ADVANCES IN TAXATION

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ADVANCES IN TAXATION VOLUME 24

ADVANCES IN TAXATION

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INTRODUCTION

THE ROLE OF TAX RESEARCHERS

As signaled in the last two volumes, one of my goals is for *Advances in Taxation* to have a greater international exposure and this is starting to lead to a more diverse set of articles being published (see Stamatopoulos, Hadjidema, and Eleftheriou, this volume). More international submissions have been received in the editorial office over the last year and these submissions have been subject to the same rigorous review as submissions from North American authors.

Tax researchers have an important role to play in conducting and publishing rigorous quality research in the uncertain times facing the world's tax systems. There are many research questions to be addressed and AIT invites submissions on a broad range of tax topics. I wish to thank the editorial board for their continued support. They have been called upon to promote AIT and to engage in the reviewing process. And, importantly, I am also pleased to thank the 18 ad-hoc expert reviewers listed below for their valuable and timely reviewing activity during 2016–2017.

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In this volume, there are seven papers. In the lead paper, Raquel Meyer Alexander, Andrew Gross, G. Ryan Huston, and Vernon J. Richardson examine the impact of FASB Financial Interpretation No. 48 adoption through the lens of debt covenants. While the balance sheet impact of FIN 48 on covenant violations was a concern of the accounting and legal community prior to adoption (and also the IRS), the FASB and the academic community have not considered this. They find that for tax aggressive firms, covenant slack – closeness to debt covenant violation – explains the size and frequency of FIN 48 adjustments, predicts the subsequent change in cost of debt, and is associated with abnormal market returns. The latter finding adds context to prior research which has generally showed a negative market response to FIN 48 adoption.

The second paper in this volume reconciles conflicting results in two prior studies on the relation between aggressive financial reporting and tax reporting. Sarah C. Lyon identifies four key differences in the research designs across the two studies, including measures of aggressive book reporting, measures of aggressive tax reporting, sample time periods, and empirical models. She then systematically examines whether each of these differences is responsible for the conflicting results by altering the key difference while holding other factors as constant as possible. She finds the relation between aggressive book and tax reporting is driven by the measure of aggressive book reporting, as the relation is positive for some subsets of firms and negative for others. Firms accused of financial statement fraud have a negative relation while nonfraud firms exhibit a positive relation. The study provides a better understanding of the relation between aggressive book and tax reporting by identifying research design choices that are responsible for prior results and shows that measures of both discretionary accruals and financial statement fraud are necessary to gain a more complete picture of the relation between aggressive book and tax reporting.

In the third paper, Huang, Sun, and Zhang note that relative few studies have examined how a firm's external environment affects its tax avoidance activities. They posit and document that higher environmental uncertainty leads to more tax avoidance activities, reflected as lower effective tax rates. They conjecture that managers with greater ability better mitigate the relationship between environmental uncertainty and tax avoidance, as more-able managers are less opportunistic and may engage in fewer tax-avoidance behaviors.

Moreover, they find that the relationship between environmental uncertainty and tax avoidance activities is stronger in small, highly leveraged, and innovative firms.

The next study by MacPhail, Emekter, and Jirasakuldech examines bonus depreciation, originally enacted by the United States Congress and signed into law in 2002 largely in response to the economic malaise following the September 11, 2001 terrorist attacks. The authors investigate whether bonus depreciation, a capital asset expensing allowance under the U.S. federal income tax code, impacted the level of business investment in property, plant, and equipment in the time periods that followed 9-11 in comparison to other earlier time periods. They find that the bonus depreciation policy had a positive effect on capital expenditures only in the period in which this policy was legislatively anticipated, specifically the period spanning the last quarter of 2001 and the first quarter of 2002, but otherwise, there was no significant increase in capital expenditures during the period that this special depreciation provision policy was initially in place (2002–2005). With Congress continuing to temporarily reenact bonus depreciation on an annual basis, they find no strong evidence that capital investment is positively impacted, rather their results show that factors that positively affect the level of companies' capital expenditures include capital intensity, cost of capital, amount of cash holdings, changes in sales and loans.

The next three papers in this volume use a behavioral research methodology. Jurney, Rupert, and Wartick rely on Generational theory research that suggests the arrival of the Millennial generation into adulthood will have significant effects on society because of their differing values and attitudes. The authors examine whether this generation has differing perceptions of tax fairness as well as their attitudes towards tax compliance, as compared to other generations, by administering an instrument to a sample of 303 taxpayers, distributed approximately equally across three generational groups: Baby Boomers, Generation X, and Millennials. They find significant differences in the viewpoints toward vertical equity and progressive taxation among the three generations. Specifically, the Millennial generation was less likely to recommend progressive taxation than the other two generations. In addition, there were significant differences between the groups on exchange equity question, with the Baby Boomers significantly different from the other two generations. Their results suggest that the Millennials have attitudes that are more accepting of noncompliance than both the Generation X participants and the Baby Boomer participants, although there was no significant difference between the Baby Boomer participants and Generation X participants on their attitudes towards tax compliance.

Next, Stephenson, Fleischman, and Peterson explore the expectation gap between tax clients' motivations to hire tax preparers versus tax preparers' perceptions of those client motivations. They build on prior work examining preparers primarily from local firms rather than focusing solely on large international firms. They use the recently developed Taxpayer Motivation Scale (*TMS*) to measure four client motivations to hire a preparer: (1) saving money,

(2) saving time, (3) legal compliance, and (4) protection from the IRS and measure expectation gaps for these four motivations using matched tax preparer-tax client dyads. Their results suggest client gender plays a noteworthy role in predicting many of the gaps. In addition, complexity of tax returns, children in the home and client perceptions of tax-preparer advocacy help explain gaps. Finally, female preparers appear to be relatively more sensitive to client needs.

In the last paper of the volume, Stamatopoulos, Hadjidema, and Eleftheriou provide important evidence on the level and determinants of corporate income tax compliance costs and their determinants by analyzing survey and financial statements data from Greek firms. They find that corporate tax compliance costs are of considerable size and vary with several firm-specific characteristics, including the firm's size, its age, the sector in which it operates, its location, and its legal form. This paper contributes to a relatively small literature measuring the impact of tax compliance costs, and is noteworthy for examining a country that has been significantly affected by the economic and financial crisis.

In future volumes, I wish to signal that apart from continuing its tradition of publishing original research-based manuscripts, *Advances in Taxation* will consider publishing papers on methodological issues (as several of the papers in this volume attest) and quality and topics papers on aspects of tax education, the tax profession, and also well-crafted replications/reconciliations (e.g., Sarah C. Lyon's study in this volume), co-authored by doctoral students and faculty.

John Hasseldine
Editor

MARKET RESPONSE TO FIN 48 ADOPTION: A DEBT COVENANT THEORY

Raquel Meyer Alexander, Andrew Gross,
G. Ryan Huston and Vernon J. Richardson

ABSTRACT

We investigate the interaction of debt covenants and tax accounting on the adoption of Financial Interpretation No. 48 (FIN 48). We examine how firms respond to the potential tightening of covenant slack upon FIN 48 adoption and whether these actions are penalized by creditors and anticipated by equity markets. We find that upon FIN 48 adoption, the majority of sample corporate borrowers increase their tax reserves and reduce equity. Firms close to debt covenant violation were even more likely to increase tax reserves upon FIN 48 adoption; however, the size of the adjustment was relatively smaller, suggesting that the FIN 48 standards limited, but did not eliminate, firms use of discretion in reporting uncertain tax positions to avoid costly covenant violations. For firms near net worth debt covenant violation, the act of decreasing equity upon FIN 48 adoption imposes real economic costs, as the average cost of debt increased by 43 basis points. Finally, we extend prior research on the market response to FIN 48 by showing how the market response to FIN 48 adoption is a function of debt covenant slack and tax aggressiveness. Specifically, the cumulative abnormal return at the

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FIN 48 exposure draft release date is negative only for tax aggressive firms that are close to debt covenant violation.

Keywords: Debt covenants; covenant slack; Income Tax Accounting; FIN 48

JEL classifications: G12; G32; M41

INTRODUCTION

We investigate how firms' proximity to debt covenant thresholds affects tax accounting choices, borrowing costs, and the market response to adoption of Financial Interpretation No. 48 (ASC 740-10, but known colloquially as "FIN 48"). FIN 48 requires firms to evaluate each tax position taken and disclose uncertain tax benefits (UTBs) – which is the reserve for uncertain tax positions that, upon challenge by the taxing authorities, may not be upheld – in their financial statements. Prior to adoption, FIN 48 was criticized for having two potential negative outcomes to firms. First, FIN 48 would provide a potential audit roadmap to the Internal Revenue Service (IRS). Second, FIN 48 would be "nasty surprise" to firms close to debt covenant violation as adoption effects could trigger technical covenant violations due to changes in ratios (Robason, 2009). While FIN 48's potential impact on IRS audit outcomes has been extensively examined (Blouin, Gleason, Mills, & Sikes, 2007; Blouin, Gleason, Mills, & Sikes, 2010; Cazier, Rego, Tian, & Wilson, 2015; Frischmann, Shevlin, & Wilson, 2008; Robinson & Schmidt, 2013), FIN 48 adoption's adverse effect on debt ratios and covenant compliance remain unexamined. This may be that while the legal and accounting communities, as well as the IRS (an organization not traditionally concerned with the health of firms' balance sheets) concerns were expressed (Hobert, 2007; IRS, 2007; Jones, 2008), there is no evidence that this adverse consequence related to debt covenant violations was considered by the Financial Accounting Standards Board when adopting FIN 48.

The purpose of our study is to examine the economic impact of FIN 48 in the context of debt covenants. In our three-part analysis, we specifically examine (1) the relation between cumulative effect adjustments (CEAs) at FIN 48 adoption and proximity to the covenant threshold; (2) FIN 48 adoption's effect on cost of debt; and (3) whether the market responds to the likelihood of financial covenant violations increasing upon FIN 48 adoption. The debt covenant hypothesis suggests that managers make accounting choices to avoid violation of any number of accounting-based debt covenants (Dichev & Skinner, 2002). In the context of this study, firms close to debt covenant thresholds have an incentive to make tax accounting choices to keep from falling below debt covenant provisions related to net worth (i.e., by minimizing equity decreases or

booking equity increases). Prior research shows that firms close to debt covenants prior to FIN 48 use tax reserves to avoid technical violations (Dhaliwal, Gleason, & Mills, 2004; Dyreng, 2009; Kim, Li, & Li, 2010) and that tax aggressive firms are rewarded with a lower cost of debt (Lisowsky, Mescall, Novack, & Pittman, 2011). To the extent that firms strategically used tax reserves to stay above debt covenant thresholds pre-FIN 48, they may be under-accrued based on FIN 48 standards and thus, would increase their reserves and reduce equity upon FIN 48 adoption. For those firms close to net worth debt covenants, the negative outcome of increasing tax reserves is both real and costly as this would increase the probability of technical covenant violation and/or debt renegotiation at higher rates. However, De Simone, Robinson, and Stomberg (2014) demonstrate the discretion inherent in firms' disclosure of UTBs, finding wide variation in a small set of firms that were subject to the same transaction; thus, it is an empirical question as to how firms react to the adoption of FIN 48 when they are close to covenant thresholds. Our first set of tests re-examines the distribution of firms' CEAs in the context of their proximity to debt covenant thresholds.

