 10-K	
Standard	Topic	Standard	Topic
SFAS 5	Contingencies	SFAS 109	Taxes
CON 5_6	Revenue Recognition	SFAS 123R	Stock-Based Compensation
APB 20	Accounting Changes and Error Corrections	SFAS 13	Leases
SAB 101	Revenue Recognition	ARB 43_9a	Depreciation
SFAS 48	Revenue Recognition (Right of Return)	ARB 51	Consolidation
SFAS 13	Leases	SFAS 5	Contingencies
SFAS 142	Goodwill and Intangibles	APB 25	Stock-Based Compensation
SOP 97_2	Revenue Recognition (Software)	SFAS 123	Stock-Based Compensation
SFAS 154	Accounting Changes and Error Corrections	SFAS 133	Derivatives
ARB 43_3a	Working Capital	ARB 43_3a	Working Capital
SFAS 57	Related Party Disclosures	SFAS 144	Long-Term Asset Impairment
ARB 43_4	Inventory Pricing	SFAS 141R	Business Combinations
SFAS 121	Long-Term Asset Impairment	CON 5_6	Revenue Recognition
SFAS 16	Prior Period Adjustments (Error Corrections)	SFAS 141	Business Combinations
APB 25	Stock-Based Compensation	SFAS 142	Goodwill and Intangibles

This table lists the 15 most frequently cited accounting standards in GAAP-based lawsuits along with the 15 most frequently relied-upon standards by those sued firms per their 10-K. To measure standard reliance, we search 10-Ks for the keywords for each standard listed in Appendix A. For example, if a firm mentions "lease" in its 10-K, then we assume it must rely on lease accounting standards per SFAS 13. Appendix A provides a link to a file with all keywords used for standards in our study.

Table 3

Differences between Characteristics of Standards Mentioned in Lawsuits and Standards Relied upon by Sued Firms

Panel A: Mean Differences; N = 933

Characteristic	**Standards in Lawsuits**	**-**	**Standards Relied Upon by Firm**	**=**	**Variable Name**	**t**	
	Mean		Mean		Mean		
Fair Value	0.168		0.328		FV_DIFF	-0.160	-19.34 ***
Revenue	0.308		0.075		REV_DIFF	0.233	23.08 ***
Rules-Based	1.471		1.816		RBC_DIFF	-0.345	-16.11 ***
Complexity	0.364		0.462		COMPLEX_DIFF	-0.098	-9.92 ***

Panel B: Correlations between Difference Variables; N = 933

	FV_DIFF	REV_DIFF	RBC_DIFF	COMPLEX_ DIFF
FV_DIFF	1			
REV_DIFF	**-0.27**	1		
RBC_DIFF	**0.51**	**-0.21**	1	
COMPLEX_DIFF	**0.23**	**0.09**	**0.40**	1

Panel A presents the mean differences between the characteristics of standards cited in GAAP-related lawsuits and the standards relied upon by those sued firms per their 10-K. To measure standard reliance, we search 10-Ks for the keywords for each standard listed in Appendix A. All variables are defined in detail in Appendix B. t-statistics are from a paired t-test. *** indicates these statistics are significant at the 1% level. Panel B presents Pearson correlations between the difference variables in Panel A. Bolded correlations are significant at the 1% level.

Table 4
The Under-Representation of Fair Value Standards in Lawsuits

Panel A: Is the Under-Representation of Fair Value Standards in Lawsuits Distinct from Other Factors?

$$FV\_DIFF = \alpha + \beta_1 REV\_DIFF + \beta_2 RBC\_DIFF + \beta_3 COMPLEX\_DIFF + \varepsilon$$

	(1)	(2)	(3)	(4)	(5)
Intercept	**-0.160**	**-0.108**	**-0.092**	**-0.141**	**-0.060**
	(-19.34)	**(-10.83)**	**(-11.42)**	**(-16.66)**	**(-6.41)**
REV_DIFF		**-0.222**			**-0.152**
		(-8.61)			**(-6.45)**
RBC_DIFF			**0.197**		**0.171**
			(18.16)		**(14.26)**
COMPLEX_DIFF				**0.191**	*0.058*
				(7.21)	*(2.29)*
N	933	933	933	933	933
Adj. R-Square		7.27%	26.08%	5.19%	29.18%

Panel B: Is the Under-Representation of Fair Value Standards in Lawsuits Smaller for Financial Institutions?

