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Tightening the noose: The impact of FIN 48 on private debt

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Tightening the noose: The impact of FIN 48 on private debt

ABSTRACT

We investigate the interaction of debt covenants and tax accounting upon the adoption of a financial accounting standard that codifies disclosures for income tax risks, 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, consistent with the theory that firms used tax accruals to manage debt covenants prior to FIN 48. 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 firms use discretion in the FIN 48 standards 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, with firms' average cost of debt increasing by 43 basis points. Finally, our results suggest that unlike the standard setters, the market anticipated the negative but nuanced debt impact associated with FIN 48. Specifically, the cumulative abnormal return at the FIN 48 exposure draft release date is negative only for tax aggressive firms that are close to debt covenant violation and thus, would be more likely to have higher cost of debt after the FIN 48 equity adjustments upon adoption.

KEYWORDS: Debt Covenants, Covenant Slack, Income Tax Accounting, FIN 48

JEL CODES: G12, G32, M41

Tightening the noose: The impact of FIN 48 on private debt

1. Introduction

We investigate how firms' private debt covenants affect tax accounting choices and borrowing costs upon implementation of Financial Interpretation No. 48 (now codified as ASC 740-10, but known colloquially as "FIN 48"). FIN 48 requires firms to evaluate each tax position taken on foreign and domestic income tax returns 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. We examine the impact of the FIN 48 reporting standards in the context of proximity to net worth debt covenant thresholds because an increase in firms' UTBs at the time of adoption corresponds to a decrease in the equity of the firm in the form of a cumulative effect adjustment (CEA). In our three-part analysis, we specifically 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 of potential financial covenant violations arising from FIN 48 adoption.

The discussion leading up to FIN 48 adoption included significant practitioner fear, calling FIN 48 the "IRS Roadmap." Additionally, 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), which characterizes its impact on debt covenant violations as a "nasty surprise" (Robason, 2009). Even the Internal Revenue Service, an agency generally more concerned with tax return compliance than firms' balance sheets, expressed concern regarding FIN 48's impact on debt covenants (IRS, 2007). However, there is no evidence that this adverse consequence was considered by the Financial Accounting Standards Board when adopting FIN 48. While practitioner fears regarding FIN 48's ability to provide the IRS a roadmap have been allayed (Lynn and Smiley 2007, pg. 36), the implications of CEAs on debt covenants have not been addressed. Prior research examining the impact of FIN 48 from a macroeconomic perspective suggests that FIN 48 had a fairly normal distribution of CEAs, as a large percentage of firms were in each possible category (equity-increasing CEA, equity-decreasing CEA, or no

material adjustment).¹ In this paper, we add context to prior research's findings (Blouin et al., 2007; Frischmann et al., 2008; Cazier et al., 2009; Blouin et al., 2010; Robinson and Schmidt, 2011) with respect to the impact of FIN 48 by focusing on CEAs and the potential impact on the cost of debt of firms that are close to debt covenant thresholds to determine whether practitioners' concerns about FIN 48's impact on debt covenants are justified.

The debt covenant hypothesis suggests that managers make accounting choices to avoid violation of any number of accounting-based debt covenants (Dichev and 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 failing 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 et al., 2004; Kim, Li and Li, 2010; Dyreng, 2009) and that tax aggressive firms are rewarded with a lower cost of debt (Lisowsky et al., 2010). To the extent that firms strategically used tax reserves to stay above debt covenant thresholds pre-FIN 48, they may be under-accrued under the 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. Our first set of tests re-examine the distribution of firms' CEAs in the context of their proximity to debt covenant thresholds.

Our full sample results suggest that 68 percent of sample firms have a negative cumulative equity adjustment, with an average reduction of \$10.7 million.² A subsample examining only those firms close

¹ Prior to FIN 48, firms were required to accrue for uncertain tax positions under FAS 5. FIN 48 provided guidance to create conformity in the criteria used to determine the accrual. Overall, the FIN 48 adoption adjustments appear to reduce equity; 431 public companies with at least \$2 billion in revenues recognized \$14.9 billion CEAs and accrued \$26 billion in interest and penalties (Seigel and Associates, 2008). However, Blouin et al. (2007) report that in a sample of 100 large firms, 41 (39) firms increase (decrease) tax reserves upon adoption with an average change in UTB of \$1.9 billion; 20 firms reported no change.

² Our sample differs from Gleason (2007) and 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 are more likely to accrue less for uncertain tax positions prior to implementing FIN 48.

to net worth covenant violations finds that 73 percent 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 the CEAs. In other words, firms close to technical violation are more likely to reduce equity and increase tax reserves upon FIN 48 adoption, consistent with utilizing discretion in both the pre- and post-FIN 48 periods.

Because FIN 48 adoption adversely affects equity for the majority of firms in our sample, our second set of tests investigate 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 and may find it necessary to renegotiate loan agreements at a higher rate or pay fees to obtain debt covenant waivers. 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 cost of debt for the subsample of firms close to a covenant violation that booked a negative CEA.³ As depicted in Figure 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) 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. We note that FIN 48 did not create tax uncertainty, but rather changed how the tax risks were presented;⁴ thus, the firms' underlying

³ 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.

⁴ FASB Boardmember Edward Trott said that FASB did not invent tax uncertainties and that these issues have always been there (Tax Council Policy Institute Speech 2007).

economics did not change but many firms did bear a higher cost of debt because of FIN 48 adoption effects.

Insert Figure 1 here

Our final set of tests examine 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. We focus on firms that are more tax aggressive, using book-tax differences to 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 build upon prior work documenting the negative market reaction to unrecognized tax benefits (Frischmann et al., 2008) by showing 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 (suggesting either more aggressive accounting and/or more aggressive tax positions). Our 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, specifically those that would be more likely to make negative equity adjustments (based on book-tax differences) and had the potential to violate debt covenants (based on proximity to covenant thresholds), leading to a higher cost of debt.