Our results suggest that 68% of sample firms have a negative cumulative equity adjustment, with an average reduction of $10.7 million (0.3% of average total assets).[1] In examining a subsample of firms close to net worth covenant violations, we find that 73% of those firms have a negative equity adjustment, but the average reduction of $7.6 million is smaller than that of the full sample. In multivariate analyses, we find that (1) firms close to debt covenant thresholds are 9% more likely than other firms to have a negative CEA and (2) proximity to debt covenants is positively associated with the magnitude of CEAs. This suggests that, while firms close to technical violation were more likely to reduce equity due to the requirements of FIN 48, they make smaller equity reductions suggesting that these firms were still able to use discretion to limit the impact of this accounting method change.[2]

Because FIN 48 adoption adversely affects equity for the majority of firms in our sample, our second set of tests investigates FIN 48's impact on firms' cost of debt. Our expectation is that firms with negative equity adjustments are more likely to incur an increase in cost of debt as they move closer to debt covenant thresholds because they may need to renegotiate loan agreements or obtain debt covenant waivers. While the accounting changes required by FIN 48 do not change the economic substance of firms' tax positions, FIN 48 may affect perceptions of credit worthiness as the enhanced disclosures provide information about future cash flows (Ciconte, Donohoe, Lisowsky, & Mayberry, 2016) and the level of certainty of tax positions, which is useful to creditors in assessing credit risks.[3] Although prior research suggests that creditors value tax aggressiveness (Lisowsky et al., 2011), the potential of future cash outflows related to tax uncertainties may decrease a firm's perceived credit-worthiness and lead to higher borrowing costs (Shevlin, Urcan, & Vasvari, 2013). Large unrecognized tax benefits may be perceived by the market

as reflective of aggressive tax reporting that may be overturned upon audit. To the extent that creditors view tax aggressiveness as a signal of management's aggressiveness in other areas (Frank, Lynch, & Rego, 2009), especially in the context of weak corporate governance (Cazier et al., 2015; Shevlin et al., 2013), disclosure of large unrecognized tax benefits may lead to higher interest rates or fees. In the full sample, the average cost of debt decreased by 15 basis points during our sample period. In contrast, we observe an average increase of 43 basis points in the cost of debt for the subsample of firms close to a covenant violation that booked a negative CEA.[4] As depicted in Fig. 1, the positive CEA firms close to debt covenant violation had the largest decline in cost of debt. In multivariate analysis, we compare a subsample of firms close to debt covenant violation and find a higher cost of debt for those firms with negative CEAs upon FIN 48 adoption. Combined, these findings demonstrate that firms close to debt covenant violations incur penalties (benefits) for negative (positive)

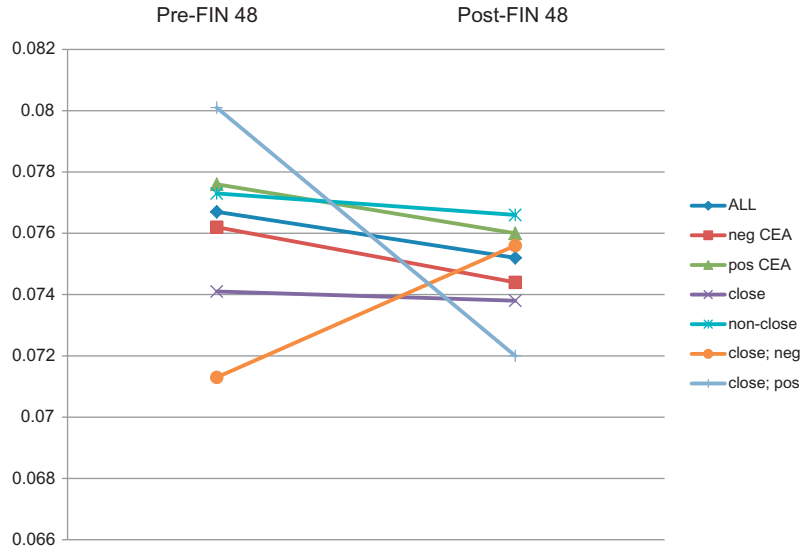

Fig. 1. Change in Cost of Debt. *Notes*: Pre-FIN 48 represents the Cost of Debt calculated in the year leading up to FIN 48 adoption; Post-FIN 48 represents the Cost of Debt calculated in the year of FIN 48 adoption. Neg CEA represents firms with negative CEA at the inception of FIN 48. Pos CEA represents firms with positive CEA at the inception of FIN 48. Close represents firms whose debt covenant slack, measured as (net worth or tangible net worth − covenant restriction)/lag of assets, was less than 10% and greater than or equal to 0%. Non-Close represents firms whose debt covenant slack was greater than 10%. Close; Neg represents firms that are both Close and have a negative CEA. Close; Pos represents firms that are both Close and have a positive CEA. Cost of debt is based on Francis et al. (2005), measured as interest expense over an average of long-term debt and debt in current liabilities.

CEAs in the form of higher (lower) interest costs, suggesting that the adoption of FIN 48 was associated with real economic impact for firms near debt covenant thresholds.

Our final set of tests examines whether the equity markets anticipated any adverse consequences of FIN 48 for firms close to net worth covenants by testing the market response to the FIN 48 exposure draft that released the first details of potential recognition changes. Specifically, our analysis focuses on firms that are more tax aggressive. We use book-tax differences as a proxy for tax aggressiveness, consistent with Frischmann et al. (2008), because at the time of the exposure draft, the market would not have data relating to actual CEAs but would have had information on book-tax differences. We add context to the Frischmann et al. (2008) findings by focusing on both firms' net worth debt covenants and levels of tax aggressiveness, examining whether the market anticipates a negative equity impact upon FIN 48 adoption.[5] Specifically, we assert that in order to have a debt covenant violation at FIN 48 adoption, two conditions must be present: firms must have aggressive tax positions to create reserves, and they must be near enough to covenant thresholds to allow the reserves to create a technical default. Our findings demonstrate that the negative abnormal returns around the release of the exposure draft are amplified when firms are close to net worth debt covenants and have large book-tax differences. These results suggest that the market response to FIN 48 was not uniform, as the market appeared to anticipate which firms would be most impacted by FIN 48.

Our paper makes several contributions to the accounting and finance literature, most specifically to the recent tax literature exploring FIN 48. While a growing body of research examines FIN 48's impact on managers (Blouin et al., 2010), shareholders (Frischmann et al., 2008; Robinson & Schmidt, 2013), and taxing authorities (Blouin et al., 2007; Mills, Robinson, & Sansing, 2010), little academic work has addressed FIN 48's impact on firms' cost of debt. In doing so, our research also responds to the concerns from the professional community and taxpayers about FIN 48's economic costs as addressed by Financial Accounting Foundation's FIN 48 Post-Implementation Review (Blouin & Robinson, 2014; FAF, 2012).[6] We believe that our tests provide a different lens through which to gauge the impact of FIN 48, providing context to prior studies. Specifically, our results suggest that firms' proximity to debt covenant thresholds create different incentives in the reporting of FIN 48 CEAs and managers used discretion according to those incentives; additionally, our market reaction tests suggest that the market anticipated increased cost of debt for firms near debt covenant thresholds expected to have negative equity adjustments, substantiated by our cost of debt analyses, providing an incremental contribution relative to Frischmann et al. (2008). While prior research explores the impact of FIN 48 on equity markets (Goh, Lee, Lim, & Shevlin, 2016; Hutchens & Rego, 2015; Koester, 2011), this is the first study to analyze the

effect of FIN 48 adoption on an important and sizable component of business financing, corporate borrowing.

In addition, we believe that the paper contributes to both Holthausen and Watts' (2001) call for research on lenders' use of financial statement information and Hanlon and Heitzman's (2010) call for research related to the role of bondholders on tax accounting. By exploring the impact of tax accounting on commercial loan agreements upon FIN 48 adoption, we also provide an incremental contribution to the extant research on taxes and debt (for a review, see Hanlon & Heitzman, 2010). Specifically, we provide additional evidence that aggressive accounting choices related to tax reserves (Dyreng, 2009; Erickson, Hanlon, & Maydew, 2004) are not costless to firms near debt covenant thresholds after FIN 48 adoption and our results are in contrast with prior research which finds that tax aggressive firms have a lower cost of debt (Kim et al., 2010; Lisowsky et al., 2011). Our findings that firms near debt covenant limits with higher levels of tax aggressiveness incur higher costs on existing debt complements and advances Hasan, Hoi, Wu, and Zhang (2014) and Shevlin et al. (2013) which find that firms with higher levels of tax aggressiveness incur higher loan spreads and bond yields, respectively, at issuance.The paper proceeds as follows. The second section provides a brief discussion of FIN 48 and corporate debt policy and develops our expectations regarding the stock and credit market responses to FIN 48 adoption for corporate debtors. The third section describes the data and presents the empirical model. The fourth section summarizes the empirical results and the fifth section concludes.

BACKGROUND

FIN 48

Beginning in the first quarter of 2007, firms were required under FIN 48 to disclose uncertain tax benefits (UTBs) – tax benefit positions that upon challenge by the taxing authorities may not be upheld – under a more uniform framework. FIN 48 requires firms to evaluate each tax position taken and disclose, in the aggregate, UTB amounts in their financial statements. Given the complexity and size of the tax code, most firms have some uncertain tax benefits (Seigel & Associates, 2008). In addition, firms must disclose the portion of their UTB that would impact their effective tax rate if the financial statement benefits of the tax positions were recognized in the future.

FIN 48 is an interpretation of Financial Accounting Standard No. 109 (FAS 109, now codified as ASC 740), which provides guidance on reporting the "effects of income taxes that results from an enterprise's activities during the current and preceding years" (Financial Accounting Standards Board (FASB), 1992). However, FAS 109 prior to FIN 48 did not detail precise disclosure

requirements on tax matters and gave firms significant discretion in booking tax accruals (Blouin et al., 2010). Specifically, firms were allowed to analyze and report tax positions in the aggregate, rather than on an individual tax position basis; additionally, firms could choose the threshold for which reserves would be recognized. With FIN 48, standard setters codified a "more likely than not" threshold for tax reserve recognition and required recognition and measurement for each tax position. Further, firms must determine whether a tax position is "more likely than not" to be sustained upon examination based on its technical merits, assuming that the taxing authority audits the company's books and has all relevant information. If this standard is met, the company must then measure the amount of the benefit that should be recognized on its financial statements. This amount is measured as the largest benefit that has a greater than 50% likelihood of being realized upon settlement. If the uncertain tax position fails the "more likely than not" test, the firm must establish a tax reserve for the entire amount, recognizing no economic benefit for the tax position in their financial statements.

Prior to FIN 48, managers had discretion in estimating tax reserves in terms of methods used and recognition thresholds under ASC 450-20 (formerly FAS 5, *Accounting for Contingencies*). Three methods were commonly used, but all estimated risk in pools, rather than on a position-by-position basis. The first approach allowed firms to recognize tax benefits when realized (e.g., use of NOL to offset current income). The second approach allowed firms to establish tax reserves for estimated loss of tax return benefits. Finally, firms could recognize benefits once the likelihood of receiving the benefits meets a predetermined threshold. These thresholds included *realistic possibility* (around 30% likelihood of prevailing upon litigation), *more-likely-than-not* (greater than 50% likelihood of prevailing upon litigation and codified as the FIN 48 threshold), and *should* (around 70% likelihood of prevailing upon litigation).

While the accounting treatment is more standardized in the FIN 48 era, there are still significant levels of estimation and discretion inherent in the reserve calculation, leaving room for potential management of the reserve. For example, firms get to determine whether the tax position is indeed uncertain, the amount that is deemed uncertain, and the percentage of likelihood of being sustained based on a hypothetical audit. As cases in point, professional guidance includes explanations for how to account for changes in judgment (Deloitte, 2011), regulators acknowledge the increased discretion available when the probabilistic assessment is less than 50% (SEC, 2007, para. 4),[7] and recent research shows that firms continue to use available discretion in establishing tax reserves (Cazier et al., 2015). In the context of our study, managers have two different incentives for using discretion with respect to their CEAs: (1) they could attempt to minimize (maximize) equity-decreasing (increasing) adjustments to avoid debt covenant violation, which we consider to be managing the balance sheet; or (2) given that CEAs impact only equity and all subsequent reversals go through the income statement, managers could over-reserve

at the onset of FIN 48, preferring future earnings management to current balance sheet management, which we consider creating "cookie jar" reserves. The extent to which one incentive trumps the other is an empirical question. However, we expect that firms near debt covenant thresholds to prefer the immediate benefit of balance sheet management to any future benefits associated with creating future "cookie jar" benefits.

Debt Covenants

Lenders consider many factors in establishing borrowing terms. Recent research demonstrates that credit analysts consider tax information in assigning credit ratings (Ayers, LaPlante, & McGuire, 2010) and firms using tax planning strategies have lower borrowing costs pre-FIN 48 (Lisowsky et al., 2011). More recently, Shevlin et al. (2013) find that before the inception of FIN 48, firms with higher levels of tax aggressiveness incur higher public debt costs and are less likely to have insurance companies purchase their corporate bonds, suggesting that the findings of Kim et al. (2010) and Lisowsky et al. (2011) do not extend to public bond issuances. Hasan et al. (2014) examine loan spreads at inception, finding that firms with greater corporate tax aggressiveness have increased borrowing costs. While their sample extends into the FIN 48 period, their focus does not relate to the changes associated with FIN 48, rather on whether their initial findings hold following the adoption of FIN 48. Our study provides context for these studies and gives us greater understanding as to the effects of FIN 48 by considering the importance of relative proximity to debt covenant thresholds on firms' cost of debt, as well as examining firms' reporting choices.

