Accounting Conservatism and the Consequences of Covenant Violations

by

Yutao Li

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Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Abstract

Recent studies document that covenant violations intensify the conflicts of interest between lenders and borrowers, and lead to greater restrictions on borrowing firms' financing and investment activities (Chava and Roberts, 2008; Roberts and Sufi, 2009b). Motivated by this literature, I investigate whether accounting conservatism, specifically conditional conservatism, mitigates the adverse consequences of debt covenant violations. I argue that conservative reporting can potentially ameliorate the conflicts of interest between lenders and borrowers. Therefore, I predict that accounting conservatism reduces the adverse impact of covenant violations on borrowers' financing and investing activities and exhibits a positive association with operating and stock market performance after covenant violations. I obtain a sample of 312 violating and 5,327 non-violating firm-quarters observations from U.S. non-financial public firms during the period of 1998 – 2007 to test my hypotheses. Using three measures of conditional conservatism and a composite measure of the three individual measures, I find that the degree of increase in borrowing firms' conservative reporting between loan initiation and covenant violation is associated with smaller reductions in firms' financing and investing activities in the post-violation period. Furthermore, my analyses provide some evidence that firms that increase conservative reporting exhibit better stock market performance, implying that conservative reporting is beneficial for shareholders after covenant violations. I find no evidence that increased accounting conservatism affects operating performance after covenant violations. My results continue to hold after controlling for pre-contracting unconditional and conditional conservatism. Overall, my dissertation provides evidence that conservative accounting practices followed by borrowing firms ease the adverse consequences of debt covenant violations. My dissertation contributes to the emerging literature on the effects of accounting quality on re-contracting outcomes after covenant violations.

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Chapter 1 Introduction

In this dissertation, I examine whether accounting conservatism alleviates the adverse consequences of debt covenant violations, such as restrictions on violating firms' financing and investing activities by lenders. I also examine the implications of accounting conservatism for violating firms' operating performance and stock market performance in the post-violation period.

Accounting conservatism, defined as the tendency of firms to understate the value of firm assets (Givoly *et al.*, 2007) in their financial statements has important implications for debt contracting. In particular, Watts (2003a, b) argues that lenders demand that borrowers use conservative accounting practices because the resultant downward bias in the reported value of net assets provides some assurance that the minimum amount of borrowers' net assets is greater than the lenders' claim on the borrowing firms. Consequently, conservative reporting reduces lenders' downside risk. Consistent with this argument, recent studies provide empirical evidence that accounting conservatism is associated with a lower cost of debt (*e.g.*, Ahmed *et al.*, 2002; Zhang, 2008).

However, extant literature mainly focuses on the implications of accounting conservatism at the time of loan initiations. To the best of my knowledge, there has been

no empirical study examining how accounting conservatism affects the consequences of covenant violations when they do occur. My dissertation aims to fill this void by providing empirical evidence on the implications of conservatism for the consequences of debt covenant violations.

Examining the implications of accounting conservatism for the consequences of debt covenant violations has important implications for the understanding of the role of accounting information in capital markets. First, lenders and borrowers re-contract after covenant violations, an important and frequent economic event in the financial contracting process. Roberts and Sufi (2009b) report that 25% of public firms disclosed covenant violations between 1996 and 2005. Second, while there is a current debate regarding the implications of accounting conservatism for the consequences of covenant violations (*e.g.*, Gigler *et al.*, 2009 *vs.* Kothari *et al.*, 2010), there is a lack of empirical evidence on this issue. Furthermore, accounting ratios are often explicitly used in financial contracts, defining the decision rights between lenders and borrowers. However, the flexibility inherent in General Accepted Accounting Principle (GAAP) allows the borrowing firm to exercise reporting discretion (*e.g.*, Watts and Zimmerman, 1986; Dichev and Skinner, 2002), which not only affects the timing of the transfer of these decision rights (*e.g.*, Zhang, 2008), but also signals the borrowing firms' intent to keep or terminate negative net present value projects (*e.g.*, Francis and Martin, 2010). It is not clear from extant literature how managers' reporting discretion after loan initiation affects

the outcomes of re-negotiation between the lender and borrower after debt covenants are violated.

Recognizing that managers may deviate from pre-contracting levels of conservatism, I argue that the degree of increase in borrowing firms' conservative reporting from the pre-contracting level signals borrowers' intent to discontinue negative net present value projects rapidly, reducing lenders' downside risk. As such, I expect to observe smaller reductions in these firms' financing and investing activities after covenant violations, as compared to firms that do not increase conservative reporting to the same extent (or reduce reporting conservatism or keep it unchanged). To provide evidence on whether the increase in conservatism has value implications for violating firms after covenant violations, I further examine whether the increase in borrowers' reporting conservatism from the pre-contracting levels are associated with better operating and stock market performance after the borrowers have violated debt covenants.

To ensure the robustness of the results, I use a number of alternative measures of accounting conservatism in my empirical analysis. Specifically, I measure accounting conservatism as (i) accumulated negative non-operating accruals (*NonAcc*) (Givoly and Hayn, 2000), (ii) skewness of earnings (*SK*) (Givoly and Hayn, 2000; Zhang, 2008), (iii)

C-Score metric (*C-Score*) (Khan and Watts, 2009), and (iv) a composite measure based on the above three individual measures (*CCM*).

I construct a sample including 312 violating and 5,327 non-violating firm-quarter observations that have loan information available. I obtain this sample by merging (i) the covenant violation sample provided by Nini *et al.* (2009), (ii) the loan sample provided by Thomas Reuters Loan Price Corporation (LPC), and (iii) the Compustat firm-quarters observations with (iv) stock return data available on CRSP.

I conduct a series of empirical analyses beginning with the Ordinary Least Squares (*OLS*) regression. I follow this up with a set of other tests including the Heckman (1979) two-stage selection model, the Propensity Score Matching model (*PSM*), and the Double Selection model in order to address the problems of selection bias that might arise from endogenous treatment variables (*i.e.*, probability of violation and probability of change in conditional conservatism). After controlling for covariates and selection bias, I find that the implications of the change in conditional conservatism for the consequences of violation in financing and investing activities are significant as predicted. These results suggest that borrowing firms that increase reporting conservatism after obtaining their loans experience more favorable outcomes from re-negotiation after they violate debt covenants. I find mixed evidence of the effect of increased conservatism on firm

valuation after the violation of debt covenants. I find no evidence of accounting conservatism affecting operating performance after covenant violations.

I also conduct several sensitivity tests. First, I analyze the covenant violating sample alone (excluding non-violators) and find that the results using the violating sample are consistent with the results in the main analysis that include both violators and non-violators in the sample. I also investigate whether the pre-contracting conditional conservatism has any implications for the consequences of violations in the violating sample.[1] I find that the pre-contracting conditional conservatism has no impact on the consequences of covenant violations. Furthermore, I vary the measurement window for the calculation of the dependent variables and find no significant results using plus/minus two quarters (versus plus/minus four quarters for the main analysis) surrounding the covenant violation quarter. I also use assets as a deflator for changes in debt and changes in capital expenditures rather than market value of equity that I use for my main analyses. I find that the results are consistent with the main analyses for changes in debt issuance after covenant violations.

My dissertation contributes to the literature on the role of accounting conservatism in debt contracting in the following ways. First, I provide evidence that

[1] In the main analysis with a pooled sample of violating and non-violating firm-quarters, the effect of pre-contracting unconditional conservatism for the consequences of violations is modeled through the probability of violation model (Section 3.2.2) and the probability of change in conditional conservatism model (Section 3.2.5).

borrower conservatism eases the conflicts of interest between the lender and the borrower upon covenant violations, supporting the view that conservatism benefits the borrower after covenant violations. Second, my study contributes to the emerging literature on the effects of accounting quality on re-contracting outcomes after covenant violations. To the best of my knowledge, this is the first study examining how accounting information impacts the consequences of covenant violations. My dissertation provides evidence that lenders value accounting conservatism at the re-contracting stage after covenant violations.

My dissertation also contributes to the finance literature examining the consequences of covenant violations (*e.g.*, Beneish and Press, 1993; Chen and Wei, 1993; Chava and Roberts, 2008; Nini *et al.*, 2009; Roberts and Sufi, 2009b). While these studies provide evidence that covenant violations lead to adverse outcomes for the borrower, I document that reporting conservatism mitigates such adverse consequences.

The conclusions from this study are subject to several caveats. Some of the test results are weak, *i.e.*, significant only at the 10% level. This might be due to the use of the change specification rather than the level specification for the dependent variables, such as the change in debt issuance and change in capital expenditures. In addition, although I use various models, *e.g.*, Heckman (1979) two-stage selection model, Propensity Score matching model, and double selection model, to address the econometrics issues

associated with the two endogenous treatment variables (*i.e.*, probability of violation and the probability of change in conservatism), the factors used in these models may have a low correlation with the underlying economic determinants of accounting covenant ratios due to the lack of theoretical guidance (Demiroglu and James, 2010). Future studies should systematically examine determinants of covenant ratios.

The remainder of this dissertation is organized as follows. In Chapter 2, I review the general background on debt covenants and accounting conservatism, based on which I develop my hypotheses. I discuss the sample and research design in chapter 3. In Chapter 4, I provide the results of the validation tests of my conservatism measures and the descriptive statistics. In Chapter 5, I discuss the results of the empirical analyses. In Chapter 6, I discuss the results of the sensitivity tests. I conclude the dissertation in Chapter 7.

Chapter 2 Background, Literature Review and Hypotheses Development

2.1 Background on Debt Covenants

Debt covenants are restrictions imposed by lenders on borrowing firms during the life of loans. Finance theory suggests that the conflicts of interest between lenders and shareholders create distortions in investment and financing decisions. For example, managers acting as agents for their principals, that is, the shareholders, may liquidate firm assets to pay dividends to shareholders (unauthorized distributions), undertake risky projects that are not anticipated by the lenders (asset substitution), or over invest in negative net present value projects (over-investment) (Smith and Warner, 1979). These decisions would reduce the probability that the loan will be repaid and consequently result in wealth transfers from lenders to shareholders. To restrict managers' risk-shifting behaviour discussed above, lenders require the borrowing firms to comply with debt covenants specified in lending agreements.

Three types of debt covenants are observed in most lending agreements: affirmative covenants, negative covenants, and financial covenants. An affirmative covenant requires the borrower to undertake a certain course of action, for example, to buy liability insurance for its chief executive officer or to maintain December as the fiscal year end. A negative covenant prevents the borrower from taking certain actions. For example, a negative covenant may specify that the borrower cannot invest in certain projects or that the capital expenditures cannot exceed the amount specified by the lenders.

A financial covenant requires the borrower to maintain a certain level of financial performance relating to metrics such as interest coverage ratio, current ratio, leverage, and net worth. Aghion and Bolton (1992) argue that financial covenants, employing a noisy but contractible signal (*e.g.*, accounting ratios), are used in financial contracts to reflect the contingent nature of debt contracts that allows the lender to secure the decision right *ex ante*. Given that financial covenants are based on accounting information and accounting information has implications for the transfer of decision rights (to be discussed in Section 2.3), I focus on the circumstances (*e.g.*, reporting practices) surrounding the violation of financial covenants rather than the violation of non-financial covenants. The next section reviews the current literature on the consequence of covenant violations.

2.2 Literature Review on Consequences of Covenant Violations

Recent finance studies suggest that covenant violation exacerbates the conflict of interest between lenders and borrowers, leading to significant reductions in firms' investing and financing activities (*e.g.*, Chava and Roberts, 2008; Roberts and Sufi, 2009b). As discussed in Section 2.1, use of financial covenants in debt contracts allows lenders to secure decision rights when the borrowing firms fail to meet financial covenant threshold. The transfer of decision rights accompanying the violations of covenants provides lenders an opportunity to extract rents from borrowers by demanding higher concession fees or interest rates (Beneish and Press, 1993;

Gopalakrishnan and Parkash, 1995).[2] In addition to demanding extra compensation from violating firms, lenders can require borrowing firms to terminate a specific project or undertake less risky projects (Dewatripont and Tirole, 1994). Nini *et al.* (2009) suggest that lenders may force the borrowing firms to sell illiquid assets (*e.g*., specialized machinery or equipment) for more liquid assets (*e.g*., more generalized machinery) to reduce potential risk associated with their lending. These responses to covenant violations reflect lenders' incentives to protect their claim in the borrowing firms, incentives that might not necessarily be in the best interest of the borrowing firms. Building on this literature, Chava and Roberts (2008) and Roberts and Sufi (2009b) argue that covenant violations represent an important mechanism through which lenders can exercise their decision rights to protect their interests and influence the borrowing firm's financing and investing policies. Specifically, lenders can directly affect the borrowing firms' financing activities by demanding faster loan repayment, reducing the borrowing base, or increasing interest rates. Lenders can also restrict the borrowing firms' investing activities by imposing additional capital expenditure covenants or requiring the borrower to terminate specific projects. Using covenant violation data, Chava and Roberts (2008) and Roberts and Sufi (2009b) show that after covenant violations, there is a significant reduction in the borrowing firms' financing and investing activities.[3]

[2] In rare cases, lenders may waive the violations without imposing any additional restrictions or end the lending relationships with the borrowers (Beneish and Press, 1993).

[3] Although covenant violation leads to unfavorable outcomes, Roberts and Sufi (2009b) have shown that borrowers rarely switch lenders after covenant violations. This suggests that borrowers are unlikely to obtain more favorable

The above discussion clearly suggests that covenant violations intensify the conflicts of interest between lenders and borrowers over investing and financing policies. However, the value implications of covenant violations are not clear. On one hand, Dewatripont and Tirole (1994) and Gorton and Kahn (2000) suggest that lenders' responses to covenant violations may interfere with the violating firms' positive net present value projects, leading to a decrease in firm value. Consistent with this conjecture, Tan (2011) finds that violating firms experience worse operating performance after violation. On the other hand, Nini *et al.* (2009) argue that lenders' intervention after covenant violations have value implication for violating firms as lenders can force the borrowing firms to eliminate negative net present value projects. They find that covenant violators experience improvements in operating performance as well as stock market performance in the periods after covenant violations.

Although the above-mentioned studies in the finance literature examine the consequences of covenant violations, the implications of accounting conservatism for the consequences of covenant violations have not been examined. This issue is important because the speed with which debt covenants are likely to be violated depends on the extent to which borrowing firms' use conservative reporting practices. I discuss such implications for the consequences of covenant violations in Section 2.3.

2.3 Accounting Conservatism

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lending terms from new lenders and they are more likely to be affected by existing lenders' willingness to extend credit.

Accounting conservatism is an important accounting practice that has influenced financial reporting for at least five hundred years (Basu, 1997). There have been many controversies surrounding the economic role of this practice since the Financial Accounting Standard Board (FASB) issued an exposure draft in 2006 removing accounting conservatism from the conceptual framework. In 2010, the concept of conservatism was eliminated from the FASB's and International Accounting Standard Board's (IASB) joint conceptual framework (FASB, 2010).

I start the discussion by defining accounting conservatism and introducing two types of accounting conservatism that have been studied in the extant literature, followed by a discussion of the implications of accounting conservatism on debt contracting.

2.3.1 Definition of Accounting Conservatism

Throughout the dissertation, I follow Givoly *et al.* (2007) and define accounting conservatism as "the systematic understatement of the book value of the entity's assets". According to this definition, conservative reporting causes the reported value of an entity to be lower than its economic value on average. The understatement comes from two types of accounting conservatism: conditional and unconditional conservatism, the topic to be discussed next.

2.3.2 Unconditional Conservatism

Unconditional conservatism represents the practice of understating the book value of net assets "due to predetermined aspects of the accounting process" (Beaver and Ryan, 2005). This

type of accounting conservatism reports the lower value of firm assets without taking into account the timing and the amount of the future benefits of these assets. For example, the requirement of expensing research and development (R&D) expenditures rather than capitalizing these expenditures represents an application of unconditional conservatism because the R&D expenditures are expensed without considering their future realization (*e.g.*, unconditionally expensed). Another example of unconditional conservatism is the choice of double-declining depreciation method *vs.* straight-line depreciation method. The double-declining depreciation method produces a lower value on the balance sheet because it results in quicker depreciation of assets compared with the straight-line depreciation method. However, the choice of quicker depreciation is not conditional on the change in the economic value of the underlying assets. In summary, unconditional conservatism leads to reporting lower value of entity assets without taking into consideration the cash flow realization of future expected gains and losses.

2.3.3 Conditional Conservatism

Unlike unconditional conservatism that does not allow for the recognition of changes in the value of assets, conditional conservatism reflects changes in economic value of firm assets[4] by imposing higher verification requirements for the recognition of good news than the recognition of bad news, resulting in a differential speed of recognition of bad news versus good

[4] Accounting for change in economic value can be symmetrical if gains and losses are recognized at the same speed. Under the current U.S. GAAP and Canadian GAAP before the Canadian adoption of International Financial Reporting Standard (IFRS), gain recognition is limited to reporting the increases in values of marketable securities held for trading and foreign currency gains.

news (Basu, 1997) in earnings. To assess the conservative nature of earnings, Basu (1997) derives a measure of asymmetric timeliness by comparing the association between earnings and bad news (as measured by negative stock returns) relative to that between earnings and good news (as measured by positive stock returns). He shows that the former association is stronger. The asymmetric timeliness is manifested through writing downs the value of assets but not writing up the value of assets. For example, a write-down takes place in inventory due to losses, damages, obsolescence, decline in market price, or other decreases in expected future cash flows arising from disposition of the inventory; a write-down is also required through an impairment charge on assets when the firm loses its competitiveness and customer base. In contrast, writing up of assets is prohibited when the economic value of firm assets exceeds the reported value. The asymmetric recognition of losses and gains leads to systematic understatement of the value of firm assets.[5] In the next section, I discuss the role of accounting conservatism in debt contracting.

2.4 Role of Accounting Conservatism in Debt Contracting

The role of accounting conservatism in debt contracting is contentious. Arguments have been made supporting both the beneficial role and as well as the detrimental effect of accounting conservatism in debt contracting, which I elaborate next.

2.4.1 Potentially Beneficial Role of Accounting Conservatism in Debt Contracting

[5] Since the adoption of IFRS in Canada on January 1, 2011, public firms in Canada have the option of revaluating long-lived assets in subsequent periods. For example, a public firm can choose to recognize the increased value of property, plant, and equipment and must do this periodically once they undertake this option (IAS 16).

Watts (2003a,b) argues that accounting conservatism plays an important role in debt contracting arising from lenders' asymmetric payoff function. Given a fixed amount of claim on firm assets, lenders do not share the benefits of an appreciation in firm value, but they bear the downside risk. As a result, lenders demand timely recognition of bad news into earnings. Conservative reporting satisfies this demand by requiring timely downward revision of book value of assets, leading to quicker covenant violations, and allowing lenders to gain decision rights promptly (Watts, 2003a,b; Ball and Shivakumar, 2005; Zhang, 2008). For example, quicker recognition of capital assets impairment in earnings would reduce earnings and probably increase debt to equity ratio above the level of maximum allowable debt to equity ratio specified in debt contracts. On the other hand, conservative borrowers are also rewarded by being offered lower costs of borrowing *ex ante* because conservative reporting triggers quicker covenant violations (Ball and Shivakumar, 2005; Zhang, 2008). Following this reasoning, conservatism is regarded as a beneficial mechanism in debt contracting.

Recent studies generally find evidence consistent with the argument that accounting conservatism can be beneficial in debt contracting. Ahmed *et al*. (2002) show that conservative firms obtain better debt ratings from lenders; Zhang (2008) demonstrates that conservative borrowers are rewarded with lower costs of borrowing. Wittenberg-Moerman (2008) provides evidence that conservative firms have lower spreads for their loans that are traded on the secondary loan markets. Furthermore, researchers also find that conservatism is associated with lower cost of equity capital (Lara *et al.*, 2009; Li, 2010). In addition to the direct evidence of the

contracting benefits of accounting conservatism, cited above, the literature also suggests that the prevalence of conservative reporting is attributable to demand from the lenders. In a cross-country study, Ball *et al.* (2008) show that conservatism is related to the size of a country's debt market rather than the size of its equity market, and the demand for conservative reporting is largely driven by debt financing activities. Chen *et al.* (2011) find that the demand for conservatism is stronger if lenders have stronger bargaining power over borrowers. Tan (2011) shows that after covenant violations, lenders demand greater accounting conservatism from violating firms because lenders are able to exercise stronger influence on violating firms' reporting policies.

Firms that report more conservatively send out a signal to their lenders that they are likely to discontinue unprofitable projects (negative net present value projects) earlier by recognizing losses from these projects into earnings in a timely manner. Francis and Martin (2010) show that more conservative firms are likely to divest unprofitable projects earlier than less conservative firms. Srivastava *et al.* (2009) find that conservative firms discontinue unprofitable projects in a timelier manner than less conservative firms. Ahmed and Duellman (2011) show that conservative firms have better operating performance and higher gross margins as compared to less conservative firms.

But other authors have highlighted some adverse effects of accounting conservatism that I discuss next.

2.4.2 Potential Detrimental Effect of Conservative Reporting

Despite evidence that conservatism is associated with lower cost of debt and equity capital and that lenders have a strong demand for conservative reporting, some scholars still cast doubt on the beneficial role of accounting conservatism in debt contracting. Gigler *et al.* (2009) posit that conservative reports may send out a false signal about future firm performance, leading to inefficient liquidation of positive net present value projects. Although Gigler *et al.* (2009) discuss the detrimental effect of accounting conservatism in a debt contracting framework, their formalization of the problem is based on the assumption that there is no moral hazard problem in contracting and that managers do not have the intent to alter the information signal conveyed by financial statements. This formalization is in line with the existing value relevance literature in which decision usefulness is defined as the provision of information for "direct valuation" of a firm (Holthausen and Watts, 2001; Kothari *et al.*, 2010). Based on the "direct valuation" objective from the equity holder's perspective, accounting standard setters and some scholars (*e.g.*, Schipper, 2005) argue that accounting conservatism, not being neutral, may reduce the usefulness of accounting information for investment decisions.[6] However, using the "direct valuation" objective to evaluate the usefulness the accounting information in debt contracting may not be appropriate because the agency problem is an important issue in debt contracting in

[6] In terms of specific implications of accounting conservatism for value relevance, Bandyopadhyay *et al.* (2010) show that accounting conservatism increases the value relevance of earnings, but decreases the reliability of earnings, suggesting that there is a trade-off between these two important characteristics of earnings.

which debt-holders' interests are not perfectly aligned with those of shareholders (see discussion in Section 2.1).

In summary, while Watts (2003a, b) and other studies suggest that conservatism benefits contracting parties, Gigler *et al.* (2009) and accounting standard setters dismiss the benefits of accounting conservatism by arguing that conservatism alters the information content of financial reports, reducing the usefulness of accounting information. These two perspectives differ in a sense that while Watts (2003a, b) and others emphasize the agency costs reduction role of conservatism in contracting, Gigler *et al.* (2009) and accounting standard setters focus on the information role of accounting conservatism in decision making. As suggested in Gao (2011), since accounting information is not the only source of information for creditors' decision making, the contracting benefits of accounting conservatism outweighs the costs of providing non-neutral information. In this thesis, I rely on the implications of accounting conservatism for contracting and examine the role of accounting conservatism in reducing agency costs in the event of covenant violations. But before I do that, I explore the differential roles of conditional and unconditional conservatism in debt contracting.

2.4.3 Implications of Conditional *versus* Unconditional Conservatism for Debt Contracting

As discussed in Sections 2.3.2 and 2.3.3, although unconditional conservatism leads to the reporting of the lower bound of asset value, it does not take into account any adverse changes in economic conditions facing firms. In contrast, conditional conservatism has an informational role because it asymmetrically reflects the change in firm value in earnings (*e.g.*, for "adverse

circumstances" only). This asymmetric recognition of change in firm value in earnings could trigger covenant violations (Zhang, 2008; Ball *et al*., 2008; Ball and Shivakumar, 2005). However, unconditional conservatism can potentially affect the application of conditional conservatism because a high level of unconditional conservatism reduces the incidence of conditional conservatism since reported asset values are already understated. This restricts the incidence of reporting future bad news through asset write-downs. However, Ball and Shivakumar (2005) suggest that lenders probably can unravel and adjust for the bias created by pre-contracting unconditional conservatism in specifying the level of covenant slack, defined as the difference between the accounting ratios used in debt contracts and the actual accounting ratios. Thus, Ball and Shivakumar (2005) and Ball *et al.* (2008) argue that unconditional conservatism does not generate contracting benefits under most circumstances; rather, it may create noise in gauging the implications of conditional conservatism because to the extent to which past unconditional conservatism differs among firms, the recognized amounts of bad news in subsequent periods are different.

In summary, because unconditional conservatism does not reflect contemporaneous changes in firm value into earnings, its implications for debt contracting are limited. In contrast, conditional conservatism that allows timely recognition of bad news into earnings is relevant for lenders who are concerned with the downside risk of lending. Accordingly, I focus on the effects of conditional conservatism on the consequences of debt covenant violations. However, in order to control for the implications of unconditional conservatism for the subsequent applications of

conditional conservatism, I include a measure of unconditional conservatism when I model factors affecting change in conditional conservatism in Section 3.2.5. In the rest of this dissertation, I refer to "*conditional conservatism*" as "conservatism" or "accounting conservatism" except when I specifically discuss the implications of "*unconditional conservatism*".

2.4.4 Managers' Reporting Discretion after Loan Initiation

As discussed in Sections 2.4.2 and 2.4.3, extant studies focus on the implications of conservatism for debt contracting at the time of loan initiation (e.g., Beatty *et al*., 2008; Nikolaev, 2010; Sunder *et al*., 2009). Unlike these studies, I examine the implications of conservatism for re-contracting *after* loan initiation at the time of covenant violation. Re-contracting is a setting different from initial contracting in the following aspects. When the debt contract is initiated, the terms of the loan contract reflect the information available at that time (*e.g.*, Beatty *et al*., 2008; Sunder *et al.*, 2008). However, terms of the re-contract (arising from violations of the covenants settled at loan initiation), are expected to reflect the new information that might become available during the period between loan initiation and covenant violation. Particularly, extant literature provides evidence suggesting that firms' reporting practices do change after initial contracting. For example, Watts and Zimmerman (1986) suggest managers have strong incentives to engage in earnings management to avoid covenant violations after loan initiation. Dichev and Skinner (2002) show that there are an abnormal number of firms that just have their financial ratios above the covenant threshold, suggesting that firms use reporting

discretion to delay covenant violations. Beatty *et al.* (2008) document that firms increase conservative reporting after loan initiation. Furthermore, Kim (2008) finds that there is an increase in conservative reporting after loan initiation and the increase is particularly larger for firms with greater covenant slack. Despite the foregoing evidence about the importance of new information between loan initiation and covenant violation, the implications of the changes in accounting conservatism during the interim period have not yet been explicitly examined in the literature. Indeed, recognizing the distinction between loan contracting and loan re-contracting, Roberts and Sufi (2009a) use the *change*, as opposed to the *level* of firm performance when they study the determinants of re-contracting. To reflect the dynamic nature of re-contracting, I develop my hypotheses regarding the implications of change in firms' conditional conservatism after loan initiation and before violation for the consequences of covenant violations in the next section.