Our paper makes several contributions to the accounting and finance literature. First, this paper 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 bondholders on tax accounting. Second, 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 and Heitzman, 2010). Specifically, we provide additional evidence that aggressive accounting choices related to tax reserves (Erickson et al, 2004; Dyreng, 2009) is not costless to firms with private debt after FIN 48 adoption and is a contrast to prior research which finds that tax aggressive firms have a lower cost of debt (Kim, Li and Li, 2010; Lisowsky et al., 2010). Our findings that firms near debt covenants with higher levels of tax avoidance incur higher costs on existing private debt

complement those of Shevlin et al. (2013) which suggest that firms with higher levels of tax avoidance incur higher costs of public debt at issuance.

This paper also contributes 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 and Schmidt, 2011), and taxing authorities (Mills et al., 2010; Blouin et al., 2007), 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 and Robinson, 2012).⁵ Our results suggest that creditors can use the accounting method change as an opportunity to increase interest rates from borrowers, and equity markets responded as if firm fundamental ratios had changed. In this way, FIN 48 was costly to both debtholders and shareholders. Further, we find preliminary evidence that managers attempted to mitigate this impact through continued use of discretion in tax accruals at FIN 48 adoption. These findings demonstrate that research on taxes and debt must include considerations of FIN 48. While prior research explores the impact of FIN 48 on equity markets (Koester, 2011; Hutchens and Rego, 2012; Goh et al., 2013), this is the first study to analyze the effect of FIN 48 adoption on an important and sizable component of business financing, private corporate borrowing. We believe that our findings also translate outside of the context of FIN 48 to all changes in accounting principles because CEAs can impact firms' relative net worth, and hence debt covenants, in any change in accounting principle.

The paper proceeds as follows. Section 2 provides a brief discussion of FIN 48 and corporate debt policy and develops our research hypotheses regarding the stock and credit market responses to FIN 48 adoption for corporate debtors. Section 3 describes the data and presents the empirical model. Section 4 summarizes the empirical results and Section 5 concludes.

⁵ 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.

2. Background and Hypothesis Development

2.1 Background on FIN 48

Beginning in the first quarter of 2007, firms were required by 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 on foreign and domestic income tax returns 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 and 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” (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 percent 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.

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 upon 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 percent (SEC, 2007, fourth paragraph),⁶ and recent research shows that firms continue to use available discretion in establishing tax reserves (Cazier et al., 2011). 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.

2.2 Debt Covenants

Lenders consider many factors in establishing borrowing terms. Recent research demonstrates that credit analysts consider tax information in assigning credit ratings (Ayers et al., 2010) and firms using tax planning strategies have lower borrowing costs pre-FIN 48 (Lisowsky et al., 2010). More recently, Shevlin et al. (2013) find that firms with higher levels of tax avoidance incur higher public debt costs and are less likely to have insurance companies purchase their corporate bonds, suggesting that the findings of Kim, Li and Li (2010) and Lisowsky et al. (2010) do not extend to public bond issuances. Our study, while complementary in nature to Shevlin et al. (2013), has different implications and expectations

⁶“...there is still relatively more discretion preserved when the probabilistic assessment is below 50 percent, but arguably that would correspond to the cases in which the discretion is least costly or more limited.”

in the monitoring ability due to the reduced information asymmetry in private debt placement⁷ and also the differences in firms between each lender category (Arena 2011).⁸

Lenders, concerned with default risk, respond with increased monitoring and covenants to restrict management actions (Jensen and Meckling, 1976; Sufi, 2007). Covenants are viewed as nooses (Roberts and Sufi, 2009b) or tripwires (Triantis and 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) cash-flow (Garleanu and Zweibel, 2009). To the extent that firms use fixed GAAP for covenants and thus would not be affected by changing financial standards, we would be biased against finding results.⁹

There is, on average, only one standard deviation between the covenant threshold and the financial measure in question for borrowers at loan inception (Chava and Roberts, 2008). Accordingly, covenant violations are not uncommon (Dichev and Skinner, 2002; Roberts and 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 required¹⁰, managers have incentives to manage earnings to meet or exceed covenant thresholds (Watts and Zimmerman, 1986; Nini et al., 2012). Kim, Li and Li (2010) provide detailed evidence suggesting that taxes reflect one of the measures used to prevent

⁷ Firms with positive proprietary information prefer to issue private debt; financial institutions can more fully monitor firm activities which reduce adverse selection and thus, reduce the cost of debt (Krishnaswami et al. 1999).

⁸ In general, the relationship between firms and debt choice boils down to: high quality firms issue public bonds, small but good quality firms issue private debt, and moderate quality firms rely upon bank loans (Arena 2011) with private debt representing the largest segment of the debt market.

⁹ As noted by a discussant, indenture agreements that use "fixed GAAP" for debt covenants are not affected by changes in accounting standards. While Dealscan does not provide the white paper on all deals, there is considerable evidence that flexible GAAP remains prevalent. First, flexible GAAP is specifically prescribed in the current ABA model indenture agreement (ABA, 2000). Second, recent research documents that flexible GAAP has not been replaced wholesale by fixed GAAP. For example, Shroff (2010) reports that over 60% of firms in his sample use something other than "fixed GAAP."

¹⁰ 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).

debt covenant violations. They find that when firms have greater tax avoidance, 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 avoidance 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, and debt to equity ratios), net worth and tangible net worth covenants are the ones most impacted by FIN 48 equity adjustments.¹¹

2.3 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, firms that decrease equity upon FIN 48 adoption will reduce debt covenant slack, increasing their 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 (Chen and Wei, 1993; Beneish and Press, 1993; Chava and Roberts, 2008). Theory suggests and empirical research provides evidence that firms engage in earnings management to avoid debt covenant violations (Watts and Zimmerman, 1986; Dichev and Skinner, 2002; Zhang, 2008; Kim, 2009; Kim, Li and Li 2010), 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

¹¹ Net worth and tangible net worth covenants are most directly impacted to changes in equity and are easily measured. Debt to equity covenants may also be affected by changes in 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 covenants.

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., 2010), 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 (Shevlin et al., 2013; Cazier et al., 2011), 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 "tighten the noose" on existing debtors (Roberts and Sufi, 2009b), and enhanced recognition and disclosures under FIN 48 could provide such an opportunity.