	Financial Firms	Non-Financial Firms	Diff
FV_DIFF	**-0.108**	**-0.171**	**0.063**
t	**-4.56**	**-18.83**	**2.96**

Panel A presents results from a regression of FV_DIFF (which captures how under-represented fair value standard are in a lawsuit) on the other characteristic difference variables from Table 3. All variables are defined in detail in Appendix B. Panel B presents differences in mean FV_DIFF between financial and non-financial firms. All bolded variables are significant at the 1% level, while italicized variables (COMPLEX_DIFF) are significant at the 5% level.

Table 5
Fair Value Standards Used for Differences-in-Differences Tests

Fair Value Standard	Effective Date	Predecessor Standard	Effect on Fair Value Accounting
SFAS 133	6/15/1999	SFAS 119	Required derivatives to be recognized and re-measured at fair value
SFAS 140	3/31/2001	SFAS 125	Carried forward many provisions of SFAS 125, but most important change was explicitly exempting assets sold to QSPEs in a securitization from being consolidated. This increased "sale accounting" and the extent to which the transferor gave up receivables/loans at historical cost for retained interests/securities at fair value
SFAS 141	6/30/2001	APB16; SFAS 38	Eliminated pooling and required acquirers to recognize acquired assets at fair value; Emphasized recognizing identifiable intangibles apart from goodwill at fair value
SFAS 142	12/15/2001	APB 17	Eliminated amortization of goodwill and implemented an annual impairment test requiring extensive fair value estimates
SFAS 144	12/15/2001	SFAS 121	Carried forward many provisions of SFAS 121, but required assets held in discontinued operations to be fair valued
SFAS 146	6/15/2002	EITF 94-3	Measured restructuring liabilities at fair value; required the definition of a liability to be met for recognition
SFAS 150	6/15/2003	EITF 00-19	Required that certain instruments previously classified as equity to be recognized as liabilities and fair valued through income

Table 6

The Effect of Fair Value Standards on Incidence Rate of Lawsuits: Univariate Difference-in-Differences Analysis

Treatment Standard	Predecessor Standard		Treat		Control				
FAS 133	FAS 119	Post	0.0037	***	0.0001		0.0035	***
		Pre	0.0003		0.0000		0.0003	
			0.0034	***	0.0001		0.0032	***
Treatment Standard	Predecessor Standard		Treat		Control				
FAS 140	FAS 125	Post	0.0046	***	0.0001		0.0044	***
		Pre	0.0026	***	0.0001		0.0025	**
			0.0019		0.0000		0.0019	
Treatment Standard	Predecessor Standard		Treat		Control				
FAS 141	APB 16; SFAS 38	Post	0.0049	***	0.0009	**	0.0040	***
		Pre	0.0029	***	0.0007	*	0.0022	**
			0.0020		0.0002		0.0018	
Treatment Standard	Predecessor Standard		Treat		Control				
FAS 142	APB 17	Post	0.0132	***	0.0021	**	0.0111	***
		Pre	0.0037	***	0.0009	*	0.0028	**
			0.0095	***	0.0012		0.0083	***
Treatment Standard	Predecessor Standard		Treat		Control				
FAS 144	FAS 121	Post	0.0084	***	0.0026	***	0.0057	***
		Pre	0.0049	***	0.0007	*	0.0041	***
			0.0035	**	0.0019	**	0.0016	
Treatment Standard	Predecessor Standard		Treat		Control				
FAS 146	EITF 94-3	Post	0.0005		0.0003		0.0002	
		Pre	0.0015	**	0.0000		0.0015	**
			-0.0010		0.0003		-0.0013	
Treatment Standard	Predecessor Standard		Treat		Control				
FAS 150	EITF 00-19	Post	0.0012		0.0012	**	0.0000	
		Pre	0.0000		0.0001		-0.0001	
			0.0012		0.0011	**	0.0001	
Treatment Standard	Predecessor Standard		Treat		Control				
Pooled Sample		Post	0.0084	***	0.0039	***	0.0046	***
		Pre	0.0041	***	0.0011	**	0.0030	***
			0.0043	***	0.0028	***	0.0015	