2.5 Hypotheses Development

As discussed in Section 2.2, covenant violations result in financial frictions manifested through significant reductions in firms' borrowing and investing activities (Chava and Roberts, 2008; Roberts and Sufi, 2009b). I argue that the increase in conservative reporting after loan initiation mitigates this conflict of interest. This happens because an increase in conservative reporting by borrowers after loan initiation allows for a quicker transfer of decision rights to lenders than initially anticipated. Consequently, lenders obtain the rights to examine the status of the borrowers' assets earlier, reducing lenders' uncertainty and downside risk. Furthermore, the

increase in accounting conservatism also signals borrowing firms' willingness to abandon negative net present value projects quickly (Srivastava *et al.* 2009; Ahmed and Duellman, 2011), suggesting that conservative borrowers may carry fewer negative net present value projects, thereby reducing lenders' concerns over the downside risk. Since conservative borrowers are associated with lower downside risk and carry fewer negative net present value projects than less conservative borrowers, lenders are likely to allow these borrowers to continue to borrow. On the other hand, less conservative firms have higher downside risk (*e.g*. bankruptcy risk) and tend to carry a greater number of negative net present value projects. Consequently, lenders are likely to reduce the capital they supply to these borrowers.[7] Therefore, I posit the following prediction (in the alternative form):

> *H1: Ceteris paribus, covenant violations are likely to cause a smaller reduction on firms' ability to borrow when firms exhibit a larger increase in accounting conservatism as compared with firms that exhibit a smaller increase or a decrease in conservatism after loan initiation.*

Similarly, since more conservative borrowing firms are associated with lower downside risk and are likely to have fewer negative net present value projects than those with less

[7] Although I argue that firms that increase conservative reporting receive better outcomes after covenant violations, it does not necessarily mean that all firms would report conservatively to achieve these benefits. This is because the interests of shareholders and managers may not be perfectly aligned. Consequently, managers may not act in the best interests of the shareholders and report conservatively. In the case of covenant violations, some managers may increase conservative reporting to signal their intent to discontinue negative present value projects, and some managers may want to delay covenant violations because they could keep control of the firms and enjoy the private benefits from controlling the firms for a longer period of time (Jensen, 1986).

conservative reporting policies, lenders are likely to impose fewer restrictions on more conservative firms' investment activities after covenant violations. These arguments lead to the following prediction:

H2: Ceteris paribus, covenant violations are likely to cause a smaller reduction on firms' ability to invest when firms exhibit a larger increase in conservatism as compared with firms that exhibit a smaller increase or a decrease in conservatism after loan initiation.

As discussed in Section 2.2, covenant violations result in the transfer of decision rights from borrowers to lenders that allows lenders to impose restrictions on firms' investing and financing activities. Jensen and Meckling (1976) argue that additional restrictions can either benefit shareholders if these restrictions lead to termination of negative NPV projects or they might hurt shareholders if these restrictions lead to termination of risky but positive NPV projects. Nini *et al*. (2009) argue that lenders' interventions are beneficial to the violating firms because lenders have the power to force the violating firms to eliminate negative present projects. They show that following covenant violations, violating firms have better operating and stock market performance.

As an extension of Nini *et al.* (2009), I investigate whether conservative reporting has value implications for the consequences of covenant violation. I argue that the increase in conservatism would help lenders secure the decision rights earlier so that lenders are less concerned with the downside risk of the firms. As a result, conservative borrowers are allowed to carry on most positive net present value projects. On the other hand, for less conservative

borrowers, lenders are concerned with the downside risk. To protect themselves, they may prefer to secure their outstanding loans with more liquid assets. Consequently, lenders would require less conservative borrowers to hold off investing in illiquid assets and retain as much as liquid assets (*e.g.*, cash) as possible. This might cause the elimination of or disruption with risky positive net present value projects and lead to worse operating performance. Based on the foregoing discussion, I posit my prediction as the following:

> *H3: Ceteris paribus, covenant violations are associated with a greater improvement in operating performance when firms exhibit a larger increase in conservatism as compared with firms that exhibit a smaller increase or a decrease in conservatism after loan initiation.*

The stock market implications of conservatism for the post-violation period rest on whether market participants can recognize the implications of conservative reporting for operating performance. Because normally there is a substantial delay between the occurrence of an actual violation/negotiation and the public disclosure of the events,[8] I argue that market may gradually incorporate the information regarding the implications of conservative reporting for operating performance into stock prices. This leads to a positive association between the increase in conservative reporting and post-violation stock market performance. Therefore, I form the following prediction:

[8] The public disclosure of violation and the corresponding negotiation is normally through 10Q or 10K fillings for public firms. The delay between the occurrence of the event and the subsequent disclosure can be quite substantial, say, up to 90 days for a 10-K filing and 45 days for a 10-Q filing (Griffin *et al.*, 2011).

H4: Ceteris paribus, covenant violations are associated with better stock market performance when firms exhibit a larger increase in conservatism compared with firms that exhibit a smaller increase or a decrease in conservatism after loan initiation.

Chapter 3 Research Design

In this chapter, I first discuss the three conservatism measures for conditional conservatism, the C-Score, the non-operating accrual measure, and the skewness of earnings measure, followed by a measure for unconditional conservatism. Then I present the empirical models for testing hypotheses.

3.1 Measures of Conservatism

In this section, I first describe the measure of conditional conservatism and then discuss the measure of unconditional conservatism.

3.1.1 Measures of Conditional Conservatism

3.1.1.1 C-Score Measure

The first measure for conditional conservatism is the *C-Score*, a Basu (1997) type measure developed by Khan and Watts (2009). Basu (1997) shows that earnings have a stronger association with bad news (negative stock returns) than its association with good news (positive stock returns), a property referred to as the asymmetric timeliness of earnings. This property of earnings has been used as a measure of conditional conservatism because a stronger association between earnings and bad news implies that bad news is recognized more quickly than good news. This measure of conditional conservatism has been applied in cross-country and cross-firm studies (*e.g.*, Beatty *et al.*, 2008; Francis and Martin, 2010; Nikolaev, 2010). But, obtaining a firm-year Basu (1997) measure not only requires time-series data, but also requires firms to

experience both positive and negative shocks. Khan and Watts (2009) develop a firm-year conservatism measure. Specifically, they first include firm size, leverage, and market-to-book ratio in the Basu (1997) regression and estimate the coefficients on the interaction terms between the negative stock returns dummy and firm size, leverage, and market-to-book ratio. Then they multiply the estimated coefficients on size, market-to-book ratio, and leverage with size, market to book ratio, and leverage. Finally, they sum the products of the multiplications to obtain the *C-Score* measure for each firm-year. The specific procedure to estimate the *C-Score* for my thesis is outlined in Appendix A. This measure has been adopted in recent studies by Chen *et al.* (2011) and Tan (2011). I calculate *C-Score* for each firm in both the pre-contracting and post-contracting period for *n* quarters, and take the average of the *C-Score* as the following: $Avg\left[C-\ Score_{Pre(post)}\right] = (\sum_{i=1}^{i=n} C-\ Score_i)\ /\ n$, where *n* is the number of quarters between loan initiations and covenant violation and $n \geq 4$.[9] The change in conservatism is calculated as follows: $Chg\_C-Score = Avg\left(C-\ Score_{post}\right) - Avg(C-\ Score_{pre})$. See Figure 1 for the illustration of the calculation of the changes in *C-Score* and the other two conditional conservatism measures.

3.1.1.2 Non-Operating Accrual Measure

To ensure the robustness of the results, I also use two more commonly used accounting-based conservatism measures, namely, the accumulated negative non-operating accruals

[9] For non-violators, any fiscal quarter after loan initiation and before maturity is designated as a "violation quarter" and conservatism is calculated for these quarters accordingly.

(*NonAcc*) and the skewness of earnings relative to the skewness of cash flows (*SK*). Givoly and Hayn (2000) argue that in a steady state, accruals are expected to converge to the level of cash flows, and therefore the negative divergence of accruals from cash flows over time reflects the application of the accounting conservatism known as the quick recognition of the impairment on assets, bad debt expenses, and restructuring charges. I calculate the moving average of non-operating accruals over *n* quarters before the quarter of loan initiation as the pre-contracting *NonAccPre*, and the moving average of accruals over the same *n* quarters after loan initiation as the post-contracting *NonAccPost*, where *n* is a number of quarters between loan initiation and covenant violation and $n \geq 4$. Note that non-operating accruals are the difference between total accruals (total accruals = operating income before depreciation – cash flows from operation activities) and operating accruals (operating accruals = changes in accounts receivables + change in inventories + change in prepaid expenses – change in accounts payable – change in income tax payable). I multiply this measure by negative one such that a larger value of this measure represents more conservative reporting. Therefore, the measure of change in conservatism is calculated as *ChgNonAcc* = *NonAccPost* – *NonAccPre*.

3.1.1.3 Skewness of Earnings Measure

I follow Zhang (2008) and Beatty *et al.* (2008) to calculate the *SK* measure as the difference between the skewness of earnings and the skewness of cash flows over *n* quarters between pre-contracting and post-contracting periods, where *n* is defined similarly as in the calculation of change in *NonAcc*. As documented in Zhang (2008), when a lower verification

requirement is imposed for the recognition of bad news, earnings capture a greater amount of bad news and therefore earnings series become negatively skewed. However, because firm performance also may affect earnings skewness irrespective of conservative accounting choices, I subtract skewness of cash flows from skewness of earnings to control for the variations in firm performance. As in the calculation of *NonAcc*, I multiply this measure by negative one to allow larger value of skewness to indicate more conservative reporting. Therefore, the measure of change in conservatism is calculated as *ChgSK=SKPost – SKPre*.

3.1.1.4 Composite Measure of Conditional Conservatism

I also use a composite measure of conditional conservatism. I first standardize each conservatism measure by using the formula: $\frac{Con - Min(Con)}{Max(Con) - Min(Con)}$, where *Con* is one of the three conservatism measures and *Min (Con)* and *Max (Con)* are the minimum and maximum value of each conservatism measure in the sample, respectively. I then obtain the composite measure by summing the standardized values of the three conservatism measures.

3.1.2 Measure of Unconditional Conservatism

I use the unconditional conservatism measure (*Res_Pre*) developed by Penman and Zhang (2002) in my empirical tests. This measure captures the effect of unconditional conservatism by reflecting the level of accounting reserves arising from the adoption of predetermined accounting policies: *Res_Pre= (Inventory reserve + R&D Reserve +ADV Reserve)/Total Assets.* Inventory reserve is the LIFO reserve reported by companies. R&D reserve represents the amortized R&D assets that should appear on the balance sheet if the

company does not expense R&D expenditure in the year of the spending and capitalizes and amortize it instead. Specifically, I follow Penman and Zhang (2002) and compute *R&D Reserve* as the sum of the un-depreciated R&D expenditures, namely, *R&D Reserve* = $\sum_{k=0}^{n-1} R\&D_{i,t-k} * (1 - \sum_{j=0}^{k} \sigma_j)$ where *n* is the estimated useful life of R&D expenditure, σ_k is the industry amortization rate used in Lev and Sougiannis (1996), and R&D is the annual R&D expenditures. *ADV Reserve* is the advertising expense capitalized and amortized over two years. Bublitz and Ettredge (1989) show that advertising expenses have a two-year useful life, and therefore the *ADV Reserve* is calculated as *AdvResv=0.5*AdvExpt* where *AdvExpt* is the reported advertising expense.

3.2 Empirical Model

Examination of the implications of a change in conservatism for the consequences of covenant violations is challenging because changes in conservatism and covenant violations are correlated. First, the probability of violation is an endogenous event affected both by conservatism (Zhang, 2008) and by the initial contracting terms at the time of loan initiation (Demiroglu and James, 2010). Second, the change in conservatism is also an endogenous variable affected by managerial incentives and reporting practices demonstrated in past periods (*e.g.*, pre-contracting conditional and unconditional conservatism). Particularly, if managers have adopted a very conservative reporting policy (both conditional and unconditional) in the past (which lowers the value of the reported assets), prior to loan initiation, they are less likely to apply conservative accounting policies (*e.g.*, conditional conservatism) after loan initiation.

Furthermore, the probability of violation also has implications for conservative reporting because firms with tighter covenants (*i.e.*, firms that are more likely to violate covenants) are less likely to increase conservative reporting after loan initiation (Kim, 2008). Consequently, change in conservatism in these firms is expected to be smaller in these situations. This discussion suggests that managers would self-select into groups that exhibit different amounts of change in reporting conservatism and/or the probability of covenant violations. The resulting non-random assignment of firms into different groups would lead to biased parameter estimates (see Appendix C for a discussion regarding how self-selection leads to biased estimates) if the self-selection bias were not addressed.

To address the issues discussed above, I use a number of methodologies[10]. I first follow Demiroglu and James (2010) and use the Ordinary Least Squares (*OLS*) model to test the different hypotheses, that is, without considering the endogenenity issues (Section 3.2.1). Second, I use the Heckman (1979) two-stage sample selection model (Section 3.2.3) as well as the Propensity Score Matching (PSM) model (Section 3.2.4) to account for the selection bias

10 Prior studies have shown that conservatism is related to the number of covenants in debt contracts (Nikolaev, 2010) and the cost of debt (Zhang, 2008) at loan initiation. This implies that the initial contracting terms (use of covenants and cost of debt) are endogenously determined by the level of pre-contracting conservatism. However, because the number of covenants and cost of debt are not the variables of interest in this dissertation, the potential effects of any estimation bias arising from the endogenous nature of these variables are not explored.

arising from endogenous covenant violations.[11] In the third and the final set of analyses, in order to address the concern that the probability of violation will affect managers' incentives to adopt a conservative reporting policy, I use the Double Selection model to sequentially model the probability of covenant violation and the probability of change in conservatism (Amemiya, 1985) (Section 3.2.5).

3.2.1 OLS Regression Method

3.2.1.1 Testing of H1

In testing the implication of accounting conservatism for firms' debt financing ability after covenant violations, I follow previous empirical capital structure studies on the determinants of firms' debt issuance (e.g. Rajan and Zingales 1995; Roberts and Sufi, 2009b) and use variables that affect firms' ability to borrow as control variables. I estimate the following linear regression model[12]:

[11] Chava and Roberts (2008) and Roberts and Sufi (2009b) use Regression Discontinuity Design (RDD) to address the endogeneity issue of covenant violations. This approach requires the precise measure of the covenant threshold and they focus on two types of covenants that can be precisely measured (current ratio covenant and net worth covenant). For my violation sample, only 79 firm-quarter violations have either current ratio or net worth as financial covenants. The small sample size would significantly affect the power of the tests. Therefore, I rely on an alternative approach to address the endogeneity issue. Another advantage of using the selection model and the propensity score matching approach is that I can incorporate conservatism as a factor predicting the probability of covenant violation.

[12] I do not include pre-contracting unconditional conservatism in this specification in equations (1) – (4) because Ball and Shivakumar (2005) argue that unconditional conservatism is not relevant in debt contracting. Alternatively, I explicitly address the implication of pre-contracting unconditional conservatism for change in conditional conservatism in the model estimating the probability of change in conservatism (Section 3.2.5).

$$Chg\_Debt_{it} = a_0 + a_1 Vio + a_2 Chg\_Con_{it-1} + a_3 Vio * Chg\_Con_{it-1} + a_4 Ebitda_{it-1} + a_5 MB_{it-1}$$

$$+a_6 Size_{it-1} + a_7 Leverage_{it-1} + a_8 Cret_{it-1} + a_9 P\_lending$$

$$+LoanVariables + YearIndicators + IndustryIndicators + \eta_{it} \quad (1)$$

Chg_Debt is the change in debt issuance during four quarters after covenant violations *minus* debt issued during four quarters before the quarter of covenant violations.[13] *Vio* is an indicator variable, equal to 1 for covenant violation firm-quarters, and 0 for non-violation firm-quarters. According to Roberts and Sufi (2009b), the coefficient on *Vio* is predicted to be negative because covenant violations exacerbate the conflicts of interest between lenders and borrowers. Chg_Con_{it-1} measures changes in the different conservatism measures from pre- to post- loan initiation (*i.e.*, the three conservatism measures and the composite measure as well). Lee (2010) argues that conservatism might constrain firms' ability to borrow because quicker covenant violations due to conservative reporting reduce borrowers' incentives to borrow.[14] Lee (2010) finds that conservatism is negatively associated with firms' debt issuance behavior, which suggests a negative coefficient on Chg_Con_{it-1}. H1 predicts that an increase in conservatism mitigates the negative consequences of covenant violation on debt issuance, suggesting that, a_3, the coefficient on the interaction term between covenant violation and change in conservatism, is

[13] For the non-violating firm-quarters, the dependent variables and independent variables are measured for each quarter because each firm-quarter is designated as an event quarter (also see footnote 7).

[14] It might be noted that my study is different from Lee (2010) in the sense that I examine the implications of conservatism for firms that have borrowed and violated covenants.

predicted to be positive. *Leverage is* measured as total debt divided by total market value of equity and is estimated as the average value of this variable over four quarters prior to the covenant violation quarter. Leary and Roberts (2005) show that managers have a tendency to re-balance leverage ratios. Specifically, when firms have a high level of leverage, managers tend to reduce the level of outstanding debt, leading to a smaller leverage ratio; when firms have a low leverage ratio, managers tend to issue more debt to increase leverage ratios. Thus, I include *Leverage* as a control variable and the predicted sign on *Leverage* is negative. *EBITDA is* a proxy of cash flow generated from operating activities, measured as earnings before interest, tax, depreciation and amortization. I compute the average value of this variable over four quarters before the quarter of covenant violation. The implication of cash flows for firms' debt issuing activities is not clear because managers with sufficient funds can either use funds generated within the organization to finance new projects, or subject themselves to debt-holders' monitoring and prefer to borrow (Myers and Majluf, 1984; Jensen, 1986). *Size* is the natural logarithm of market value of equity, measured as the average value of size over four quarters before the quarter of covenant violations. The effect of *Size* on borrowing is ambiguous. Larger firms tend to operate in different segments and are less likely to fail, and hence *Size* may be inversely related to the probability of bankruptcy and should have a positive impact on firms' ability to issue debt. However, *Size* also may be a proxy for information asymmetry, increasing shareholders' preference for cheaper equity financing. I include pre-violation stock returns as a measure of firms' pre-violation stock market performance (*Cret),* calculated as the total raw

returns over four quarters before the quarter of covenant violation. Firms that exhibit better stock market performance are able to obtain new loans more easily; therefore, the predicted sign on *Cret* is positive. *P_lending* is an indicator variable, equal to 1 if the borrower has borrowed from the same lender before, and 0 otherwise. *P_lending* is used to control for information asymmetry between lenders and borrowers. If the borrower has borrowed from the same lender before, information asymmetry is smaller, suggesting a positive coefficient on this variable.

In this model and other models in this chapter, I include year fixed effects (*Year Indicators*) and industry fixed effect (*Industry Indicators*) to account for the year and industry effect for the dependent variables. In addition, I also include several loan-specific variables including pricing, loan maturity, number of covenants, *etc.* (described in Appendix A*)*, to account for the implications of loan structure for the consequences of covenant violations.

3.2.1.2 Testing of H2

To examine the effect of conservatism on investment activities after covenant violations, I estimate the following linear regression model:

$$Chg\_Cap\_X_{it} = a_0 + a_1 Vio + a_2 Chg\_Con_{it-1} + a_3 Vio * Chg\_Con_{it-1} + a_4 Ebitda_{it-1} + a_5 MB_{it-1}$$
$$+ a_6 Size_{it-1} + a_7 Leverage_{it-1} + a_8 Cret_{it-1} + a_9 Rating\_D_{it-1} + LoanVariables$$
$$+ YearIndicators + IndustryIndicators + \eta_{it} \quad (2)$$

Chg_Cap_X is the change in capital expenditures during four quarters after covenant violations minus capital expenditures incurred during the four quarters before covenant violations, deflated

by the beginning balance of property, plant and equipment (PPE). H2 predicts that covenant violations have smaller impact on firms' investing behavior when firms increase conservative reporting to a greater extent, suggesting a positive coefficient on the interaction term between *Vio* and *Chg_Con*, that is, $a_3>0$. According to Chava and Roberts (2008), the coefficient on *Vio* is expected to be negative as covenant violations intensify the conflicts of interest between the lenders and borrowers arising from their differential preference for investment projects. The change in a firm's investment activities can be affected by factors other than covenant violations and accounting conservatism. Economic theories suggest that firms' investment is increasing in investment opportunities and decreasing in financial constraints (Hubbard, 1998; Stein, 2003). I follow this literature and use market-to-book ratio (*MB*) as a measure of a firm's investment opportunity set. *MB* is measured as the average value of this variable over four quarters before the quarter of covenant violation and is predicted to have a positive impact on the changes in capital expenditures. *EBITDA* is expected to have a positive association with the changes in capital expenditures because firms with a higher level of cash flows are likely to invest more. The coefficient on *Leverage* is expected to be negative because highly leveraged firms may have difficulty in obtainig funds to finance investments (Lang *et al.*, 1996) and are likely to invest less. Given that pre-violation performance may affect firms' investment activities positively, the coefficient on *Cret* is predicted to be positive. I also include an indicator variable for the availability of credit ratings (*Rating_D*) because Chava and Roberts (2008) find that the availability of rating is associated with smaller reductions in investments. This positive

association between the availability of credit ratings and change in capital expenditures is attributable to the fact that borrowers with credit ratings tend to experience smaller information asymmetry between themselves and their lenders.

3.2.1.3 Testing of H3

To examine the implications of change in conservatism for the operating performance after covenant violations, I estimate the following linear regression model:

$$Chg\_GM_{it} = a_0 + a_1 Vio + a_2 Chg\_Con_{it-1} + a_3 Vio * Chg\_Con_{it-1} + a_4 Size_{it-1} + a_5 MB_{it-1}$$

$$+ a_6 Cret_{it-1} + LoanVariables + YearIndicators + IndustryIndicators + \eta_{it} \quad (3)$$

I use changes in gross margin (*Chg_GM*) to measure improvements in operating performance.[15] *Gross Margin (GM)* is measured as the difference between revenues and costs of goods sold as a percentage of revenue from the previous quarter. *Vio* is similarly defined as in equation (1). According to Nini *et al.* (2009), the coefficient on *Vio* is predicted to be positive because lenders have a corporate governance role that helps borrowers to improve operating performance (Nini, *et al.*, 2009). H3 predicts that the improvement in operating performance is more significant in firms that increase conservative reporting, suggesting a positive coefficient on a_3. *Size* is predicted to have a negative association with the changes in gross margin since larger organizations are less flexible and they may need more time to improve their performance.

[15] I do not use change in ROA as a measure of operating performance because ROA can potentially be affected by the application of conservatism. That is, lower past earnings due to conservative reporting is associated with higher earnings in next period.

I also include *MB* and *Cret* as control variables because these two variables represent the growth options and the expected future cash flows, respectively. I expect a positive association between *Chg_GM* and each of these two variables.

3.2.1.4 Testing of H4

To test the relationship between change in conservatism and the value implications of covenant violations on the firms, I estimate the following linear regression:

$$Post\_Ret4(8)_{it} = a_0 + a_1 Vio + a_2 Chg\_Con_{it-1} + a_3 Vio * Chg\_Con_{it-1} + a_4 Size_{it-1}$$
$$+ a_5 MB_{it-1} + a_6 Leverage_{it-1} + LoanVariables + YearIndicators$$
$$+ IndustryIndicators + \eta_{it} \quad (4)$$

where *Post_Ret4 (8)* is the raw stock returns over four (eight) quarters after violations. I use raw stock returns over four (and eight quarters) to capture the value implications of conservatism for the consequences of covenant violations. This measure is commonly used in studying the effect of corporate governance on firm value (*e.g*., Akhigbe and Martin, 2006). In addition to the measure of conservatism and its interaction with *Vio*, I include *MB, Size*, and *Leverage* as control variables. These variables are similarly defined as in equations (1), (2), and (3). A positive coefficient on *Vio*Chg_Con* $_{it-1}$ provides support for H4.

3.2.2 Probability of Covenant Violation Model

In this section, I discuss the probability of violation model which I use to obtain the inverse Mills' ratio for the Heckman (1979) two-stage selection model and the propensity score for the

Propensity Score Matching model. Please see Appendix C for the discussion of the Heckman (1979) two-stage selection model and the Propensity Score Matching model.

I draw factors from the previous literature to model the probability of covenant violation. Specifically, I use the following *Probit* regression model to predict the probability of violation:

$$Prob(Vio = 1) = F(Chg\_Con_{it-1}, Res\_Pre_{it-n}, Con\_Pre_{it-n}, LoanSize_{it-n}, Spread_{it-n}, Tenor_{it-n}, NumCov_{it-n}, Per\_P_{it-n}, NoLenders_{it-n}, P\_Lending_{it-n}, MB_{it-n}, Size_{it-n}, Chg\_Leverate_{it-1}, Chg\_ROA_{it-1}, Chg\_EBITDA_{it-1}, Cret_{it-1}, IndustryIndicators, YearIndicators) \quad (5)$$

Vio is an indicator variable, set to 1 when the firm-quarter is in covenant violation and 0 otherwise. Subscript *it-n* indicates that the variable is measured at the quarter of loan initiation and *it-1* indicates that the variable is measured at the quarter of covenant violation. The definition and measurement of other variables are given in Appendix A.

The probability of violation is positively associated with the tightness of the covenant slack such that *all else being equal*, the tighter the initial covenants, the more likely the covenants are to be violated. I include firm characteristics (*e.g*., *MB* and *Size*) and loan characteristics (*e.g*. *Loan Sizes, Spread, Tenor, NumCov*, *Per_P*, *P_lending*, and *NoLenders*) in the model to indirectly control for initial covenant tightness. In an ideal situation, I would directly compare financial ratios and covenant thresholds. However, a debt contract may use a definition of financial ratios different from what is used in financial statements (Leftwich, 1983; Beatty *et al.*, 2008; Li, 2010). For example, a debt contract may include off-balance lease in measuring of the

level of debt. Consequently, directly measuring covenant tightness may introduce measurement errors. I adopt an indirect approach to control for initial covenant tightness by including firm and loan characteristics that are discussed in details below.[16]

I include costs of borrowing (*Spread*), loan maturity (*Tenor*), performance pricing *(Per_P),*[17] number of lenders (*NoLenders*), loan amount (*Loan Size),* number of covenants *(NumCov),* and the presence of prior lending relationship (*P_lending*) as predictors of the probability of violation in the *Probit* regression model.[18] Firms that pay higher interest rates might have greater agency costs and information asymmetry, and the covenants for these firms are expected to be tighter. Consequently, I predict the probability of violation to be higher for firms with higher borrowing costs. The effect of loan maturity is ambiguous. Longer loan maturity is associated with greater agency costs that may cause lenders to impose tighter covenants, thereby predicting a positive relationship between the probability of violation and loan maturity. However, for loans with longer maturity, lenders may prefer borrowers to experience less frequent violations to reduce renegotiation costs during the life of the loan, which implies a negative relation between the

[16] Zhang (2008) has used this indirect approach.

[17] Performance pricing is a contracting term that ties the costs of borrowing to the accounting performance of the borrowing firms. See the definition of performance pricing in Appendix A

[18] The debt contracting literature documents that contracting terms are affected by firm characteristics at loan initiation (e.g., Bradley and Roberts, 2004; Bharath *et al.*, 2008), suggesting that the inclusion of both loan characteristics and firm characteristics may not be necessary. Despite this, I include both to increase the confidence of the model in capturing the effect of covenant tightness.

probability of covenant violation and loan maturity. Larger loans are associated with greater agency costs and lenders are more likely to impose tighter covenants (Demiroglu and James, 2010), thereby increasing the probability of violation. Demiroglu and James (2010) document that loans with performance pricing, a contracting term tying the costs of debt to firm performance, are more likely to have tighter covenants. Therefore, I predict that performance pricing (*Per_P*), is positively associated with the probability of violation. I predict that when firms borrow from a large number of lenders, they are less likely to violate covenants because an increase in the number of lenders is associated with smaller agency costs (Bolton and Scharfstein, 1996), therefore leading to less restrictive covenants. I predict a positive relationship between the number of covenants and the probability of violation because a larger number of covenants are associated with greater agency costs and tighter covenants.

I include firm size (logarithm of market value of equity, *MV*) and growth opportunity (market-to-book ratio, *MB*) at loan initiation as predictors of probability of violations. Demiroglu and James (2010) argue that growth opportunity is negatively associated with covenant tightness because firms with greater growth opportunity are likely to require greater financing flexibility, leading to greater covenant slack. Consistent with their arguments, they find that growth opportunity is negatively associated with initial covenant tightness.[19] Larger firms tend to have

[19] Demiroglu and James' (2010) sample contains only firms with covenants relating to current ratio and debt to EBITDA ratio. As discussed, the measurement of current ratio is relatively standardized, but the measurement of Debt to EBITDA ratio requires information about how debt is defined. Demiroglu and James (2010) obtain the definition of debt in each contract from Tearsheets provided by *DealScan*. I do not have access to Tearsheets for my

smaller bankruptcy risk and therefore lenders may allow greater covenant slack for larger firms. I predict that *all else being equal*, the probability of covenant violation is negatively associated with firm size and growth opportunity.

I use stock market performance over four quarters before violation (*Cret)*, change in return on assets (*Chg_ROA)*, and change in cash flows (*Chg_EBITDA)* to capture the change in firms' economic performance and change in leverage (*Chg_Leverage)* to reflect the change in the riskiness of firms. I predict that the probability of violation is negatively associated with *Cret, Chg_ROA*, and *Chg_EBITDA* because an increase in these variables is associated with an increase in the difference between the actual financial ratios and the covenant thresholds (*e.g.*, cash flows ratio); on the other hand, the probability of violation is positively associated with *Chg_Leverage* because an increase in the leverage ratio is associated with a decrease in the difference between the actual leverage ratio and the covenant threshold.