2.4 Hypotheses Development

2.4.1 Change in Equity

FIN 48 was issued to bring greater comparability in reporting income tax reserves in response to the diverse accounting practices related to uncertain tax positions. Managers who had previously used either more aggressive or more conservative accounting practices in recognizing tax reserves are required to adjust reserves in conformance with FIN 48. 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 and Skinner, 2002).¹² Thus, we would expect to observe firms using discretion in CEAs to avoid net worth covenant violations. However, Kim, Li and Li (2010) provide evidence suggesting that taxes reflect one of the measures used to prevent debt covenant violations, finding that when firms have greater tax avoidance, they are less likely to violate covenant restrictions and have both lower loan spreads and fewer debt restrictions. Thus, a competing hypothesis, is that to the extent firms close to debt covenants have already chosen aggressive financial reporting for uncertain tax positions to maintain slack in their debt covenants *prior* to FIN 48, they may not have as much discretion available to avoid a decrease in reserves. Our first hypothesis tests these two competing possibilities:

- H1a: An increase in equity at the enactment of FIN 48 is more likely for firms near debt covenant thresholds relative to firms with more debt covenant slack.
- H1b: A decline in equity at the enactment of FIN 48 is more likely for firms near debt covenant thresholds relative to firms with more debt covenant slack.

To the extent that firms with net worth debt covenants must decrease equity under FIN 48, they move closer to triggering technical defaults of loan covenants based on financial and accounting measures. Increased costs associated with covenant violations provide an incentive for firms close to debt covenant thresholds to make smaller equity adjustments upon FIN 48 implementation to manage the balance sheet. However, earnings management incentives relating to the stronger market reaction to income adjustments relative to equity adjustments provide an incentive for larger equity adjustments upon FIN 48 implementation. Given that all FIN 48 adjustments following the CEA impact the income statement rather than the balance sheet, managers at firms farther from net worth debt covenant thresholds may over-reserve at the onset of FIN 48 to allow for future, income-increasing reversals, preferring future earnings management to current balance sheet management. The extent to which one incentive trumps the other is an empirical question; however, it is our expectation that the immediate cost associated with

¹² 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.

covenant violation is more costly than the benefit associated with creating future “cookie jar” reserves.¹³

This leads to our second hypothesis:

- H2: Among firms experiencing a negative (equity-decreasing) cumulative effect adjustment at the enactment of FIN 48, firms near debt covenant thresholds have smaller equity adjustments relative to firms with more debt covenant slack.

2.4.2 Cost of Debt

Prior research suggests that lenders reward tax aggressive firms, as tax avoidance is associated with lower interest rates (Kim, Li and Li, 2010; Lisowsky et al., 2010); however, FIN 48 may attenuate this relation. Specifically, to the extent that firms have been aggressive in the past, they are more likely to have negative equity adjustments at FIN 48 adoption; thus, we expect an increase in cost of debt after the adoption of FIN 48 for firms these firms due to a weakening of their reported balance sheet. We expect this effect to be stronger for firms in close proximity to net worth debt covenants as decreases in equity reduces covenant slack and increase 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. Our third hypothesis expresses these expectations:

- H3: Among firms with negative equity adjustments upon the adoption of FIN 48, those near debt covenant restrictions have an increased cost of debt relative to firms with more debt covenant slack.

2.4.3 Market Response

We 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 CAR for the broader market on the FIN 48 exposure draft release date¹⁴ and also find that for more tax aggressive firms (those with larger book-tax

¹³ It is important to note the findings of Erickson et al. (2004), which show that firms paid tax on fraudulently derived earnings, suggesting that the impact of earnings management incentives, specifically meeting or beating earnings targets, is greater than out-of-pocket costs. To the extent that their findings are applicable in this situation, we would expect that firms would make no effort to minimize their equity reductions because the future earnings management benefits of “cookie jar” reserves would outweigh the cost of potential debt covenant violations.

¹⁴ 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.

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 focusing on both firms' net worth debt covenants and levels of tax aggressiveness to determine if the market is reacting negatively to firms that could have a net worth covenant violation because of the impact of their CEAs.¹⁵ 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.

It is important to note that market participants were unable to determine what firms' CEAs would be upon FIN 48 adoption; therefore we use large book-tax differences (tax aggressiveness) as the proxy for an expectation of an equity-decreasing CEA. Thus, we expect an interactive effect for those firms who had been more aggressive prior to the announcement of FIN 48 with the proximity to debt covenant thresholds, hypothesizing that the market would have a more negative reaction to the FIN 48 announcement for these firms, expecting that a decrease in equity could lead to a debt covenant violation. This leads to our fourth hypothesis:

- H4: Among firms with large book-tax differences, abnormal stock returns associated with the FIN 48 exposure draft are more negative for firms near debt covenant thresholds relative to firms with more debt covenant slack.

3. Sample Selection and Research Design

3.1 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

¹⁵ 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.

single observation for each firm that has data in Dealscan.¹⁶ For the change in cost of debt analysis, we analyze loan agreements between January 1, 2001 and December 31, 2006, as the average loan maturity is four years (Dyreng, 2009). 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.

Analyzing the change in retained earnings (H1 and H2) and the change in cost of debt (H3) requires separate samples. We begin with 2,233 observations with data available in both Dealscan and Compustat.¹⁷ We then eliminate 1,075 firms missing CEA data from Audit Analytics and 104 firms in the financial institution sector. We further reduce the H3 sample by 382 firms with year-ends other than December to control for macroeconomic events that may affect cost of debt. The control variables differ in the models used in H1/ H2 and H3; we eliminate 197 (124) observations with missing Compustat data for H1/H2 (H3). In the H3 sample, we also eliminate 11 outliers.¹⁸ The samples total 857 (537) firm observations for the H1/H2 (H3) tests. Panels A and B of Table 1 detail sample attrition.

H4 tests the market response to the FIN 48 exposure draft and we begin with 1,829 firm observations with Dealscan, Compustat, and CRSP data. 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.

Insert Table 1 here

3.2 Research Design

¹⁶ 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.

¹⁷ 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. Our sample increases to 1,326 for H1 and H2, 1,215 for H3 and 2,272 for H4 when we eliminate the Dealscan data restraint.

¹⁸ The cost of debt estimates yields several observations with unreasonably high interest rates. Using 50 percent as the upper bound in the main results, we eliminate 21 outliers. In untabulated sensitivity tests, we find similar results with a 35 percent cut-off.