This table presents results from a univariate difference-in-differences analysis around the implementation of fair value standards. Treated (control) firms are firms with a relative importance score for that specific standard above (below) the median. The sample consists of three years pre- and post- implementation of the specific standard, where year *t* (the year of implementation) is excluded. All variables are defined in detail in Appendix B. Robust standard errors are clustered by firm. ***, **, and * indicate significance at the 0.01, 0.05, and 0.10 levels, respectively, using two-tailed tests.

Table 7

The Effect of Fair Value Standards on Incidence Rate of Lawsuits: Multiple Logistic Regression Difference-in-Differences Analysis

Panel A: Descriptive Statistics for Pooled Sample

Variable	Mean	Median	25th Pctl	75th Pctl
SUED_FV	0.01	0.00	0.00	0.00
FPS	0.28	0.00	0.00	1.00
SIZE	5.66	5.62	4.15	7.04
SALES_GROWTH	0.22	0.10	-0.01	0.26
RETURN	0.06	-0.04	-0.33	0.28
RET_SKEW	0.49	0.39	0.01	0.86
RET_STD	0.04	0.03	0.02	0.05
TURNOVER	1.55	0.90	0.41	1.86

Panel B: Regression Results for Pooled Sample

$$Pr(SUED\_FV = 1) = F(\alpha + \beta_1 Post + \beta_2 Treat + \beta_3 Post*Treat + \beta[Controls])$$

Parameter	Estimate	Standard Error	t Value	Pr > |t|
Intercept	-11.256	0.466	-24.158	<.001
POST	**0.678**	**0.374**	**1.811**	**0.070**
TREAT	0.536	0.353	1.517	0.129
POST*TREAT	-0.238	0.398	-0.597	0.550
FPS	-0.002	0.349	-0.000	0.994
SIZE	**0.582**	**0.039**	**15.037**	**<.001**
SALES_GROWTH	-0.158	0.121	-1.310	0.190
RETURN	-0.130	0.112	-1.159	0.246
RET_SKEW	**-0.422**	**0.057**	**-7.364**	**<.001**
RET_STD	**29.738**	**3.383**	**8.791**	**<.001**
TURNOVER	**0.155**	**0.023**	**6.756**	**<.001**
N	49,508			

Table 7, cont.

Panel C: Regression Results for FAS 133 and FAS 142 Samples

$Pr(SUED\_133 =1) = F(\alpha + \beta_1 Post + \beta_2 Treat + \beta_3 Post*Treat + \beta[Controls])$

Parameter	Estimate	Standard Error	t Value	Pr > |t|
Intercept	-14.791	1.210	-12.228	<.001
POST	0.098	0.935	0.105	0.916
TREAT	0.070	0.909	0.077	0.939
POST*TREAT	1.082	1.027	1.054	0.292
FPS	0.869	1.263	0.688	0.492
SIZE	**0.917**	**0.117**	**7.875**	**<.001**
SALES_GROWTH	0.231	0.259	0.889	0.374
RETURN	0.352	0.289	1.219	0.223
RET_SKEW	**-0.683**	**0.147**	**-4.646**	**<.001**
RET_STD	**47.043**	**8.125**	**5.790**	**<.001**
TURNOVER	**-14.791**	**1.210**	**-12.228**	**<.001**
N	26,697			