The last set of independent variables represents reporting conservatism. I include pre-contracting conditional conservatism, pre-contracting unconditional conservatism, and changes in conditional conservatism between loan initiation and covenant violation. I include pre-contracting conditional conservatism in predicting the probability of violation because Zhang (2008) finds some evidence that pre-contracting conservatism is associated with higher

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sample. In addition, restricting firms with covenants relating only to current ratio or net worth significantly reduces the sample size, a major concern for my study because the sample has already been reduced significantly after I require both the loan data and time-series accounting data to be available.

probability of violation. Ball and Shivakumar (2005) argue that unconditional conservatism is not relevant in the contracting process because it does not reflect the contemporaneous changes in firm performance by definition. However, unconditional conservatism may affect the application of conditional conservatism as high unconditional conservatism reduces the probability of applying conditional conservatism in the subsequent periods. I include a measure of unconditional conservatism (*Res_Pre*) in the model. If initial covenant slack reflects the level of conditional and unconditional conservatism at loan initiation, *all else being equal*, any increase in conditional conservatism from their pre-contracting period levels, would increase the probability of covenant violation, suggesting a positive association between changes in conditional conservatism and the probability of covenant violation.

3.2.3 Heckman Selection Model

Using equation (5), I obtain the inverse Mills' ratio (*IMR1*) for each violating and non-violating observation and then include the inverse Mills' ratio (*IMR1*) in the *OLS* models [equation (1) - (4)] presented in section 3.2.1 with the same predictions. To ensure that the exclusion restrictions[20] are satisfied, in the first-stage regression [equation (5)], I include *Res_Pre* in the first stage regression and do not include it in the second-stage [equation (1) - (4)]. This is because I expect that the implications of unconditional conservatism (*Res_pre*) at loan initiation is likely to be reflected in the initial contracting terms, but unconditional conservatism is not likely to affect the consequences of covenant violations. In the second-stage regression

[20] The restriction exclusion is satisfied when an independent variable is included in the first stage choice model and the same variable is excluded from the second stage outcome model.

[equation (1) – (4)], I include additional variables that are not modelled in the first stage (i.e., MB_{it-1}). I argue that MB_{it-1} is not correlated with the probability of violation because the market-to-book ratio at the time of covenant violation is not likely to be related to initial covenant tightness specified at the time of loan initiation.

3.2.4 Propensity Score Matching (PSM) model

To implement the propensity score matching approach *(PSM)* approach, I first use equation (5) to obtain the propensity score for each violating and non-violating firm-quarter observations. Then I match each violating firm-quarter observation with a non-violating firm-quarter observation requiring the difference between their propensity scores to be less than 1 %. I keep the violating firm-quarter observations and the matched non-violating firm-quarter observations and estimate the same models [equation (1) - (4)] presented in Section 3.2.1. The prediction is the same as that in Section 3.2.1. Note that one advantage of propensity score is that it does not have the exclusion restrictions requirement (Heckman and Navarro-Lozano, 2004).

3.2.5 Double Selection Model

As discussed at the beginning of Section 3.2, the foregoing analysis is complicated by the fact that change in conditional conservatism could be an endogenous choice variable that is correlated with the probability of covenant violation. Following the economics literature, I use the double selection model to address the problems associated with the two endogenous treatment variables in which the selection equation is used twice for the two endogenous treatment variables (Amemiya, 1985). I discuss the implementation of this model next.

In the first selection model, I use equation (5) to estimate the inverse Mills' ratio as I have explained in the Section 3.2.3. I then include this inverse Mills' ratio (*IMR1*) in the second selection model with changes in conservatism on the left hand and other variables affecting the probability of changes in conservatism on the right hand side as follows:

$$Prob(Chg = 1) = F(IMR_1, Res\_Pre_{it-n}, Con\_Pre_{it-n}, Leverage_{it-n}, Size_{it-n}, MB_{it-n}, P\_Lending_{it-n}, Litigation_{it-n}, Chg\_Rating_{it-n}, Insti1_{it-n}, Insti2_{it-n}, Insti2_{it-n}, IndustryIndicators, YearIndicators) \quad (6)$$

where *Chg* is a dichotomous variable, equal to 1 if the change in conservatism is greater than the median value of the change in conservatism of the sample (treatment firms: firms with larger increase in conservatism) and 0 otherwise (control firms: firms with smaller increase in conservatism). To facilitate the use of the *Probit* model, I transform the continuous variable of change in conservatism into a dichotomous variable for which I may lose variations from this variable, leading to weaker results by using this approach.

I discuss the rationales of including each right hand side variable in this section with the detailed definition and measurement of each variable included in Appendix A. *Con_Pre* is the pre-contracting conditional conservatism; *Res_Pre* is a measure of pre-contracting unconditional conservatism. I include pre-contracting conditional conservatism because there is a mechanical relationship between pre-contracting conditional conservatism and change in conditional conservatism between loan initiation dates and covenant violation dates. This mechanical relationship arises because change in conservatism is obtained by subtracting the pre-contracting

conditional conservatism from post-contracting conditional conservatism. I also include a measure of pre-contracting unconditional conservatism because unconditional conservatism has a negative relationship with subsequent conditional conservatism (Beaver and Ryan, 2005). Although Kim (2008) argues that the deterioration in credit rating means higher costs of borrowing, causing the firms to decrease conservative reporting, Kim's empirical evidence actually supports the opposite. Because Kim (2008) is the only study examining change in conservatism in contracting setting, I include *Chg_Rating* in my model but do not make any prediction for this variable. Ramalingegowda and Yu (2011) show that conservatism is positively associated with the size of institutional ownership because higher percentage of institutional ownership provides stronger monitoring on firms' reporting. I include institutional ownership variables (*Insti1*, *Insti2*, and *Insti3*) in the model and expect that firms with a greater number of institutional shareholders (*insti1*), block holders (*inti2*), institutional activists (*inst3*) are less able to deviate from their pre-contracting period conservatism levels. I also include firm characteristics at loan initiation such as *MB*, *Size*, and *Leverage*. Firms with higher *MB* are generally more conservative in the past and will likely recognize fewer losses in the subsequent periods. Thus, they will be less conservative in the subsequent periods, leading to a negative relationship between the level of past *MB* and future change in conservatism. The implications of *Size* for change in conservatism are ambiguous. On one hand, larger firms are likely facing greater political scrutiny and are likely to be more conservative; however, larger firms have greater ability to hide their losses (Khan and Watts, 2010). Therefore, the sign on *Size* is unclear.

The effect of *Leverage* is also ambiguous. Firms with higher leverage are likely to face a tight covenant threshold, and these firms are likely to be less conservative. However, firms with higher leverage may face lenders' pressure to report more conservatively (e.g., Watts, 2003; Beatty *et al*, 2008). I include an indicator variable *P_lending* indicating whether borrowers have borrowed from the same lenders in previous loan contracts. The prior lending relationship can have both positive and negative impacts on the borrower's reporting decision. First, with repeated lending relationships, lenders are likely to rely more on soft non-financial information (Ball *et al*., 2008), reducing the demand for reporting conservatism. On the other hand, Chen *et al.* (2011) use *P_lending* as a construct for lenders' bargaining power and find that firms are more likely to report conservatively if they have borrowed from the same lender before. Conservatism is positively associated with litigation risk (Qiang, 2007). I include *Litigation* in the model and expect that change in conservatism is positively associated with litigation risk. I do not include any variable measuring initial covenant slack in the model as the effect of covenant slack is expected to be captured by *IMR1* through the model predicting the probability of violation [equation (5)].

Using the second selection model [equation (6)], I obtain a second inverse Mills' ratio (*IMR2*) and include *IMR2* in the regression models [equations (1) - (4)] presented in section 3.2.1. I expect the sign on the coefficients to be the same as those predicted in Section 3.2.1.

The exclusion restriction is achieved by including several factors such as change in credit rating (*Chg_rating*) and *Litigation* in the second selection model [equation (6)], but not the final outcome equations [equations (1) - (4)]; I also include variables such as *Rating_D, Secured* and *Cret* in the outcome equations [equations (1) - (4)] but not in the second selection model [equation (6)].

Chapter 4 Sample Selection, Validation Tests of Conservatism Measures, Descriptive Statistics of the Sample

In this chapter, I first discuss the sample selection procedure in Section 4.1. In order to evaluate whether the three conditional conservatism measures (e.g., *C-Score*, *NonAcc* and *SK*) reflect the notion of asymmetric timeliness (Basu, 1997),[21] I provide a discussion of the validation tests and the results thereof in Section 4.2. I discuss the descriptive statistics in Section 4.3. Finally, I provide a graphical illustration of the change in investment, financing, and operating performance around the quarter of violations for the violating sample in Section 4.4 and Figures 3 - 5.

4.1 Sample Selection

Table 1 describes the sample selection process. I construct my sample by merging the Dealscan loan data from Thomas Reuters Loan Pricing Corporation (*LPC*), the covenant violation data provided by Nini *et al.* (2009), and two additional databases containing accounting information as well as market-based information, namely, Compustat and CRSP, respectively.

4.1.1 Loan Sample

I obtain my loan data from Dealscan. This database contains comprehensive loan information on global loan markets. Carey and Hrycray (1999) show that the Dealscan database consists of between 50% and 75% of all commercial loans in the United States during the early 1990s. Since 1995, the loan coverage in Dealscan has increased significantly. According to LPC, their LPC staff obtain approximately 60% of the loan data in the database from Securities and

[21] As discussed in Section 3.1.1.1, the calculation of the firm-level Basu (1997) measure requires the availability of time-series data as well as positive and negative stock returns that may not be available for some sample firms. Therefore, I use the C-Score to measure firm-level conditional conservatism.

Exchange Commission (SEC) filings (13Ds, 14Ds, 13Es, 10Ks, 10Qs, 8Ks, and registration statements) and the rest of the data by contacting borrowers and lenders directly.

The basic unit of observation in Dealscan is a loan, also referred to as a facility or tranche. For most loans, LPC provides information about the loan amount, the inception of the loans (*deal active date*), the projected maturity (*maturity date*), specific information about covenants, collateralization requirement, and the costs of the loan measured by the number of basis points above the London Interbank Offered Rate (LIBOR) (hereafter *spread*). The loans are normally packaged together into deals or packages with different loan purposes, loan amounts, costs of borrowing, and loan maturity.

The loan sample consists of 30,530 U.S. dollar-denominated private loans made by banks (*e.g.*, commercial and investment) and non-bank (*e.g.*, insurance companies and pension funds) lenders to U.S. corporations from 1996 to 2006. The sample period begins in 1996 because the covenant violation data is available from 1996 (see the discussion about the violation sample in the next section). I use the Compustat-Dealscan Link provided by Chava and Roberts (2008) to merge the Dealscan loans with the Compustat identifier GVKEY. This merger results in 20,049 loans for 4,829 borrowers. I require that the borrowing firms are non-financial firms with non-missing loan information on spreads, loan sizes, covenants, and loan maturity. This procedure leaves me with a sample of 10,353 facilities under 6,414 deals for 3,262 borrowers. As discussed above, a deal may contain several facilities. To avoid overweighting of a particular loan in each quarter, I follow Sunder *et al.* (2009) and Nikolaev (2010) and keep the loan with the largest

amount in each quarter in my sample.[22] Employing the above procedures, I obtain 6,351 facilities for the final loan sample (*Loan Sample*).

4.1.2 Violation Sample

I use the covenant violation sample provided by Nini *et al.* (2009, hereafter NSS) via the link: http://faculty.chicagobooth.edu/amir.sufi/data.htm. Using a text-searching algorithm, NSS identify 16,554 covenant violations (3,869 firms) from 1996 to 2007. NSS acknowledge that this sample contains repeat violations and this may occur for two reasons. First, both 10Ks and 10Qs fillings may disclose the same violation occurring in the same fiscal year. Second, violating firms have to report the same violations in subsequent quarters if the covenant violations are not waived immediately. Following NSS, I define a violation as a new violation if the firm has not reported any violation during the past eight quarters. Because the loan sample period starts in 1996 and it is not clear whether violations occurring in 1996 and 1997 are new violations or not, I exclude the first two years (1996 and 1997) from the sample. Imposing these filtering rules, I obtain 4,045 firm-quarter new violations for 3,387 firms for the *Violation Sample*. Note that while the loan sample starts in 1996 (Section 4.1.1), the violation sample starts in 1998.

4.1.3 Violation Sample with Loan Information

To obtain the violation sample with related loan information, I merge the *Loan Sample* described in Section 4.1.1 with the *Violation Sample* described in Section 4.1.2 by requiring the violation date to lie between the *deal active date* and *maturity date*. After merging these two samples, there are 1,180 firm-quarter violations for 1,098 firms in the sample. Next, I require the availability of financial data to calculate changes in conservatism and other financial variables. I manually examine the 10K and 10Q disclosure of the matched violation sample to ensure that the

[22] In the construction of the violation sample, I keep all loans in each quarter to facilitate the comparison of the loan information provided by 10K and 10Q disclosures and the Dealscan loan information.

violating loans are correctly linked to loan information. Specifically, I compare lenders, loan amount, loan initiation date, maturity date, or a combination, disclosed in 10K or 10Q fillings with the Dealscan loan information to establish the correct link (see Appendix D for an example of10K disclosure of loan information and violation). Finally, I obtain 312 firm-quarter violations for 303 firms.

4.1.4 Non-Violation Sample with Loan Information

In order to examine how conservatism mitigates the consequences of covenant violations, I also select a non-violating sample with related loan data. I first eliminate the violation firms (3,387 firms) from the *Loan Sample* and then match the remaining sample with the Compustat firm-quarters between 1998 and 2007 by requiring the fiscal quarter ending date (Compustat: datadate) between the loan initiation date (or January 1, 1998, whichever is later), and the maturity date (or December 31, 2007 whichever is earlier).[23] By doing so, I obtain 29,580 firm-quarters for 1,396 firms. I then require these firm-quarters to have variables needed to estimate accounting conservatism and other financial measures. I obtain a final non-violating sample of 5,327 firm-quarters for 535 firms. See Figure 2 for the illustration of the sample selection procedure for the non-violation sample.

4.2 Validation of Conditional Conservatism Measures

In Table 2, I summarize the results of the validation tests examining the effectiveness of the three conservatism measures in my sample firms (consisting of 5,639 firm-quarters of observations with 312 violating quarters and 5,327 non-violating firm-quarters) to distinguish the different degrees of conservatism measured by Basu's (1997) regressions. Because each

[23] These requirements restrict the non-violating observations "violating" or event quarter to the period between January 1, 1998 and December 31, 2007, consistent with the sample period for the violation sample obtained by NSS.

violating and non-violating firm-quarter is associated with a pre-contracting and a post-contracting conservatism measure, I group the 5,639 pre-contracting firm-quarter observations with the 5,639 post-contracting firm-quarter observations together. I then partition these observations into three rank ordered equal-sized groups based on each individual conservatism measure and estimate the following Basu (1997) regression for each group:

$$E_t/P_{t-1} = \gamma_0 + \gamma_1 DR_t + \gamma_2 R_t + \gamma_3 DR_t \times R_t + \varepsilon_t \quad (7)$$

where E_t is earnings per share; P_{t-1} is the fiscal quarter-end stock price per share; R_t is quarterly returns. DR_t is a dummy variable that equals to 1 if R_t is negative and 0 otherwise. γ_3 *is* the Basu (1997) measure of the conditional conservatism. I expect that γ_3 is significantly larger for the high *NonAcc, C-Score* and *SK* groups compared to the lowest rank-ordered group.

The results from the three panels in Table 2 confirm this prediction. Specifically, Panel A shows that for the *NonAcc* measure, γ_3 in the low group is 0.016 and not significant, but γ_3 is 0.148 and significant in the high group. The difference between the high and low groups is 0.132 and this difference is significant *(t=5.20)* at 1%. The differences for the high-low *C-Score* and *SK* group are 0.064 (*t=5.35*) and 0.133 (*t=5.13*), respectively and both are significant at the 1% level. In summary, the validation test results provide evidence that my three conservatism measures capture the essence of the asymmetric timeliness that reflects the conditional conservatism suggested by the Basu (1997) regression [equation (7)].

4.3 Descriptive Statistics of the Sample

4.3.1 Loan Sample

In this section, I first provide the descriptive statistics for the *Loan Sample* in Table 3 Panel A. On average, the sample firms borrowed 297 million U.S. dollars in 1996 – 2006 in each deal,

a finding similar to that reported by Bradley and Roberts (2004) for a different period (1993 - 2001). This loan sample is also very similar to Bradley and Roberts (2004) sample in terms of the maturity (42 months *vs*. 44 months, respectively) and pricing (194 basis points *vs.* 192 basis points, respectively). However, a greater percentage of my sample firms contain performance pricing (*Per_P*) (65.50% in my sample *vs*. 43.95% in the Bradley and Roberts [2004] sample), which may reflect the increased use of performance pricing in private lending in recent years (Asquith *et al.*, 2005).

4.3.2 Violating and Non-Violating Loan Sample before Imposing the Financial Data Requirement

As indicated in the sample selection procedure (Section 4.1.3), requiring the availability of financial variables reduces the sample size for both the violating and non-violating samples. To gain insight on whether the sample after imposing data requirements (Table 6 Panel A, hereafter referred to as the "after" sample) is different from the sample before imposing the financial data requirements (Table 3 Panel B, hereafter referred to as the "before" sample), I first present the descriptive statistics for the "before" sample in this section; I then compare the "before" sample (Table 3 Panel B) with the "after" sample (Table 6 Panel A) in Section 4.3.4. The comparison between the "*before*" sample and "after" sample would provide insight into whether the results from the "after" sample are generalizable to other samples.

The comparison between violating and non-violating firm-quarters for the "*before*" sample (Table 3 Panel B) suggests that violating and non-violating firm-loans are significantly different in many dimensions. For example, on average, non-violating loans tend to be larger loans (*mean difference = 227.760 million dollars, p value of the difference = 0.000*). Maturity is longer for the violating firms (*mean difference = - 2.861months, p value of the difference = 0.000*) and the

violators are likely to borrow from a smaller number of lenders than the non-violators (*mean difference in the number of lenders = 3.764, p value of the difference = 0.000*). The most striking difference is that violators have much higher costs of borrowing (*mean difference = -65.542 basis points, p value of the difference = 0.000*), suggesting that lenders are likely to use the pricing terms (*e.g., spread*) and impose tighter financial covenants at the same time to control borrowers' potential risk. Another important difference is that violating firms on average have 8% more financial covenants than the non-violators (*2.253 vs. 2.161; p value of the difference = 0.000*), also suggesting that lenders are likely to use different contracting terms to control the underlying risk at the time of loan initiation.

4.3.3 Yearly and Industry Distribution of the Sample

Table 4 shows the yearly distribution of violating firm-quarters for which I have information to calculate the test variables between 1998 and 2007. The frequency of violation peaked in 1998 (10.39%) and was followed by another increase in 2001 (7.56%), consistent with the occurrence of an economic downturn in 2001. After 2001, the percentage of violating firm-quarter observations trended downward from 4.74 % to 0.85% in 2007, the last year of my sample period. Overall, the descriptive statistics suggest that the yearly distribution of my sample reflects the economic trend in recent years and the sample is representative of the population in terms of the ability to capture the trend in the economic cycle.

Table 5 contains the industry distribution of violating firms. The industry classification is based on the two-digit North American Industry Classification System (NAICS) code. Firms in the Manufacturing industry experience the most frequent violations (48.18%) and firms in the Educational Service industry have the smallest percentage of violations (0.33%).

4.3.4 Descriptive Statistics of the Final Sample at Loan Initiation

In Table 3 Panel B, I compared the difference between the violating and non-violating firm-quarters for the "before" sample. In Table 6, I provide the descriptive statistics for the "after" sample. I first compare the "after" sample (Table 6 Panel A) with the "before" sample (Table 3 Panel B). The comparison suggests that, consistent with the statistics presented in Table 3 Panel B for the "*before*" sample, the violating and non-violating firms are significantly different in *Loan Size*, maturity (*Tenor*), *Spread*, number of covenants (*NumCov*), and the presence of performance pricing (*Per_P)*. Specifically, non-violating firms tend to borrow more (*mean difference in loan size =202.298 million dollars*; *p value of the difference =0.000*). The difference in maturity between the violating and non-violating firm-loans is marginally significant with the non-violators borrowing at longer terms (*mean difference = 1.943 months*; *p value of the difference = 0.081*). Consistent with the comparison presented in Table 3 Panel B, covenant violators for the "*after*" sample also have significantly higher costs of borrowing than the non-violators (*mean difference = - 74.805 basis point*; *p value of the difference = 0.000*). The violators tend to have a greater number of financial covenants (*mean difference = - 0.177*; *p value of the difference =0.002*) and are less likely to have the performance pricing clause in their contracts as compared with the non-violators. Also consistent with the comparison presented in Table 3 Panel B, covenant violators tend to borrow from fewer lenders than non-violators do (*mean difference = 4.448; p value of the difference = 0.000*). The above mentioned differences in loan features suggest that violators are risky borrowers to begin with, at the time of initiation of the loan, and lenders impose more stringent contracting terms to control for risk. In addition, the evidence that the violators have higher costs of borrowing and greater number of covenants also suggest that lenders seem to use pricing and non-pricing contract terms along with tighter

covenants to control for lending risk. These different contracting terms (*e.g.*, *spread* and *number of covenants*) are used such that they serve as complements rather than substitutes to each other.

The preceding discussion suggests that the difference in the contracting terms between the violating and non-violating firms are similar for the "before" and "after" sample. Furthermore, a comparison of the violators in Table 3 Panel B with the violators in Table 6 Panel A shows that the loan size (*median: 70 million vs. 68 million*) and the spread (*225 basis points vs. 212.5 basis points*) are comparable in the two samples. This comparison provides evidence that the final loan sample with all required financial data available is not significantly different from the sample before such requirements are imposed, reducing concerns of the generalizability of the hypotheses test results.

In terms of the firm characteristics at loan initiation, Table 6 Panel A shows that the violators tend to be smaller firms with fewer institutional shareholders. Particularly, the natural logarithm of market value of violating firms is significantly smaller than that of the non-violating firms (*mean difference = 1.176, p value of the difference = 0.000*). The non-violators on average have 55 institutional shareholders (*insti1*) compared with 30 for the violators. Although the number of institutional owners with holding > 5% (*insti2*) is not significantly different between the violators and non-violators, the number of institutional owners with activists (*insti3*) is significantly fewer for the violators than for the non-violators (*mean difference = 1.269; p value of the difference =0.000*).

The comparison of other firm characteristics shows that the violators have higher *Leverage* and lower *MB* and *EBITDA*, consistent with earlier evidence that violators tend to be riskier borrowers at the time of loan initiation.

Table 6 Panel A also presents the comparison of the conditional conservatism at loan initiation. The statistics suggest that violators are more conservative than non-violators when using *C-Score* (*mean difference = - 0.032; p value of the difference = 0.000*) and *SK* (*mean difference = - 0.343; p value of the difference = 0.001*) as a measure of the conservatism. This difference suggests that more conservative firms at loan initiation are more likely to violate covenants sooner. However, the evidence presented earlier also suggests that these violating firms are risky firms (higher cost of debt and greater number of covenants) and probably have tighter initial covenants, which could lead to higher probability of covenant violations

Table 6 Panel B presents the correlation among the contracting terms, pre-contracting conservatism, and firm characteristics at loan initiation. The contemporaneous association between the measures of unconditional conservatism (*Res_Pre*) and the conditional conservatism is positive and significant for the *C-Score* measure (ρ*=0.089*)[24] at a significance level of 5% and this association for *NonAcc* and *SK* is positive but insignificant.[25] *C-Score* exhibits a positive association with *NonAcc* (ρ =0.086), but a negative and insignificant association with *SK*, suggesting that *SK* and *C-Score* and *NonAcc* may capture different aspects of conservatism. The composite measure (*CCM)* is significantly associated with the three individual measures, providing evidence that the transformation of the three individual measures into one measure is successful. The *C-Score* measure is positively associated with *Spread* at 5%, inconsistent with Zhang (2008) and Ahmed *et al*. (2002) who have shown that conservatism is associated with

[24] ρ is the coefficient of correlation.

[25] Note that the prediction that high unconditional conservatism leads to lower future conditional conservatism suggests that there is a negative association between current unconditional conservatism and subsequent conditional conservatism. The positive relationship between *C-Score* and unconditional conservatism (*Res_Pre)* observed here is a contemporaneous one.

lower costs of borrowing. This might be because the size component used in the calculation of *C-Score* is negatively associated with the cost of debt and *C-Score* is also negatively associated with the size of the firm, leading to a positive association between *C-Score* and the costs of borrowing. The number of financial covenants (*NumCov*) is positively associated with *NonAcc* ($\rho = 0.086$) at a significance level of 5%, consistent with Nikolaev's (2010) finding that more conservative firms are likely to have a greater number of covenants. This association between the number of covenants (*NumCov*) and the two other conservatism measures (*C-Score and SK*) is also positive, but not significant. However, the composite measure (*CCM*) exhibits a positive and significant association with *NumCov*.

Table 6 Panel B shows that the association between firm characteristics and loan terms is consistent with the previous literature. For example, higher *EBITDA* and *ROA* are associated with lower costs of borrowing ($\rho_{Spread,EBITDA} = -0.260$; $\rho_{Spread,ROA} = -0.279$) and higher *Leverage* is associated with higher costs of borrowing ($\rho = 0.312$) (Dennis *et al.*, 2000).

The correlation analysis in Table 6 Panel B also shows that there is a positive association between C-*Score* and the probability of having a secured debt ($\rho_{c\text{-}Score,\ secured} = 0.156$), an association that is different from that of Chen *et al.* (2011) who use bank lending data from China and find that the probability of having a secured debt is negatively associated with the *C-Score*. The evidence that secured debt (*Secured*) is also more likely to be found in debt contracts with higher costs of borrowing and a greater number of covenants further confirms that lenders coordinate different loan contracting terms to control the underlying risk.

4.3.5 Descriptive Statistics of the Final Sample at Covenant Violation

Table 7 compares the changes in conservatism and the consequences of covenant violations between the violating and non-violating firm-quarter observations. Using different conservatism measures, I show that violators increase conservatism from the time of loan initiation to the time covenant violations, much more than the non-violators , but the mean difference in change between the violators and non-violators is significant only for *NonAcc* (*mean difference =- 0.003 , p = 0.047*). In terms of the difference in the credit ratings, Panel A suggests that while the violators experience a decrease in credit quality (*Chg_Rating = 0.200*),[26] non-violators exhibit an improvement in the credit quality (*Chg_Rating = - 0.092*), and this difference is significant at the 1% level. Panel A also shows that both violators and non-violators have a decrease in *EBITDA*, but the decrease for violators is significantly higher than that for non-violators (*mean difference = 0.008; p value of the difference = 0.000*). Similarly, the stock market performance (*Cret*) between the violators and non-violators before violation is significantly different at 1%. Non-violators have cumulative raw returns of 0.162 over four quarters before the violation compared with -0.136 for the violators.

The outcome variables for the violators *versus* the non-violators are also significantly different. Particularly, both violators and non-violators have a reduction in debt issuance, but the reduction for violators (*Chg_Debt = - 0.012*) is 3 times that of the non-violators (*Chg_Debt = - 0.004*) with the difference in reduction being significant at the 1% level. The decrease in capital expenditures also exhibits a similar pattern: the decrease for the violators is 7 times that for the non-violators (*-0.021 vs. -0.003*). These results are consistent with Roberts and Sufi (2009b) and Chava and Roberts (2008). Panel A also shows that the violators experience a decrease in operating performance (*Chg_GM = -0.015*) compared with the non-violators that exhibit no

[26] Note that higher value of credit ratings indicates worse credit quality.

change (*Chg_GM =0.000*) and the difference in change is significant at the 1% level. These results are not consistent with Nini *et al.* (2009) who find that violators experience greater improvement in the operating performance. My results are consistent with a more recent study by Tan (2011) who find that violators have worse operating performance as compared with non-violators. Furthermore, the four-quarter stock market returns (*Post_Ret1*) for violators are 0.033 compared with 0.182 for the non-violators and the eight-quarter stock market returns (*Post_Ret2*) for the violators are 0.175 compared to 0.386 for the non-violators. The difference in *Post_Ret1 (2)* between the violators and non-violators is significant at the 1% level.