3.2.1 Changes in Equity

To examine changes in equity on firms close to debt covenants in H1 and H2, we use the following model:

$$\begin{aligned} CEA_{t,i} = & \alpha_{t,i} + \alpha_1 CLOSE_{t-1,i} + \alpha_2 BTD_{t-1,i} + \alpha_3 LEV_{t-1,i} + \alpha_4 ROA3YR_{t-1,i} + \alpha_5 GROWTH_{t-1,i} \\ & + \alpha_6 BK_MV_{t-1,i} + \alpha_7 FOR_INC_{t-1,i} + \alpha_8 DACC_{t-1,i} + \alpha_9 LNASSETS_{t-1,i} \\ & + \alpha_{10} SGA_{t-1,i} + \varepsilon_{i,t} \end{aligned}$$

To test H1, we estimate a logit model with a categorical dependent variable (*NEG_CEA*) equal to one where CEA is negative, and zero otherwise, to assess whether firms close to debt covenant violation are more likely to reduce equity upon FIN 48 implementation. To test H2, we estimate an OLS model with a continuous dependent variable (*CEA_AT*), scaling the CEA by lagged total assets to examine whether negative equity adjustments are smaller for those firms closer to debt covenant thresholds.

Our primary independent measure for both H1 and H2 is *CLOSE*. *CLOSE* is equal to one if the debt covenant slack scaled by total assets is less than 10 percent, 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 percent cut-off is based on the original terms of the agreement.¹⁹ However, the terms of net worth covenants often are progressive in nature, requiring net worth “build-up” in subsequent years of the agreement (Dichev and Skinner, 2002). Therefore, actual slack may be much smaller than the calculated slack.²⁰ This is consistent with prior research, as Kim, Lisic, and Pevzner (2010) also use a 10 percent 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

¹⁹ In sensitivity tests, we use 5 percent and 2.5 percent cutoffs for *CLOSE*, finding similar results under each specification.

²⁰ 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.

(*CLOSE*), 86 percent of which had positive pretax income over the previous three years and 59 percent 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 and 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.²¹ 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*).²² Table 2 presents the variable definitions.

Insert Table 2 here

3.2.2 Cost of Debt

²¹ Using a one-year ROA measure in untabulated results, we find similar results but with lower explanatory power.

²² 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.

To test H3, 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:

$$\begin{aligned}
 COD_{t,i} = & \alpha_{t,i} + \alpha_1 NEG_CEA_{t-1,i} + \alpha_2 CLOSE_{t-1,i} + \alpha_3 CLOSE * NEG_CEA_{t-1,i} \\
 & + \alpha_4 Cost\ of\ Debt_{t-1,i} + \alpha_5 \Delta LEV_{t,i} + \alpha_6 ROA_{t,i} + \alpha_7 GROWTH_{t,i} \\
 & + \alpha_8 BK_MV_{t,i} + \alpha_9 DACC_{t-1,i} + \alpha_{10} LNASSETS_{t,i} + \alpha_{11} SGA_{t,i} \\
 & + \alpha_{12} industry\ controls_{t,i} + \varepsilon_{i,t}
 \end{aligned}$$

We estimate the model with two alternative dependent variables to capture 1) the likelihood of a firm having an increase in cost of debt and 2) the magnitude of the post-FIN 48 increase in cost of debt.²³

To assess the likelihood of increased cost of debt, we expand upon the H1 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 et al. (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).²⁴ 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. We include prior year cost of debt to capture the change in cost after the implementation of FIN 48. 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*),

²³ 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.

²⁴ 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.

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.

3.3.3 Market Response

To test our fourth hypothesis, we examine the market reaction to the FIN 48 exposure draft for firms near debt covenant restrictions with large book-tax differences. The following model is used to test H4:

$$\begin{aligned}
 CAR_{t,i} = & \alpha_i + \alpha_1 NWC OV_{t,i} + \alpha_2 HIGHBTD_{t-1,i} + \alpha_3 CLOSE_{t,i} + \alpha_4 HIGHBTD * CLOSE_{t,i} \\
 & + \alpha_5 LEVLEV_{t-1,i} + \alpha_6 LNASSETS_{t-1,i} + \alpha_7 BK_MV_{t-1,i} + \alpha_8 GROWTH_{t-1,i} \\
 & + \alpha_8 SGA_{t-1,i} + \text{covenant dummies} + \text{industry controls} + \varepsilon_{i,t}
 \end{aligned}$$

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 3-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 and 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 (*NWC OV*) 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., 2009; Song and 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.

4. Results

4.1 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 percent (587 out of 857) of firms have negative CEAs compared to 73.2 percent (93 out of 127) of the firms close to their debt covenant ($n=127$); the difference is marginally significant ($p=0.107$).²⁵ Meanwhile, 79.3 percent of firms that were close to debt covenants had negative CEA. On average, firms reduce their equity by 0.33 percent of assets (median of 0.16 percent of assets) while firms close to a debt covenant have a significantly smaller reduction of only 0.22 percent of assets, on average (median of 0.10 percent 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

²⁵ For large firms (total assets > \$1 billion), the effect is more evident as 67.8 percent of large firms had negative CEA.

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 and 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 percent of *CLOSE* firms show positive profit over the previous three years, similar to the full sample of 88 percent. Finally, both *CLOSE* firms' pre-tax 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 to do so.

Table 3, Panel B presents descriptive statistics for the cost of debt analysis. In our full sample, 48.4 percent of firms have an increase in cost of debt in the FIN 48 adoption year, while a significantly higher 56.2 percent 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 equates to an additional \$6.8 million in interest expense annually 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 market-adjusted return (*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 ($p=0.03$; $p=0.01$).

Insert Table 3 here

4.2 Multivariate Results

4.2.1 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 percent more likely to reduce equity upon FIN 48 enactment ($p=0.02$), supporting H1. 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., 2012), 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 percent for the full sample to 15.7 percent for the large firm sample. In contrast, the *CLOSE* coefficient is insignificant for small firms.²⁶

The results for control variables show that profitable firms (*ROA – 3YR*), firms with higher growth (*GROWTH*), and firms with higher discretionary accruals (*DACC*) are more likely to have

²⁶ To address concerns about missing observations, we replace missing CEA values with zero and include an additional 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.