Lenders, concerned with default risk, respond with increased monitoring and covenants to restrict management actions (Jenson & Meckling, 1976; Sufi, 2007). Covenants are viewed as nooses (Roberts & Sufi, 2009b) or tripwires (Triantis & Daniels, 1995) that permit lenders to reassess a borrower's credit risk. Covenants may prohibit managers from issuing debt or paying dividends; alternatively, they may be based upon financial conditions related to firm net worth, working capital, debt to equity, interest coverage, and (trailing) cashflow (Garleanu & Zweibel, 2009).[8]

There is, on average, only one standard deviation between the covenant threshold and the financial measure in question for borrowers at loan inception (Chava & Roberts, 2008). Accordingly, covenant violations are not uncommon (Dichev & Skinner, 2002; Roberts & Sufi, 2009a). While prior literature has taken different stances on the relative cost of violation based on whether the firm can simply obtain a waiver from the lender or if renegotiation is required,[9] managers have incentives to manage earnings to meet or exceed covenant thresholds (Nini, Smith, & Sufi, 2009; Watts & Zimmerman, 1986). Kim et al. (2010)

provide detailed evidence suggesting that taxes reflect one of the measures used to prevent debt covenant violations. They find that when firms have greater tax aggressiveness, they have lower loan spreads and fewer debt covenant restrictions; additionally, these firms are found to be less likely to violate covenant restrictions. This earnings management is not cost-free as Dyreng (2009) finds that firms managing earnings to avoid violating covenants incur increased income tax expenses. Shevlin et al. (2013) find that firms with higher corporate tax aggressiveness incur higher public debt costs.

Because of the equity impacts arising from FIN 48 adoption as discussed above, we investigate both net worth and tangible net worth covenants. While there are a number of other covenants used by lenders (i.e., EBITDA, current and working capital ratios, debt to cash ratios, and debt to equity ratios),[10] net worth and tangible net worth covenants are specifically impacted by CEAs and are easily measured. We focus on the initial changes to firms' UTBs and related changes in equity inherent in the cumulative effect adjustment (CEA) at the time FIN 48 is adopted. Examining the initial equity impact of FIN 48 through the CEA, as opposed to the year-to-year changes in UTBs, allows us to examine the impact of FIN 48 on firms with net worth debt covenants and the additional debt costs associated with tightening the slack on debt covenants.

We first examine whether proximity to the debt covenant restriction impacts the likelihood a firm will reduce equity at FIN 48 adoption. Under the debt covenant hypothesis, managers make accounting choices to reduce the likelihood that their firms will violate financial-based debt covenants because of the costs associated with these violations, including but not limited to increased interest rates and additional debt covenants (Dichev & Skinner, 2002).[11] Kim et al. (2010) provide evidence pre-FIN 48 suggesting that taxes reflect one of the measures used to prevent debt covenant violations, finding that when firms had greater tax aggressiveness, they are less likely to violate covenant restrictions and have both lower loan spreads and fewer debt restrictions. Under this theory, firms have already chosen aggressive financial reporting for uncertain tax positions to maintain slack in their debt covenants *prior* to FIN 48, and they, therefore, may not have as much discretion available to avoid a decrease in reserves or may have to reserve for prior aggressive positions. We predict that firms close to debt covenants will be more likely to make a CEA at the enactment of FIN 48.

FIN 48 and Debt

FIN 48 recognition and disclosure provisions potentially affect a firm's relationship with its creditors in several ways. First, the implementation of FIN 48 required increased tax accruals with a corresponding CEA for firms with insufficient tax reserves as of the adoption date. Negative CEAs necessarily affect a

firm's ability to meet financial covenants requiring minimum net worth or tangible net worth. Thus, the act of decreasing equity upon FIN 48 adoption reduces debt covenant slack, increasing these firms' likelihood of violating covenants, which generally increases debt costs. Prior research demonstrates that lenders include financial covenants in contracts to monitor performance and that the cost of covenant violation is significant (Beneish & Press, 1993; Chava & Roberts, 2008; Chen & Wei, 1993). Theory suggests and empirical research provides evidence that firms engage in earnings management to avoid debt covenant violations (Dichev & Skinner, 2002; Kim et al., 2010; Kim, 2009; Watts & Zimmerman, 1986; Zhang, 2008), including through the tax reserves prior to FIN 48 (Dhaliwal et al., 2004). FIN 48 imposes strict guidelines for recognizing uncertain tax positions and the majority of firms in the sample reduce equity upon FIN 48 adoption. Thus, the new recognition requirements under FIN 48 may unwind prior tax planning through tax accruals and also affect the firms' prospective ability to meet debt covenant thresholds through tax accruals.

Second, FIN 48 may also affect perceptions of credit worthiness as the enhanced disclosures provide information about future cash flows and the level of certainty of tax positions, which is useful to creditors in assessing credit risks. Although prior research suggests that creditors value tax aggressiveness (Lisowsky et al., 2011), the potential of future cash outflows related to tax uncertainties may decrease a firm's perceived credit-worthiness and lead to higher borrowing costs (Shevlin et al., 2013). Large unrecognized tax benefits may be perceived by the market as reflective of aggressive tax reporting that may be overturned upon audit. To the extent that creditors view tax aggressiveness as a signal of management's aggressiveness in other areas (Frank et al., 2009), especially in the context of weak corporate governance (Cazier et al., 2015; Shevlin et al., 2013), disclosure of large unrecognized tax benefits may lead to higher interest rates or fees. Finally, creditors have been shown to use any change as an opportunity to squeeze existing debtors (Roberts & Sufi, 2009b), and enhanced recognition and disclosures under FIN 48 could provide such an opportunity.

At FIN 48 adoption, the CEA would adversely impact the balance sheet and may lead to technical default or a higher cost of debt when new debt is issued. Prior research suggests that lenders reward tax aggressive firms as evidenced by lower interest rates (Kim et al., 2010; Lisowsky et al., 2011). To the extent that firms have been aggressive in the past, they are more likely to have negative equity adjustments at FIN 48 adoption. We predict an increased cost of debt after the adoption of FIN 48 for tax aggressive firms due to CEAs that would decrease equity and thereby weaken their balance sheet. Further, we predict a larger effect for tax aggressive firms with less slack in the net worth debt covenants as the CEA increases the likelihood the firm will experience a technical default after FIN 48 or be forced to renegotiate terms of their debt to maintain financial flexibility.

Market Response

We next examine the stock market reaction to the FIN 48 exposure draft release as it relates to corporate debt. Frischmann et al. (2008) find a negative market-adjusted return (*CAR*) for the broader market on the FIN 48 exposure draft release date[12] and also find that for more tax aggressive firms (those with larger book-tax differences), the returns are more negative. The authors suggest this is because firms with more tax aggressive positions would have a larger tax burden upon FIN 48 adoption, lowering the value of the firm. We add context to these findings by showing the market reaction was more nuanced as it incorporates a level of tax aggressiveness and as well as FIN 48's impact on debt covenants. To trigger a debt covenant violation at FIN 48 adoption, two conditions must be present: firms must have aggressive tax positions to create reserves, and they must be near enough to covenant thresholds to allow the reserves to create a technical default. We predict that when the market is assessing tax aggressive firms at FIN 48 adoption, those firms close to debt covenant violation will have a more negative response than those firms further from debt covenant violation.

SAMPLE SELECTION AND RESEARCH DESIGN

Data and Sample Selection

Dealscan provides a comprehensive list of each loan agreement and accompanying debt covenants. For each loan, Dealscan provides various debt covenant requirements stipulated in the loan agreement. Firms often have multiple loan agreements, so we consolidate the debt restrictions to create a single observation for each firm that has data in Dealscan.[13] For the change in cost of debt analysis, we begin with a sample of loan agreements completed between January 1, 2001 and December 31, 2006, in an attempt to gather all loan agreements in place at the inception of FIN 48.[14] For the market reaction tests, we use loans through July 13, 2005, the FIN 48 exposure draft release date. Audit Analytics provides FIN 48 adoption data. Compustat provides financial data and CRSP provides stock price data.

Because of sample size limitations associated with the use of Dealscan data, we utilize three separate samples for our three tests to maximize the sample size in each test. We begin with 2,233 observations with data available in both Dealscan and Compustat.[15] We then eliminate 1,075 firms missing CEA data from Audit Analytics and 104 firms in the financial institution sector. We further reduce the sample by eliminating observations with year-ends other than December to control for macroeconomic events that may affect cost of debt.[16] The control variables differ in the models used to test change in equity and cost of debt. We eliminate 197 (135) observations with missing Compustat data for

Table 1. Sample Attrition.

Panel A: Sample Reconciliation – Change in Equity Analysis	
Firm observations with Dealscan and Compustat coverage	2,233
Less:	
Firms missing information on changes in equity from Audit Analytics	(1,075)
Banks & Other Financial Institutions (SIC 6000-6999)	(104)
Missing Other Control Variables	(197)
Sample for Cost of Debt Analysis	857
Panel B: Sample Reconciliation – Change in Cost of Debt Analysis	
Firm observations with Dealscan and Compustat coverage	2,233
Less:	
Firms missing information on changes in equity from Audit Analytics	(1,075)
Banks & Other Financial Institutions (SIC 6000-6999)	(104)
Firms with Year-Ends Other than December	(382)
Missing Other Control Variables	(135)
Sample for Cost of Debt Analysis	537
Panel C: Sample Reconciliation – Market Reaction to Exposure Draft	
Firm observations with Dealscan and Compustat coverage	2,233
Less:	
Firms missing market data from CRSP	(404)
Banks & Other Financial Institutions (SIC 6000-6999)	(266)
Other Missing Control Variables	(352)
Sample for Multivariate Analysis	1,211

the change in equity (cost of debt) tests. The samples total 857 (537) firm observations for the change in equity (cost of debt) tests. Panels A and B of Table 1 detail sample attrition.

For the tests on the market response to the FIN 48 exposure draft, we begin with 2,233 firm observations with Dealscan and Compustat data, eliminating 404 observations missing data from the CRSP database. We exclude 266 banking and financial institution observations and 352 observations with missing data to arrive at a final sample of 1,211 firm observations.

Research Design

Changes in Equity

To examine changes in equity on firms close to debt covenants, we use the following model:

$$CEA_{t,i} = \alpha_{t,i} + \alpha_1 CLOSE_{t-1,i} + \alpha_2 BTD_{t-1,i} + \alpha_3 LEV_{t-1,i} + \alpha_4 ROA3YR_{t-1,i} + \alpha_5 GROWTH_{t-1,i} + \alpha_6 BKMV_{t-1,i} + \alpha_7 FOR\_INC_{t-1,i} + \alpha_8 DACC_{t-1,i} + \alpha_9 LNASSETS_{t-1,i} + \alpha_{10} SGA_{t-1,i} + \varepsilon_{i,t}$$

To test our expectation that that firm close to debt covenant violation is more likely to reduce equity upon FIN 48 implementation, we estimate a logit model with a categorical dependent variable (*NEG_CEA*) equal to one where CEA is negative, and zero otherwise. In follow-up tests to examine whether negative equity adjustments are smaller for those firms closer to debt covenant thresholds, we estimate an OLS model with a continuous dependent variable (*CEA_AT*), scaling the CEA by lagged total assets.

Our primary independent measure for our change in equity models is *CLOSE*. *CLOSE* is equal to one if the debt covenant slack scaled by total assets is less than 10%, zero otherwise. We calculate slack as book equity reported in Compustat reduced by the net worth covenant restriction amount in Dealscan, scaled by total assets. The 10% cut-off is based on the original terms of the agreement.[17] However, the terms of net worth covenants often are progressive in nature, requiring net worth "build-up" in subsequent years of the agreement (Dichev & Skinner, 2002). Therefore, actual slack may be much smaller than the calculated slack.[18] This is consistent with prior research, as Kim, Lisic, and Pevzner (2010) also use a 10% cutoff to indicate firms that may be close to debt covenant violation. As Dichev and Skinner (2002) point out, firms close to debt covenant violations are not necessarily under financial duress. Our sample yields 127 firms that are calculated as close to covenant thresholds (*CLOSE*), 86% of which had positive pretax income over the previous three years and 59% of which paid a dividend in the prior year per Compustat.

We include a measure of book-tax differences (*BTD*) because firms with large book-tax difference are more likely to under-accrue tax reserves and *BTD* captures prior tax and financial reporting aggressiveness (Hanlon & Heitzman, 2010). We begin by defining *BTD* as book income less tax income (the sum of federal and foreign current tax expense grossed up by the U.S. statutory tax rate of 35%) and scaled by total assets.