Table 8 provides a comparison of the firm characteristics and outcome variables between high and low conservative violating firms. I define high conservatism firms as firms with change in conservatism greater than the sample median and low conservatism firms as firms with change in conservatism smaller than the sample median. Panels A, B, C, and D show the comparison using *NonAcc, SK, C-Score*, and *CCM* as a measure of conservatism, respectively. As the patterns in the descriptive statistics are similar across all four panels, I only discuss the descriptive statistics using *CCM* as a measure of conservatism (Panel D). Panel D shows that the pre-contracting unconditional conservatism (*Res_Pre*) is higher for firms with smaller increase in conservatism. However, this difference is not significant. The increase in credit rating (*Chg_rating*) is higher for low conservatism firms, but there is no significant difference between the two groups. The other firm characteristics between the high and low conservatism firms are not significantly different, either. Although the outcomes of covenant violations are more favorable (e.g., smaller decrease in debt, capital expenditures, and gross margin and better eight-quarter stock returns) for firms with greater increase in conservatism, these differences are not significant.

Table 9 presents the correlations between the change in conservatism and the outcome variables. The upper half of the table presents the correlation for the violating firm quarters and the lower half presents the correlation for the non-violating firm-quarter observations. For the violating firm-quarter observations, *Chg_Debt* is positively associated with *NonAcc* ($\rho = 0.101$), *SK* ($\rho = 0.120$), and the composite measure *CCM* ($\rho = 0.135$) significant at 10%, 5%, and 5%, respectively, implying that firms that increase conservative reporting after loan initiation are able to issue more debt than firms that decrease conservative reporting. In the non-violating firm-quarters, the correlation between *Chg_Debt* and *NonAcc* and *CCM* is negative and insignificant. *Chg_Debt* is negatively correlated with *C-Score* in both the violating and non-violating firm-quarter observations, but this negative correlation is only significant for the non-violating firm-quarter observations. The univariate analysis provides some evidence that there is a positive association between change in conservatism and change in debt for the violating sample, but not for the non-violating sample.

Table 9 also shows that for the violating sample, change in capital expenditures (*Chg_Cap_X*) is positively correlated with all conservatism measures, but only the correlation between *C-Score* and *Chg_Cap_X* ($\rho = 0.151$) is significant at the 5% level, suggesting that firms that increase conservative reporting are able to invest more compared to firms that do not increase conservative reporting or decrease conservative reporting. For the non-violating sample, the correlation between *Chg_Cap_X* and conservatism is neither positive nor significant.

For the violating sample, *Chg_GM* is negatively associated with all conservatism measures and none of them are significant. For the non-violating sample, the correlation between *Chg_GM* and conservatism measures is negative and significant for *C-Score* ($\rho = -0.045$) at 5% and positive for *SK* ($\rho = 0.048$) and *CCM* ($\rho = 0.034$), also significant at the 5% level.

For the violating sample, *Post_Ret1* is positively associated with *SK*, *C-Score*, and *CCM*, but none of them are significant at the 5% level. *Post_Ret1* is negatively associated with *NonAcc* and this association is not significant, either. *Post_Ret2* is positively associated with *C-Score* (ρ = *0.132*) at a significance level of 5%, but this positive and significant association is not observed in other conservatism measures. For the non-violating firm-quarter observations, the correlation between the other two conservatism measures and *Post_Ret1* and *Post_Ret2* is not significant. Overall, the univariate analysis suggests that there is some evidence that post-violation stock market performance is associated with the increase in conservatism for the violating sample, but not for the non-violating sample.

4.4 Graphical Analysis

I provide a graphic illustration of the violating firms' debt issuance and investment behavior and the operating performance around the quarter of covenant violations in Figures 3 - 5. In these figures, I line up the firm-quarter observations at the quarter of violation and partition firm-quarters into two groups: one group with change in the composite measure of conservatism (*CCM*) greater than the median of the sample and one group (*chg =1*) with change in *CCM* less than the median of the sample (*chg = 0*). The X-axis represents the quarters relative to the quarter of covenant violations and the Y-axis represents the level of debt issuance, capital expenditure, and gross margin.

Figure 3 shows that these violators have a significant drop in debt issuance after the covenant violation quarter. The debt issuance reaches a low level in the third quarter of violation and bounces back afterwards. The group with change in *CCM* greater than the median of the sample (*chg=1*) has a smaller drop within three quarters of violations compared to the group that has a change in *CCM* that is lower than the median of the sample (*chg = 0*). In the third quarter

after violation, the high change group has lower debt issuance, but in the fourth quarter, the high change group returns to a level of debt issuance higher than that of the low change group.

Figure 4 illustrates the investment behavior for the violating firms around the quarter of violation. Both the high and low change groups experience decreases in their capital expenditures. However, it seems that the low group has a smaller reduction in capital expenditures because in the second quarter after violation, the low change group experiences a sudden increase in capital expenditures. Therefore, from the graphic illustration, it is not clear whether firms' investment behavior is associated with the change in conservatism.

Figure 5 shows the operating performance measured by gross margin around the covenant violating quarter. The gross margin decreases in the quarter of violation, but after that, we see an increase in gross margin, but the level of gross margin in the post-violation period does not exceed the level in the pre-violation periods. Similar to Figure 4, it is difficult to tell which group has a bigger change in gross margin.

4.5 Summary of Chapter 4

In this chapter, I first provide evidence that the three conservatism measures used in this thesis can distinguish the degree of asymmetric timeliness captured by the Basu (1997) measure. Then, I show that my final sample with financial data available is similar to the sample before I impose the financial data requirement. I also provide evidence that lenders are likely to use several contracting features at the same time to control for the underlying risks. The correlation analysis and the graphic illustrations suggest that there is mixed evidence between the change in conservatism and the outcomes of covenant violations. Note that all results reported in this chapter (including the correlation results and the graphical illustrations) do not control for other determinants of debt issuance, capital expenditures, operating and stock market performance and

cannot be used as results for hypotheses tests. In the next chapter, I discuss the results for my empirical tests with covariates.

Chapter 5 Empirical Analyses

In this chapter, I first present the results of the empirical analysis using the Ordinary Least Squares (*OLS*) regression in Section 5.1. Next, I present the analysis of the determinants of the probability of covenant violation in Section 5.2. I discuss the results using the Heckman (1979) self-selection model and the Propensity Score Matching approach in Sections 5.3 and 5.4, respectively. In Section 5.5, I estimate the probability of change in conservatism model, and in Section 5.6, I discuss the results using the Double Selection model. All variables used in the empirical analysis are defined in Appendix A.

5.1 Results Using *OLS* Model

5.1.1 Testing of H1

H1 states that, the negative impact of covenant violations on firms' financing activities is smaller for firms that exhibit a larger increase in accounting conservatism compared with violating firms that exhibit a smaller increase in conservatism after loan initiation. In Table 10, I present the empirical results for H1 using three conservatism measures as well as the composite measure. The first column (Model 1) contains the results without the inclusion of any control variables; in Model 2, I include firm characteristics as control variables and in Model 3, I include both firm characteristics and loan variables as controls. I cluster standard errors by firms for all three models (Peterson, 2009). Model 2 and Model 3 also include year and industry fixed effects.

Table 10 shows that using *NonAcc, SK, C-Score,* and *CCM* in Model 3 with all control variables included, the coefficients on *Vio* are - 5.647, - 5.278, - 5.003, and -30.277, respectively, all being significant at the 1% level. These results are consistent with those documented by

Roberts and Sufi (2009b), suggesting that violating firms experience significant reductions in debt issuance.

Overall, the results using alternative conservatism measures support H1. Specifically, the results in Model 1 show that, when other control variables are not included, the coefficients on the interaction term *Vio*SK* (*Model 1: coefficient = 1.880*; *standard* error = *1.340*) and *Vio*CCM* (*Model 1: coefficient = 15.665*; *standard error = 9.974***)** are positive and significant at the 10% level. When all control variables are included, the coefficients on *Vio*NonAcc* (*Model 3: coefficient = 137.567*; *standard error = 104.633*), *Vio*SK* (*Model3: coefficient = 1.907*; *standard error = 1.334*), and *Vio*CCM* (*Model3: coefficient = 15.877*; *standard error = 9.902*) are all significant at the 10% level. This is consistent with the prediction in H1, suggesting that increased conservatism mitigates the negative consequences of covenant violations on firms' abilities to issue debt. Although the results are not strong, the interaction variables are all significant at the 10% level. The coefficient on *Vio*C-Score* is negative but insignificant (*coefficient = -9.698*; *standard error = 16.121*).

The coefficients on the control variables are generally consistent with the predictions. For example, although the coefficients on *Leverage* are insignificant in the models, their signs are consistent with predictions. The coefficients on *NonAcc, C-Score, and CCM* are negative, but only the coefficient on *C-Score* is significant (*Model 3: coefficient= -12.445*; *standard error = 7.678*). To some extent, the negative coefficient on *C-Score* confirms Lee's (2011) finding that more conservative firms are less likely to issue debt. The coefficient on *Cret* is positive and significant (*coefficient = 1.536, 1.526, 1.444, 1.534; standard error = 0.433, 0.430, 0.442, 0.430*), consistent with the prediction that firms performing well in the stock market are likely to obtain greater amount of loans. I find that *MB* has a negative but insignificant coefficient in all

models. This insignificance may be due to the inclusion of *Cret* as being a measure of firm performance, a variable that has not been used in the previous literature. The coefficient on *Size* is positive and significant when the loan variables are not included (Model 2), suggesting that larger firms are more likely to issue new debt. However, this positive relationship disappears when the loan variables are included. The adjusted R^2 is 3.8% in Model 2, higher than the adjusted R^2 (2.8%) reported in Roberts and Sufi (2009b) for a similar specification. The coefficients, adjusted R^2, and the significance level on the main testing variables (*Vio*Chg_Con*) do not change significantly when the loan variables are included (Model 3). However, to ensure consistent analysis, I include loan variables in the subsequent analysis using the Heckman (1979) self-selection model in Section 5.3, the Propensity Score Matching model in Section 5.4, and the Double Selection model in Section 5.6.

5.1.2 Testing of H2

H2 states that covenant violations have smaller negative impact on firms' investment activities if the violating firms exhibit increased accounting conservatism compared with firms that exhibit a smaller increase in conservatism after loan initiation. I report the results of testing H2 in Table 11. Consistent with Chava and Roberts (2009), the coefficient on *Vio* is negative and significant across all models, indicating that violating firms experience greater reductions in investment activities as compared to non-violating firms. The results for estimating Model 3 (with the control variables included) show that while the coefficients on *Vio*NonAcc* (*coefficient = 19.781, standard error = 21.006*) and *Vio*SK* (*coefficient = 0.151, standard error = 0.195*) are positive but not significant, the coefficients on *Vio*C-Score (coefficient* = 9.354, *standard error = 4.185*) and *Vio*CCM* (coefficient = 2.111, *standard error =1.488*) are positive and significant at the 5% and 10% levels, respectively. These results provide evidence supporting H2

that more conservative firms experience smaller reductions in investing activities after covenant violations. The results, still weak, are somewhat better than those for tests of H1, using *OLS*.

Consistent with predictions, the coefficients on *Size* range from - 0.207 to - 0.233 and are significant at the 5% level, suggesting that larger firms have smaller change in their capital expenditures. The effect of firms' market performance (*Cret*) is positive with coefficients ranging from 1.616 to 1.625 and significant at the 1% level in all models, providing evidence that firms with better economic performance are likely to invest more. The effect of *Leverage* is positive but insignificant. Future growth opportunities do not have an effect on firms' investment behaviour probably because the inclusion of *Cret* dominates the effect of *MB*. Consistent with Chava and Roberts' (2008) findings, firms with credit ratings have larger change in capital expenditures after controlling for other factors affecting firms' investment behavior. This positive association suggests that information asymmetry is lower between the borrower and lender if a credit rating is available for the borrower. The effect of prior lending relationship *(P_Lending*) is positive in all models, but none of the coefficients are significant.

5.1.3 Testing of H3

H3 predicts that firms that increase conservative reporting have better operating performance after covenant violations. Table 12 presents the results for the testing of H3. I do not find that violating firms exhibit greater improvement in operating performance, a result that is different from those of Nini *et al.* (2009). Specifically, I find that when the control variables are not included (Model 1), the change in gross margin (the proxy for operating performance) is smaller for the violating firms than that for the non-violating firms. In Model 1 using *NonAcc, SK,* and *C-Score* as a measure of conservatism, the coefficients on *Vio* are - 1.453, - 1.452, - 1.458, respectively and they are all significant at the 1% level. When the control variables are

included (Model 3), there are no significant differences in the change in gross margin between the violating and non-violating firms. For example, the coefficients on *Vio* range from -0.866 to 0.829 in models (Model 3) and none of the coefficients are significant.

The results in Table 12 also show that the coefficients on the interaction term between *Vio* and *Chg_Con* are not consistent with predictions. Particularly, the coefficients on *Vio*Chg_Con* are negative for *NonAcc* (*coefficient -6.779*; *standard error = 20.815*), *SK* (*coefficient = -0.177*; *standard error = 0.256*), and *CCM* (*coefficient = -1.092*; *standard error =1.846*) and none of the coefficients are significant. Although the coefficient on *Vio* C-Score* is positive (*coefficient = 3.578*; *standard error = 5.346*), it is not significant at conventional levels. Therefore, the tests using the Ordinary Least Square approach do not provide evidence supporting H3.

The coefficient on *MB* is consistent with predictions. For example, using the *C-Score* in Model 3, the coefficient on *MB* is 0.148 (*standard error = 0.079*) and significant at the 5% level. This result suggests that firms with greater growth opportunity are expected to see greater change in gross margin than firms with smaller growth opportunity. The coefficient on *Cret* is positive and significant across all models, suggesting that firms with higher expected future cash flow are likely to experience greater improvement in gross margins.

5.1.4 Testing of H4

Tables 13 and 14 present the results for the testing of H4. Table 13 shows the results for the stock returns calculated over four quarters after covenant violations and Table 14 presents the results for the stock returns calculated over eight quarters after covenant violations. Table 13 shows that using three individual conservatism measures (*NonAcc, SK, C-Score*), the violators

have smaller returns than that of the non-violators: the coefficients on *Vio* range from -0.146 to -0.167 and are significant at the 1% level. Consistent with H4, the coefficient on *Vio*Chg_Con* is positive and significant at 5% level only when *C-Score* (*Model 3: coefficient =0.587*; *standard error =0.292)* is used as a measure of conservatism. The coefficients on *Vio*NonAcc* (*Model 3: coefficient =-0.717*; *standard error =1.579*) and *Vio* SK* (*Model3: coefficient = 0.017*; *standard error = 0.017*) are either negative or positive but insignificant. The above discussed results provide mixed evidence with regard to the implications of conservatism for firm valuation after covenant violations.

The significant positive coefficient on *Size* is consistent with the literature that size is negatively related to future returns. The coefficients on *Leverage* are negative (*coefficient = -0.006*; *standard error = 0.008*) across all models using different conservatism measures, but none of the coefficients are significant. *MB* has a negative and significant coefficient (coefficients range from *-0.008* to *-0.010* and standard errors are *0.004* for all models), consistent with *MB* predicting negative future returns.

Table 14 shows the eight-quarter return results. The coefficient on *Vio* is negative and significant at least at the 5% level in models with various conservatism measures. The coefficient on *Vio*Chg_Con* is positive across all measures and models, but only significant for *SK* (*coefficient = 0.039*; *standard error =0.029*) at 10% and for *C-Score* (*coefficient = 0.974*; *standard error = 0.447*) at the 1% level. In summary, the value implications of post loan-initiation accounting conservatism for firms after covenant violations are mixed for the *OLS*-based tests of H4.

However, it might be noted that the *OLS* estimates reported above do not control for the potential selections biases, which I discuss in the following sections.

5.2 Analysis of the Probability of Violation

As discussed in Section 4.1, the violating and non-violating firms are significantly different in many dimensions at the time of loan initiation, and these differences lead to non-random assignment of firms into violating and non-violating groups, which could result in biased parameter estimates. To address this non-random assignment problem, I employ the Heckman (1979) self-selection model (Section 5.3.) and the Propensity Score Matching method (Section 5.4). Both approaches involve estimating models of probability of covenant violation, which I discuss first in this section.

Table 15 presents the results for the model used to predict the probability of covenant violation, using a *Probit* model [equation (5)]. Consistent with the prediction, I find that firms with a greater increase in conservatism are more likely to violate covenants. Specifically, the coefficients on change in *CCM* and *SK* are 0.558 (*standard error = 0.198*) and 0.519 (*standard error = 0.180*), respectively, and both are significant at the 1% level. The coefficients on change in *NonAcc* (*coefficient = 0.157*; *standard error = 0.176*) and change in *C-Score* (*coefficient = 0.178*; *standard error =0.189*) are positive but insignificant. The positive coefficient on the change in conservatism suggests that after controlling for tighter covenants (captured by pre-contracting conservatism and other variables), deviation from pre-contracting conservatism leads to higher probability of violations. While the coefficients on the pre-contracting *SK* (*coefficient = 0.271*; *standard error = 0.066*) and *CCM* (*coefficient = 0.978*; *standard error = 0.315*) are positive and significant at the 1% level, the coefficient on pre-contracting *NonAcc* is negative (*coefficient = -3.039*; *standard error = 5.189*) and insignificant. The positive relationship

between pre-contracting conservatism and the probability of violation suggest that more conservative firms receive tighter covenants.[27] The coefficient on the pre-contracting unconditional conservatism is not significant in any models, consistent with Ball and Shivakumar's (2005) argument that unconditional conservatism is not relevant in contracting, at least in triggering covenant violations.

Table 15 shows that the coefficients on loan variables are generally consistent with the predictions. Specifically, the coefficient on *Tenor* (the number of months between loan initiation and loan maturity) is negative and significant at the 1% level, lending support to the prediction that lenders would prefer less frequent violations for long-term debt to reduce the renegotiation costs. Not surprisingly, the coefficient on *Spread* (the costs of borrowing), is positive and significant in all three models across all measures: this coefficient is 0.009 for the model with *NonACC*, *SK*, and *C-Score*, and 0.008 for the *CCM* measure and all coefficients are significant at the 1% level. These findings are consistent with the prediction that while lenders demand higher compensation from risky borrowers, they also impose tight control on these firms using tighter covenants, thereby triggering frequent covenant violations.

Consistent with Demiroglu and James' (2010) findings that larger firms and firms with higher market-to-book (*MB*) ratio receive greater covenant slack, I find that larger firms and firms with higher *MB* are less likely to violate covenants. Specifically, Table 13 shows that using *NonAcc*, *SK*, *C-Score*, and *CCM* in different models, the coefficients on *Size* are - 0.215, - 0.248, - 0.198, and - 0.136 and the coefficients are significant at the 1%, 1%, 5%, and 10% levels,

[27] Frankel and Litov (2007) provide some evidence supporting this conjecture. Particularly they find that there is a negative association between net worth covenant slack and the Basu (1997) asymmetric timeliness.

respectively. The coefficients on *MB* are negative and significant with coefficients ranging from - 0.070 to - 0.102 and significant at the 1% level for all models across all measures.

Table 15 also provides evidence for the relationship between the probability of violation and firm performance. Table 15 shows that the coefficients on *Chg_ROA* are consistently positive for all models, but not statistically significant, suggesting that the *Chg_ROA* variable does not predict the probability of violation. This insignificant result may be because lenders do not necessarily use net income as a covenant threshold in debt contracts. In contrast, *Chg_EBITDA*, a cash flow measure, is negatively associated with the probability of violation. Specifically, the coefficients on *Chg_EBITDA* are - 29.110, -31.006, - 28.253, and - 30.303 in models with different conservatism measures and these coefficients are all significant at the 1% level. These results suggest that the increase in *EBITDA* is associated with a lower probability of violation. Furthermore, Table 14 shows that the increase in *Leverage* is associated with a higher probability of covenant violation, but none of the coefficients are significant. After controlling for the accounting performance *Chg_EBITDA*, the coefficient on *Cret* is still negative and significant at the 1% level across models using different conservatism measures (*coefficient = - 1.415*, *- 1.386*, *- 1.407*, and *- 1.391*; *standard error = 0.241*, *0.235*, *0.239*, and *0.234*). These results suggest that because the accounting ratios (e.g., *EBITDA* and *Leverage*) can only partially capture the change in firm performance and trigger covenant violations, the inclusion of stock market performance in the probability model is very important.

5.3 Results Using Heckman (1979) Selection Approach

As discussed in Section 3.2.3, I calculate the inverse Mills' ratio from the *Probit* model that I discussed in Section 5.2 and include the inverse Mills' ratio (*IMR1*) in the second stage outcome regressions. Because I have four models using different conservatism measures, I

calculate *IMR*1 for each model separately. I report the second stage outcome regressions using the full model with all control variables included (Model 3 in Section 5.1.1) in Table 16 - 20.

I present the results for the testing of H1 in Table 16. The coefficient on *IMR1* is significant at the 10% level in models with various conservatism measures, suggesting that correcting for the selection bias is very important in this setting. The coefficient on *Vio* (*coefficient = - 28.921, - 25.822, - 25.833,* and *- 56.400*; *standard error = 8.344, 7.288, 7.699,* and *21.386,* respectively for the four models)[28] is negative and significant at the 1% level, providing evidence that after controlling for the non-random assignment of firms into violation and non-violation groups, violators experience greater reductions in debt issuing abilities, which is consistent with the *OLS* results. The coefficients on the interaction term *Vio*NonAcc* and *Vio*SK* are 151.235 (*standard error = 105.121*) and 1.831 (*standard error = 1.309*), respectively. Both are significant at the 10% level. Despite the negative coefficient on the interaction term *Vio*C-Score*, the coefficient on the interaction term *Vio*CCM* is positive and significant at the 10% level (*coefficient =15.762*; *standard error = 9.706*). Overall, the above discussed analysis suggests that the results using the Heckman (1979) two-stage selection model support the prediction that an increase in conservatism is associated with smaller reductions in firms' debt issuance after the violation of debt covenants. These results are consistent with the results in Section 5.1.1 in which I use the *OLS* model without controlling for the selection bias although the results are still weak with p-values not better than 10%.

[28] In this dissertation, I follow the estimation convention that ignores additional sampling variability introduced by the presence of the inverse Mill's ratio in the second-stage regression. That is, I do not adjust the standard errors of the parameter estimates in the second-stage OLS outcome equation due to the inclusion of the inverse Mills' ratio constructed from the parameter estimates in the first-stage *Probit* equation.

In Table 17, I present the results for the testing of H2 using the inverse Mills' ratio included in the model. The coefficient on *IMR*1 is only significant when *C-Score* is used as a measure of conservatism (*coefficient = 1.798*; *standard error = 1.060*). Consistent with the evidence in section 5.1.2, the coefficient on *Vio* (*coefficient = -6.104*, *-4.987*, *- 6.275*, and *- 8.063*) is negative and significant at least at the 5% level across models using different conservatism measures, lending support to the prediction that the violators suffer greater reductions in capital expenditures. The coefficient on *Vio* and conservatism interaction term is positive and significant at the 5% level for the *C-Score* measure (*coefficient = 9.450*; *standard error = 4.185*). The coefficient on *Vio*CCM* (*coefficient = 2.090*; *standard error = 1.501*) is also positive and significant at the 10% level. The coefficients on the other two interaction terms, namely, *Vio*NonAcc* (*coefficient = 22.469*; *standard error = 20.954*) and *Vio*SK (coefficient = 0.139*; *standard error = 0.196*), are positive but not significant. Overall, the above analysis suggests that after controlling for the selection bias, covenant violations have less adverse impact on firms' investment activities if the violating firms have increased conservative reporting to a greater extent compared to firms that have not.

Table 18 presents the results for the testing of H3. The coefficient on the inverse Mills' ratio (*IMR1*) is negative and significant, suggesting the existence of selection bias. The coefficients on *Vio* are positive and significant at least at the 10% level in the model using *NonAcc* (*coefficient=10.240*; *standard error = 5.454*), *C-Score* (*coefficient = 8.888*; *standard error = 5.745*) and *CCM* (*coefficient = 11.319*; *standard error = 6.102*), suggesting that violating firms exhibit greater improvement in operating performance than the non-violating firms do. Note that this result is different from the *OLS* results for which the coefficient on *Vio* is significantly negative in models with no control variables included. The coefficient on the

interaction term between *Vio* and conservatism is -13.598 (*standard error = 21.295*) for the *NonAcc* measure, - 0.145 (*standard error = 0.252*) for the *SK* measure, and - 1.054 (*standard error =1.855*) for the composite measure (*CCM)*. These results are not consistent with the prediction in H3 that firms that increase conservative reporting to a greater extent have better operating performance after covenant violations. Therefore, the results using the Heckman (1979) two-stage selection model do not provide evidence supporting H3.

I present the four-quarter and eight-quarter stock returns results in Tables 19 and 20, respectively. First, the results in both tables show that the coefficients on *IMR1* are not significant, suggesting that the Heckman (1979) two-stage selection model may not be effective or required in correcting the selection bias for the testing of the valuation implications of conservatism. The coefficient on *Vio* is negative and significant in all models, consistent with the *OLS* regression analysis. Table 19 shows that for the four-quarter return test, the coefficient on the interaction term between *Vio* and the conservatism measure is only significant for the *C-Score* measure of conservatism (*coefficient = 0.576*; *standard error = 0.293*). Table 20 shows that the coefficient on *Vio*Chg_Con* is significant when *SK* (*coefficient = 0.041*; *standard error = 0.029*) and *C-Score* (*coefficient = 0.947*; *standard error =0.451*) are used as a measure of conservatism. The coefficients on *Vio*NonAcc* and *Vio*CCM* are positive but insignificant. Overall, the tests using the Heckman (1979) two-stage selection model provide mixed evidence for the predictions in H4 that firms that increase conservatism to a greater extent exhibit better stock market performance after covenant violations. Also note that the insignificant coefficients on the inverse Mills' ratio (*IMR1*) in Tables 19 and 20 suggest that the correction for the selection bias may not be effective for the testing of the value implications of conservatism.

5.4 Results Using Propensity Score Matching Approach

I present the results of using the Propensity Score Matching (PSM) approach in Tables 21 – 25. To save space, I only discuss the properties of coefficients on the main variables of interest, namely, *Vio* and *Vio*Chg_Con*, and outline the difference between the *PSM* model and the *OLS* model. In the testing of H1, Table 21 shows that the coefficients on the interaction term *Vio*NonAcc* is 126.551 (*standard error = 93.613*) and the coefficient on *Vio*C-Score* is 7.239 (*standard error = 5.324)*. Both coefficients are significant at the 10% level. The coefficient on *Vio*SK* (*coefficient = 1.265*; *standard error = 1.186*) is positive and insignificant, but the coefficient on *Vio*CCM* is 4.890 (*standard error = 1.796*), significant at the 1% level. Therefore, the results for H1 are consistent with the results using the *OLS* model and the Heckman (1979) selection model, suggesting that conservatism reduces the negative consequences of covenant violations on firms' abilities to issue new debt.

The results in Table 22 for the testing of H2 are also consistent with the results using the *OLS* model and Heckman (1979) selection model. Specifically, the coefficient on the *Vio*C-Score* is positive (*coefficient = 11.231*; *standard error = 4.824*) and significant at the 1% level. The coefficient on *Vio*CCM* is 2.005 (*standard error = 1.503*) and significant at the 10% level. The coefficients on other two conservatism measures are positive but not significant.

The results for H3 using the *PSM* approach are presented in Table 23. Consistent with the results reported for the *OLS* model and Heckman (1979) selection model, none of the coefficients on *Vio*Chg_Con* are significant.

I present the *PSM* approach results for the testing of H4 in Tables 24 and 25. The results are slightly different from the results using *OLS* and the Heckman (1979) selection approach.