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 years²⁷ prior to implementing FIN 48. In Column 4, the coefficient for *CLOSE* remains significant (p-value = 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 percent 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, supporting H2. 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., 2009). In concert, it appears that FIN 48 recognition standards may be forcing

²⁷ We use 3 years based on the U.S. corporate tax statute of limitations for non-fraudulent transactions.

some profitable firms to increase tax reserves but those firms close to violating debt covenants are making smaller adjustments.²⁸

Insert Table 4 here

4.2.2 Cost of Debt Analysis

Prior research suggests that while equity markets reward tax aggressiveness (Hanlon and Slemrod, 2009; Wilson, 2009; Goh et al., 2013) and uncertain tax positions under FIN 48 (Koester, 2011), the effect on the cost of debt is less clear. Pre-FIN 48, tax avoidance is associated with lower interest rates (Lisowsky et al., 2010), 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, Li and Li (2010) and Lisowsky et al. (2010) 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 in accordance with H3.

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, supporting H3. 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

²⁸ 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.

(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.

In further support of the results in Table 5, we present the results on the magnitude of the increase in cost of debt 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 were 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 that are close to debt covenants and are required to reduce equity are associated with higher cost of debt, supporting H3.²⁹

Insert Tables 5 and 6 here

²⁹ 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).

4.2.3 Market Response

In Table 7, we report the abnormal returns at the FIN 48 exposure draft release date. In column 1, 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 1 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 2, we find support for H4, which posits 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* ($\alpha=-0.012$, $p=0.039$), 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 CARs 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*) ($\alpha=0.002$, $p=0.003$) and *GROWTH* ($\alpha=0.004$, $p=0.044$), suggesting that the market viewed FIN 48 as less likely adversely to 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 ($\alpha=-0.006$, $p=0.001$). We then include a control variable for the

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

existence of any covenants to assess whether the market is able to discriminate between net worth and other covenants and find *ANYCOV* has a negative and statistically significant coefficient ($\alpha=-0.004$, $p=0.019$), and *NWCOV*'s explanatory value is reduced. Because firms often have more than one covenant, *ANYCOV* would include *NWCOV* as well as others. The intercept is insignificant indicating that the expanded sample, as a whole, was not negatively affected by FIN 48. Market participants may consider the stringent requirements of FIN 48 an impediment to meeting debt covenants and therefore are penalizing firms that utilize debt-covenants to reduce their cost of debt.

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 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.

Insert Table 7 here

5. 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 of 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 were 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 on 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 debtholders 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, Li and Li 2010) and that tax aggressiveness is factored into cost of debt (Lisowsky et al., 2010; 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.

References

American Bar Association, 2000. Revised Model Simplified Indenture. *The Business Lawyer* 55, 3, 1115-1226.