We include leverage (*LEV*) because highly leveraged firms may have an incentive to under-accrue tax reserves prior to FIN 48 to make their reported balance sheet stronger. We control for profitability because firms have increasing incentives to engage in tax planning as profits rise. Our control variable for profitability, *ROA_3YR*, is a three-year window to match the statute of limitations on open tax years under IRS audit.[19] Two measures control for growth: the book to market ratio (*BK_MV*) and revenue growth (*GROWTH*). We expect high growth firms to have under-reserved prior to FIN 48 as tax complexity escalates with firm expansion into new jurisdictions and new lines of business and thus, will make negative adjustments after implementing FIN 48's rigorous tax accrual analysis standards.

We also include the percentage of pretax income from foreign operations (*FOR INC*) to control for international tax complexity and tax planning opportunities. We also predict that discretionary accruals (*DACC*) will indicate that a firm is under-accruing its tax reserves. We include non-signed variables, which include indicator variables for the presence of research and development costs (*R&D*) and industry membership and controls for size (*LNASSETS*) and selling and general expenses scaled by total assets (*SGA*).[20] Table 2 presents the variable definitions.

Cost of Debt

We examine whether changes in a firm's equity account upon FIN 48's enactment are associated with the current cost of debt using the following model:

$$\begin{aligned} COD_{t,i} = {} & \alpha_{t,i} + \alpha_1 NEG\_CEA_{t-1,i} + \alpha_2 CLOSE_{t-1,i} \\ & + \alpha_3 CLOSE{*}NEG\_CEA_{t-1,i} + \alpha_4 CODt_{t-1,i} \\ & + \alpha_5 \Delta LEV_{t,i} + \alpha_6 ROA_{t,i} + \alpha_7 GROWTH_{t,i} \\ & + \alpha_8 BK\_MV_{t,i} + \alpha_9 DACC_{t-1,i} + \alpha_{10} LNASSETS_{t,i} \\ & + \alpha_{11} SGA_{t,i} + \alpha_{12} industrycontrols_{t,i} + \varepsilon_{i,t} \end{aligned}$$

We estimate the model with two alternative dependent variables to capture (1) the likelihood of a firm having an increase in cost of debt[21] and (2) the magnitude of the post-FIN 48 change in cost of debt.[22] To assess the likelihood of increased cost of debt, we expand upon the original model, using a binary dependent variable to indicate whether or not a firm has an increase in cost of debt (*INCREASE_COD*) in the year of FIN 48 implementation due to the weakening of their balance sheets. Following the Francis, Reichelt, and Wang (2005) model, the second dependent measure is the level of cost of debt (*COD*), defined as interest expense in the year of implementation divided by average long-term debt (the sum of both the long term and current portion of long-term debt).[23] We identify firms with a negative CEA using an indicator variable, *NEG_CEA*. We test the impact of proximity to debt covenants with *CLOSE*. We interact *NEG_CEA* and *CLOSE* to assess whether firms that reduce equity are more likely to incur higher interest rates when they are close to the debt covenant threshold. Because a higher debt-to-equity ratio may give rise to an increased cost of debt, we control for the change in leverage (ΔLEV). We include a control for current year profitability (*ROA*), as firms with better financial performance have lower cost of debt, all else equal. We include two proxies for firm growth: book-to-market ratio (*BK_MV*) and revenue growth (*GROWTH*), as firm expansion is frequently funded with investments paid for with debt. We also control for prior year discretionary accruals (*DACC*), which control for other prior year's earnings management. We also control for the company's size (*LNASSETS*), along with industry controls.

Table 2. Variable Definitions.

Key Dependent Variables	
CEA_AT	Change in firms equity when implementing FIN 48 divided by the lag of assets before implementing FIN 48
NEG_CEA	Dummy variable indicating that the firm decreased equity as part of the initial implementation of FIN 48
Cost of Debt	Based on Francis et al. (2005) measured as interest expense over average of long-term debt and debt in current liabilities = xint/((dltt + dlc + l.dltt + l.dlc)/2)
CAR	Three-day market adjusted return for the firm on the date the exposure draft was issued
Covenants	
CLOSE	The firm's debt covenant slack, measured as (net worth or tangible net worth − covenant restriction)/lag of assets, was less than 10% and greater than or equal to 0%
NW COV	Dummy variable to indicate the firm was subject to a net worth or tangible net worth covenant originating between January 1, 2001 and date of exposure draft or FIN 48 implementation per Dealscan
DE COV	Dummy variable to indicate the firm was subject to debt to equity, debt to capitalization, or debt to net worth covenant originating between January 1, 2001 and date of exposure draft or FIN 48 implementation per Dealscan
DO COV	Dummy variable to indicate the firm was subject to debt to cash, senior debt to cash or maximum loan to value between January 1, 2001 and date of exposure draft or FIN 48 implementation per Dealscan
EBITDA COV	Dummy variable to indicate the firm was subject to an EBITDA to interest, EBITDA to interest + Principle or EBITDA to Interest + Lease Payment covenant originating between January 1, 2001 and date of exposure draft or FIN 48 implementation per Dealscan
CR COV	Dummy variable to indicate the firm was subject to current ratio covenant originating between January 1, 2001 and date of exposure draft or FIN 48 implementation per Dealscan
NUM COV	The number of debt covenants that the firm was subject to between January 1, 2001 and date of exposure draft or FIN 48 implementation per Dealscan
Other Controls	
BTD	Book to tax difference measured as pre-tax income less federal and foreign current tax expense divided by the U.S. statutory rate scaled by assets
HIGHBTD	Dummy variable indicating *BTD* over industry median
DACC	Signed abnormal accruals using the Jones model
LEV	Long-term debt/(long-term debt + equity)
ROA	Pre-tax income/lag of total assets
ROA_3YR	Three year average pre-tax income/three year average total assets
LNASSETS	Log of total assets + 1
BK_MV	Book value/market value
GROWTH	Three year revenue growth measured as $(REV_t - REV_{t-2})/REV_{t-2}$
FOR_INC	Foreign pre-tax income/total pre-tax income; foreign pre-tax income == 0 if foreign pre-tax income <= 0
R&D	Dummy variable to indicate firm has R&D expense
UTB	Unrecognized tax benefit per Compustat
SGA	Sales and general administrative expenses scaled by total assets

Market Response

We next examine the market reaction to the FIN 48 exposure draft for tax aggressive firms near debt covenant restrictions. The following model is used:

$$\begin{aligned} CAR_{t,i} &= \alpha_i + \alpha_1 NWCOV_{t,i} + \alpha_2 HIGHBTD_{t-1,i} + \alpha_3 CLOSE_{t,i} \\ &+ \alpha_4 HIGHBTD * CLOSE_{t,i} + \alpha_5 LEV\ LEV_{t-1,i} + \alpha_6 LNASSETS_{t-1,i} \\ &+ \alpha_7 BK\_MV_{t-1.i} + \alpha_8 GROWTH_{t-1,i} + \alpha_8 SGA_{t-1,i} \\ &+ covenantdummies + industrycontrols + \varepsilon_{i,t} \end{aligned}$$

Building on Frischmann et al. (2008), which documents the negative market reaction to the FIN 48 exposure draft for tax aggressive firms, we estimate the market's reaction to the issuance of the FIN 48 exposure draft using cumulative abnormal returns for a three-day window (−1,+1) around the exposure draft issuance date, controlling for book-to-tax differences. Because we predict a more negative market reaction for firms near debt covenant restrictions with large book-tax differences, our focus is on the interaction between *HIGHBTD* and *CLOSE*. A negative coefficient for the interaction term shows that the market shared practitioners' concerns that tax aggressive firms that are close to violating a net worth covenant will be more affected by FIN 48 adoption.

The first term in the interaction variable is *CLOSE*, as defined above. The second term in the interaction variable is *HIGHBTD*, a measure of book-tax differences. Because firms with large book-tax difference are more likely to under-accrue tax reserves, *HIGHBTD* captures prior tax and financial reporting aggressiveness (Hanlon & Heitzman, 2010). We begin by defining *BTD* as book income less tax income (the sum of federal and foreign current tax expense grossed up by the U.S. statutory tax rate of 35%) and scaled by total assets. We then define *HIGHBTD* as a categorical variable for firms with book-to-tax differences that are greater than industry *BTD* average.

We include an indicator variable (*NWCOV*) equal to one if the firm is subject to a net worth or tangible net worth covenant, zero otherwise. The remaining controls are derived from prior research (Cazier et al., 2015; Song & Tucker, 2008). We include leverage (*LEV*) because highly leveraged firms may have an incentive to under-accrue tax reserves prior to FIN 48 to make their reported balance sheet stronger (Blouin et al., 2010) and these firms may be more adversely affected upon FIN 48 implementation. Two measures control for growth: the book to market ratio (*BK_MV*) and revenue growth (*GROWTH*). We expect high growth firms to have under-reserved prior to FIN 48 as tax complexity escalates with firm expansion into new jurisdictions and new lines of business and thus, will make negative adjustments after implementing FIN 48's rigorous tax accrual analysis standards.

Other controls do not have signed predictions. These include an indicator variable for selling and general expenses scaled by total assets (*SGA*), size

(*LNASSETS*), and industry membership. We include indicator variables for other restrictive covenants.

RESULTS

Descriptive Statistics and Univariate Results

We present descriptive statistics for the change in equity analysis sample in Table 3, Panel A for the entire sample and for subsamples of (1) firms close to debt covenant violation, (2) negative CEAs upon FIN 48 adoption, and (3) both close to covenant violation with a negative CEA. In our change in equity analysis, we find that 127 of the 857 firms are close to net worth covenants (CLOSE). In the full sample, 68.5% (587 out of 857) of firms have negative CEAs compared to 73.2% (93 out of 127) of the firms close to their debt covenant ($n = 127$); the difference is marginally significant ($p = 0.107$).[24] Meanwhile, 79.3% of firms that were close to debt covenants had negative CEA. On average, firms reduce their equity by 0.33% of assets (median of 0.16% of assets) while firms close to a debt covenant have a significantly smaller reduction of only 0.22% of assets, on average (median of 0.10% of assets). We observe statistically significant differences between the full sample and the firms close to debt covenants for both the mean ($p = 0.02$) and the median ($p = 0.05$). Thus, we find evidence that firms close to debt covenants are more likely to reduce equity when implementing FIN 48, but the size of the adjustments is smaller, consistent with earnings management incentives.

Arguably, these differences may arise from firms' incentives for, and past engagement in tax planning. To ensure that our above results are not simply a function of different levels of past tax planning between firms close to or far from debt covenant thresholds, we compare these groups based on factors found in prior research to be associated with tax planning: book-tax differences (for a review, see Hanlon & Heitzman, 2010) and UTB (Lisowsky, 2010). In untabulated *t*-tests, we observe that *CLOSE* firms are similar to the full sample; specifically, the BTD means for the *CLOSE* sample (mean = 0.0064) and the full sample (mean = 0.0066) are not statistically different ($p = 0.4962$). Further, the mean values for beginning UTB scaled by assets for *CLOSE* (mean = 0.01397) and the full sample (mean = 0.01532) are not statistically significant ($p = 0.5631$). In addition, because profitability creates incentives to reduce tax costs through tax planning, we also compare these groups on profitability, finding that nearly 86% of *CLOSE* firms show positive profit over the previous three years, similar to the full sample of 88%. Finally, both *CLOSE* firms' pretax ROA (mean = 0.0566) and that of the full sample (mean = 0.0779) were positive. In sum, we find no evidence that *CLOSE* firms engaged in more or less tax planning than the full sample or that *CLOSE* firms had less incentive

Table 3. Descriptive Statistics.