Specifically, while in the *OLS* model and the Heckman (1979) selection model, the coefficient on *Vio*NonAcc* is negative and insignificant, the results using the *PSM* approach show that the coefficient on *Vio*NonAcc* is positive and significant at the 1% level (*coefficient = 0.065*; *standard error = 0.027*). Similarly, while the coefficient on *Vio*SK* is positive and insignificant when using the *OLS* model and Heckman (1979) selection model, this coefficient on *Vio*SK* using the *PSM* approach is positive and significant at the 10% level (*coefficient = 3.544*; *standard error = 2.071*). In the *OLS* model, the coefficient on *Vio*C-Score* is positive and significant, but the coefficient on *Vio*C-Score* (*coefficient = 0.141*; *standard error = 0.362*) is positive but insignificant using the *PSM* approach. The coefficient on the composite measure (*CCM*) is also significant at the 10% level (*coefficient = 0.260*; *standard error = 0.171*). Now I turn to the eight-quarter return tests (Table 24). The results for the eight-quarter returns test are stronger than that of the four-quarter return tests. Particularly, the coefficient on *Vio*NonAcc* is significant at the 1% level (*coefficient = 6.548*; *standard error = 2.811*) and the coefficient on *Vio*SK* is significant at the 5% level (*coefficient = 0.076*; *standard error = 0.044*). Consistent with the above results, the coefficient on *Vio*CCM* is also significant at the 5% level (*coefficient = 0.437*; *standard error = 0.246*). In summary, compared to the Heckman (1979) two-stage selection model, the *PSM* approach provides stronger support for H4, suggesting that conservative violating firms exhibit better stock market performance after covenant violations.

5.5 Analysis of the Probability of Change in Conservatism

The previous analyses assume that the change in conservatism after loan initiation is exogenous. However, as discussed in Chapter 3, change in conservatism is an endogenous event that is affected not only by managers' abilities and incentives, but also correlated with the probability of violation. Therefore, I use the Double Selection model to address issues associated

with correlated endogenous treatment variables. As discussed in Section 3.2.5, in order to estimate the inverse Mills' ratio (*IMR2*) for the Double Selection model, I include *IMR1*, the inverse Mills' ratio from the probability of violation equation (Sections 3.2.2 and 5.2), in equation 14 to account for the endogenous probability of covenant violation.

In Table 26, I report the results for the model predicting the probability of change in conservatism. Table 26 shows that the coefficient on *IMR1* is insignificant for all conservatism measures, suggesting that the potential selection bias arising from the probability of violation does not affect the probability of change in conservatism. As expected, the coefficient on *Con_Pre* is negatively associated with change in conservatism, suggesting that higher pre-contracting conservatism is associated with smaller change in conservatism. The coefficient on *Res_Pre* (a measure of unconditional conservatism) is negative and significant at the 1% level for the *NonAcc* measure (*coefficient = - 2.124*; *standard error = 1.019*), consistent with the argument that the larger past unconditional conservatism is associated with smaller future conditional conservatism. However, this negative coefficient is not observed for the *SK* and *C-Score* measures. The *MB* variable is negatively related to the change in conservatism only in the model with *NonAcc* as a measure of conservatism, but this relationship is not significant. Inconsistent with my predictions, *MB* is positively and significantly related to *C-Score* (*coefficient = 0.341*; *standard error = 0.146*) at the 5% level. This result could arise from the fact that the calculation of *C-Score* includes a *MB* component, leading to a mechanical relationship between the change in *C-Score* and *MB*. The coefficients on *Chg_Rating* are *0.134 (standard error = 0.055*) and *0.107* (*standard error = 0.064*) for the model using *SK* and *C-Score*, respectively. These two coefficients are significant at 5% and 1%, respectively, suggesting that firms with greater change in credit rating (worse rating) would increase

conservatism, consistent with the results in Kim (2008). This could be due to the fact that a decrease in credit rating is normally accompanied by deterioration in economic performance, leading to the recognition of losses through applying conservative accounting policies. Consequently, greater amount of bad news captured by the deterioration in credit rating (greater change) is probably associated with higher reporting conservatism. The three institutional ownership measures are not significantly correlated with the change in conservatism, suggesting that institutional ownership may be effective in constraining firms' reporting, but may not be relevant in inducing change in conservatism. I also find that litigation is unrelated to the change in conservatism, perhaps because litigation cannot predict change in conservatism.

5.6 Results Using Double Selection Model

In Tables 27 - 31, I present the results using the Double Selection model. Because the coefficients on *IMR1* are not significant in the second selection model (discussed in Section 5.5 and tabulated in Table 26), I expect the results from the Double Selection model not to be different from the results using the single selection model. Consistent with this expectation, I find that the coefficients on *IMR2* are not significant in any test except for the test of H1 using *SK* as a measure of conservatism. Furthermore, the results using Double Selection Model are not different from the results using the single selection model presented in Section 5.3. Specifically, in testing the effect of conservatism on firms' financing activities after covenant violations (H1), Table 27 shows that the coefficients on *Vio*Chg_Con* are 137.631 (*standard error = 104.125*), 1.900 (*standard error = 1.331*), - 8.486 (*standard error = 16.268*), and 15.788 (*standard error = 9.868*) for the models using *NonAcc*, *SK*, *C-Score*, and *CCM* as a measure of conservatism, respectively. The coefficients on *NonAcc*, *SK*, and *CCM* are significant at the 10% level, consistent with the prediction in H1 that conservatism mitigates the impact of covenant

violations on firms' financing activities. Table 28 shows the testing results for H2 that conservatism could alleviate the adverse impact of covenant violations on firms' investing activities. The coefficients on *Vio*Chg_Con* are 19.035 (*standard error = 20.906*), 0.152 (*standard error = 0.195*), 9.348 (*standard error = 4.197*), 2.099 (*standard error = 1.484*) for the model using *NonAcc*, *SK*, *C-Score*, and *CCM* as a measure of conservatism, respectively. Among the coefficients, those on *Vio*C-Score* and *Vio*CCM* are significant at 1% and 10% level, respectively, confirming the analysis provided in Sections 5.1 and 5.3 that conservatism reduces the negative impact on firms' investing activities. Table 29 provides the results for H3 regarding the implications of conservatism for firms' operating activities and none of the coefficients on *Vio*Chg_Con* are significant, which is also consistent with the results using the *OLS* model and the Heckman (1979) two-stage selection model. Tables 30 and 31 provides results for H4 regarding the stock market implications of conservatism after covenant violations. The coefficient on *Vio*Chg_C-Score* is significant at the 1% level (*coefficient = 0.605; standard error = 0.291*) in the four-quarter returns (Table 30). The coefficients on the interaction term between *Vio* and other conservatism measure are not significant. In the eight-quarter returns test (Table 31), the coefficient on *Vio*SK* (*coefficient = 0.039, standard error = 0.030*) and *Vio*C-Score* (*coefficient = 0.952; standard error = 0.446*) are significant at the 10% and 1% level, respectively. The coefficients on the interaction terms between *Vio* and *NonAcc* and *CCM* are not significant. These results suggest that there is mixed evidence regarding the implications of conservatism for the stock market performance.[29]

5.7 Summary of Empirical Analysis

[29] Untabulated results using abnormal stock returns adjusted for size-decile returns as the dependent variable for H4 test show that the coefficients on *Vio*Chg_Con* are not significantly different from the reported results using raw stock returns as the dependent variable.

Table 32 provides a summary of the test results for this chapter. It is shown that the change in debt is positively associated with change in the *NonAcc* measure of conservatism and the composite measure (*CCM*) across different empirical models, namely, the *OLS* model, the Heckman (1979) selection model, the Propensity Score Matching Model, and the Double Selection Model. While the results using the *SK* measure are consistent with H1 in the *OLS*, Heckman selection model, and Double Selection model, the results using the *C-Score* measure is significant only for the Propensity Score Matching Model (*PSM*). Overall, the empirical tests provide evidence that conservatism reduces the negative impact of covenant violations on firms' ability to borrow.

For the test of H2, the results using individual conservatism measures are consistent with the prediction in some models but not in all models. However, when the composite measure (*CCM*) is used, the results are consistently positive and significant as predicted across various models, suggesting that conservative violators exhibit smaller reductions in investing activities after covenant violations.

I find no empirical evidence suggesting that conservatism has implications for operating performance after covenant violations (H3).[30] The lack of evidence may arise from the fact that operating performance probably is a noisy construct for lenders' preference for positive net present value projects.

For the test of H4, the results are consistent with the prediction using the *Non-Acc, SK,* and the *CCM* measure in the *PSM* model for both four-quarter and eight-quarter returns tests. In other tests, while the results are consistent with the prediction for the *SK* measure only in the

[30] Untabulated results using change in sales as a proxy for the improvement in operating performance are not significantly different from the reported results using change in gross margin as a measure of operating performance.

eight-quarter return tests, the results are consistent with the prediction for the *C-Score* measure in both the four-quarter and eight-quarter return tests. Overall, there is mixed evidence in support of H4.

Chapter 6 Sensitivity Tests

6.1 Tests Using the Violating Sample Only

The analyses presented so far use the pooled sample with both violating and non-violating firm-quarter observations included in order to test the implications of conservatism for the consequences of covenant violations. Because the occurrence of covenant violation is not a random event, I used the Heckman Selection Model and the *PSM* approach to address the selection bias. In this section, I discard the non-violating sample and focus on the violating sample only to examine whether there is a relationship between change in conservatism and the outcomes of violations **given** that the firms are in violation. Note that while this approach allows the assessment of the effect of conservatism on the outcome variables for all violating firms, it does not control for the relationship between conservatism and the outcome variables in the non-violating state. I present the OLS regression results using the violating sample only in Tables 33 - 37.

In Table 33, I provide results for the testing of H1 using the violating sample. Consistent with the results presented in Section 5.1.1, the coefficients on *NonAcc* (*coefficient = 161.313*; *standard error* = 92.151), SK (*coefficient = 1.708*; *standard error = 1.204*) and *CCM (coefficient = 13.568*; *standard error = 8.000)* are significant at the 5% and 10% levels respectively, providing evidence that change in debt issuance is positively associated with an increase in conservatism given that the firms are in violation of debt covenants. The coefficients on *Leverage* (*coefficient = - 4.511, - 4.482, - 4.603,* and *- 4.858*; *standard error = 3.380, 3.456, 3.513,* and *3.538*) are negative and significant at the 10% level, suggesting that firms with higher leverage issue less debt after covenant violations. The coefficient on *EBITDA* is negative and

significant, supporting the prediction that firms with higher cash flow are less likely to issue debt. The adjusted R^2s are 14%, 13.6%, 12.5%, and 14%, in the four models, respectively, values that are much greater than those in tests using both violating and non-violating sample (*e.g.*, Table 10: 3.3%, 3.6%, 3.1%, and 3.8%) included in the model, suggesting that the model using only the violating sample provides a better fit.

Table 34 presents the results of testing H2. Consistent with the pooled sample OLS model results (Section 5.1.2), the coefficient on *C-Score* (*coefficient = 10.434*; *standard error = 4.718*) is significant at the 1% level. However, inconsistent with the pooled sample *OLS* results, the coefficient on *CCM* is not significant, implying that the significant coefficient on the *Vio*Chg_CCM* in Section 5.1.2 (Table 11) might arise because the outcome variables exhibit a different relationship with *Chg_Con* in the violating versus the non-violating sample. The coefficient on *EBITDA* is positive and significant, suggesting that violating firms with higher *EBITDA* are likely to invest more after covenant violation. Consistent with the pooled sample OLS results, the coefficients on the rating dummy (*Rating_D*) are positive (*coefficient = 1.806*, *1.910*, *1.888*, and *1.899*) and significant at the 5% level. I also find that the adjusted R^2 is higher using the violating sample (ranging from 8% to 9.9%) relative to that for the pooled violating and non-violating sample (Table 11: ranging from 4.3% to 4.5%).

Table 35 shows that the results for H3 are not significant, consistent with the pooled sample results.

Tables 36 and 37 contain the results for H4 and the results are similar to the results in the pooled sample *OLS* results (Tables 13 and 14). For the four-quarter returns tests, the coefficients on *C-Score* and *CCM* are 0.873 and 0.132, respectively and they are significant at the 1% and

10% level, respectively (Table 13). The coefficients on these two conservatism measures are also positive and significant at the 1% and 10% level for the eight-quarter returns tests (Table 14). So, the tests of H4 using the violating sample alone provide corroborating evidence for the analysis using the pooled sample with and without controlling for selection bias in the model.

6.2 Implications of Pre-Contracting Conservatism

As discussed in the Sections 2.3.2 and 2.3.3, the level of past conservatism may affect the level of future reporting conservatism and hence the level of pre-contracting conservatism has implications for subsequent change in conservatism. In the main analysis presented in Chapter 5, I include pre-contracting conditional conservatism in the selection model to account for any bias arising from non-random assignment of firms into groups that exhibit different degrees of change in conservatism. In this section, I allow the pre-contracting conditional conservatism to interact with the change in conservatism and examine whether the level of pre-contracting conservatism has implications for the relationship between the change in conservatism and the consequences of covenant violations. Specifically, I estimate the following *OLS* model:

$$OUTCOME_{it} = a_0 + a_1 Con\_Pre_{it-n} + a_2 Chg\_Con_{it-1} + a_3 Con\_Pre_{it-n} * Chg\_Con_{it-1} + ControlVariables + \eta_{it} \quad (8)$$

where the outcome is the consequences of violations, namely, change in debt (*Chg_Debt*), change in capital expenditure (C*hg_Cap_X),* change in gross margin (*Chg_GM*), and firm valuation after violation (*Post_Ret1* or *Post_Ret2*). In equation (8), *Con_Pre* $_{it\text{-}n}$ is the pre-contracting conditional conservatism. This variable is set to 1 when the pre-contracting conditional conservatism is greater than the sample median and 0 otherwise. *Chg_Con* is the change in conservatism using one of the three conditional conservatism measures and the composite measure. Control variables are the same as the control variables used in Section 3.2.1

for each outcome variable. I also include industry and year fixed effect as control variables in the model.

I report the results for this analysis in Table 38. The coefficients on the interaction term *Con_Pre*Chg_Con* are not significant for any conservatism measures except for the *C-Score* measure in the return tests. This result suggests that the level of pre-contracting conservatism has no implications for the relationship between the change in conservatism and the outcomes of covenant violations. This could arise from the fact that covenant ratios at the time of loan initiation already reflect the level of pre-contracting conservatism at that time. This allows the probability of violation to differ for firms with different pre-contracting conservatism (see the discussion in Section 5.2 on the probability of violation and pre-contracting conditional conservatism).

6.3 Sensitivity Tests for H1, H2, and H3

6.3.1 Using Different Measurement Window for Dependent Variables

In the main analysis presented in Chapter 5, I calculate the change in debt issuance, change in capital expenditures, and change in gross margin from four-quarter before to four quarter after violations to allow the outcomes of violation to be realized through renegotiation. To assess the sensitivity of my results to the size of the measurement window, I shorten the measurement window to plus-minus two quarters surrounding the violation date. Tables 39- 41 report the results for the analyses using the new measurement window. Tables 39 and 41 show that the coefficient on *Vio*Chg_Con* is not significant for the test of H1 and H3 for all models using the different conservatism measures. Table 40 shows that the coefficient on *Vio*Chg_Con* is significant for the *C-Score* measure only in the test of H2 (Model 3: *coefficient =8.02*; *standard error = 4.913*) at the 10% level, while the coefficients on other measures are not

significant. It is worth noting that the adjusted R^2 is much smaller using the two-quarter change than those in the main analysis using a plus-minus four-quarter window. Specifically, while the adjusted R^2s using the OLS model for H1 (Table 10 Model 3) are 3.3%, 3.6%, 3.1%, and 3.8%, respectively, for each conservatism measure, the adjusted R^2s for H1 using the two-quarter window (Table 39 Model 3) are 1.0%, 1.1%, 1.1%, and 1.1%, respectively. Similarly, while the adjusted R^2s for the H2 test of the change in capital expenditures using the minus-plus four-quarter window surrounding covenant violations are 4.4%, 4.3%, 4.5%, and 4.4% , respectively (Table 11 Model 3), the adjusted R^2s are 1.8%, 1.7%, 1.8%, and 1.7% for the model using the two-quarter change (Table 40 Model 3). For H3, the adjusted R^2s for the four-quarter change are 2.8%, 3%, 3.1%, and 2.9% (Table 12 Model 3), respectively, but the adjusted R^2s are - 0.001, 0.000, - 0.001, and - 0.001, respectively for the two-quarter change (Table 41 Model 3). The smaller adjusted R^2s for the two-quarter window indicates that calculating changes over two quarters is probably too short to capture the impact of renegotiation outcomes, which significantly reduces the explanatory power of the independent variables in the model.

6.3.2 Deflating Debt Issuance and Capital Expenditure by Assets

Because accounting conservatism could impact the reported value of assets, I use market value of equity rather than assets as a deflator in my tests for changes in debt and capital expenditure. To examine whether my results are sensitive to using a different deflator, I use assets as a deflator for the tests of change in capital expenditure and change in debt in the post violation period. I report the results for this analysis in Tables 42 and 43. Results of H1 (Table 42) for the *Vio*CCM* variable are similar to those using market value of equity as deflators. The only difference is that when market value of equity is used as deflator (Table 10), the coefficient

on *Vio*C-Score* is negative but insignificant, but when assets is used as a deflator, the coefficient on *Vio*C-Score* is significant at the 10% level (*coefficient = 5.007*; *standard error = 3.750*).

The results for change in capital expenditure are presented in Table 43. The coefficient on *Vio* is positive and significant across all models using the three individual conservatism measures, suggesting that violating firms invest more than non-violators. This result is inconsistent with the results in Chava and Roberts (2008). This anomalous result might arise from the fact that these violating firms sold significant portion of their assets (Nini *et al*., 2009), resulting in a lower level of assets, and hence higher capital expenditure per dollar of assets for the violating firms. Therefore, the use of assets as a deflator in this test may not be appropriate.

Chapter 7 Conclusion

In this dissertation, I examine whether accounting conservatism moderates the consequences of covenant violations and thereby shed light on the economic role of accounting conservatism in the re-contracting process after covenant violations. Because I examine a re-contracting setting in which managers might change their reporting discretion, I hypothesize that an increase in conditional conservatism after loan initiation reduces the conflicts of interest between borrowers and lenders upon covenant violations, resulting in fewer restrictions on borrowers' investing and financing activities by lenders. In addition, I hypothesize that the reduction on firms' investing and financing activities reflect lenders' concerns over the borrowing firms' downside risk, resulting in differential impact on the borrowing firms' positive (and negative) net present value projects and hence different operating and stock market performance.

Using a sample of 312 violating and 5,327 non-violating firm-quarter observations and three different conditional conservatism measures, I first employ the Ordinary Least Squares (*OLS*) regression to test my hypotheses. I find evidence supporting my hypothesis on the mitigating effect of conservatism on firms' financing and investing activities. I find limited evidence indicating that change in conservatism affects firms' valuation after covenant violations. I do not find evidence that firms that increase conservative reporting to a greater extent have better operating performance after covenant violations compared to firms that do not.

In addition to the *OLS* regression, I also employ the Heckman (1979) two-stage selection approach and the Propensity Score Matching (*PSM*) approach to account for any selection bias

arising from endogenous probability of covenant violations. These two approaches provide evidence consistent with the *OLS* results regarding the implications of conservatism for investing and financing activities. In terms of the implications of conservatism for firm valuation (H4), the results from the Heckman (1979) two-stage selection model and PSM model are consistent with the results from the *OLS* model that firms that increase conservative reporting to a greater extent after loan initiation exhibit better stock market performance compared to firms that do not. I also use the Double Selection model (Amemiya, 1985) to address the econometric issues due to potential correlated endogenous treatments concerning the probability of covenant violation and change in conservative reporting. I find that the results using the *OLS* model and Heckman (1979) selection model continue to hold under this approach for the hypothesized mitigating effects of conservatism for the consequences of covenant violation on financing and investing activities.

I conduct several sensitivity tests and the results from these tests do not alter the primary findings. Using alternative research designs, I find evidence that conservatism reduces the adverse consequences of covenant violations on firms' financing and investing activities and conservatism has some impact on firms' valuation after covenant violations.

My dissertation contributes to the emerging literature on the role of accounting conservatism in the re-contracting process and enhances our understanding of the role of accounting information in different stages of contracting. My dissertation also provides empirical evidence supporting the claim that conservatism can benefit borrowing firms after covenant violations, consistent with the argument that conservatism is a mechanism to mitigate the conflicts of interest between contracting parties.

However, there are several caveats that need to be noted. First, although I find consistent evidence that conservatism mitigates the adverse consequences of covenant violations on firms' investing and financing activities using different econometrics models, some results are only marginally significant. This is probably due to the use of the change specification rather than a level specification of the dependent variable. Secondly, although I endeavour to address the endogeneity concern on the probability of covenant violations using the Heckman (1979) two-stage selection model, the Propensity Score Matching model, and the Double Selection model, the fact that the variables chosen to identify exogenous variations, particularly for the Heckman (1979) two-stage selection model and Double Selection model, may not be true exogenous variables. This problem is exacerbated by the fact that the theoretical guidance on the determinants of initial covenant tightness is limited (Demiroglu and James, 2010) and that the probability of violation is correlated with the change in conservatism. Identifying the true exogenous variables requires more sophisticated theories and knowledge about the driving forces of the underlying re-contracting process. Such theories are not readily available in the extant debt-contracting literature and building such theories exceeds the scope of this dissertation. Nevertheless, in future research, a systematic examination of the determinants of initial covenant tightness and the role of conservatism in the determination of covenant tightness is needed to advance our understanding of the implications of conservatism for the consequences of covenant violations.

Appendix A: Variable Definitions

Con_Pre: one of the conservatism measures calculated at the time of loan initiation as the following:

> **NonAccPre** is the average of non-operating accruals over *n* quarters prior to the quarter of loan initiation where *n* is equal to the number of quarters between loan initiation and covenant violation.[31] Non-operating accruals = -[(net income (Compustat:ni) + depreciation (Compustat:dp) – cash flows from operation (Compustat: oancf)– changes in AR(Compustat:rect) –change in inventories(Compustat:invt)+ change in account payable (Compustat :ap)+ change in tax payable(Compustat:txp)-change in prepaid expense (Compustat:xpp)) /average assets(Compustat:at)]. When cash flows from operation is not available, cash flow from operation = funds from operation (Compustat:fopt)+change in cash (Compustat:che) – change in current assets (Compustat:act) + change in current liabilities in debt (Compustat:dlc)+change in current liabilities (Compustat:lct);
>
> **SKPre** is the negative of the difference in the skewness of earnings and the skewness of cash flows over *n* quarters prior to loan initiation, where *n* is the number of quarters between loan initiation and covenant violation;
>
> **C-ScorePre** is the average C-Score (Khan and Watts, 2009) over *n* quarters prior to loan initiation, where *n* is the number of quarter between loan initiation and covenant violation and the calculation of C-score is described in Appendix B;
>
> **CCMPre** is the composite measure of conditional conservatism, calculated as the sum of the three conditional conservatism measures after each measure is standardized. I use the following formula to obtain the standardized measure $\frac{Con-Min(Con)}{Max(Con)-Min(Con)}$, where *Con* is one of the three conservatism measures and *Min(Con)* and *Max(Con)* are the minimum and maximum value of each conservatism measure in the sample, respectively.

Con_Post is one of the conservatism measures calculated as the following:

> **NonAccPost** is the average of non-operating accruals over the number of quarters between loan initiation and covenant violation;
>
> **SKPost** is the negative of the difference in the skewness of earnings and the skewness of cash flow over the number of quarters between loan initiation and covenant violation;
>
> **C-ScorePost** is the average of C-Score over *n* quarters between loan initiation and covenant violation and the calculation of C-score is described in Appendix B;
>
> **CCMPost is** the composite measure of conservatism after loan initiation, calculated similarly as CCM_Pre

Chg_Con is change in conservatism, calculated as Chg_Con=Con_Post – Con_Pre;

Res_Pre is the measure of unconditional conservatism prior to loan initiation. This measure captures the effect of unconditional conservatism by computing the level of accounting reserves as a result of the application of unconditional accounting policy (Penman and Zhang (2002). *Res_Pre= (Inventory reserve + R&D Reserve +ADV*

[31] For non-violators, each quarter is treated as a possible violating quarter.

Reserve)/Total Assets (Compustat: at). Inventory reserve: LIFO reserve reported by companies (Compustat: lifr); R&D reserve represents the amortized R&D assets that should appear on the balance sheet if the company does not expense R&D expenditure in the year of the spending. *R&D Reserve* = $\sum_{k=0}^{n-1} R\&D_{i,t-k} * (1 - \sum_{j=0}^{k} \sigma_j)$ where *n* is the estimated useful life of R&D expenditures and σ_k is the industry amortization rate calculated by Lev and Sougiannis (1996), and R&D is the annual R&D expenditure (Compustat: xrd); *ADV Reserve* is the advertising expense capitalized and amortized over two years. Bublitz and Ettredge (1989) show that advertising expenses have two-year useful life, and therefore the *ADV Reserve* is calculated as *AdvResv=0.5*AdvExpt (Compustat: xad)*;

MB_{t-n} is the average value of market to book ratio (Compustat: prcc*csho/ceq) over four quarters prior to the quarter of loan initiation;

MB_{t-1} is the average value of market to book ratio (Compustat: prcc*csho/ceq) over four quarters prior to the quarter of covenant violation;

$Size_{t-n}$ is the average of market value of equity (Compustat:prcc*csho) over 4 quarters prior to the quarter of loan initiation;

$Size_{t-1}$ is the average of market value of equity (Compustat:prcc*csho) over 4 quarters prior to the quarter of covenant violation;

$Leverage_{t-n}$ is the average value of leverage over four quarters prior to the quarter of loan initiation where leverage = (long-term debt +long-term debt in current liabilities)/market value of equity (Compustat: (dltt+dlc)/(prcc*csho));

$Leverage_{t-1}$ is the average value of leverage over four quarters prior to the quarter of covenant violations where leverage = (long-term debt +long-term debt in current liabilities)/market value of equity (Compustat: (dltt+dlc)/(prcc*csho));

$Chg\_ Leverage_{t-1}$= $Leverage_{t-1}$- $Leverage_{t-n;}$

$EBITDA_{t-n}$ is the average value of operating income before interest, tax, depreciation and amortization (Compustat:oibdp) over four quarters prior to the quarter of loan initiation, deflated by the market value of equity;

$EBITDA_{t-1}$ is the average value of operating income before interest, tax, depreciation and amortization (Compustat:oibdp) over four quarters prior to the quarter of covenant violation, deflated by the market value of equity;

Chg_EBITDA_{it-1}=$EBITDA_{t-1}$-$EBITDA_{t-n;}$

ROA_{t-n} is the average value of return on assets (net income (compustat:niq)/ total assets (Compustat: atq) over 4 quarters prior to the quarter of loan initiation;

ROA_{t-1} is the average value of return on assets (net income (compustat:niq)/ total assets) over 4 quarters prior to the quarter of covenant violation;

$Chg\_ ROA_{t-1}$= ROA_{t-1}-$ROA_{t-n;}$

Cret is the cumulative raw stock returns over 4 quarters prior to the quarter of covenant violations;

GM_Pre (%) is the average value of gross margin (Compustat: (saleq-cogsq)/saleq)) over four quarters before the quarter of covenant violations;

GM_Post (%) is the average value of gross margin (Compustat: (saleq-cogsq)/saleq) over four quarters after covenant violations;

Debt_Pre (%) is the average value of debt issuance (adjusted long term debt issuance[32] – adjusted long term debt reduction)/(market value of equity at the beginning of the quarter) (Compustat: (Adj_dltisy-adj_dltry)/(MV_{t-1}) over four quarters before the quarter of covenant violations;

Debt _Post (%) is the average value of debt issuance (adjusted long term debt issuance – adjusted long term debt reduction)/(market value of equity at the beginning of the quarter) (Compustat: (Adj_dltisy-adj_dltry)/(MV_{t-1}) over four quarters after covenant violations;

Cap_X _Pre (%) is the average value of capital expenditures (Compustat: adj_capxy/ $ppeq_{t-1}$) over four quarters before the quarter of covenant violations;

Cap_X _Post (%) is the average value of capital expenditures (Compustat: adj_capxy/ $ppeq_{t-1}$) over four quarters after the quarter of covenant violations;

Chg_GM= GM_Post – GM_Pre;

Chg_Cap_X = Cap_X_Post – Cap_X_Pre;

Chg_Debt = Debt_Post – Debt_Pre;

Post_Ret1 is the cumulative raw stock returns over four quarters after covenant violation;

Post_Ret2 is the cumulative raw stock returns over eight quarters after covenant violation;

Chg_Rating is the change in credit rating calculated as the difference in credit rating in the quarter before loan initiation and the quarter before violation. I obtain credit rating from Compustat. If credit rating is not available, I use imputed credit rating. Specifically, I regress credit rating on leverage, interest coverage ratio, return on equity, profit margin, and firm size using firms with credit rating available (Zhang , 2008) . I then use the coefficients obtained from the above model to calculate credit ratings for firms with missing data. I use the following model: *Rating= 21.37685 -0.00001337 Interest Coverage Ratio + 2.09366*leverage – 1.45322*ROA – 0.00158*margin – 1.26615*size (The larger number in rating indicates worse credit situation)*. The predicted credit rating is winsorized at the maximum (29) and minimum (2) value used in the Standard & Poor's Issuer Credit Rating system

Insti1 = log (1+number of institutional owners);

Insti2= log (1+number of institutional owners with holding greater than 5%);

Insti3= log (1+number of institutional owners that are activists);

Litigation is an indicator variable, equal to 1 if a firm is operating in a high litigation industry (SIC code is 2833-2836, 3570-3577, 3600-3674, 5200-5961, or 7340-7374), and 0 otherwise (Francis *et al*. 1994; Lim and Tan, 2008);

Vio is an indicator variable, equal to one for violating firm-quarters and 0 otherwise.