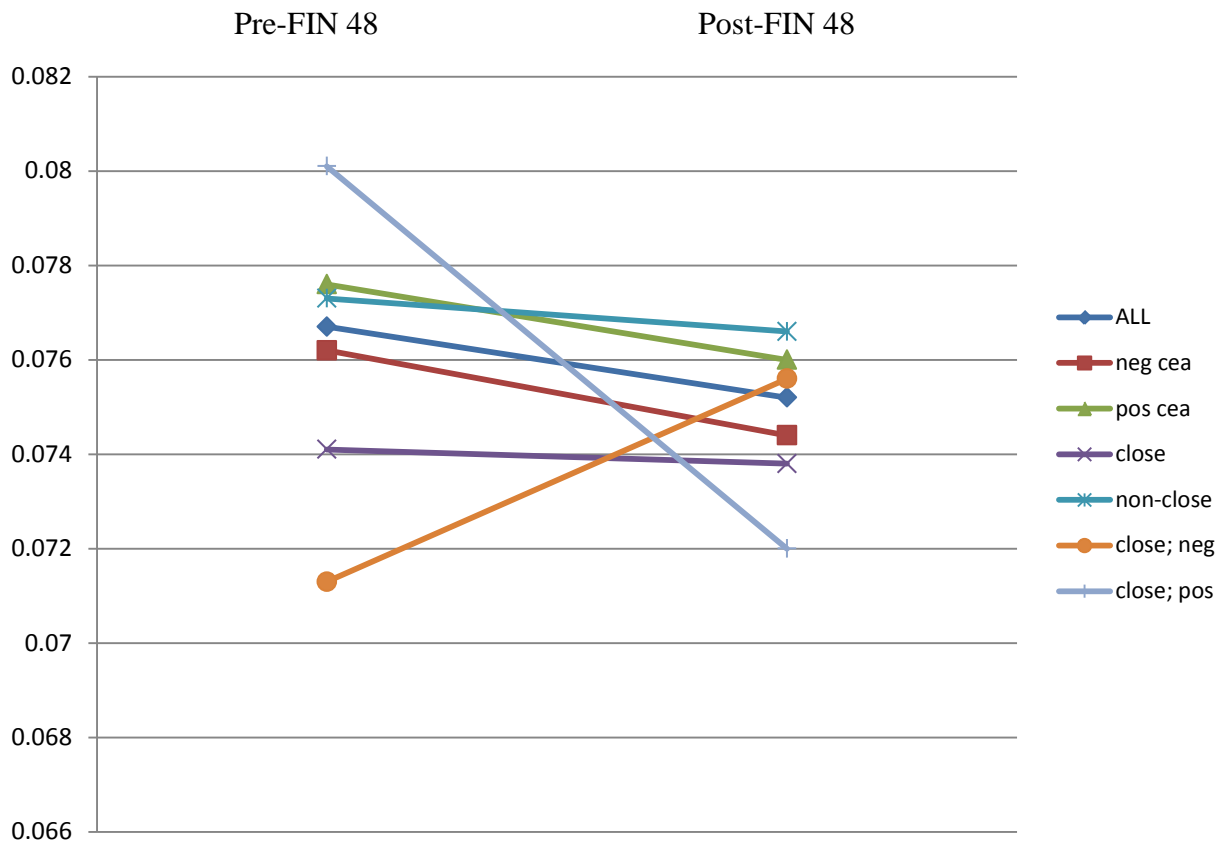
- Arena, M., 2011. The corporate choice between public debt, bank loans, traditional private debt placements and 144A debt issues. *Review of Quantitative Finance and Accounting* 36, 3, 391-416.
- Ayers, B., LaPlante, S., McGuire, S., 2010. Credit ratings and taxes: the effect of book-tax differences 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.A., Mills, L.F., Sikes, S.A., 2010. Pre-empting disclosure? Firms' decisions prior to FIN 48. *The Accounting Review*. 85, 3, 791-815.
- Blouin, J., Robinson, L., 2012. Post-implementation review report on FASB interpretation no. 48, accounting for uncertainty in income taxes. Financial Accounting Foundation.
- Cazier R., Rego, S., Toan, X., Wilson, R., 2009) Early evidence on the determinants of unrecognized tax benefits. Available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1578485. Cited on May 5, 2013.
- Cazier R., Rego, S., Toan, X., Wilson, R., 2011. Did FIN 48 limit the use of tax reserves as a tool for earnings management? Available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1656012. Cited on May 5, 2013.
- 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, 218-232.
- Deloitte, 2011. A roadmap to accounting for income taxes. Available at http://www.corpgov.deloitte.com/binary/com.epicentric.contentmanagement.servlet.ContentDeliveryServlet/USEng/Documents/Deloitte%20Periodicals/Roadmap%20Series/Roadmap_AccountingForIncomeTaxes.pdf. Cited on May 5, 2013.
- 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. Available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=14789702011. Cited on May 5, 2013.
- 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 Standards Board (FASB), 1992. Accounting for Income Taxes. Statement of Financial Accounting Standards No. 109. Norwalk, CT: FASB.
- 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., Zwiebel, J., 2009. Design and renegotiation of debt covenants. *Review of Financial Studies*. 22, 2, 749-781.
- Gleason, C., 2007. An early look at FIN 48 disclosures. *Accounting Policy & Practice Special Report*.
- Goh, B., Lee, J., Lim, C., Shevlin, T., 2013. The effect of corporate tax avoidance on the cost of equity. *Singapore Management University working paper*.
- Gupta, S., Laux, R., Lynch, D., 2011. Do firms use tax cushion reversals to meet earnings targets? evidence from the pre- and post- FIN 48 periods. Available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1163842. Cited on May 5, 2013.
- Hanlon, M., Heitzman, S., 2010. A review of tax research. *Journal of Accounting and Economics*. 5, 1, 127-178.
- Hanlon, M. and 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.
- Hobert, B., 2007. FIN 48 effective date not deferred: accounting and tax update. *Lorman Education Services Newsletter*. Available at http://www.lorman.com/newsletter/article.php?article_id=628&newsletter_id=140&category_id=6&topic=CPA. Cited on May 10, 2012.
- Holthausen, R., Watts, R., 2001. The relevance of value-relevance literature for financial accounting standard setting. *Journal of Accounting and Economics*. 31, 3-75.
- Hutchens, M. and Rego, S., 2012. Tax risk and the cost of equity capital. *Indiana University working paper*. Available at SSRN: <http://ssrn.com/abstract=218656>. Cited on June 28, 2013.
- Internal Revenue Service, 2007. FIN 48 implications – LB&I field examiners’ guide question #4. Available at <http://www.irs.gov/businesses/corporations/article/0,,id=171859,00.html>. Cited on May 10, 2012.
- 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, Article 3.
- Kim, B., 2009. Post-borrowing conservatism and debt covenant slack. Available at apps.olin.wustl.edu/cres/research/calendar/files/Kim.pdf cited on May 10, 2012.
- Kim, B.H., Lisic, L., Pevzner, M., 2010. Debt covenant slack and real earnings management. Available at http://web-docs.stern.nyu.edu/old_web/emplibary/DebtCovenantSlackandReal...pdf. Cited on May 15, 2013.
- Kim, J., Li, O., Li, Y., 2010. Corporate tax avoidance and bank loan contracting. Available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1596209. Cited on May 5, 2013.
- Koester, A., 2011. Investor valuation of tax avoidance through uncertain tax positions. Georgetown University working paper.
- Krishnaswami, S., Spindt, P., Subramaniam, V., 1999. Information asymmetry, monitoring, and the placement structure of corporate debt. *Journal of Financial Economics*. 51, 407-434.
- Lisowsky, P., 2010. 'Seeking shelter': Empirically modeling tax shelters using financial statement information. *The Accounting Review*. 85, 1693-1720.
- Lisowsky, P., Mescall, D., Novack, G., Pittman, J., 2010. The importance of tax aggressiveness to corporate borrowing costs. Available at <http://wpcarey.asu.edu/accounting/upload/Pete-Lisowsky.pdf> . Cited on May 10, 2012.
- Lynn, B. and Smiley, S., 2007. The practical impact of FIN 48 – is it moving abroad? *Corporate Taxation* Nov/Dec: 34-39.
- Mills, L., Robinson, L., Sansing, R., 2010. FIN 48 and tax compliance. *The Accounting Review*. 85, 5, 1721-1742.
- Myers, S., 1977. Determinants of corporate borrowing. *Journal of Financial Economics*. 5, 2, 147-175.
- Nini, G., Smith, D., Sufi, A., 2012. Creditor control rights and firm investment policy. *Review of Financial Studies*. 25, 1713-1761.
- Robason, R., 2009. FIN 48 – A new and complex challenge for non-public companies. Available <http://www.grantthornton.com/staticfiles/GTCom/Tax/Corp-SFTSpercent20files/FINpercent2048percent20Newpercent20andpercent20complexpercent20challengepercent20forpercent20nonpublicpercent20cospercent20bypercent20Randypercent20Robason.pdf> . Cited 10 May 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., 2011. Firm and investor responses to uncertain tax benefit disclosure requirements. Tuck School of Business Working Paper No. 2009-59. Available at papers.ssrn.com/sol3/papers.cfm?abstract_id=1300574. Cited on May 5, 2013.
- Securities and Exchange Commission, 2007. Speech by SEC Staff: The Economics of FIN 48: Accounting for Uncertainty in Income Taxes. March 8. Available at: <http://www.sec.gov/news/speech/2007/spch030807css.htm>. Cited on June 21, 2013.
- Shevlin, T., Urcan, O., Vasvari, F., 2013. Corporate tax avoidance and public debt costs. University of California – Irvine working paper.
- Shroff, N., 2010. Managerial investment and changes in GAAP: An internal consequence of external reporting. MIT working paper.
- Seigel and Associates, 2008. The tax reserve reports – third quarter update. Available at: <http://www.financialexecutives.org/eweb/upload/FEI/Seigel%20Tax%20Reserve%20Report%20July%202008.pdf>. Cited on May 10, 2012.
- Song, W., Tucker, A., 2008. Corporate tax reserves, firm value, and leverage. Available at www.wlu.ca/documents/28686/Corporate_Tax_Reserves.pdf. Cited on May 10, 2012.
- Stice, D. 2010. The market response to implied debt covenant violations. University of North Carolina working paper.
- 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 Rev.* 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, 969-999.
- Zhang, J., 2008. The contracting benefits of accounting conservatism to lenders and borrowers. *Journal of Accounting and Economics*. 45, 1, 27-54.