$Pr(SUED\_142 = 1) = F(\alpha + \beta_1 Post + \beta_2 Treat + \beta_3 Post*Treat + \beta[Controls])$

Parameter	Estimate	Standard Error	t Value	Pr > |t|
Intercept	-9.400	0.607	-15.493	<.001
POST	0.670	0.435	1.540	0.123
TREAT	**0.835**	**0.411**	**2.030**	**0.042**
POST*TREAT	0.609	0.482	1.263	0.207
FPS	-0.368	0.456	-0.809	0.419
SIZE	**0.328**	**0.055**	**5.913**	**<.001**
SALES_GROWTH	-0.178	0.192	-0.929	0.353
RETURN	-0.114	0.148	-0.766	0.444
RET_SKEW	**-0.417**	**0.078**	**-5.354**	**<.001**
RET_STD	**16.607**	**5.165**	**3.216**	**0.001**
TURNOVER	**-9.400**	**0.607**	**-15.493**	**<.001**
N	24,997			

This table presents results from a Firth logistic difference-in-differences analysis around the implementation of fair value standards. Treated (control) firms are firms with a relative importance score for that specific standard above

(below) the median. The sample consists of three years pre- and post- implementation of the specific standard, where year *t* (the year of implementation) is excluded. Control variables follow Kim and Skinner (2012). All variables are defined in detail in Appendix B. Bolded coefficients are significant at the 10% level or less.

Table 8

Do Alleged Violations of Fair Value Standards in Lawsuits Increase the Risk that the Auditor Will be a Named Defendant?

Panel A: Descriptive Statistics

Variable	Mean	Median	25th Pctl	75th Pctl
AUD_NAMED	0.16	0.00	0.00	0.00
FV_INT	0.18	0.00	0.00	0.33
REV_INT	0.26	0.17	0.00	0.50
LNMVE	6.38	6.19	4.85	7.74
BIGN	0.74	1.00	0.00	1.00
LNMAX_DAMAGE	6.49	6.33	5.22	7.65
LOSS	0.54	1.00	0.00	1.00
LOW_MTB	0.27	0.00	0.00	1.00
LEV	0.58	0.58	0.35	0.79

Panel B: Regression Results

$$Prob(AUD\_NAMED=1) = F(\alpha + \beta_1 FV\_INT + \beta[Controls])$$

Parameter	Estimate	Standard Error	t Value	Pr > |t|
Intercept	-3.482	0.437	-7.96	<.001
FV_INT	-0.158	0.282	-0.56	0.575
REV_INT	0.122	0.269	0.45	0.650
LNMVE	0.062	0.063	0.98	0.326
BIGN	**-0.399**	**0.197**	**-2.03**	**0.043**
LNMAX_DAMAGE	**0.122**	**0.072**	**1.68**	**0.093**
LOSS	**0.410**	**0.189**	**2.17**	**0.030**
LOW_MTB	0.321	0.202	1.59	0.112
LEV	**1.008**	**0.313**	**3.22**	**0.001**
N	1,085			

This table presents results of a logistic regression of whether the auditor is named as a defendant in a GAAP-related lawsuit (AUD_NAMED) on the extent to which fair value standards are alleged to be violated in the complaint (FV_INT). Control variables include: extent to which revenue standards are violated (REV_INT), market equity of the firm (LNMVE), whether the firm employs as Big N auditor (BIGN), maximum damages during the class period (LNMAX_DAMAGE), whether the firm reports a loss (LOSS), an indicator for low market-to-book ratios (LOW_MTB), and firm leverage (LEV). Standard errors are clustered by firm. All variables are defined in Appendix B. Firm variables are measured as of the first reported quarter after the end of the class period. If this is missing (i.e.,

firm stops filing with the SEC) last available quarter is used. Bolded coefficients are significant at the 10% level or less.