Industry Indicator (Ind1, Ind2…… Ind9) is an indicator variable**,** equal to 1 if the observation has an industry SIC number with a first digit of 1, 2, 3, 4, 5, 6, 7, 8, and 9, respectively, and 0 otherwise;

[32] The Compustat item "*dltisy*" captures the cumulative debt issuance from the beginning of fiscal year to the quarter end. I calculate the adjusted debt issuance (*adj_dltsiy*) by subtracting the debt issuance in the preceding quarters, that is, $dltisy_t$- $dltisy_{t-1}$ for fiscal quarter 2, 3, and 4, respectively.

Year Indicator (Year1998, Year1999… Year2006) is an indicator variable if the data are from the 1998, 1999,…, 2006, respectively, and 0 otherwise.

Loan Variables

Spread: The interest rate spread over the London Interbank Offered Rate (LIBOR) on all drawn lines of credit;

Tenor: The number of months between the loan initiation dates and the maturity dates;

Performance Pricing (Per_P): An indicator variable taking the value of 1 if the loan has a performance pricing option tying the promised yield to one or more accounting measures of performance, and 0 otherwise. Missing values are coded as 0;

Loan Size: The amount of the loan;

Number of Covenants (NumCov): The total number of accounting-based covenants;

Secured: an indicator variable, 1 for secured borrowing and 0 otherwise;

Number of Lenders (NoLenders): The total number of lenders participating in the lending;

P_lending: an indicator variable, equal to1 if the borrower has borrowed from the same lead lender in the prior borrowing, and 0 otherwise.

Appendix B: Description of C-Score Measure (Khan and Watts, 2009)

Khan and Watts (2009) develop a firm-year specific measure based on Basu's (1997) notion of asymmetric timeliness as well as empirical and theoretical evidence that firm size, market to book ratio, and leverage generate cross-sectional variations in accounting conservatism. The basic Basu (1997) model is the following:

$$E_{it/P_{t-1}} = \alpha_{1t} + \beta_{0t} \times DR_{it} + \beta_{1t} \times R_{it} + \beta_{2t} \times R_{it} \times DR_{it} \quad \text{(A1)}$$

where E_{it} is earnings, R_{it} is annual returns, DR_{it} is an indicator variable equal to one when returns are negative, and β_{2t} measures the incremental timeliness of earnings loss recognition.

Khan and Watts (2009) extend the Basu (1997) model by incorporating firm size, market-to-book ratio, and leverage to estimate the following equation:

$$E_{it/P_{t-1}} = \alpha_{1t} + \beta_{0t} \times DR_{it} + \beta_{1t} \times R_{it} \times (\mu_1 + \mu_2 \times Size_{it} + \mu_3 \times M/B_{it} + \mu_4 \times Lev_{it}) +$$

$$\beta_{1t} \times R_{it} \times DR_{it} \times (\lambda_1 + \lambda_2 \times Size_{it} + \lambda_3 \times M/B_{it} + \lambda_4 Lev_{it}) + \varepsilon_{it} \quad \text{(A2)}$$

where *Size* is the natural log of market value of equity, *M/B* is the market to book ratio, *Lev* is the leverage of the firm, and other variables are as defined in the equation A1.

This results in an expanded regression model:

$$E_{it/P_{t-1}} = \alpha_{1t} + \beta_{0t} \times DR_{it} + R_{it} \ (\omega_{1t} + \omega_{2t} \times Size_{it} + \omega_{3t} \times M/B_{it} + \omega_{4t} Lev_{it}) +$$

$$R_{it} \times DR_{it} \times (\gamma_{1t} + \gamma_{2t} \times Size_{it} + \gamma_{3t} \times M/B_{it} + \gamma_{4t} Lev_{it}) + \phi_{it} \quad \text{(A3)}$$

I estimate the regression model in A3 by Ordinary Least Squares regression in each quarter. All variables in estimating the coefficients are winsorized at the top and bottom 1%. I calculate the asymmetric timeliness (*C-Score*) for each firm-quarter by using coefficients estimated for that quarter as follows:

$$C - Score = \hat{\gamma}_{it} + \hat{\gamma}_{2t_t} \times Size_{it} + \hat{\gamma}_{3t} \times M/B_{it} + \hat{\gamma}_{4t} \times Lev_{it} \quad \text{(A4)}$$

Appendix C: Selection Bias and the Economic Choice Model

Selection bias arises when economic agents self-select into different groups, causing biased coefficient estimates in the Ordinary Least Square estimation procedure (Maddala, 1983). The selection model, also referred as an economic choice model, takes into account an endogenous choice variable to address the potential self-selection bias (Heckman and Navarro-Lozano, 2004). In this appendix, I first briefly discuss the economic choice model and its implications for my study. I then discuss the Heckman Selection approach and the Propensity Score Matching approach.

The Economic Choice Model

To illustrate how non-random assignment or self-selection biases the OLS estimates, I discuss the economic choice model that has been extensively used in the economics literature (Heckman and Navarro-Lozano, 2004) in this appendix. I follow Roberts and Whited (2011) and denote the choice (treatment) as *d*, set to 1 if the choice or treatment is made or received, and 0 otherwise. In my study, the choice is covenant violations or changes in conservatism. Observations receiving the treatment are referred to as the treatment group, and observations not receiving the treatment are referred to as the control group. The observable outcome variable of this choice (treatment) is denoted by *Y*. In my study, *Y* is changes in debt issuance, changes in investment, *etc*. There are two potential outcomes, denoted as $Y(1)$ for observations receiving the treatment and $Y(0)$ for observations in control, respectively. $Y(1)$ could be changes in investments when a firm receives the treatment (violation or high conservatism), and $Y(0)$ could be the firm's changes in investments when a firm is not in violation or has low conservatism. Following this notation, various average treatment effects can be calculated as the following:

Average Treatment Effect (ATE): $E[Y(1) - Y(0)]$ (A5)

Average Treatment Effect of the Treated (ATT): $E[Y(1) - Y(0) / d = 1]$ (A6)

Average Treatment Effect of the Untreated (ATU): $E[Y(1) - Y(0) / d = 0]$ (A7)

The ATE is the expected treatment effect of a randomly drawn subject from the population. The ATT and ATU are the expected treatment effects of subjects randomly drawn from the treated and untreated subpopulation,

respectively.[33] The effect of interest is ATT, the difference between outcomes for the same observation when the treatment exists and when the treatment does not exist. For my studies and many other studies, the outcome for the treated firms when there is no treatment is not observable. For example, the non-violating outcome is not observed for the violating firm. This is referred as the counterfactual.[34]

The observed outcome in the data is either $Y(1)$ or $Y(0)$ depending on whether the subject is treated ($d = 1$) or untreated ($d = 0$). Because the counterfactual *((Y(0)/d=1* or *Y(1)/d=0))*is not observed, the researcher is forced to estimate:

$$E(Y(1)/d=1)-E(Y(0)/d=0) \tag{A8}$$

or

$$E(Y(1)/d=1,X)-E(Y(0)/d=0,X) \tag{A9}$$

where X is a vector of covariates.

To see how the selection bias leads to a biased estimation, equation (A8) can be rewritten as:

$$\begin{aligned} E(Y(1)\mid d=1)-E(Y(0)\mid d=0) &= \{E[Y(1)\mid d=1]-E[Y(0)\mid d=1]\} \\ &+\{E[Y(0)\mid d=1]-E[Y(0)\mid d=0]\} \end{aligned} \tag{A10}$$

The first difference is the ATT (equation (A5)). The second difference term, $\{E[Y(0)\mid d=1]-E[Y(0)\mid d=0]\}$, is the selection bias, which equals to zero only under specific conditions. In other words, if I use equation (A10) to evaluate the treatment effects on the treated, the selection bias would result in biased estimation. In contrast, random assignment would make the treatment groups and control groups similar such that there is no observable difference between the two groups. Consequently, the selection bias in equation (A10) is zero because: $E[Y(0)\mid d=1]-E[Y(0)\mid d=0]=E(Y(0)\mid d=1]-E[Y(0)\mid d=1]=0$

When covariates are included, equation (A9) becomes:

$$E(Y(1)\mid d=1,X)-E(Y(0)\mid d=0,X)=\{E[Y(1)\mid d=1,X]-E[Y(0)\mid d=1,X]\}$$

[33] Note that a treatment group can have two outcomes: *Y(0)/d=1* and *Y(1)/d=0*. *Y(0)/d=1* is the outcome for the treatment firms when there is no treatments, which is unobservable and referred as counterfactual. By the same token, for the control groups, the outcomes are: *Y(1)|d=0* and *Y(0)|d=0*. The first one is unobservable and counterfactual.

[34] I may observe outcome for the same firm not in violation, but its economic status (performance) certainly differs in the violating and non-violating states.

$$+\{E[Y(0) \mid d=1, X] - E[Y(0) \mid d=0, X]\} \quad \text{(A11)}$$

This equation indicates that the difference in mean outcomes among the treated and untreated, conditional on *X*, is equal to the ATT *plus the selection bias term*.

Heckman (1979) Two Stage Selection Model

To account for the selection bias in equation (A9) and (A11), two approaches have been proposed (Heckman and Navarro-Lozano, 2004). In the first approach, the biases are controlled by bringing exogenous variation using the inverse Mills' ratio calculated from the choice equation. Specifically, in the first step, the choice of violation *d* is modeled as:

$$d^* = \omega_i \gamma + \mu_i \quad \text{(A12)}$$

Then inverse Mills' ratio (*IMR1*) is calculated for each observation as $\hat{\lambda}_i = \frac{\phi(\omega_i \hat{\gamma})}{\Phi(\omega_i \hat{\gamma})}$; in the second step, *IMR1* is inserted to the OLS regressions. Essentially, the insertion of the *IMR1* in the second stage regression causes the error term in the equation to be uncorrelated to the X variables, ensuring that the coefficients are estimated without self-selection bias.

The Propensity Score Matching Approach

In the second approach, randomization is achieved by conditioning the treatment on a set of observables such that the treatment is independent of the potential outcomes, which would eliminate the selection bias component, i.e., *E[Y(0)|d = 1,X)] = E[Y(0)|d = 0,X]*. Specifically, the treatment and control firms are matched on a set of observables that could predict the probability of receiving treatment. The matching ensures that the treatment firms and control firms are similar in every dimension except for one group receiving treatment and another group not receiving treatment. Consequently, the difference in the outcomes between the two groups can be readily attributed to the treatment.

Appendix D: Disclosure Example of the Loan Information and the Corresponding Violation (SEC 10Q Excerpt)

Company Name: Aeroflex Inc
SEC Central Index Key (CIK): 0000002601
Violation Date: June 30, 2002

"As of **February 25, 1999**, we replaced a previous agreement with a revised revolving credit, term loan and mortgage agreement with two banks which is secured by substantially all of our assets not otherwise encumbered. The agreement provided for a revolving credit line of $23.0 million, a term loan of $20.0 million and a mortgage on our Plainview property for $4.5 million. The revolving credit loan facility **expires in December 2002**."

"The terms of the revolving credit, term loan and mortgage agreement require compliance with certain covenants including minimum **consolidated tangible net worth** and **pre-tax earnings,** maintenance of **certain financial ratios, imitations on capital expenditures and indebtedness and prohibition of the payment of cash dividends**. As of **June 30, 2002**, we **were not in compliance with** certain of the financial covenants."

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Figure 1: Timeline of the Measurement Period for *Change in Conservatism*

This figure shows the timeline of the measurement for *Change in Conservatism*. All firm-quarters are lined up at the violating quarter (T=0). N is the number of quarters between loan initiation and violation.

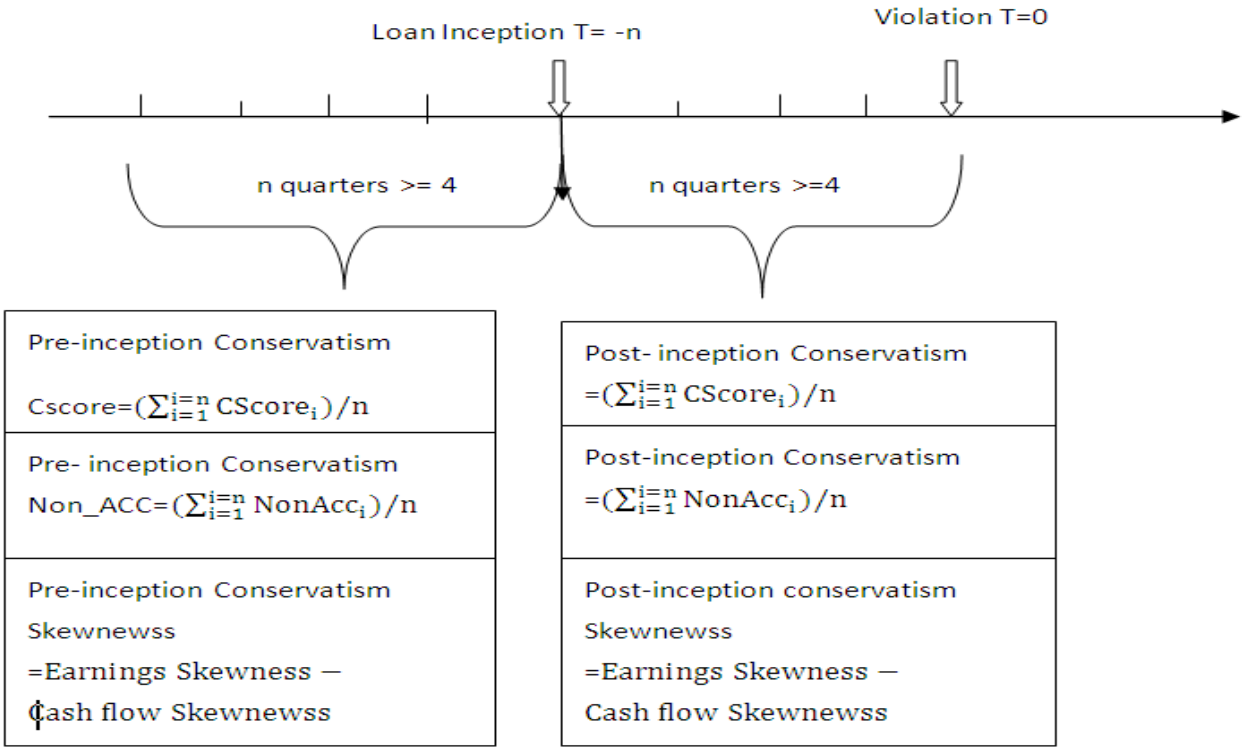

Figure 2: Selection of Non-violating Firm-Quarters

This figure shows the timeline of selecting non-violating firm-quarters. The "quarter end date" (Compustat: datadate) for each non-violating quarter is identified as a "violating" quarter if the observation satisfies the following three criteria: 1) the quarter end is after January 1, 1998 or the loan initiation date (referred as "starting date"), whichever is later; 2) the quarter end date is before December 31, 2007 or the loan maturity date, whichever is earlier; 3) the distance between the quarter end date and the "starting date" is at least four quarters apart.

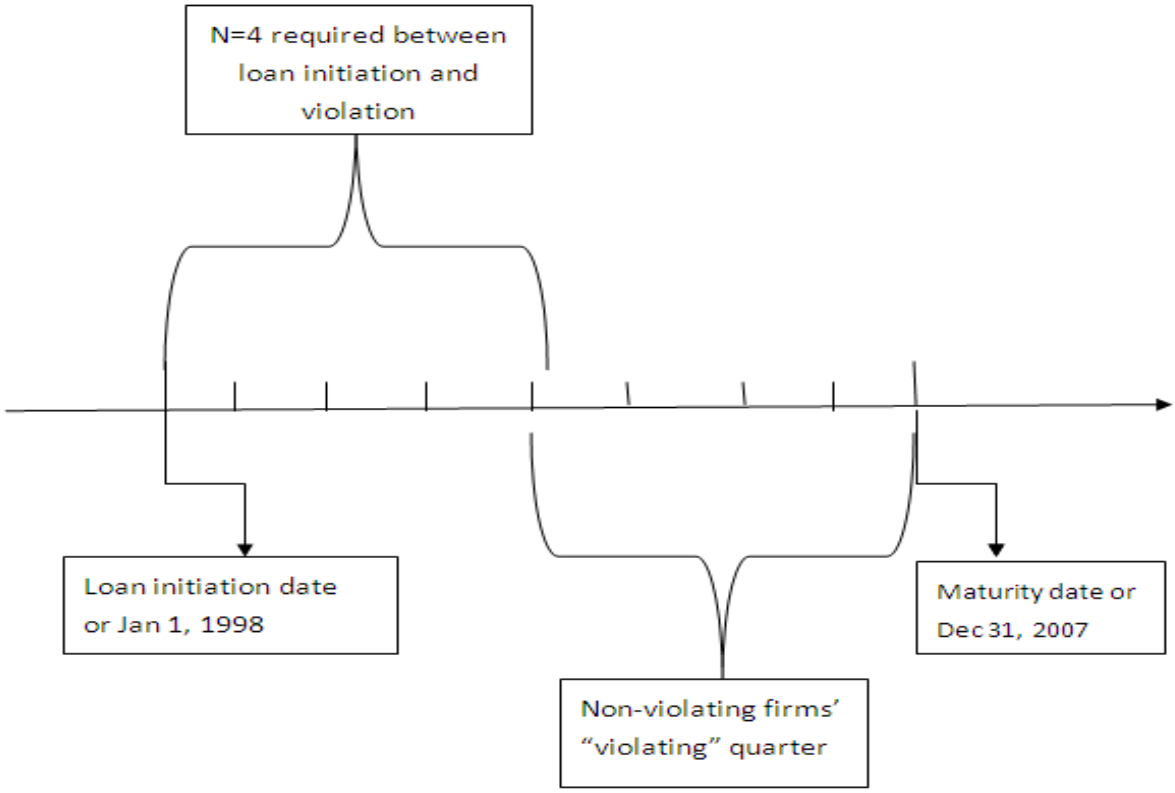

Figure 3: Violators' Debt Issuance around the Quarter of Covenant Violations

This figure shows the violators' debt issuing activities around the quarter of covenant violation (*td_count =0*). The line connected by triangles represents the debt issuing activities of violating firms with change in conservatism (*Chg_CCM*) greater than the median of the sample (*chg =1*). The line connected by circles represents the debt issuing activities of the violating firms with the change in conservatism (*Chg_CCM*) below the median of the sample *(chg = 0)* .

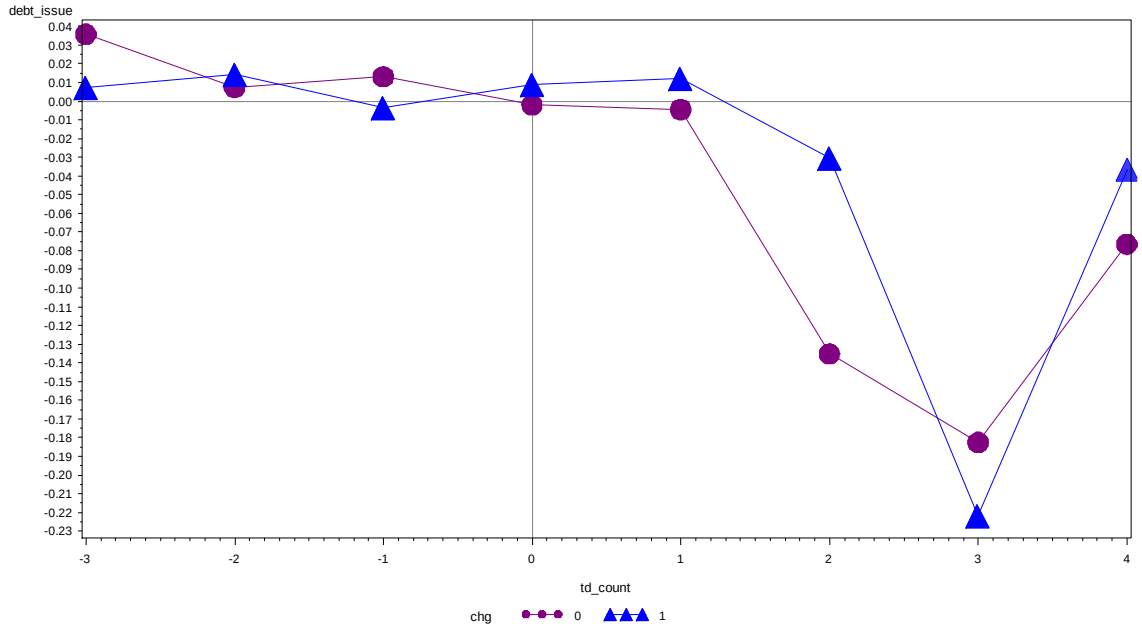

Figure 4: Violators' Investing Activities around the Quarter of Covenant Violations

This figure shows the violating firms' investing activities around the quarter of covenant violation (*td_count =0*). The line connected by triangles represents the capital expenditures of the violating firms with change in conservatism (*Chg_CCM*) greater than the median of the sample(*chg = 1*). The line connected by circles represents the capital expenditures of the violating firms with the change in conservatism (*Chg_CCM*) below the median of the sample (*chg = 0*).

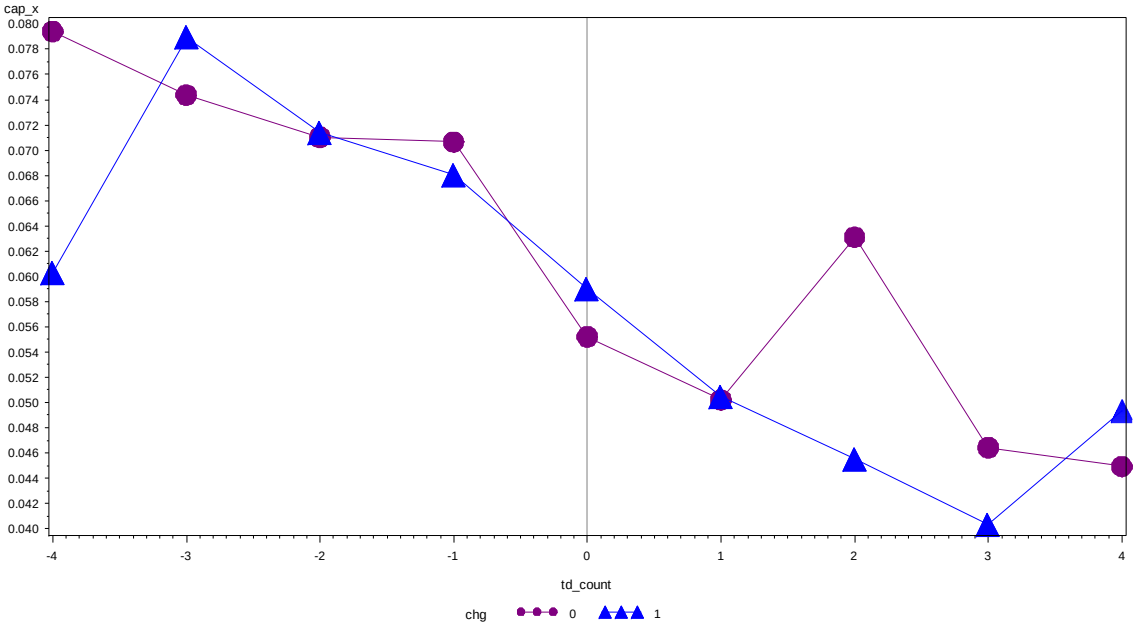

Figure 5: Violators Gross Margin around the Quarter of Covenant Violations

This figure shows the violating firms' gross margin around the quarter of covenant violation (*td_count =0*). The line connected by triangles represents the gross margin of the violating firms with change in conservatism (*Chg_CCM*) greater than the median of the sample (*chg = 1*). The line connected by circles represents the gross margin of the violating firms with the change in conservatism (*Chg_CCM*) below the median of the sample(*chg = 0*) .

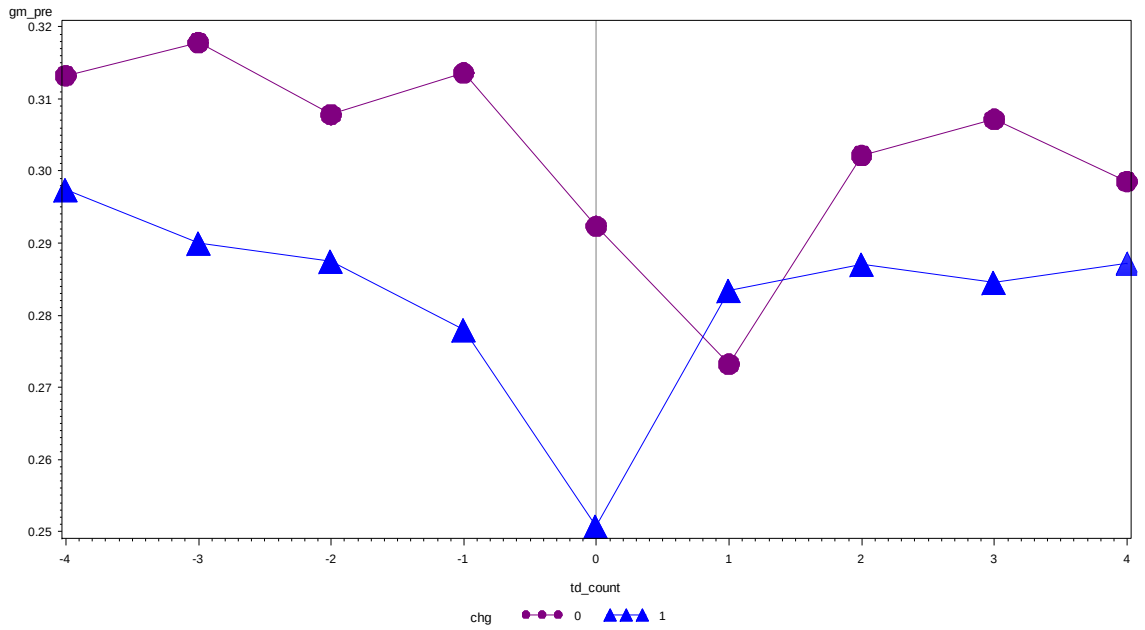

Table 1 Sample Selection

A: The Dealscan Loan Sample

Criteria	Loans	Deals	Firms
(A1) Dealscan loan (1996-2006)[1]	30,530		
(A2) Loans with GVKEY identified through the Chava and Roberts (2008) Link	20,049	13,735	4,829
A(3) Loans with tenor, pricing, financial covenants, maturity date	10,353	6,414	3,262
(A4) Loans that have the largest amount in each quarter	6,351	6,351	3,262

B: The Nini, Smith, and Sufi (2009) violation sample

	Firm Quarter	Firm
(B1) NSS violations in 1996 - 2007	16,554	3,869
(B2) NSS violations in 1998 - 2007[2]	13,925	3,387
(B3) New violations in 1998 - 20073	4,045	3,387

C: The intersection between the loan sample (A) and violation sample (B) and Non-violation Sample[4]

	Violators			Non-violators		
	Firms-loans	Firms	Firm-Quarters	Firm-Loans	Firms	Firm-Quarters
(C1) Merge the above loan sample (A4) with the violation sample (B3) and non-violation sample. For the violators, I require the violating date between the loan initiation date and loan maturity date; for the non-violators, I require the fiscal quarter end date (compustat: datadate) between the loan initiation date or January 1, 1998 whichever is later and the loan maturity date or 2007/12/31, whichever is early.	1,180	1,098	1,180	2,711	1,396	29,580
(C2) Require the distance between loan initiation and violation to be equal to or greater than 4 quarters and data available to calculate change in conservatism using three different measures	478	455	478	1,046	634	8,432
(C3) Require the number of quarters before loan initiation to be the same as the number of quarters between loan initiation and covenant violation	411	391	411	1,003	611	7,065
(C4)Require the financial variables to be available	312	303	312	861	535	5,327

[1]I require the loan initiation date beginning in 1996 because violation data is only available from 1996 and onward. I am not able to determine if a loan initiated before 1996 is violated since there is no violation information available.