FIGURE 1: CHANGE IN COST OF DEBT³³



³³ Cost of debt is based on Francis et al. (2005); measured as interest expense over average of long-term debt and debt in current liabilities.

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 Book to Tax Information	(139)
Missing Other Control Variables	(58)
Sample for Cost of Debt Analysis	<u>857</u>

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 Cost of Debt Information	(70)
Missing Other Control Variables	(54)
Anomalous Cost of Debt Observations	(11)
Sample for Cost of Debt Analysis	<u>537</u>

Panel C: Sample Reconciliation - Market Reaction to Exposure Draft

Firm observations with Dealscan, Compustat, and CRSP coverage	1,829
Less:	
Banks & Other Financial Institutions (SIC 6000-6999)	(266)
Missing Information in Compustat for Book To Tax differences	(275)
	<u>1,288</u>
Other Missing Control Variables	(77)
Sample for Multivariate Analysis	<u>1,211</u>

TABLE 2: VARIABLE DEFINITIONS

<u>Key Dependent Variables</u>	
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 = $xint/((dltt + dlc + 1.dltt + 1.dlc)/2)$
CAR	Three-day market adjusted return for the firm on the date the exposure draft was issued
<u>Covenants</u>	
CLOSE	The firm's debt covenant slack measured as (net worth or tangible net worth - covenant restriction)/lag of asset 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 1/1/2001 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 1/1/2001 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 1/1/2001 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 1/1/2001 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 1/1/2001 and date of exposure draft or FIN 48 implementation per Dealscan
Number of Covenant Restrictions	The number of debt covenants that the firm was subject to between 1/1/2001 and date of exposure draft or FIN 48 implementation per Dealscan
<u>Other Controls</u>	
BTD	Book to tax difference measured as pretax income less federal and foreign current tax expense divided by the U.S. statutory rate scaled by assets
HIGH BTD	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 - 3 Year	3 Year average Pre-Tax Income/3 year average Total Assets
LN (Assets)	Log of Total Assets+1
BK_MV	Book value/Market Value
GROWTH	3 year revenue growth measured as $(REV_t - REV_{t-2})/REV_{t-2}$
FOR_INC	Foreign Pre-Tax Income/Total Pretax 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

TABLE 3: DESCRIPTIVE STATISTICS - 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
Δ COD _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
Δ LEV _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
Δ COD _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
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
Δ LEV _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

TABLE 3: DESCRIPTIVE STATISTICS - 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 dr	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

TABLE 4: PROBABILITY OF DECREASE IN EQUITY

VARIABLE OF INTEREST	Dependent Variable: NEG_CEA (Dummy)										Dependent Variable: CEA_AT (Continuous)		
	Entire Sample			Only Large Firms - Total Assets > \$1 Billion		Only Small Firms - Total Assets < \$1 Billion		Only Profitable Firms - 3 Year Pretax ROA > 0		Pred. Sign	Negative CEA Firms		Entire Sample
	coef/ (p-value)	(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)	
CLOSE _{t-1}	+	0.269** (0.021)		0.09	0.486*** (0.003)	0.157	-0.098 (0.644)	-0.034	0.254** (0.040)	0.083	?	0.0010** (0.010)	0.00030 (0.481)
CONTROL VARIABLES													
BTD _{t-1}	?	-0.643 (0.387)		-0.0161	-0.931 (0.431)	-0.019	-1.092 (0.284)	-0.032	-1.070 (0.288)	-0.019	-	-0.00156 (0.336)	0.00192 (0.564)
LEV _{t-1}	+	-0.129 (0.418)		-0.0139	0.109 (0.322)	0.011	-0.412* (0.093)	-0.044	0.107 (0.300)	0.010	-	-0.0018** (0.048)	-0.00052 (0.586)
ROA - 3 Yr _{t-1}	+	2.593*** (0.000)		0.0819	1.882* (0.061)	0.046	3.176*** (0.001)	0.118	2.319** (0.008)	0.052	-	-0.00147 (0.360)	-0.0063** (0.021)
GROWTH _{t-1}	+	0.109 (0.159)		0.0173	0.285** (0.046)	0.042	-0.968 (0.508)	-0.016	0.201* (0.064)	0.030	-	0.00027 (0.530)	-0.0006* (0.054)
BK_MV _{t-1}	+	0.074 (0.159)		0.0181	0.047 (0.333)	0.012	0.080 (0.491)	0.019	0.059 (0.295)	0.011	-	0.0006** (0.016)	0.00027 (0.231)
FOR_INC _{t-1}	+	0.070 (0.216)		0.0128	-0.009 (0.471)	-0.002	0.128 (0.359)	0.023	0.003 (0.487)	0.001	-	-0.0008*** (0.009)	-0.0008*** (0.006)
DACC _{t-1}	+	0.346* (0.054)		0.0258	0.421* (0.085)	0.029	0.354 (0.241)	0.028	0.533** (0.013)	0.038	-	0.00111 (0.440)	0.00035 (0.740)
LN (Assets) _{t-1}	?	-0.062** (0.048)		-0.0365	-0.120** (0.028)	-0.049	-0.031 (0.739)	-0.009	-0.070** (0.039)	-0.039	?	0.0006*** (0.000)	0.0005*** (0.000)
R&D _{t-1}	?	-0.153* (0.103)		-0.0538	-0.167 (0.192)	-0.030	-0.108 (0.461)	-0.037	-0.119 (0.248)	-0.041	?	0.00039 (0.342)	0.0006** (0.085)
SGA _{t-1}	?	0.162 (0.501)		0.0126	-0.313 (0.414)	-0.020	0.666** (0.037)	0.055	0.178 (0.506)	0.013	?	0.00071 (0.507)	0.00082 (0.401)
Intercept		0.562* (0.082)			0.962* (0.110)		0.481 (0.462)		0.476 (0.216)			-0.008 (0.000)	-0.005 (0.000)
Number of observations		857		470		387		757				587	857
Wald Chi ²		31.79***		22.62***		26.09***		24.09***					
Pseudo R ²		0.032		0.040		0.070		0.0282					
Area Under ROC Curve		0.620		0.646		0.684		0.621					
F												3.980***	3.380***
R ²												0.054	0.038