Panel A: Change in Equity Analysis

	Full Sample				Negative CEA			
	Obs.	Mean	Median	Std. Dev.	Obs.	Mean	Median	Std. Dev.
CEA (in millions)	857	(0.4762)	(0.5990)	66.9000	587	(10.7000)	(2.0000)	34.9000
CEA_AT	857	(0.0016)	(0.0006)	(0.0605)	587	(0.0033)	(0.0016)	0.0057
$CLOSE_{t-1}$	857	0.1482	0.0000	0.3555	587	0.1584	0.0000	0.3655
$NUM\ COV_{t-1}$	857	2.5356	3.0000	1.5570	587	2.5315	3.0000	1.5066
Assets_{t-1} (in millions)	857	6,848	1,277	30,331	587	6,044	1,226	31,995
ROA_3YR_{t-1}	857	0.0779	0.0752	0.0898	587	0.0861	0.0812	0.0815
LEV_{t-1}	857	0.3237	0.2863	0.3542	587	0.3077	0.2849	0.2772
$GROWTH_{t-1}$	857	1.3332	1.2257	0.4517	587	1.3470	1.2368	0.4364
BK_MV_{t-1}	857	0.8584	0.6821	0.6964	587	0.8428	0.6622	0.6715
BTD_{t-1}	857	0.0064	0.0123	0.0712	587	0.0082	0.0121	0.0609
$R\&D_{t-1}$	857	0.4889	0.0000	0.5002	587	0.4685	0.0000	0.4994
FOR_INC_{t-1}	857	0.2346	0.0227	0.5166	587	0.2346	0.0332	0.5291
$DACC_{t-1}$	857	(0.0158)	(0.0009)	0.2119	587	(0.0082)	(0.0004)	0.2057
SGA_{t-1}	857	0.2949	0.2428	0.2312	587	0.3019	0.2485	0.2301
	Close to Net Worth Covenants				Close with Negative CEA			
	Obs.	Mean	Median	Std. Dev.	Obs.	Mean	Median	Std. Dev.
CEA (in millions)	127	(3.1313)	(0.9030)	2.0400	93	(7.6084)	(2.5750)	16.4000
CEA_AT	127	(0.0009)	(0.0007)	0.0050	93	(0.0022)	(0.0010)	0.0032
$CLOSE_{t-1}$	127	1.0000	1.0000	0.0000	93	1.0000	1.0000	0.0000
$NUM\ COV_{t-1}$	127	3.0866	3.0000	1.5636	93	2.9247	3.0000	1.5268
Assets_{t-1} (in millions)	127	9,970	1,749	62,094	93	11,867	1,835	72,317
ROA_3YR_{t-1}	127	0.0566	0.0523	0.0563	93	0.0650	0.0586	0.0577
LEV_{t-1}	127	0.4257	0.4068	0.2336	93	0.4141	0.3952	0.2313
$GROWTH_{t-1}$	127	1.2766	1.1850	0.3714	93	1.2363	1.1730	0.2977
BK_MV_{t-1}	127	0.9655	0.8252	0.6733	93	0.9779	0.7667	0.7530

BTD_{t-1}	127	0.0066	0.0062	0.0525	93	0.0073	0.0080	0.0535
$R\&D_{t-1}$	127	0.5433	1.0000	0.5001	93	0.5484	1.0000	0.5004
FOR_INC_{t-1}	127	0.2631	0.0597	0.6064	93	0.2281	0.0958	0.5825
$DACC_{t-1}$	127	(0.0231)	(0.0172)	0.2114	93	(0.0354)	(0.0188)	0.1915
SGA_{t-1}	127	0.2415	0.1893	0.1900	93	0.2532	0.2233	0.1966

Panel B: Cost of Debt Analysis

	Full Sample				Negative CEA			
	Obs.	Mean	Median	Std. Dev.	Obs.	Mean	Median	Std. Dev.
COD_t	537	0.0752	0.0698	0.0379	349	0.0744	0.0690	0.0353
ΔCOD_t	537	(0.0015)	(0.0015)	0.0444	349	(0.0018)	(0.0004)	0.0416
$INCREASE\_COD$	537	0.4842	0.0000	0.5002	349	0.4699	0.0000	0.4998
CEA_AT_t	537	(0.0013)	(0.0004)	0.0050	349	(0.0029)	(0.0012)	0.0050
Assets$_t$ (in millions)	537	9,964	2,036	42,149	349	9,148	1,988	47,052
Liabilities (in millions)	537	6,549	1,257	33,459	349	6,052	1,295	37,705
Long-term debt (in millions)	537	2,518	487	14,992	349	2,516	505	17,538
$CLOSE_t$	537	0.1788	0.0000	0.3835	349	0.1862	0.0000	0.3899
ROA_t	537	0.0425	0.0515	0.0956	349	0.0433	0.0536	0.0975
ΔLEV_t	537	(0.0275)	(0.0063)	0.5345	349	(0.0153)	(0.0070)	0.4368
$GROWTH_t$	537	1.3199	1.2245	0.4725	349	1.3228	1.2420	0.4320
BK_MV_t	537	1.0600	0.8037	1.1402	349	0.9994	0.7999	0.9604
$DACC_t$	537	(0.0294)	0.0037	0.2548	349	(0.0131)	0.0081	0.2028
SGA_t	537	0.2234	0.1719	0.1942	349	0.2265	0.1771	0.1853
	Close				Close with Negative CEA			
	Obs.	Mean	Median	Std. Dev.	Obs.	Mean	Median	Std. Dev.
COD_t	96	0.0738	0.0717	0.0268	65	0.0756	0.0724	0.0253
ΔCOD_t	96	(0.0003)	0.0000	0.0318	65	0.0043	0.0022	0.0225
$INCREASE\_COD$	96	0.5104	1.0000	0.5022	65	0.5623	1.0000	0.4990
CEA_AT_t	96	(0.0015)	(0.0006)	0.0051	65	(0.0031)	(1.0941)	0.0049
Assets$_t$ (in millions)	96	13,866	2,458	81,321	65	17,703	2,578	98,526

Table 3. (*Continued*)

	Close				Close with Negative CEA			
	Obs.	Mean	Median	Std. Dev.	Obs.	Mean	Median	Std. Dev.
Liabilities (in millions)	96	10,948	1,457	68,671	65	14,052	1,623	83,231
Long-term debt (in millions)	96	4,773	506	32,533	65	6,258	521	39,480
ROA_t	96	0.0474	0.0463	0.0540	65	0.0511	0.0484	0.0520
ΔLEV_t	96	(0.0186)	(0.0172)	0.1320	65	(0.0289)	(0.0160)	0.1415
$GROWTH_t$	96	1.3068	1.2086	0.4398	65	1.2859	1.2073	0.4417
BK_MV_t	96	1.0519	0.8116	0.7788	65	1.0827	0.8738	0.8500
$DACC_t$	96	(0.0249)	0.0016	0.1917	65	(0.0208)	0.0048	0.1969
SGA_t	96	0.1906	0.1467	0.1357	65	0.2070	0.1811	0.1410

Panel C: Market Reaction Analysis

	Full Sample				With Net Worth Covenants			
	Obs.	Mean	Median	Std. Dev.	Obs.	Mean	Median	Std. Dev.
CAR (on date of exposure)	1211	(0.0058)	(0.0054)	0.0330	551	(0.0077)	(0.0079)	0.3305
Assets (in millions)	1211	4,451	727	24,842	551	2,138	512	7,055
NW COV	1211	0.4550	0.0000	0.4982	551	1.0000	1.0000	0.0000
EBITDA COV	1211	0.6780	1.0000	0.4675	551	0.7623	1.0000	0.4261
CR COV	1211	0.0958	0.0000	0.2944	551	0.1564	0.0000	0.3582
DE COV	1211	0.2700	0.0000	0.4442	551	0.3321	0.0000	0.4714
DO COV	1211	0.5599	1.0000	0.4966	551	0.6515	1.0000	0.4769
LEV_{t-1}	1211	0.3071	0.2822	0.2598	551	0.2642	0.0000	0.2361
$GROWTH_{t-1}$	1211	1.3713	1.2428	0.5458	551	1.3785	1.2605	0.5557
BK_MV_{t-1}	1211	0.8691	0.6894	0.7496	551	0.9066	0.7332	0.8524
BTD_{t-1}	1211	0.0111	0.0199	0.0724	551	0.0111	0.0198	0.0712
SGA_At_{t-1}	1211	0.3021	0.2424	0.2427	551	0.3074	0.2445	0.2435

to do so.Table 3, Panel B presents descriptive statistics for the cost of debt analysis. In our full sample, 48.4% of firms have an increase in cost of debt in the FIN 48 adoption year, while a significantly higher 56.2% of firms who have negative CEAs and who are close to debt covenants have an increase in cost of debt. The cost of debt for the full sample decreases, on average, by 15 basis points (median of 15 basis points). The differences in the change in cost of debt are more evident when the comparison is restricted to firms close to debt covenants. In untabulated results for this subsample, firms with negative CEAs incur a 99 basis point *increase* in cost of debt compared to the 43 basis point *decrease* for the others. The difference in means of 142 basis points is significant both statistically and in economic terms, this difference, on average, equates to an additional $6.8 million in interest expense annually based on mean debt levels for the firms in our sample.

Descriptive statistics for the market reaction analysis for all firms and the subsample with net worth covenants are presented in Table 3, Panel C. The CAR of the full sample shows a mean (median) decline of 0.0058 (0.0054), which is smaller than that of firms with net worth covenants (mean = 0.0077; median = 0.0079). The difference between both the means and medians is statistically significant ($p = 0.03$; $p = 0.01$).

Multivariate Results

Change in Equity

Table 4 reports the results of the change in equity analysis upon FIN 48 adoption. In the first column, we present the results of our logit model with NEG_CEA, a dichotomous dependent measure based on whether firms have negative CEAs upon FIN 48 implementation. We find firms that are close to a net worth debt covenant violation ($CLOSE$) are 9% more likely to reduce equity upon FIN 48 enactment ($p = 0.02$), supporting our prediction. These findings are consistent with the theory that prior to FIN 48, managers used aggressive accounting methods to avoid violating debt covenants (Nini et al., 2009), but after FIN 48 they had less ability to use tax accruals to create slack and had to unwind previously booked tax positions.

In columns 2 and 3, we separate firms into large (Assets > $1 billion) and small firms (Assets < $1 billion) to assess whether this impact is more pronounced at large firms, with arguably more sophisticated tax planning prior to FIN 48. We find that $CLOSE$ firms are strongly associated with negative CEAs ($p = 0.003$) and the marginal effect increases from 9% for the full sample to 15.7% for the large firm sample. In contrast, the $CLOSE$ coefficient is insignificant for small firms.[25]

The results for control variables show that profitable firms ($RAO - 3YR$), firms with higher growth ($GROWTH$), and firms with higher discretionary

Table 4. Probability of Decrease in Equity.

	Dependent Variable: *NEG_CEA* (Dummy)									Dependent Variable: *CEA_AT* (Continuous)	
	Pred. sign	Entire Sampe		Only Large Firms – Total Assets > $1 Billion		Only Small Firms – Total Assets < $1 Billion		Only Profitable Firms – Three Year Pre-tax *ROA* > 0		Pred. sign	Negative CEA Firms	Entire Sample
		Coef./ (*p*-value)	Marginal effects	Coef./ (*p*-value)	Marginal effects	Coef./ (*p*-value)	Marginal effects	Coef./ (*p*-value)	Marginal effects		Coef./ (*p*-value)	Coef./ (*p*-value)
VARIABLE OF INTEREST												
$CLOSE_{t-1}$	+	0.269**	0.09	0.486***	0.157	−0.098	−0.034	0.254**	0.083	?	0.0010**	0.00030
		(0.021)		(0.003)		(0.644)		(0.040)			(0.010)	(0.481)
CONTROL VARIABLES												
BTD_{t-1}	?	−0.643	−0.0161	−0.931	−0.019	−1.092	−0.032	−1.070	−0.019	−	0.00148	0.00192
		(0.387)		(0.431)		(0.284)		(0.288)			(0.342)	(0.564)
LEV_{t-1}	+	−0.129	−0.0139	0.109	0.011	−0.412*	−0.044	0.107	0.010	−	−0.0017**	−0.00052
		(0.418)		(0.322)		(0.093)		(0.300)			(0.064)	(0.586)
ROA_3YR_{t-1}	+	2.593***	0.0819	1.882*	0.046	3.176***	0.118	2.319**	0.052	−	−0.00108	−0.0063*
		(0.000)		(0.061)		(0.001)		(0.008)			(0.394)	(0.021)
$GROWTH_{t-1}$	+	0.109	0.0173	0.285**	0.042	−0.968	−0.016	0.201*	0.030	−	0.00035	−0.0006*
		(0.159)		(0.046)		(0.508)		(0.064)			(0.400)	(0.054)
BK_MV_{t-1}	+	0.074	0.0181	0.047	0.012	0.080	0.019	0.059	0.011	−	0.0006**	0.00027
		(0.159)		(0.333)		(0.491)		(0.295)			(0.014)	(0.231)
FOR_INC_{t-1}	+	0.070	0.0128	−0.009	−0.002	0.128	0.023	0.003	0.001	−	−0.0008***	−0.0008***
		(0.216)		(0.471)		(0.359)		(0.487)			(0.009)	(0.006)
$DACC_{t-1}$	+	0.346*	0.028	0.421*	0.029	0.354	0.028	0.533**	0.038	−	0.00111	0.00035
		(0.054)		(0.085)		(0.241)		(0.013)			(0.443)	(0.740)
$LNASSETS_{t-1}$	?	−0.062**	−0.0365	−0.120**	−0.049	−0.031	−0.009	−0.070**	−0.039	?	0.0006***	0.0005***
		(0.048)		(0.028)		(0.739)		(0.039)			(0.001)	(0.000)

$R\&D_{t-1}$	?	−0.153*	−0.0538	−0.167	−0.030	−0.108	−0.037	−0.119	−0.041	?	0.00040	0.0006**
		(0.103)		(0.192)		(0.461)		(0.248)			(0.340)	(0.085)
SGA_{t-1}	?	0.162	0.0126	−0.313	−0.020	0.666**	0.055	0.178	0.013	?	0.00056	0.00082
		(0.501)		(0.414)		(0.037)		(0.506)			(0.600)	(0.401)
Intercept		0.562*		0.962*		0.481		0.476			−0.008	−0.005
		(0.082)		(0.110)		(0.462)		(0.216)			(0.000)	(0.000)
Number of observations		857		470		387		757			587	857
Estimation		Probit		Probit		Probit		Probit			Probit	OLS
Wald Chi^2		31.79***		22.62***		26.09***		24.09***				
Pseudo R^2		0.032		0.040		0.070		0.0282			0.025	
Area under ROC curve		0.620		0.646		0.684		0.621				
F											3.470***	3.380***
R^2												0.038

Notes: ***$p < 0.01$, **$p < 0.05$, *$p < 0.10$ (All tests are two tail unless prediction is made). Marginal effects are calculated based on the change from zero to one for binary categorical variables and the change in one standard deviation for continuous variables.

accruals (*DACC*) are more likely to have negative CEAs when implementing FIN 48, whereas larger firms and firms with R&D expenditures are less likely to incur negative CEAs when implementing FIN 48.