[2] The violation sample starts in 1998 because I require the violation to be a new violation (see definition about new violation below).

[3] New violation is defined as a violation-quarter in which there is no disclosure of any violation in the preceding eight quarters.

[4] The non-violation sample is obtained by eliminating all NSS sample violating firms (3,869 firms) from the Compustat Universe.

Table 2 Validation Tests of the Conservatism Measures

This table reports the results of validation tests examining the effectiveness of the three conservatism measures for the sample firms to distinguish the degrees of asymmetric timeliness measured by Basu's (1997) regressions. I divide the sample firms into three equal-sized groups for each conservatism measure (*e.g.*, *NonAcc*, *C-Score*, and *SK)*.I estimate the following regressions for each group: Basu's model: $E_t/P_{t-1} = \gamma_0 + \gamma_1 DR_t + \gamma_2 R_t + \gamma_3 DR_t \times R_t + \varepsilon_{t..}$ E_t is earnings per share; P_{t-1} is fiscal quarter-end stock price per share; R_t is quarterly returns. DR_t is a dummy variable, which equals 1 if R_t is negative and 0 otherwise. Panel A, B, and C report the coefficients from the Basu's (1997) regressions by high, medium and low conservatism measured by *NonAcc*, *C-Score*, and *SK*. ***, **, * represent statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A: Coefficients from Basu (1997) regressions by high, medium and low *NonAcc* groups during the period of 1996-2007

NonAcc Groups	Intercept	DR	R	DR × R
Low	0.015***	-0.001	0.030***	0.016
Medium	0.014***	-0.002	0.002	0.023***
High	0.010	0.000	-0.003	0.148***
High - Low			-0.033**	0.132***
(*t - statistics*)			*(-2.79)*	*(5.20)*

Panel B: Coefficients from Basu (1997) regressions by high, medium and low *C-Score* groups during the period of 1996-2007

C-score Groups	Intercept	DR	R	DR × R
Low	0.018***	-0.005	0.009	0.035**
Medium	0.011*	0.001	0.014	0.086*
High	0.010***	0.003	0.006	0.099***
High - Low			-0.003***	0.064***
(*t - statistics*)			*(-2.79)*	*(5.35)*

Panel C: Coefficients from Basu (1997) regressions by high, medium and low *SK* during the period of 1996-2007

SK Groups	Intercept	DR	R	DR × R
Low	0.015***	-0.003	0.024***	-0.005
Medium	0.016***	0.003	-0.010*	0.088***
High	0.010	-0.004	-0.005	0.128***
High - Low			-0.029**	0.133***
(*t - statistics*)			*(-2.57)*	*(5.13)*

Table 3 Descriptive Statistics of the Loan Sample and the Violating and Non-Violating Sample

This table presents the descriptive statistics of the loan sample and the violating/non-violating sample with loan information available. Table A presents the descriptive statistics for the loan sample with company name, pricing, maturity, loan amount not missing (A (4) in able 1). Panel B compares the violating and non-violating sample before the requirements of the availability of financial data are imposed [C (1) in Table 1]. Variable definitions are given in Appendix A.

Panel A Descriptive Statistics of the *Loan Sample* with loan information available between 1996-2006

Variable	N	Mean	Std	Median
Loan Size (million$)	6351	296.595	649.320	100
Tenor(month)	6351	41.621	22.265	36
NumCov	6351	2.231	0.887	2
Spread	6351	193.852	115.373	177.860
Per_P	6351	0.655	0.476	1
NoLenders	6351	7.228	8.534	4

Panel B Descriptive Statistics of the violating/non-violating sample with loan information available

	Non-violating firm-loans				Violating firm-loans				Test of the Mean Difference	
Variable	N	Mean	Std	Median	N	Mean	Std	Median	*t* test (p-value)	Wilcoxon Test (p - value)
Loan Size	2711	418.389	816.438	191	1180	190.630	401.925	70	0.000	0.000
Tenor	2711	43.594	23.059	41	1180	46.455	20.070	42	0.000	0.002
NumCov	2711	2.161	0.874	2	1180	2.353	0.884	2	0.000	0.000
Spread	2711	157.173	107.889	135	1180	222.715	106.472	225	0.000	0.000
Per_p	2711	0.731	0.444	1	1180	0.646	0.478	1	0.000	0.000
NoLenders	2711	9.166	9.349	6	1180	5.402	6.834	3	0.000	0.000

Table 4 Yearly Distributions of Violations

This table presents the yearly distribution of violating firm-quarters between 1998 and 2007. The sample includes firm-quarters for which I have information to calculate testing variables including loan information, financial information, and measure of change in conservatism.

Violation Year	Total Firm-Quarters	Violating Firm-Quarters	Percentage of Violations
1998	635	66	10.39%
1999	735	46	6.26%
2000	726	40	5.51%
2001	675	51	7.56%
2002	654	31	4.74%
2003	648	23	3.55%
2004	665	22	3.31%
2005	504	22	4.37%
2006	280	10	3.57%
2007	117	1	0.85%
Total	5,639	312	5.53%

Table 5 Industry Distributions of Violations

This table presents the industry distribution of violating firms. The sample includes firms for which I have information to calculate the testing variables. The Industry classification is based on the two-digit North American Industry Classification System (NAICS) code.

NAICS2	NAICS Industry	Number of firms	Percentage
21	Mining, Quarrying, and Oil and Gas Extraction	20	6.60%
23	Construction	4	1.32%
31,32,33	Manufacturing	145	48.18%
42	Wholesale Trade	22	7.26%
44,45	Retail Trade	23	7.59%
48,49	Transportation and Warehousing	9	2.97%
51	Information	10	3.30%
53	Real Estate and Rental and Leasing	2	0.66%
54	Professional, Scientific, and Technical Service	13	4.29%
56	Administrative and Support and Waste Management	14	4.62%
61	Educational Services	1	0.33%
62	Health Care and Social Assistance	17	5.61%
71	Arts, Entertainment, and Recreation	4	1.32%
72	Accommodation and Food Services	14	4.62%
81	Other Services (except Public Administration)	4	1.32%
	Total	303	100.00%

Table 6 Sample Descriptive Statistics at the Time of Loan Initiation

This table compares firm and loan characteristics at the time of loan initiation between the violating and non-violating firm-loans with loans initiated in 1996-2006. This sample includes firm-loan-quarters with information available to calculate the testing variables. Variable definitions are given in the Appendix A. Panel A presents the comparison of the conservatism and loan characteristics at loan initiation between violators and non-violators. *t* - test and Wilcoxon Rank Sum Tests are used to compare the difference in each variable. The unit of comparison is firm-loan. Panel B presents the correlation of the variables at loan initiation with the number in bold face indicating that the correlation is significant at the 5% level.

Panel A Comparison of the Firm and Loan Characteristics between the Violating and Non-Violating Sample at Loan Initiation

	Non-Violating Firm-loans (A)				Violating Firm-loans(B)				Test of the Difference(A)-(B)		
Variable	N	Mean	Std	Median	N	Mean	Std	Median	Mean Diff.	*t* -Test (*p*-value)	Wilcoxon Test (*p*-value)
Loan size(millions $)	861	354.069	717.167	175	312	151.771	273.709	68	202.298	0.000	0.000
Tenor (month)	861	51.071	17.385	60	312	49.128	16.609	48	1.943	0.081	0.071
Spread (basis point)	861	132.886	87.048	125	312	207.691	96.675	212.500	-74.805	0.000	0.000
NumCov	861	2.217	0.863	2	312	2.394	0.857	2	-0.177	0.002	0.001
Per_P	861	0.828	0.378	1	312	0.715	0.452	1	0.113	0.000	0.000
NoLenders	861	9.909	9.910	7	312	5.462	6.070	3	4.448	0.000	0.000
Secured	861	0.466	0.499	0	312	0.721	0.449	1	-0.255	0.000	0.000
P_lending	861	0.688	0.464	1	312	0.554	0.498	1	0.133	0.000	0.000
Insti1	861	54.890	89.227	0	312	29.782	56.419	0	25.108	0.000	0.013
Insti2	861	0.921	1.383	0	312	0.843	1.384	0	0.078	0.393	0.370
Insti3	861	2.769	4.409	0	312	1.500	3.157	0	1.269	0.000	0.000
Cscore_Pre	861	0.149	0.155	0.133	312	0.181	0.108	0.160	-0.032	0.000	0.000
NonAcc_Pre	861	0.008	0.018	0.006	312	0.008	0.019	0.005	0.001	0.606	0.428
SK_Pre	861	0.233	1.447	0.193	312	0.576	1.583	0.700	-0.343	0.001	0.001
Res_Pre	861	0.048	0.080	0.013	312	0.049	0.087	0.009	-0.001	0.826	0.650
CCM_Pre	861	1.212	0.261	1.198	312	1.268	0.284	1.265	-0.056	0.002	0.001
Log of MV (size)	861	6.361	1.533	6.370	312	5.184	1.492	5.057	1.176	0.000	0.000
Leverage	861	2.009	2.325	1.331	312	2.649	3.610	1.410	-0.641	0.004	0.004
MB	861	3.014	4.551	2.132	312	2.235	2.992	1.738	0.779	0.001	0.000
EBITDA (%)	861	0.044	0.024	0.041	312	0.039	0.032	0.037	0.006	0.005	0.000

Panel B Correlation Analysis of Firm and Loan Characteristics at Loan Initiation

Variable	CscorePre	NonAcc Pre	SK_Pre	CCMPre	Size	Leverage	MB	EBITDA	ROA	Spread	Tenor	Loan Size	Per_P	Secured	NumCov	NoLenders
Res_pre	**0.089**	0.023	0.017	0.045	0.029	**-0.089**	**0.091**	**-0.126**	**-0.089**	0.055	**-0.078**	-0.048	**-0.126**	-0.001	**-0.072**	**-0.079**
Cscore_Pre		**0.086**	-0.044	**0.239**	**-0.226**	-0.044	**0.557**	**0.094**	0.055	**0.206**	**-0.058**	**-0.151**	**-0.109**	**0.156**	0.044	**-0.164**
NonAcc_Pre			**0.157**	**0.631**	-0.007	**-0.096**	**0.061**	0.031	**-0.178**	0.050	**-0.058**	-0.036	0.010	0.046	**0.086**	-0.010
SK_Pre				**0.831**	0.025	0.028	-0.039	-0.031	**-0.168**	0.013	0.007	0.001	0.039	0.028	0.047	0.035
CCM_Pre					-0.036	-0.036	**0.128**	0.013	**-0.203**	**0.082**	-0.037	-0.052	0.010	**0.080**	**0.088**	-0.016
Size						**-0.237**	**0.141**	**0.184**	**0.173**	**-0.508**	**0.189**	**0.480**	**0.252**	**-0.419**	**-0.190**	**0.601**
Leverage							**-0.083**	**-0.175**	**-0.168**	**0.312**	-0.021	-0.018	**-0.074**	**0.174**	-0.001	-0.016
MB								**0.164**	**0.128**	-0.019	0.055	0.039	-0.010	0.003	-0.028	**0.079**
EBITDA									**0.736**	**-0.260**	**0.112**	0.043	**0.106**	**-0.116**	**0.073**	**0.063**
ROA										**-0.279**	**0.119**	0.033	**0.068**	**-0.149**	**0.057**	0.023
Spread											**-0.109**	**-0.243**	**-0.299**	**0.586**	**0.207**	**-0.283**
Tenor												**0.116**	**0.143**	-0.040	**0.073**	**0.211**
Loan Size													**0.137**	**-0.182**	**-0.184**	**0.590**
Per_P														**-0.185**	0.019	**0.216**
Secured															**0.185**	**-0.185**
NumCov																**-0.112**

Table 7 Descriptive Statistics of the Sample at the Time of Covenant Violations

This table compares the firm-loan-quarter characteristics between the violating and non-violating firm-quarters at the time of covenant violation. *t* - test and Wilcoxon Rank Sum Tests are used to compare the difference in each variable. Variable definitions are given in Appendix A.

	Non Violating Firm Quarters (A)				Violating Firm Quarters (B)				Test of the Difference (A) - (B)		
Variable	N	Mean	Std	Median	N	Mean	Std	Median	Mean Diff.	*t*-Test (*p*-value)	Wilcoxon Test (*p*-value)
Chg_NonAcc	5327	0.002	0.019	0.002	312	0.005	0.025	0.002	-0.003	0.047	0.234
Chg_SK	5327	0.080	1.958	0.073	312	0.126	2.046	0.208	-0.045	0.705	0.556
Chg_Cscore	5327	-0.005	0.148	-0.008	312	0.000	0.110	0.004	-0.005	0.446	0.022
Chg_CCM	5327	1.566	0.240	1.571	312	1.590	0.282	1.596	-0.024	0.145	0.105
Chg_Rating	5327	-0.092	1.377	0.000	312	0.200	1.234	0.000	-0.292	0.000	0.000
$Size_{t-1}$	5327	3066.027	6378.577	938.152	312	794.926	3305.747	153.989	2271.101	0.000	0.000
$Leverage_{t-1}$	5327	0.109	0.715	0.017	312	0.351	0.943	0.136	-0.242	0.000	0.000
MB_{t-1}	5327	2.621	2.625	2.060	312	1.594	2.025	1.226	1.027	0.000	0.000
Chg_EBITDA	5327	-0.004	0.020	-0.003	312	-0.012	0.023	-0.010	0.008	0.000	0.000
Cret	5327	0.162	0.476	0.108	312	-0.136	0.479	-0.213	0.297	0.000	0.000
Chg_Debt	5327	-0.004	0.020	-0.003	312	-0.012	0.023	-0.010	0.008	0.001	0.000
Chg_Cap_X	5327	-0.003	0.049	-0.001	312	-0.021	0.068	-0.009	0.018	0.000	0.000
Chg_GM	5327	0.000	0.065	-0.001	312	-0.015	0.087	-0.013	0.015	0.003	0.000
Post_Ret1	5327	0.182	0.474	0.129	312	0.033	0.580	-0.021	0.149	0.000	0.000
Post_Ret2	5327	0.386	0.718	0.268	312	0.175	0.912	-0.044	0.212	0.000	0.000

Table 8 Comparison of Firm Characteristics and Outcomes of Covenant Violations between High *Vs.* Low Conservatism Firms

This table provides the comparison of firm characteristics and changes in debt, changes in capital expenditure, changes in gross margins, and post0violation returns between the high and low conservative violating firms. The firms with change in conservatism greater than the median of the sample is classified as high conservatism firms and firms with change in conservatism smaller than the median of the sample is classified as low conservatism firms. Panels A, B, C, and D present comparison using *NonACC*, *SK*, *C-Score*, and *CCM* as a measure of conservatism, respectively. Variable definitions are given in Appendix A. *t* - test and Wilcoxon Rank Sum Tests are used to compare the difference in each variable.

Panel A: Using *NonAcc* as a Measure of Conditional Conservatism

	Chg_Conservatism = Low (A)				Chg_Conservatism = High (B)				Test of the Difference (A) - (B)		
Variable	N	Mean	Std	Median	N	Mean	Std	Median	Mean Diff.	*t*-Test (*p*-value)	Wilcoxon Test (*p*-value)
Res_Pre	156	0.051	0.096	0.008	156	0.048	0.079	0.009	0.003	0.758	0.728
Acc_Pre	156	0.021	0.026	0.013	156	0.003	0.024	0.000	0.018	0.000	0.000
Chg_Rating	156	0.169	1.217	0.000	156	0.231	1.253	0.000	-0.063	0.655	0.543
Size	156	5.245	1.401	5.127	156	5.124	1.580	4.933	0.121	0.474	0.372
Leverage	156	2.437	3.053	1.418	156	2.861	4.091	1.372	-0.424	0.300	0.929
MB	156	2.370	3.237	1.809	156	2.101	2.729	1.710	0.269	0.428	0.368
P_lending	156	0.545	0.500	1.000	156	0.564	0.497	1.000	-0.019	0.734	0.734
Litigation	156	0.231	0.423	0.000	156	0.224	0.419	0.000	0.006	0.893	0.894
Insti1	156	29.160	51.306	0.000	156	30.404	61.267	0.000	-1.244	0.846	0.879
Insti2	156	0.904	1.458	0.000	156	0.782	1.307	0.000	0.122	0.438	0.832
Insti3	156	1.474	2.935	0.000	156	1.526	3.374	0.000	-0.051	0.886	0.449
Chg_Debt	156	-0.073	0.377	-0.011	156	-0.054	0.256	-0.014	-0.020	0.591	0.525
Chg_Cap_X	156	-0.020	0.069	-0.008	156	-0.022	0.068	-0.010	0.002	0.796	0.627
Chg_GM	156	-0.019	0.085	-0.013	156	-0.010	0.088	-0.012	-0.008	0.410	0.236
Post_Ret1	156	0.025	0.578	-0.044	156	0.041	0.584	-0.002	-0.017	0.802	0.696
Post_Ret2	156	0.126	0.864	-0.105	156	0.223	0.958	0.078	-0.097	0.346	0.440

Panel B: Using *SK* as a Measure of Conditional Conservatism

	Chg_Conservatism = Low (A)				Chg_Conservatism = High (B)				Test of the Difference (A) - (B)		
Variable	N	Mean	Std	Median	N	Mean	Std	Median	Mean Diff.	*t*-Test (*p*-value)	Wilcoxon Test (*p*-value)
Res_Pre	156	0.051	0.090	0.009	156	0.048	0.085	0.008	0.003	0.769	0.921
SK_Pre	156	1.260	1.501	1.300	156	-0.187	1.359	-0.120	1.447	0.000	0.000
Chg_Rating	156	0.200	1.220	0.000	156	0.201	1.250	0.100	-0.001	0.994	0.539
Size	156	5.267	1.536	5.093	156	5.101	1.446	5.000	0.166	0.327	0.407
Leverage	156	2.799	3.589	1.459	156	2.500	3.636	1.335	0.299	0.466	0.123
MB	156	2.539	3.385	1.918	156	1.932	2.513	1.570	0.607	0.073	0.009
P_lending	156	0.577	0.496	1.000	156	0.532	0.501	1.000	0.045	0.427	0.427
Litigation	156	0.231	0.423	0.000	156	0.224	0.419	0.000	0.006	0.893	0.894
Insti1	156	30.583	61.525	0.000	156	28.981	50.991	0.000	1.603	0.802	0.900
Insti2	156	0.833	1.334	0.000	156	0.853	1.436	0.000	-0.019	0.903	0.800
Insti3	156	1.404	3.106	0.000	156	1.596	3.214	0.000	-0.192	0.591	0.699
Chg_Debt	156	-0.075	0.389	-0.011	156	-0.051	0.237	-0.013	-0.024	0.515	0.663
Chg_Cap_X	156	-0.017	0.069	-0.009	156	-0.024	0.067	-0.011	0.007	0.355	0.599
Chg_GM	156	-0.013	0.082	-0.013	156	-0.016	0.091	-0.013	0.003	0.769	0.982
Post_Ret1	156	0.008	0.571	-0.032	156	0.058	0.589	-0.009	-0.050	0.449	0.479
Post_Ret2	156	0.112	0.819	-0.049	156	0.237	0.995	-0.024	-0.126	0.224	0.451

Panel C:Using *C-Score* as a Measure of Conditional Conservatism

	Chg_Conservatism = Low (A)				Chg_Conservatism = High (B)				Test of the Difference (A) - (B)		
Variable	N	Mean	Std	Median	N	Mean	Std	Median	Mean Diff.	*t*-Test (*p*-value)	Wilcoxon Test (*p*-value)
Res_Pre	156	0.045	0.091	0.004	156	0.053	0.084	0.016	-0.007	0.464	0.055
CScore_Pre	156	0.217	0.119	0.194	156	0.146	0.080	0.146	0.071	0.000	0.000
Chg_Rating	156	0.156	1.187	0.000	156	0.244	1.281	0.000	-0.088	0.531	0.738
Size	156	5.483	1.508	5.665	156	4.886	1.418	4.749	0.597	0.000	0.000
Leverage	156	2.404	3.446	1.315	156	2.895	3.762	1.646	-0.491	0.230	0.012
MB	156	2.597	3.668	2.036	156	1.873	2.060	1.496	0.724	0.033	0.000
P_lending	156	0.571	0.497	1.000	156	0.538	0.500	1.000	0.032	0.570	0.571
Litigation	156	0.231	0.423	0.000	156	0.224	0.419	0.000	0.006	0.893	0.894
Insti1	156	35.551	58.298	0.000	156	24.013	54.047	0.000	11.538	0.071	0.123
Insti2	156	0.897	1.420	0.000	156	0.788	1.349	0.000	0.109	0.488	0.392
Insti3	156	1.744	3.241	0.000	156	1.256	3.063	0.000	0.487	0.173	0.069
Chg_Debt	156	-0.037	0.229	-0.012	156	-0.090	0.392	-0.012	0.053	0.147	0.544
Chg_Cap_X	156	-0.024	0.068	-0.011	156	-0.018	0.069	-0.008	-0.006	0.466	0.589
Chg_GM	156	-0.014	0.075	-0.011	156	-0.015	0.097	-0.014	0.001	0.934	0.951
Post_Ret1	156	0.021	0.560	-0.021	156	0.045	0.601	-0.018	-0.023	0.721	0.998
Post_Ret2	156	0.099	0.868	-0.096	156	0.251	0.951	0.057	-0.152	0.141	0.144

Panel D: Using *CCM* as a Measure of Conditional Conservatism

	Chg_Conservatism = Low (A)				Chg_Conservatism = High (B)				Test of the Difference (A) - (B)		
Variable	N	Mean	Std	Median	N	Mean	Std	Median	Mean Diff.	*t*-Test (*p*-value)	Wilcoxon Test (*p*-value)
Res_Pre	156	0.050	0.091	0.009	156	0.048	0.084	0.008	0.001	0.897	0.892
CCM_Pre	156	1.412	0.259	1.392	156	1.124	0.231	1.133	0.288	0.000	0.000
Chg_Rating	156	0.173	1.132	0.000	156	0.227	1.330	0.000	-0.054	0.699	0.522
Size	156	5.292	1.544	5.091	156	5.076	1.434	4.949	0.216	0.202	0.262
Leverage	156	2.751	3.564	1.440	156	2.547	3.664	1.351	0.204	0.619	0.311
MB	156	2.493	3.453	1.781	156	1.978	2.430	1.722	0.515	0.129	0.146
P_lending	156	0.564	0.497	1.000	156	0.545	0.500	1.000	0.019	0.734	0.734
Litigation	156	0.231	0.423	0.000	156	0.224	0.419	0.000	0.006	0.893	0.894
Insti1	156	34.981	65.109	0.000	156	24.583	45.751	0.000	10.397	0.104	0.230
Insti2	156	0.955	1.420	0.000	156	0.731	1.341	0.000	0.224	0.152	0.120
Insti3	156	1.679	3.320	0.000	156	1.321	2.986	0.000	0.359	0.316	0.291
Chg_Debt	156	-0.080	0.385	-0.014	156	-0.046	0.243	-0.010	-0.034	0.352	0.992
Chg_Cap_X	156	-0.021	0.079	-0.009	156	-0.020	0.056	-0.010	-0.001	0.932	0.556
Chg_GM	156	-0.018	0.079	-0.013	156	-0.011	0.094	-0.013	-0.007	0.450	0.742
Post_Ret1	156	0.045	0.587	-0.011	156	0.021	0.574	-0.036	0.025	0.707	0.728
Post_Ret2	156	0.162	0.846	-0.006	156	0.187	0.976	-0.065	-0.026	0.804	0.741

Table 9 Correlation between Change in Conservatism and the Outcomes of Covenant Violation in the Violating and Non-violating Sample

This Table presents the correlation among the variables for the violating and non-violating sample, separately. The upper half of the table presents the correlation for the violating firm quarters (N = 312) and the lower half of the table presents the correlation for the non-violating firm quarters (N=5,327). The correlation coefficient in bold face indicates the significance at a 5% level.

Variable	Chg_cscore	Chg_NonAcc	Chg_SK	Chg_CCM	chg_Debt	Chg_Cap_X	Chg_GM	Post_Ret1	Post_Ret2
Chg_cscore		0.034	0.009	**0.141**	-0.034	**0.151**	-0.008	0.099	**0.132**
Chg_NonAcc	**0.039**		**0.259**	**0.738**	0.101	0.046	-0.006	-0.029	0.033
Chg_SK	-0.023	**0.138**		**0.833**	**0.120**	0.029	-0.004	0.045	0.076
Chg_CCM	**0.185**	**0.624**	**0.839**		**0.135**	0.063	-0.007	0.026	0.086
Chg_Debt	**-0.035**	-0.010	0.004	-0.008		0.045	-0.046	0.090	0.088
Chg_Cap_X	0.014	-0.009	-0.017	-0.015	**0.103**		0.070	**0.148**	0.100
Chg_GM	**-0.045**	0.009	**0.048**	**0.034**	**-0.040**	-0.002		**0.151**	0.015
Post_Ret1	-0.009	0.010	0.009	0.010	**-0.036**	**0.044**	**0.089**		**0.666**
Post_Ret2	0.007	0.019	0.013	0.021	**-0.037**	-0.012	**0.061**	**0.694**	

Table 10 The Implications of Conservatism for Debt Issuing Activities Using the OLS Model (H1)

This table presents the results for the test of H1 using the Ordinary Least Squares (OLS) regression model: $Chg\_Debt_{it} = a_0 + a_1 Vio + a_2 Chg\_Con_{it-1} + a_3 Vio * Chg\_Con_{it-1} + a_4 Ebitda_{it-1} + a_5 MB_{it-1} + a_6 Size_{it-1} + a_7 Leverage_{it-1} + a_8 Cret_{it-1} + a_9 P\_lending$ + *Loan Variables* + *Year Indicators* + *Industry Indicators* + η_{it}. *Chg_Debt* is change in debt issuance from four quarters prior to covenant violation to four quarters after covenant violations. *Chg_Con* is one of the three conservatism measures and the composite measure. *Vio* is an indicator variable, equal to 1 for the violating firm-quarters, and 0 otherwise. Definitions of other variables are given in Appendix A. Standard errors are clustered by firm and presented below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively.