note: *** 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 0 to 1 for binary categorical variables and the change in one standard deviation for continuous variables.

TABLE 5: PROBABILITY COST OF DEBT INCREASE

	Dependent Variable: Increase in Cost of Debt _t (Dummy)			
	Predicted Sign	Full Sample	Only Large Firms - Assets > \$1 Billion	Only Profitable Firms - 3 Year Roa > 0
		coef/(p-value)	coef/(p-value)	coef/(p-value)
VARIABLES OF INTEREST				
NEG_CEA _{t-1}	+	-0.211 (0.102)	-0.195 (0.236)	-0.241* (0.081)
CLOSE _{t-1}	?	-0.353 (0.178)	-0.460 (0.204)	-0.280 (0.349)
CLOSE _{t-1} *NEG_CEA _{t-1}	+	0.641** (0.021)	0.949** (0.012)	0.772** (0.014)
CONTROL VARIABLES				
Cost of Debt _{t-1}	-	-9.554*** (0.000)	-13.947*** (0.000)	-12.084*** (0.000)
Δ LEV _t	+	-0.065 (0.576)	-0.054 (0.671)	0.129 (0.231)
ROA _t	-	-1.304** (0.024)	-0.914 (0.114)	-1.282* (0.057)
GROWTH _t	+	0.028 (0.414)	0.039 (0.416)	0.173* (0.091)
BK_MV _t	+	0.026 (0.326)	0.069 (0.161)	0.020 (0.421)
DACC _t	?	-0.258 (0.298)	-0.483 (0.131)	-0.332 (0.231)
LN (Assets) _t	?	0.010 (0.792)	0.065 (0.289)	0.018 (0.661)
SGA _{t-1}	?	-0.223 (0.503)	-0.786 (0.113)	-0.284 (0.439)
Intercept		0.753* (0.078)	0.531 (0.433)	0.677 (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

note: *** 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

	Dependent Variable: Cost of Debt_t			
		Full Sample	Only Large Firms - Assets > \$1 Billion	Only Profitable Firms - 3 Year Roa > 0
	Predicted Sign	coef/(p-value)	coef/(p-value)	coef/(p-value)
VARIABLES OF INTEREST				
NEG_CEA _{t-1}	+	-0.002 (0.477)	-0.003 (0.300)	-0.001 (0.744)
CLOSE _{t-1}	?	-0.008 (0.135)	-0.005 (0.198)	-0.004 (0.466)
CLOSE _{t-1} *NEG_CEA _{t-1}	+	0.011** (0.033)	0.010** (0.021)	0.010* (0.062)
CONTROL VARIABLES				
Cost of Debt _{t-1}	+	0.281*** (0.000)	0.537*** (0.000)	0.226*** (0.002)
Δ LEV _t	+	-0.005 (0.111)	0.000 (0.966)	-0.003 (0.430)
ROA _t	-	-0.031 (0.148)	-0.003 (0.429)	-0.017 (0.173)
GROWTH _t	+	0.008** (0.049)	0.010** (0.024)	0.012*** (0.004)
BK_MV _t	+	0.008** (0.014)	0.010*** (0.010)	0.002 (0.158)
DACC _t	?	-0.004 (0.444)	-0.008 (0.149)	-0.003 (0.636)
LN (Assets) _t	?	-0.003*** (0.002)	-0.001 (0.401)	-0.003*** (0.002)
SGA _{t-1}	?	-0.003 (0.744)	-0.011 (0.172)	-0.007 (0.349)
Intercept		0.060*** (0.000)	0.020 (0.143)	0.061*** (0.000)
Industry Controls		YES	YES	YES
Number of observations		537	342	473
R ²		0.241	0.506	0.185
F		7.341***	8.289***	5.653***

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

TABLE 7: MARKET REACTION TO 2005 EXPOSURE DRAFT

VARIABLES OF INTEREST	Predicted Sign	Only Companies with Deals in Dealscan	
		coef/(p-value)	coef/(p-value)
NW COV _t	-	-0.003* (0.089)	-0.003 0.106
BTD _{t-1}	-	-0.006 (0.374)	
HIGH BTD _{t-1}	-		0.002 (0.439)
CLOSE _t	-		0.007 (0.199)
HIGH BTD _{t-1} *CLOSE _t	-		-0.012** (0.039)
CONTROL VARIABLES			
LEV _{t-1}	-	0.008 (0.129)	0.008 (0.108)
LN (Assets) _{t-1}	?	0.002*** (0.001)	0.002*** (0.003)
BK_MV _{t-1}	?	0.002 (0.146)	0.002 (0.111)
GROWTH _{t-1}	?	0.005** (0.035)	0.004** (0.044)
SGA _{t-1}	?	0.010* (0.085)	0.010* (0.069)
EBITDA COV _t	?	-0.002 (0.488)	-0.002 (0.449)
CR COV _t	?	0.001 (0.793)	0.001 (0.834)
DE COV _t	?	0.001 (0.638)	0.001 (0.611)
DO COV _t	?	0.003 (0.361)	0.003 (0.352)
Intercept		-0.035*** (0.000)	-0.038*** (0.000)
Industry Controls		YES	YES
Number of observations		1,211	1,211
R ²		0.123	0.126
F		9.15	6.68

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