To rule out the possibility that loss firms, which have different tax planning motivations and are more likely to be distressed, are driving these results, we analyze a subsample of firms that have been profitable for the 3 years[26] prior to implementing FIN 48. In column 4, the coefficient for *CLOSE* remains significant ($p = 0.04$), which suggests that loss firms are not affecting the main results in columns 1 and 2.

In columns 5 and 6, we present the results with a continuous dependent measure: change in equity scaled by total assets. Examining only those firms with *negative* CEAs upon FIN 48 adoption (587 firms, 68% of the full sample) in column 5, we find those firms close to debt covenant violation (*CLOSE*) have statistically significant positive association with change in equity ($\alpha = 0.001$; $p = 0.01$). Because change in equity is negative for these firms, those identified as close to debt covenant violation make *smaller* equity decreases than other firms. These results indicate that even though firms that are close to debt covenants reduce equity due to the change in the accounting standard, the magnitude of their adjustments is smaller than for those firms not in jeopardy of violating a covenant, suggesting that these firms utilize discretion in measuring the size of the reserves under the new standard to maintain as much debt covenant slack as possible. Thus, we find that for firms near debt covenant thresholds, the need to keep from violating debt covenants trumps the incentive to manage future earnings through the creation of "cookie jar" reserves.

The results for the control variables are consistent with prior literature in that high ROA, high debt levels, R&D expenses, and the presence of discretionary accruals are associated with larger tax reserves (Cazier et al., 2015). In concert, it appears that FIN 48 recognition standards may be forcing some profitable firms to increase tax reserves but those firms close to violating debt covenants are making smaller adjustments.[27]

Cost of Debt Analysis

Prior research suggests that while equity markets reward tax aggressiveness (Goh et al., 2016; Hanlon & Slemrod, 2009; Wilson, 2009) and uncertain tax positions under FIN 48 (Koester, 2011), the effect on the cost of debt is less clear. Pre-FIN 48, tax aggressiveness is associated with lower interest rates (Lisowsky et al., 2011), but recently Shevlin et al. (2013) find that firms with higher levels of tax aggressiveness incur higher costs of debt. However, no research has examined the immediate impact of FIN 48 adoption. We posit that FIN 48 could lead to reversals of aggressive tax positions, reducing firms' equity and making debt covenant violation more likely. While Kim et al. (2010) and Lisowsky et al. (2011) find that lenders reward tax aggressive firms, FIN 48 may attenuate this relation, consistent with Shevlin et al. (2013). In this

analysis, we investigate changes to cost of debt related to FIN 48 implementation. We expect, in general, that negative CEAs will weaken firms' balance sheets, raising their cost of debt. Furthermore, we expect that firms that are close to debt covenants that have negative CEAs upon implementing FIN 48 will have higher future cost of debt.

From the results in Table 5, column 1, we observe that the *CLOSE* * *NEG_CEA* interaction term is positive and significant (Marginal Effects = 0.247, $p = 0.021$), suggesting that firms that are both close to debt covenants and incur negative CEAs are more likely to experience an increase in the cost of debt upon implementing FIN 48, consistent with our expectations. Further, the absence of statistically significant relation between the main effect for *NEG_CEA* and the likelihood of an increased cost of debt suggest that the balance sheet impact of FIN 48 for firms not close to debt covenants has not materially affected their credit worthiness. In sensitivity tests, we observe the marginal effects are stronger for the subsample of large firms (Marginal Effects = 0.346, $p = 0.012$) and profitable firms (Marginal Effects = 0.294, $p = 0.014$). These results provide evidence that while the FIN 48 equity adjustments are not large enough to affect firms' overall credit worthiness; CEAs may contribute to higher cost of debt for firms that are close to debt covenants. Specifically, FIN 48 reduces debt covenant slack and the new standards also reduce managers' discretion to meet debt covenant requirements through managing the tax accrual. It is important to note that the model fit statistics (Pseudo-R^2 and area under the ROC curve) are slightly below our expectations in Tables 4 and 5; however, we assert that the consistency across model specifications for our variables of interest in both tables provides comfort for our hypothesized assertions.

In further support of the results in Table 5, we present the results of the magnitude tests for the entire sample and two subsamples with a continuous dependent measure of cost of debt (*COD*) in Table 6. We assess the impact of proximity to debt covenants with *CLOSE*. We interact *NEG_CEA* and *CLOSE* to assess whether firms that reduce equity incur higher interest rates when they approach the debt covenant threshold. We find that *CLOSE* * *NEG_CEA* is consistently positive and significant for the full sample in column 1 ($\alpha = 0.011$, $p = 0.033$), the subsample of firms with assets greater than $1 billion in column 2 ($\alpha = 0.010$, $p = 0.021$) and the subsample of profitable firms in column 3 ($\alpha = 0.010$, $p = 0.062$). This provides evidence that the cost of debt increased for those firms with negative CEAs upon adoption that was close to debt covenant violation. As expected, the control for prior cost of debt is highly correlated with current year cost of debt. Also, we find that high growth firms incur higher cost of debt, suggesting that firms are willing to take on greater debt cost in order to expand. Finally, the statistically significant result for size suggests that large firms are associated with lower cost of debt, even in the subsample of the 342 largest firms. This suggests that large firms are better able to maintain favorable financing terms. In summary, our results provide evidence that firms

Table 5. Probability Cost of Debt Increase.

	Pred. sign	Dependent Variable: Increase in Cost of Debt$_t$ (Dummy)		
		Full Sample Coef./(*p*-value)	Only Large Firms – Assets > $1 Billion Coef./(*p*-value)	Only Profitable Firms – Three Year $ROA > 0$ Coef./(*p*-value)
VARIABLES OF INTEREST				
NEG_CEA_{t-1}	+	−0.211	−0.195	−0.241*
		(0.102)	(0.236)	(0.081)
$CLOSE_{t-1}$	?	−0.353	−0.460	−0.280
		(0.178)	(0.204)	(0.349)
$CLOSE_{t-1}$ * NEG_CEA_{t-1}	+	0.641**	0.949**	0.772**
		(0.021)	(0.012)	(0.014)
CONTROL VARIABLES				
Cost of Debt$_{t-1}$	−	−9 554***	−13.947***	−12.084***
		(0.000)	(0.000)	(0.000)
ΔLEV_t	+	−0.065	−0.054	0.129
		(0.576)	(0.671)	(0.231)
ROA_t	−	−1.304**	−0.914	−1.282*
		(0.024)	(0.114)	(0.057)
$GROWTH_t$	+	0.028	0.039	0.173*
		(0.414)	(0.416)	(0.091)
BK_MV_t	+	0.026	0.069	0.020
		(0.326)	(0.161)	(0.421)
$DACC_t$	?	−0.258	−0.483	−0.332
		(0.298)	(0.131)	(0.231)
$LNASSETS_t$	?	0.010	0.065	0.018
		(0.792)	(0.289)	(0.661)
SGA_{t-1}	?	−0.223	−0.786	−0.284
		(0.503)	(0.113)	(0.439)
Intercept		0.753*	0.531	0.677
		(0.078)	(0.433)	(0.167)
Number of observations		537	342	473
Wald Chi^2		31.04***	28.10***	31.47***
Pseudo R^2		0.0562	0.062	0.078
Area under ROC curve		0.651	0.645	0.680

Notes: ***$p < 0.01$, **$p < 0.05$, *$p < 0.10$ (All tests are two tail unless prediction is made).

Table 6. Analysis of the Magnitude of Change in Cost Of Debt.

	Pred. sign	Dependent Variable: Cost of Debt$_t$		
		Full Sample Coef./(*p*-value)	Only Large Firms – Assets > \$1 Billion Coef./(*p*-value)	Only Profitable Firms – Three Year $ROA > 0$ Coef./(*p*-value)
VARIABLES OF INTEREST				
NEG_CEA_{t-1}	+	−0.002	−0.003	−0.001
		(0.477)	(0.300)	(0.744)
$CLOSE_{t-1}$	?	−0.008	−0.005	−0.004
		(0.135)	(0.198)	(0.466)
$CLOSE_{t-1}$ * NEG_CEA_{t-1}	+	0.011**	0.010**	0.010*
		(0.033)	(0.021)	(0.062)
CONTROL VARIABLES				
Cost of Debt$_{t-1}$	+	0.281***	0.537***	0.226***
		(0.000)	(0.000)	(0.002)
ΔLEV_t	+	−0.005	0.000	−0.003
		(0.111)	(0.966)	(0.430)
ROA_t	−	−0.031	−0.003	−0.017
		(0.148)	(0.429)	(0.173)
$GROWTH_t$	+	0.008**	0.010**	0.012***
		(0.049)	(0.024)	(0.004)
BK_MV_t	+	0.008**	0.010***	0.002
		(0.014)	(0.010)	(0.158)
$DACC_t$	?	−0.004	−0.008	−0.003
		(0.444)	(0.149)	(0.636)
$LNASSETS_t$	?	−0.003***	−0.001	−0.003***
		(0.002)	(0.401)	(0.002)
SGA_{t-1}	?	−0.003	−0.011	−0.007
		(0.744)	(0.172)	(0.349)
Intercept		0.060***	0.020	0.061***
		(0.000)	(0.143)	(0.000)
Industry controls		YES	YES	YES
Number of observations		537	342	473
Adjusted R^2		0.241	0.506	0.185
F		7.341***	8.289***	5.653***

Notes: ***$p < 0.01$, **$p < 0.05$, *$p < 0.10$ (All tests are two tail unless prediction is made).

that are close to debt covenants and are required to reduce equity are associated with higher cost of debt, supporting our cost of debt expectations.[28]

Market Response

In Table 7, we report the abnormal returns at the FIN 48 exposure draft release date. In the first two columns, we use an expanded sample to include firms without deals listed in Dealscan to estimate the market reaction of firms with debt covenants relative to other firms on the broader market.[29] In column 1, we find that firms with net worth or tangible net worth covenants have a negative and statistically significant association with *CAR* in a three-day window around the exposure draft date ($\alpha = -0.006$, $p = 0.001$). In column 2, we add a variable for the existence of any debt covenants listed in Dealscan. The net worth covenant variable is still negative and marginally significant ($\alpha = -0.003$, $p = 0.070$) and the *ANY COV* variable is negative and significant ($\alpha = -0.004$, $p = 0.019$), suggesting that the market participants are penalizing all firms with debt covenants on the exposure draft date, but there is a more adverse effect on firms with net worth covenants.

In columns 3 and 4, we limit our sample to only firms with deals in Dealscan. In column 3, we estimate the market reaction for firms with either net worth or tangible net worth debt covenants relative to the broader set of firms with Dealscan coverage. The results in column 3 display a negative and marginally statistically significant association between net worth covenants and *CAR* in a three-day window around the exposure draft date ($\alpha = -0.003$, $p = 0.089$). These findings provide some support for the theory that the market may anticipate FIN 48's adverse effect on firms to a greater extent for net worth or tangible net worth covenants.[30] In column 4, we find results suggesting that firms with large book-tax differences and near debt covenants restrictions have abnormal market returns at FIN 48 exposure draft date. Specifically, we find a negative and statistically significant interaction between *CLOSE* and *HIGHBTD* ($\alpha = -0.012$, $p = 0.042$), which suggests the market is able to discern the firms most likely to be adversely affected by FIN 48, i.e., those with large book-tax differences and near debt covenant thresholds.[31]

In essence, the market may view this subsample of firms with negative *CAR*s as those that will likely bear an increased cost of debt from covenant violation (proxied by *CLOSE*).[32] We also find statistically significant results for size (*LNASSETS*) ($\alpha = 0.002$, $p = 0.002$) and *GROWTH* ($\alpha = 0.004$, $p = 0.043$), suggesting that the market viewed FIN 48 as less likely to adversely affect large and growing firms. In untabulated results, we use an expanded sample eliminating the Dealscan data screening restriction to assess the strength of the results related to the existence of net worth covenants and find that *NWCOV* is negative and significant ($\alpha = -0.006$, $p = 0.001$).

To summarize our results on the market response, we find that the existence of a net worth or tangible net worth covenant is associated with a marginally

Table 7. Market Reaction to 2005 Exposure Draft.

	Pred. sign	Only Companies with Deals in Dealscan			
		Coef./(*p*-value)	Coef./(*p*-value)	Coef./(*p*-value)	Coef./(*p*-value)
VARIABLES OF INTEREST					
$NW\ COV_t$	−	−0.006***	−0.003*	−0.003*	−0.003
		(0.001)	(0.070)	(0.089)	(0.106)
$ANY\ COV_t$	−		−0.004**		
			(0.019)		
BTD_{t-1}	−	−0.008	−0.009	−0.006	
		(0.245)	(0.160)	(0.374)	
$HIGH\ BTD_{t-1}$	−				0.002
					(0.439)
$CLOSE_t$	−				0.007
					(0.199)
$HIGHBTD_{t-1}$ * $CLOSE_t$	−				−0.012**
					(0.039)
CONTROL VARIABLES					
LEV_{t-1}	−	0.001	0.002	0.008	0.008
		(0.866)	(0.730)	(0.129)	(0.108)
$LNASSETS_{t-1}$		0.000	0.000	0.002***	0.002***
		(0.914)	(0.687)	(0.001)	(0.003)
BK_MV_{t-1}	?	0.003*	0.003*	0.002	0.002
		(0.070)	(0.076)	(0.146)	(0.111)
$GROWTH_{t-1}$	?	0.001	0.001	0.005**	0.004**
		(0.600)	(0.619)	(0.035)	(0.044)
SGA_{t-1}		0.000	−0.001	0.010*	0.010*
		(0.998)	(0.868)	(0.085)	(0.069)
$EBITDA\ COV_t$	?			−0.002	−0.002
				(0.488)	(0.449)
$CR\ COV_t$	?			0.001	0.001
				(0.793)	(0.834)
$DE\ COV_t$	?			0.001	0.001
				(0.638)	(0.611)
$DO\ COV_t$	?			0.003	0.003
				(0.361)	(0.352)
Intercept		−0.017	−0.016	−0.035***	−0.038***
		(0.422)	(0.436)	(0.000)	(0.000)
Industry controls		YES	YES	YES	YES
Number of observations		2,078	2,078	1,211	1,211
R^2		0.067	0.069	0.123	0.126
F		5.23	4.96	9.15	6.68

Notes: ***$p < 0.01$, **$p < 0.05$, *$p < 0.10$ (All tests are two tail unless prediction is made).

negative market response on the FIN 48 exposure draft date. Additionally, when we expand the model to include all our variables of interest (i.e., existence and closeness to net worth covenants and book-tax differences), we find that the interaction term for *CLOSE* and *HIGHBTD* is negative and statistically significant. Thus, the market appears to have anticipated which firms would be penalized by their lenders in the form of higher cost of debt.

CONCLUSION

The adoption of FIN 48 led to significant changes in the way firms recognize and disclose uncertain tax positions. Understanding the relation between taxes and debt is important to policymakers in assessing the impact of FIN 48 and builds upon a wealth of literature on tax and debt. The concern that FIN 48's negative impact on balance sheets would lead to adverse debt consequences has been expressed by the legal and accounting community (Hobert, 2007; Jones, 2008) with some characterizing its impact on debt covenant violations as a "nasty surprise" (Robason, 2009). In this paper, we investigate how FIN 48 disclosures affect firms' financial debt covenants and whether the firms experiencing a tightening of covenant slack after FIN 48 are penalized by creditors and in the equity markets. In our three-part analysis, we examine (1) the relation between covenant slack and CEAs at FIN 48 adoption, (2) the changes in the cost of debt arising from the recognition changes required under FIN 48, and (3) the market response to potential financial covenant violations arising from FIN 48 adoption.

Our results suggest that firms near net worth debt covenant violations were more likely to have negative equity adjustments upon FIN 48 adoption; however, the magnitude of these equity adjustments was smaller (less negative) for these firms, consistent with earnings management incentives. Our findings also suggest creditors utilize this information to increase interest payments from borrowers, and the equity market anticipates the impact of this change on firms with debt covenants. We find the act of decreasing equity at the onset of FIN 48 did not lead to increased cost of debt for all firms; however, for those firms decreasing equity and in close proximity to debt covenant thresholds, there is a statistically and economically significant increase in the cost of debt. When examining the equity markets, we see indications that the market is able to discern which firms are likely to have issues with FIN 48 equity adjustments, namely those firms with greater tax aggressiveness and near debt covenant thresholds.

This paper, in part, addresses Holthausen and Watts' (2001) call for research on lenders' use of financial statement information and Hanlon and Heitzman's (2010) call for research related to the role of creditors in tax accounting by exploring the interplay between FIN 48 adoption and debt covenants. We

provide evidence supporting managers' concerns that unrecognized tax benefits reported in the financial statements affect their debt holders and investors in terms of higher cost of debt and negative stock market reactions. We provide evidence that the negative stock market reaction on FIN 48 adoption observed in prior studies can be explained, in part, by firms' debt covenants. Finally, we build on research prior to FIN 48 that shows managers used tax accruals to avoid debt covenant violations (Dhaliwal et al., 2004; Kim et al., 2010) and that tax aggressiveness is factored into cost of debt (Lisowsky et al., 2011; Shevlin et al., 2013). We document the real economic effects as managers unwound tax accruals under FIN 48; those firms net worth covenants were penalized immediately after release of the exposure draft by the equity markets and by creditors following implementation of FIN 48 through a higher debt cost, noting the possibility that these effects could be seen through future changes in accounting principles.

NOTES

1. Our sample differs from Blouin et al. (2007) in that we use only firms with debt agreements listed in Dealscan, biasing our sample towards more highly leveraged firms that appear less likely to accrue enough for uncertain tax positions prior to implementing FIN 48. If we expand our sample to include firms without deals in Dealscan (assuming that such firms are not close to debt covenants), our results hold.

2. Admittedly, there are a number of potentially confounding events in the period leading up to FIN 48, including the Sarbanes-Oxley Act, SFAS 123R, and SFAS 157 to name a few. While we believe our results are consistent with theoretical expectations for FIN 48, we acknowledge the potential impact of such significant regulatory change.

3. In a comment letter on another accounting change with similar potential implications as FIN 48 with respect to equity adjustments at adoption (lease accounting), the Mortgage Bankers Association (MBA, 2013) argued: "Further, Mortgage Bankers Association (MBA) also notes that loan covenants and regulatory capital ratios are based upon existing generally accepted accounting principles (GAAP) or international financial reporting standards (IFRS). It will take preparers significant time and effort to change loan covenants and for regulators to amend capital rules, and it is not a stretch to say some lenders may find this an opportune time to exact further guarantees/covenants from the borrower."

4. When limiting the full sample to the 48.4% of firms with an increased cost, we find the median cost of debt increases 73 basis points. Firms close to debt covenants with negative CEAs experience a 109 basis point increase in the median cost of debt.

5. Stice (2010) finds that the market reacts negatively to debt covenant violations implied based on public information available in announced earnings; thus, we suggest that the market may take its estimate of firms' CEAs to assess the likelihood of debt covenant violation.

6. The three main objectives of the FIN 48 Post-Implementation Review are: (1) to determine whether the standard has accomplished its stated purpose, (2) to evaluate the standard's implementation and continuing compliance costs and related benefits, and (3) to provide feedback to improve the standard-setting process.

7. "... there is still relatively more discretion preserved when the probabilistic assessment is below 50%, but arguably that would correspond to the cases in which the discretion is least costly or more limited."

8. As noted by a discussant, indenture agreements that use "fixed GAAP" for debt covenants are not affected by changes in accounting standards. "Flexible GAAP," rather than "fixed GAAP" is prescribed in the current ABA model indenture agreement (ABA, 2000). To the extent that our sample includes firms with "frozen GAAP", the bias would be against finding results.

9. In times of favorable economic conditions and loose credit markets, violations are more likely to lead to a fee paid for a waiver; however, as credit terms become stricter under less favorable economic circumstances, violations are more likely to lead to renegotiations (Gallagher, 2009).

10. EBITDA covenants are most likely not impacted by FIN 48 because EBITDA is generally calculated before tax expense. If firms book excess reserves at the inception of FIN 48 to create a "cookie jar," the associated reserves will lower future tax expense which would not help meet EBITDA covenant requirements. FIN 48 is also unlikely to impact short-term ratios such as current or working capital ratios because of the longer-term nature of uncertain tax positions, and is unlikely to impact the debt component of either the debt to cash or debt to equity ratio. Admittedly, FIN 48 could impact the equity component of the debt to equity, however, the definitions of debt and equity are less consistent under each agreement and have not been used in prior literature to measure proximity to debt covenant thresholds. We are able to better define proximity for net worth covenants and these covenants measure a similar construct to debt to equity ratios, we choose to focus on net worth covenants.

11. While the focus of this paper is on the cost of debt, Chava and Roberts (2008) also find that debt covenant violations lead to a significant decline in capital investment.

12. Frischmann et al. (2008) examine a number of other dates associated with the passage of FIN 48, finding no significant market reaction on most of the dates tested. Following Frischmann et al. (2008), we test alternative dates. We find a significant market reaction only around the exposure draft release date.

13. Other papers have used individual debt agreements as observations while studying management behavior over the life of a loan agreement. Using each firm as single observation is more appropriate in the context of our study because we examine firm behavior and its economic consequences in relation to accounting changes at a point in time.

14. Dyreng (2009) demonstrates that the average loan maturity is four years. Given that we extend our sample of loans beyond a four-year period in an attempt to have as large a sample as possible, it is possible that some loans in our sample have matured as of the inception of FIN 48; we assert that any of such observation would bias us against finding the hypothesized results.

15. In our analysis, we limit our sample to firms with deals in Dealscan. In untabulated results, we find the results of our study hold if we assume that firms without deals in Dealscan have no debt covenants. When we eliminate the Dealscan data restraint, our sample increases to 1,326 for change in equity tests, 1,215 for the cost of debt tests and 2,078 for the market response tests.

16. In our sample for cost of debt tests, we limit the sample to firms with December year ends to control any external macro-economic events such as change in interest rates, economic growth, banking system capacity to make loans and other factors which were typically volatile at that time. In untabulated results, we find that the result of our study hold if we include these 382 firms in our sample.

17. In sensitivity tests, we use 5% and 2.5% cutoffs for *CLOSE*, finding similar results under each specification.

18. Dealscan provides additional information regarding covenants, including information regarding net worth "build-up" requirements on "tear sheets." Dichev and Skinner (2002) found that tear sheets are only available for a small percentage of firms in Dealscan. We follow other studies including Kim et al. (2010) that use the original terms

of the agreement. Further, use of original terms is a more conservative of proximity to covenant violation and therefore, biases against the results.

19. Using a one-year ROA measure in untabulated results, we find similar results but with lower explanatory power.

20. A number of our control variables have been included as explanatory variables for UTBs. We believe that these are also appropriate in the context of CEAs as well because UTBs represent a component of the CEA.

21. We examine a year-over-year change in debt to examine the impact of FIN 48 on the cost of debt. To the extent that this is not enough time for lenders to determine the impact of FIN 48 and re-assess their lending terms, we expect that we would not find significant results; however, we believe that extending the time horizon to two years would create additional noise, concealing the true impact of FIN 48.

22. We estimate our change in cost of debt models in two ways: first, we use a calculation of the year-over-year change in firms' cost of debt as the dependent variable; second, we use the magnitude of the cost of debt as the dependent variable, controlling for the lagged cost of debt. The inferences for our test variables are unchanged in the two models.

23. This measure allows us to capture the actual cost to the company and will include costs resulting from violations to debt covenants that may not directly affect the credit worthiness of the firm. Yield spreads and other debt market based measures would only capture the effects of FIN 48 to the extent the changes in accounting and related disclosure provide new information to the market about the credit worthiness of the firm, but would fail to capture costs associated with violation of covenants.

24. For large firms (total assets > $1 billion), the effect is more evident as 67.8% of large firms had negative CEA.

25. To address concerns about missing observations, we replace missing CEA values with zero and include an addition 182 firms. In untabulated results, we find statistically significant results for *CLOSE* for firms with assets greater than $1 billion and also for firms with assets larger than $500 million.

26. We use three years based on the U.S. corporate tax statute of limitations for non-fraudulent transactions.

27. In column 6, we perform a sensitivity test by including the full sample: firms with and without negative CEAs. We find that *CLOSE* is no longer statistically significant, suggesting the magnitude of adjustments is not positive for firms close to debt covenant thresholds, but rather, they are making smaller negative adjustments when implementing the more conservative standards of FIN 48.

28. These results suggest that the stricter tax reporting requirements of FIN 48 resulted in less covenant slack and limited managers' ability to meet debt covenant restrictions, but we cannot rule out the possibility that the negative CEA did not directly contribute to the increase in cost of debt. An alternative explanation is that our tests capture firms that are already having difficulty meeting debt covenants and would have been required to renegotiate their debt regardless of the change in CEA under FIN 48. Although we cannot rule out the alternative explanation, we find further support for our results in both the market response to the exposure draft and the practitioner warnings to private equity clients of potential debt covenant violations after the implementation of FIN 48 for publicly traded companies (Robason, 2009).

29. Firms without deals listed in Dealscan are assumed to have no publicly available information on debt covenants.

30. In untabulated results, we find the relationships between the variables of interest and CAR are enhanced when when industry controls are excluded.

31. In untabulated results, consistent with Frischmann et al. (2008), we find *BTD* to be negative and significant when we exclude the Dealscan variables from our analysis.

32. We use *HIGHBTD* as a proxy for anticipated CEA. But alternatively, the market could also infer that firms with *HIGHBTD* may incur increased audit exposure.

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REFERENCES

Ayers, B., LaPlante, S., & McGuire, S. (2010). Credit ratings and taxes: the effect of book-tax differences on ratings changes. *Contemporary Accounting Research*, *27*(2), 359−402.

Beneish, M., & Press, E. (1993). Costs of technical violation of accounting-based debt covenants. *The Accounting Review*, *68*(2), 233−257.

Blouin, J., Gleason, C., Mills, L., & Sikes, S. (2007). What can we learn about uncertain tax benefits from FIN 48? *National Tax Journal*, *60*(3), 521−535.

Blouin, J., Gleason, C., Mills, L., & Sikes, S. (2010). Pre-empting disclosure? Firms' decisions prior to FIN 48. *The Accounting Review*, *85*(3), 791−815.

Blouin, J., & Robinson, L. (2014). Insights from academic participation in the FAF's initial PIR: The PIR of FIN 48. *Accounting Horizons*, *28*(3), 479−500.

Cazier, R., Rego, S., Tian, X., & Wilson, R. (2015). The impact of increased disclosure requirements and the standardization of accounting practices on earnings management through the reserve for income taxes. *Review of Accounting Studies*, *20*, 436−469.

Chava, R., & Roberts, M. (2008). How does financing impact investment? The role of debt covenants. *Journal of Finance*, *63*(5), 2085−2121.

Chen, K., & Wei, K. (1993). Creditors' decisions to waive violations of accounting-based debt covenants. *The Accounting Review*, *68*(2), 218−232.

Ciconte, W., Donohoe, M., Lisowsky, P., & Mayberry, M. (2016). *Predictable uncertainty: The relation between unrecognized tax benefits and future income tax cash outflows*. Working paper, University of Illinois.

De Simone, L., Robinson, J., & Stomberg, B. (2014). Distilling the reserve for uncertain tax positions: The revealing case of black liquor. *Review of Accounting Studies*, *19*(1), 456−472.

Deloitte. (2011). *A roadmap to accounting for income taxes*. Retrieved from http://www.corpgov.deloitte.com/binary/com.epicentric.contentmanagement.servlet.ContentDeliveryServlet/USEng/Documents/Deloitte%20Periodicals/Roadmap%20Series/Roadmap_AccountingForIncomeTaxes.pdf.

Dhaliwal, D., Gleason, C., & Mills, L. (2004). Last-chance earnings management: Using the tax expense to meet analysts' forecasts. *Contemporary Accounting Research*, *21*(2), 431−459.

Dichev, I., & Skinner, D. (2002). Large-sample evidence on the debt covenant hypothesis. *Journal of Accounting Research*, *40*(4), 1091−1123.

Dyreng, S. (2009). *The cost of private debt covenant violation*. Working paper, Duke University.

Erickson, M., Hanlon, M., & Maydew, E. (2004). How much will firms pay for earnings that do not exist? Evidence of taxes paid on allegedly fraudulent earnings. *The Accounting Review*, *78*(2), 387−408.

Financial Accounting Foundation (FAF). (2012). *Accounting for uncertainty in income taxes*. Post-Implementation review report on FASB interpretation No. 48, Codified in accounting standards codification Topic 740, FAF, Norwalk, CT.

Financial Accounting Standards Board (FASB). (1992). *Accounting for income taxes*. Statement of Financial Accounting Standards No. 109. FASB, Norwalk, CT.

Francis, J., Reichelt, K., & Wang, D. (2005). The pricing of national and city-specific reputations for industry expertise in the U.S. audit market. *The Accounting Review*, *80*(1), 113−136.

Frank, M., Lynch, L., & Rego, S. (2009). Tax reporting aggressiveness and its relation to aggressive financial reporting. *The Accounting Review*, *84*(2), 467−496.

Frischmann, P., Shevlin, T., & Wilson, R. (2008). Economic consequences of increasing the conformity in accounting for uncertain tax benefits. *Journal of Accounting and Economics*, *46*(1), 261−278.

Gallagher, K. (2009). Breaking credit covenants has price: Companies often see cost of servicing debt increase. *Milwaukee Journal Sentinel*, April 3.

Garleanu, N., & Zweibel, J. (2009). Design and renegotiation of debt covenants. *Review of Financial Studies*, *22*(2), 749−781.

Goh, B., Lee, J., Lim, C., & Shevlin, T. (2016). The effect of corporate tax avoidance on the cost of equity. *The Accounting Review*, *91*(6), 1647−1670.

Hanlon, M., & Heitzman, S. (2010). A review of tax research. *Journal of Accounting and Economics*, *5*(1), 127−178.

Hanlon, M., & Slemrod, J. (2009). What does tax aggressiveness signal? Evidence from stock price reactions to news about tax shelter involvement. *Journal of Public Economics*, *93*, 126−141.

Hasan, I., Hoi, C. K., Wu, Q., & Zhang, H. (2014). Beauty is in the eye of the beholder: The effect of corporate tax avoidance on the cost of bank loans. *Journal of Financial Economics*, *113*(1), 109−130.

Hobert, B. (2007). *FIN 48 effective date not deferred: Accounting and tax update*. Lorman Education Services Newsletter. Retrieved from http://www.lorman.com/newsletter/article.php?article_id=628&newsletter_id=140&category_id=6&topic=CPA

Holthausen, R., & Watts, R. (2001). The relevance of value-relevance literature for financial accounting standard setting. *Journal of Accounting and Economics*, *31*(1), 3−75.

Hutchens, M., & Rego, S. (2015). *Does greater tax risk lead to increased firm risk?* Working paper, Indiana University.

Internal Revenue Service. (2007). *FIN 48 implications − LB&I field examiners' guide question #4*. Retrieved from http://www.irs.gov/businesses/corporations/article/0id=171859,00.html

Jenson, M., & Meckling, W. (1976). Theory of the firm: Managerial behavior, agency costs, and ownership structure. *Journal of Financial Economics*, *3*(4), 305−360.

Jones, A. (2008). FASB - the IRS's new best friend: how FIN 48 affects the taxpayer-IRS relationship and potential taxpayer challenges. *Georgia State University Law Review*, *25*(3), 767−800.

Kim, B. (2009). *Post-borrowing conservatism and debt covenant slack*. Working paper, Washington University in St. Louis.

Kim, B., Lisic, L., & Pevzner, M. (2010). *Debt covenant slack and real earnings management*. Retrieved from http://web-docs.stern.nyu.edu/old_web/emplibrary/DebtCovenantSlackandReal…pdf. Accessed on May 15, 2013.

Kim, J., Li, O., & Li, Y. (2010). *Corporate tax avoidance and bank loan contracting*. Working paper, City University of Hong Kong.

Koester, A. (2011). *Investor valuation of tax avoidance through uncertain tax positions*. Working paper, Georgetown University.

Lisowsky, P. (2010). 'Seeking shelter': Empirically modeling tax shelters using financial statement information. *The Accounting Review*, *85*(5), 1693−1720.

Lisowsky, P., Mescall, D., Novack, G., & Pittman, J. (2011). *The importance of tax aggressiveness to corporate borrowing costs*. Working paper, University of Illinois.

Mills, L., Robinson, L., & Sansing, R. (2010). FIN 48 and tax compliance. *The Accounting Review*, *85*(5), 1721−1742.

Mortgage Bankers Association (MBA). (2013, September 3). *Letter to Russell G. Goldman, Chairman, financial accounting standards board (File Ref. # 2013-270; Comment Letter #58)*. Washington, DC: ABA.

Nini, G., Smith, D., & Sufi, A. (2009). Creditor control rights and firm investment policy. *Review of Financial Studies*, *92*(3), 400−420.

Robason, R. (2009). *FIN 48 – A new and complex challenge for non-public companies*. Retrieved from http://www.grantthornton.com/staticfiles/GTCom/Tax/Corp-SFTSpercent20files/FINpercent2048percent20Newpercent20andpercent20complexpercent20challengepercent20forpercent20nonpublicpercent20cospercent20bypercent20Randypercent20Robason.pdf. Accessed on May 10, 2012.

Roberts, M., & Sufi, A. (2009a). Control rights and capital structure: An empirical investigation. *Journal of Finance*, *64*(4), 1657–1695.

Roberts, M., & Sufi, A. (2009b). Renegotiation of financial contracts: Evidence from private credit agreements. *Journal of Financial Economics*, *93*(1), 159–184.

Robinson, L., & Schmidt, A. (2013). Firm and investor responses to uncertain tax benefit disclosure requirements. *Journal of the American Taxation Association*, *35*(2), 85–120.

Securities and Exchange Commission. (2007, March 8). *Speech by SEC Staff: The economics of FIN 48: Accounting for uncertainty in income taxes*. Retrieved from http://www.sec.gov/news/speech/2007/spch030807css.htm

Seigel and Associates. (2008). *The tax reserve reports – third quarter update*. Retrieved from http://www.financialexecutives.org/eweb/upload/FEI/Seigel%20Tax%20Reserve%20Report%20July%202008.pdf

Shevlin, T., Urcan, O., & Vasvari, F. (2013). *Corporate tax avoidance and public debt costs*. Working paper, University of California – Irvine.

Song, W., & Tucker, A. (2008). *Corporate tax reserves, firm value, and leverage*. Working paper, Louisiana State University.

Stice, D. (2010). *The market response to implied debt covenant violations*. Working paper, University of North Carolina.

Sufi, A. (2007). Information asymmetry and financing arrangements: Evidence from syndicated loans. *Journal of Finance*, *63*(2), 629–668.

Triantis, G., & Daniels, R. (1995). The role of debt in interactive corporate governance. *University of California Law Review*, *83*, 1073–1113.

Watts, R., & Zimmerman, J. (1986). *Positive accounting theory*. Englewood Cliffs, NJ: Prentice Hall.

Wilson, R. (2009). An examination of corporate tax shelter participants. *The Accounting Review*, *84*(3), 969–999.

Zhang, J. (2008). The contracting benefits of accounting conservatism to lenders and borrowers. *Journal of Accounting and Economics*, *45*(1), 27–54.