		NonAcc			SK			C-Score			CCM		
	Predicted Sign	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Chg_Con	-	-3.554	-5.977	-5.793	0.014	0.046	0.039	-10.486**	-11.041*	-12.445*	-0.245	-0.079	-0.131
		(6.744)	(6.697)	(6.865)	(0.068)	(0.069)	(0.070)	(6.062)	(7.118)	(7.678)	(0.610)	(0.573)	(0.582)
Vio	-	-6.788***	-5.802***	-5.647***	-6.419***	-5.421***	-5.278***	-5.973***	-5.216***	-5.003***	-31.086**	-30.253**	-30.277**
		(2.072)	(1.978)	(1.925)	(1.903)	(1.798)	(1.752)	(1.800)	(1.728)	(1.674)	(16.887)	(16.688)	(16.670)
Vio*Chg_Con	**+**	**134.208**	**137.648***	**137.567***	**1.880***	**1.888***	**1.907***	**-9.117**	**-9.612**	**-9.698**	**15.665***	**15.767***	**15.877***
		(105.242)	**(105.135)**	**(104.633)**	**(1.340)**	**(1.329)**	**(1.334)**	**(16.386)**	**(16.173)**	**(16.121)**	**(9.974)**	**(9.890)**	**(9.902)**
Size	?		0.206*	0.145		0.213*	0.161		0.142*	0.013		0.212*	0.159
			(0.114)	(0.156)		(0.115)	(0.158)		(0.112)	(0.155)		(0.115)	(0.159)
Leverage	-		-0.066	-0.066		-0.063	-0.065		0.010	0.011		-0.063	-0.063
			(0.352)	(0.348)		(0.348)	(0.346)		(0.326)	(0.320)		(0.348)	(0.346)
EBITDA	?		5.970	4.107		5.176	3.351		2.204	0.053		5.355	3.502
			(7.493)	(8.145)		(7.523)	(8.213)		(7.830)	(8.571)		(7.513)	(8.201)
MB	+		-0.059	-0.058		-0.054	-0.054		-0.050	-0.046		-0.059	-0.058
			(0.057)	(0.058)		(0.057)	(0.058)		(0.056)	(0.057)		(0.058)	(0.059)
Cret	+		1.498***	1.536***		1.489***	1.526***		1.410***	1.444***		1.496***	1.534***
			(0.431)	(0.433)		(0.428)	(0.430)		(0.441)	(0.442)		(0.428)	(0.430)
P_lending	+			-0.405			-0.417			-0.314			-0.432
				(0.451)			(0.452)			(0.442)			(0.453)
Constant	?	-0.147	-1.931	-2.448	-0.154	-2.016	-3.177	-0.017	-1.947	-3.362	0.230	-1.846	-2.766
		(0.103)	(1.350)	(3.763)	(0.102)	(1.346)	(3.892)	(0.096)	(1.266)	(3.898)	(0.937)	(1.625)	(4.017)
loan Variables		No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
Industry Fixed Effect		No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Year Fixed Effect		No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
# of Obs		5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639
# of Firms		838	838	838	838	838	838	838	838	838	838	838	838
Adj. R^2		0.024	0.033	0.033	0.026	0.036	0.036	0.023	0.031	0.031	0.028	0.038	0.038

Table 11 The Implications of Conservatism for Investing Activities Using the OLS Model (H2)

This table presents the results for the testing of H2 using the Ordinary Least Squares regression model: $Chg\_Cap\_X_{it} = a_0 + a_1 Vio + a_2 Chg\_Con_{it-1} + a_3 Vio * Chg\_Con_{it-1} + a_4 Ebitda_{it-1} + a_5 MB_{it-1} + a_6 Size_{it-1} + a_7 Leverage_{it-1} + a_8 Cret_{it-1} + a_9 Rating\_D_{it-1} + Loan\ Variables + Year\ Indicators + Industry\ Indicators + \eta_{it}$. *Chg_Cap_X* is the change in capital expenditures from four quarters prior to covenant violation to four quarters after covenant violations. *Chg_Con* is one of the three conservatism measures and the composite measure. *Vio* is an indicator variable, equal to 1 for the violating firm-quarters, and 0 otherwise. Definitions of other variables are given in Appendix A. Standard errors are clustered by firm and presented below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively.

		NonAcc			SK			C-Score			CCM		
	Predicted Sign	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Chg_Con	?	-2.336	-6.022	-5.901	-0.043	-0.018	-0.022	0.466	0.475	0.334	-0.312	-0.320	-0.356
		(6.682)	(6.585)	(6.596)	(0.037)	(0.039)	(0.038)	(0.801)	(0.922)	(0.948)	(0.354)	(0.358)	(0.363)
Vio	-	-1.830***	-1.105***	-1.039***	-1.783***	-1.061***	-0.996***	-1.772***	-1.028***	-0.970***	-4.701**	-4.419**	-4.323**
		(0.426)	(0.437)	(0.445)	(0.395)	(0.405)	(0.415)	(0.391)	(0.401)	(0.411)	(2.499)	(2.467)	(2.465)
Vio*Chg_Con	**+**	**15.115**	**19.932**	**19.781**	**0.140**	**0.155**	**0.151**	**8.935*** **	**9.485*** **	**9.354*** **	**1.849**	**2.130***	**2.111***
		(21.902)	**(21.209)**	**(21.006)**	**(0.195)**	**(0.195)**	**(0.195)**	**(4.341)**	**(4.202)**	**(4.185)**	**(1.506)**	**(1.489)**	**(1.488)**
Size	-		-0.072	-0.228**		-0.074	-0.230**		-0.057	-0.207**		-0.075	-0.233**
			(0.077)	(0.121)		(0.077)	(0.122)		(0.075)	(0.119)		(0.078)	(0.122)
EBITDA	+		9.619	10.957		9.300	10.651		8.972	10.333		9.429	10.784
			(9.447)	(9.385)		(9.412)	(9.350)		(9.428)	(9.373)		(9.427)	(9.372)
MB	+		-0.037	-0.025		-0.035	-0.024		-0.049	-0.035		-0.034	-0.022
			(0.040)	(0.040)		(0.040)	(0.040)		(0.044)	(0.045)		(0.040)	(0.040)
Leverage	-		0.032*	0.016		0.031	0.015		0.026	0.011		0.033*	0.017
			(0.019)	(0.017)		(0.019)	(0.017)		(0.016)	(0.015)		(0.020)	(0.017)
Cret	+		1.618***	1.624***		1.608***	1.614***		1.622***	1.625***		1.610***	1.616***
			(0.213)	(0.215)		(0.213)	(0.215)		(0.212)	(0.215)		(0.212)	(0.215)
Rating_D	+		0.472***	0.399**		0.474***	0.400**		0.463***	0.394**		0.475***	0.401**
			(0.231)	(0.221)		(0.231)	(0.221)		(0.232)	(0.222)		(0.231)	(0.221)
Constant	?	-0.300***	0.140	2.470	-0.300***	0.140	2.470	-0.300***	0.090	2.340	0.180	0.650	3.020
		(0.076)	(0.793)	(2.398)	(0.073)	(0.791)	(2.403)	(0.073)	(0.794)	(2.384)	(0.568)	(1.029)	(2.407)
Loan Variables		No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
Industry Effect		No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Year Effect		No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
# of Obs		5639	5639	5639	5639	5639	5639	5639	5639	5639	5639	5639	5639
# of Firms		838	838	838	838	838	838	838	838	838	838	838	838
Adj. R^2		0.006	0.043	0.044	0.006	0.042	0.043	0.008	0.045	0.045	0.006	0.043	0.044

Table 12 The Implications of Conservatism for Operating Performance Using the OLS Model (H3)

This table presents the results for the test of H3 using the Ordinary Least Squares Regression model: $Chg\_GM_{it} = a_0 + a_1 Vio + a_2\, Chg\_Con_{it-1} + a_3 Vio^*\, Chg\_Con_{it-1} + a_4 Size_{it-1} + a_5 MB_{it-1} + a_6 Cret_{it-1} + Loan\ Variables + Year\ Indicators + Industry\ Indicators + \eta_{it}$. *Chg_GM* is change in gross margin from four quarters prior to covenant violation to four quarters after covenant violation. *Chg_Con* is one of the three conservatism measures and the composite measure. *Vio* is an indicator variable, equal to 1 for the violating firm-quarters, and 0 other wise. Definitions of other variables are given in Appendix A. Standard errors are clustered by firm and presented below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively.

		NonAcc			SK			C-Score			CCM		
	Predicted Sign	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Chg_Con	?	3.007	0.809	1.967	0.161*	0.155*	0.166*	-1.968	-2.837	-2.807	0.917	0.739	0.86
		(9.221)	(9.450)	(9.157)	(0.085)	(0.087)	(0.085)	(1.650)	(1.891)	(1.883)	(0.660)	(0.631)	(0.632)
Vio	+	-1.453***	-0.749	-0.866	-1.452***	-0.739	-0.863	-1.458***	-0.813	-0.915	0.295	0.766	0.829
		(0.511)	(0.584)	(0.575)	(0.498)	(0.577)	(0.566)	(0.500)	(0.568)	(0.563)	(2.960)	(2.988)	(2.970)
Vio*Chg_con	**+**	**-5.064**	**-5.446**	**-6.779**	**-0.176**	**-0.167**	**-0.177**	**1.365**	**3.509**	**3.578**	**-1.122**	**-0.973**	**-1.092**
		(20.720)	**(20.882)**	**(20.815)**	**(0.259)**	**(0.259)**	**(0.256)**	**(5.433)**	**(5.267)**	**(5.346)**	**(1.850)**	**(1.847)**	**(1.846)**
Size	-		0.041	0.113		0.047	0.129		-0.021	0.022		0.047	0.128
			(0.119)	(0.220)		(0.119)	(0.222)		(0.107)	(0.198)		(0.119)	(0.221)
MB	+		0.101**	0.089*		0.101**	0.088*		0.159**	0.148**		0.097*	0.084*
			(0.061)	(0.058)		(0.061)	(0.058)		(0.083)	(0.079)		(0.060)	(0.057)
Cret	+		1.152***	1.161***		1.172***	1.183***		1.120***	1.134***		1.158***	1.169***
			(0.305)	(0.307)		(0.306)	(0.308)		(0.314)	(0.314)		(0.307)	(0.308)
Constant	?	0.008	-2.283*	-0.891	0.000	-2.320*	-0.871	0.004	-1.898	-0.204	-1.423	-3.478**	-2.234
		(0.137)	(1.200)	(4.151)	(0.139)	(1.209)	(4.097)	(0.138)	(1.157)	(3.911)	(1.046)	(1.620)	(4.388)
Loan Variables		No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
Industry Fixed Effect		No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Year Fixed Effect		No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
# of Obs		5639	5639	5639	5639	5639	5639	5639	5639	5639	5639	5639	5639
# of Firms		838	838	838	838	838	838	838	838	838	838	838	838
Adj. R^2		0.002	0.026	0.028	0.004	0.028	0.030	0.004	0.029	0.031	0.003	0.027	0.029

Table 13 The Implications of Conservatism for the Stock Market Performance (Four-Quarter Returns) Using the OLS Model (H4)

This table presents the results for the testing of H4 using the Ordinary Least Squares regression model: $Post\_Ret1_{it} = a_0 + a_1 Vio + a_2\ Chg\_Con_{it-1} + a_3 Vio * Chg\_Con_{it-1} + a_4 SIZE_{it-1} + a_5 MB_{it-1} + a_6 Leverage_{t-1} + Loan\ Variables + Year\ Indicators + Industry\ Indicators + \eta_{it}$. *Post_ret1* is the raw returns over four quarters after covenant violations. *Chg_Con* is one of the three conservatism measures and the composite measure. *Vio* is an indicator variable, equal to 1 for the violating firm-quarters, and 0 other wise. Definitions of other variables are given in Appendix A. Standard errors are clustered by firm and presented below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively.

		NonAcc			SK			C-Score			CCM		
	Predicted Sign	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Chg_con	?	0.236	0.032	-0.016	0.002	0.000	0.000	-0.028	0.079	0.068	0.020	0.011	0.005
		(0.586)	**(0.530)**	**(0.522)**	**(0.005)**	**(0.005)**	**(0.005)**	**(0.073)**	**(0.073)**	**(0.072)**	**(0.045)**	**(0.042)**	**(0.042)**
Vio	+	-0.146***	-0.162***	-0.152***	-0.151***	-0.167***	-0.158***	-0.149***	-0.164***	-0.155***	-0.203	-0.276	-0.269
		(0.035)	**(0.037)**	**(0.037)**	**(0.034)**	**(0.036)**	**(0.036)**	**(0.034)**	**(0.036)**	**(0.036)**	**(0.214)**	**(0.208)**	**(0.208)**
Vio*Chg_Con	**+**	**-0.913**	**-0.762**	**-0.717**	**0.011**	**0.017**	**0.017**	**0.550****	**0.597*****	**0.587*****	**0.034**	0.070	**0.071**
		(1.617)	**(1.581)**	**(1.579)**	**(0.017)**	**(0.016)**	**(0.017)**	**(0.300)**	**(0.294)**	**(0.292)**	**(0.134)**	**(0.131)**	**(0.131)**
Size	-		-0.030***	-0.041***		-0.029***	-0.041***		-0.028***	-0.038***		-0.029***	-0.041***
			(0.007)	**(0.011)**		**(0.007)**	**(0.011)**		**(0.007)**	**(0.011)**		**(0.007)**	**(0.011)**
Leverage	-		-0.005	-0.006		-0.005	-0.006		-0.005	-0.006		-0.005	-0.006
			(0.009)	**(0.008)**		**(0.009)**	**(0.008)**		**(0.008)**	**(0.008)**		**(0.009)**	**(0.008)**
MB	-		-0.009***	-0.008***		-0.010***	-0.008***		-0.011***	-0.010***		-0.010***	-0.008***
			(0.004)	**(0.004)**		**(0.004)**	**(0.004)**		**(0.004)**	**(0.004)**		**(0.004)**	**(0.004)**
Constant		0.182***	0.159**	0.274	0.182***	0.159**	0.270	0.182***	0.150**	0.252	0.150**	0.141	0.266
		(0.011)	**(0.075)**	**(0.204)**	**(0.011)**	**(0.075)**	**(0.203)**	**(0.011)**	**(0.075)**	**(0.205)**	**(0.070)**	**(0.102)**	**(0.214)**
loan Variables		No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
Industry Fixed Effect		No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Year Fixed Effect		No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
# of Obs		5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639
# of Firms		838	838	838	838	838	838	838	838	838	838	838	838
Adj. R^2		0.005	0.075	0.075	0.005	0.075	0.076	0.005	0.077	0.077	0.005	0.075	0.075

Table 14 The Implications of Conservatism for Stock Market Performance (Eight Quarter Returns) Using the OLS Model (H4)

This table presents the results for the testing of H4 using the Ordinary Least Squares regression model: $Post\_Ret2_{it} = a_0 + a_1 Vio + a_2\ Chg\_Con_{it-1} + a_3 Vio * Chg\_Con_{it-1} + a_4 SIZE_{it-1} + a_5 MB_{it-1} + a_6 Leverage_{t-1} + Loan\ Variables + Year\ Indicators + Industry\ Indicators + \eta_{it}$. *Post_ret2* is the raw stock returns over eight quarters after covenant violations. *Chg_Con* is one of the three conservatism measures and the composite measure. *Vio* is an indicator variable, equal to 1 for the violating firm-quarters, and 0 otherwise. Definitions of other variables are given in Appendix A. Standard errors are clustered by firm and presented below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively.

		NonAcc			SK			C-Score			CCM		
	Predicted Sign	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Chg_con	+	0.699	0.238	0.162	0.005	-0.001	-0.001	0.033	0.128	0.095	0.062	0.017	0.006
		(1.077)	(0.980)	(0.964)	(0.010)	(0.009)	(0.009)	(0.152)	(0.156)	(0.155)	(0.084)	(0.078)	(0.076)
Vio	+	-0.216***	-0.270***	-0.245***	-0.216***	-0.273***	-0.248***	-0.212***	-0.265***	-0.242***	-0.557*	-0.666**	-0.636*
		(0.055)	(0.060)	(0.060)	(0.055)	(0.059)	(0.059)	(0.055)	(0.060)	(0.060)	(0.333)	(0.322)	(0.324)
Vio*Chg_con	**+**	**0.496**	**0.265**	**0.249**	**0.029**	**0.039***	**0.039***	**1.065*****	**1.003*****	**0.974*****	**0.216**	**0.250**	**0.247**
		(2.379)	(2.283)	(2.272)	(0.030)	(0.029)	(0.029)	(0.468)	(0.449)	(0.447)	(0.216)	(0.210)	(0.211)
Size	-		-0.060***	-0.096***		-0.060***	-0.096***		-0.057***	-0.092***		-0.060***	-0.096***
			(0.012)	(0.020)		(0.012)	(0.020)		(0.013)	(0.021)		(0.012)	(0.020)
Leverage	-		-0.004	-0.008		-0.004	-0.008		-0.005	-0.009		-0.004	-0.008
			(0.016)	(0.014)		(0.016)	(0.014)		(0.015)	(0.013)		(0.016)	(0.014)
MB	-		-0.013**	-0.010*		-0.013**	-0.010*		-0.016***	-0.012*		-0.013**	-0.010*
			(0.007)	(0.007)		(0.007)	(0.007)		(0.008)	(0.008)		(0.007)	(0.007)
Constant	?	0.385***	0.144	0.476	0.386***	0.143	0.461	0.386***	0.130	0.440	0.289**	0.116	0.457
		(0.021)	(0.122)	(0.375)	(0.022)	(0.122)	(0.374)	(0.022)	(0.121)	(0.374)	(0.129)	(0.175)	(0.385)
loan Variables		No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
Industry Fixed Effect		No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Year Fixed Effect		No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
# of Obs		5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639
# of Firms		838	838	838	838	838	838	838	838	838	838	838	838
Adj. R^2		0.004	0.109	0.113	0.005	0.110	0.114	0.005	0.111	0.115	0.005	0.110	0.114

Table 15 The Probit Regression Results to Predict the Probability of Violation

This table presents the Probit regression results for the model predicting the probability of violation: *Pr (Vio=1) = F(Chg_con$_{it-1}$, Con_pre$_{it-1}$, Res_pre$_{it-1}$, Loan Size$_{it-n}$, Tenor$_{it-n}$, NumCov$_{it-n}$, Spread$_{it-n}$, Per_P$_{it-n}$, NoLenders$_{it-n}$, Size$_{it-n}$, MB$_{it-n}$, Chg_leverage $_{it-1}$, Chg_ROA$_{it-1}$, chg_EBITDA$_{it-1}$, Cret$_{it-1}$)*. The dependent variable is an indicator variable *Vio*, equal to 1 for the violating firm-quarters and 0 otherwise. *Chg_Con* is change in conservatism. Conservatism is measured by three conservatism measures (*NonAcc*, *SK*, and *C-Score*) and the composite measure of the three measures. Subscript *t-n* indicates that the variable is measured at the year of loan initiation. Subscript *t-1* indicates that the variable is measured as the average over four quarters prior to the violation quarter. Variable definitions are given in Appendix A. Standard errors are clustered by firm and presented in the parentheses below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively.

	Predicted Sign	NonAcc	SK	C-Score	CCM
Chg_con	+	**0.157**	**0.519*** **	**0.178**	**0.558*** **
		(0.176)	**(0.180)**	**(0.189)**	**(0.198)**
Con_pre	?	-3.039	0.271***	1.157	0.978***
		(5.189)	(0.066)	(0.831)	(0.315)
Res_pre	?	-0.953	-1.285	-0.989	-1.143
		(1.228)	(1.250)	(1.223)	(1.219)
Loan Size	+	-0.019	0.005	-0.002	-0.067
		(0.129)	(0.132)	(0.130)	(0.129)
Tenor	?	-0.014**	-0.015**	-0.013**	-0.013**
		(0.006)	(0.006)	(0.006)	(0.006)
NoCov	+	0.016	0.015	0.019	0.025
		(0.105)	(0.106)	(0.104)	(0.106)
Spread	+	0.009***	0.009***	0.009***	0.008***
		(0.001)	(0.001)	(0.001)	(0.001)
Per Pricing	-	0.184	0.205	0.162	0.175
		(0.240)	(0.247)	(0.242)	(0.242)
NoLenders	-	-0.029*	-0.033**	-0.029*	-0.028*
		(0.020)	(0.020)	(0.020)	(0.019)
P_lending	-	-0.091	-0.123	-0.071	-0.139
		(0.206)	(0.213)	(0.209)	(0.208)
Size	-	-0.215***	-0.248***	-0.198**	-0.136*
		(0.101)	(0.103)	(0.103)	(0.104)
Chg_Leverage	+	0.114	0.086	0.118	0.034
		(0.106)	(0.103)	(0.105)	(0.106)
MB	-	-0.076***	-0.074***	-0.102***	-0.070***
		(0.020)	(0.022)	(0.032)	(0.021)
Chg_Roa	-	7.121	8.566	6.866	8.675
		(5.529)	(5.359)	(5.428)	(5.357)
Chg_Ebitda	-	-29.110***	-31.006***	-28.253***	-30.303***
		(6.392)	(6.403)	(6.367)	(6.334)
Cret	-	-1.415***	-1.386***	-1.407***	-1.391***
		(0.241)	(0.235)	(0.239)	(0.234)
# of Obs		5,639	5,639	5,639	5,639
# of Firms		838	838	838	838
Pseudo. R^2		0.249	0.259	0.249	0.255

Table 16 The Implications of Conservatism for Debt Issuance Activities Using the Heckman Selection (Heckman, 1979) Model

This table presents the results using the inverse Mills' ratio (*IMR1*) to correct the selection bias in the following model: $Chg\_Debt = a_0 + b_0 IMR1 + a_1 Vio + a_2\ Chg\_Con_{it-1} + a_3 Vio * Chg\_Con_{it-1} + a_4 Ebitda_{it-1} + a_5 MB_{it-1} + a_6 Size_{it-1} + a_7 Leverage_{it-1} + a_8 Cret_{it-1} + Loan\ Variables + Year\ Indicators + Industry\ Indicators + \eta_{it}$. *IMR1* is the inverse Mills' ratio obtained from the first stage regression presented in Table 15; *Chg_Debt* is change in debt issuance from four quarters prior to covenant violations to four quarters after covenant violations. *Chg_Con* is one of the three conservatism measures and the composite measure. *Vio* is an indicator variable, equal to 1 for the violating firm-quarters, and 0 otherwise. Definitions of other variables are given in Appendix A. Standard errors are clustered by firm and presented below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively.

	Predicted Sign	NonAcc	SK	C-Score	CCM
IMR1	?	7.816***	6.995***	7.005***	8.907***
		(2.307)	(2.041)	(2.173)	(2.384)
Chg_Con	-	0.418	0.008	-1.872*	-0.240
		(7.304)	(0.072)	(1.229)	(0.588)
Vio	-	-28.921***	-25.822***	-25.833***	-56.400***
		(8.344)	(7.288)	(7.699)	(21.386)
Vio*Chg_Con	**+**	**151.253***	**1.831***	**-7.468**	**15.762***
		(105.121)	**(1.309)**	**(16.091)**	**(9.706)**
Size	?	0.013	0.052	-0.053	-0.001
		(0.159)	(0.163)	(0.161)	(0.160)
Leverage	-	-0.013	-0.014	-0.013	0.004
		(0.316)	(0.315)	(0.317)	(0.301)
EBITDA	?	-10.634	-11.048	-8.735	-14.333
		(9.540)	(9.646)	(9.275)	(9.972)
MB	+	-0.060	-0.054	-0.004	-0.055
		(0.059)	(0.059)	(0.061)	(0.060)
Cret	+	-0.077	0.118	0.042	-0.277
		(0.580)	(0.523)	(0.564)	(0.593)
P_lending	+	-0.287	-0.276	-0.250	-0.328
		(0.449)	(0.448)	(0.445)	(0.452)
Constant	?	0.797	-0.544	0.841	1.249
		(3.613)	(3.618)	(3.626)	(3.739)
Loan Variables		Yes	Yes	Yes	Yes
Year Fixed Effect		Yes	Yes	Yes	Yes
Industry Fixed Effect		Yes	Yes	Yes	Yes
# of Obs		5,639	5,639	5,639	5,639
# of Firms		838	838	838	838
Adj. R^2		0.044	0.046	0.037	0.052

Table17 The Implications of Conservatism for Investing Activities Using the Heckman Selection (Heckman, 1979) Model

This table presents the results using inverse Mills' ratio to correct the selection bias in the following model: $Chg\_Cap\_X_{it} = a_0 + b_0 IMR1 + a_1 Vio + a2\ Chg\_Con_{it-1} + a3 Vio * Chg\_Con_{it-1} + a_4 Ebitda_{it-1} + a_5 MB_{it-1} + a_6 Size_{it-1} + a_7 Leverage_{it-1} + a_8 Cret_{it-1} + a_9 Rating\_D_{it-1} + Loan\ Variables + Year\ Indicators + Industry\ Indicators + \eta_{it}$. *IMR1* is the inverse Mills' ratio obtained from the first stage regression presented in Table 15; *Chg_Cap_X* is change in capital expenditures from four quarters prior to covenant violation to four quarters after covenant violations. *Chg_Con* is one of the three conservatism measures and the composite measure. *Vio* is an indicator variable, equal to 1 for the violating firm-quarters, and 0 otherwise. Definitions of other variables are given in Appendix A. Standard errors are clustered by firm and presented below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively.

	Predicted Sign	NonAcc	SK	C-Score	CCM
IMR1	?	1.710	1.367	1.798*	1.285
		(1.075)	(0.899)	(1.060)	(0.895)
Chg_con	?	-4.517	-0.029	0.185	-0.379
		(6.676)	-0.040	(0.962)	(0.365)
Vio	-	-6.104**	-4.987**	-6.275***	-8.063***
		(3.226)	(2.673)	(3.163)	(3.552)
Vio*Chg_Con	**+**	**22.469**	**0.139**	**9.450*** **	**2.090***
		(20.954)	**(0.196)**	**(4.185)**	**(1.501)**
Size	-	-0.338***	-0.329***	-0.327***	-0.328***
		(0.143)	(0.142)	(0.142)	(0.140)
EBITDA	+	8.192	8.286	7.549	8.615
		(8.878)	(8.992)	(8.868)	(9.127)
MB	+	-0.021	-0.019	-0.026	-0.018
		(0.040)	(0.040)	(0.044)	(0.039)
Leverage	-	0.012	0.010	0.008	0.012
		(0.018)	(0.018)	(0.017)	(0.018)
Cret	+	1.260***	1.328***	1.242***	1.345***
		(0.303)	(0.273)	(0.302)	(0.272)
Rating_D	+	0.363*	0.373**	0.364*	0.380**
		(0.221)	(0.220)	(0.222)	(0.220)
Constant	?	3.747	3.529	3.691	4.104*
		(2.291)	(2.286)	(2.257)	(2.332)
Loan Variables		Yes	Yes	Yes	Yes
Year Fixed Effect		Yes	Yes	Yes	Yes
Industry Fixed Effect		Yes	Yes	Yes	Yes
# of Obs		5,639	5,639	5,639	5,639
# of Firms		838	838	838	838
Adj. R^2		0.046	0.045	0.048	0.046

Table 18 The Implications of Conservatism for Operating Performance Using the Heckman Selection (Heckman, 1979) Model

This table presents the results using the inverse Mills' ratio (*IMR1*) to correct the selection bias in the following model: $Chg\_GM_{it} = a_0 + b_0 IMR1 + a_1 Vio + a_2\ Chg\_Con_{it-1} + a_3 Vio * Chg\_Con_{it-1} + a_4 SIZE_{it-1} + a_5 MB_{it-1} + a_6 Cret_{it-1} + Loan\ Variables + Year\ Indicators + Industry\ Indicators + \eta_{it}$. *IMR1* is the inverse Mills' ratio obtained from the first stage regression presented in Table 15. *Chg_GM* is change in gross margin from four quarters prior to covenant violation to four quarters after covenant violations. *Chg_Con* is one of the three conservatism measures and the composite measure. *Vio* is an indicator variable, equal to 1 for the violating firm-quarters, and 0 otherwise. Definitions of other variables are given in Appendix A. Standard errors are clustered by firm and presented below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively.

	Predicted Sign	NonAcc	SK	C-Score	CCM
IMR1	?	-3.760**	-2.454	-3.332*	-3.603**
		(1.794)	(1.765)	(1.906)	(1.664)
Chg_Con	?	-0.636	0.181**	-2.590	0.934
		(9.161)	(0.090)	(1.820)	(0.636)
Vio	+	10.240**	5.969	8.888*	11.319**
		(5.454)	(5.371)	(5.745)	(6.102)
Vio*Chg_Con	**+**	**-13.598**	**-0.145**	**3.365**	**-1.054**
		(21.295)	**(0.252)**	**(5.490)**	**(1.855)**
Size	-	0.296	0.358	0.197	0.305
		(0.268)	(0.269)	(0.258)	(0.263)
MB	+	0.096*	0.147***	0.147**	0.089*
		(0.059)	(0.057)	(0.079)	(0.058)
Cret	+	1.985***	1.889***	1.866***	1.951***
		(0.488)	(0.467)	(0.505)	(0.464)
Constant	?	-2.996	-1.300	-2.119	-4.359
		(4.517)	(4.979)	(4.357)	(4.745)
Loan Variables		Yes	Yes	Yes	Yes
Year Fixed Effect		Yes	Yes	Yes	Yes
Industry Fixed Effect		Yes	Yes	Yes	Yes
# of Obs		5,639	5,639	5,639	5,639
# of Firms		838	838	838	838
Adj. R^2		0.034	0.046	0.035	0.034

Table 19 The Implications of Conservatism for Stock Market Performance (Four-Quarter Returns) Using the Heckman Selection Model

This table presents the results using the inverse Mills' ratio (*IMR1*) to correct the selection bias in the following model $Post\_Ret1_{it} = a_0 + b_0 IMR1 + a_1 Vio + a_2\, Chg\_Con_{it-1} + a_3 Vio * Chg\_Con_{it-1} + a_4 SIZE_{it-1} + a_5 MB_{it-1} + a_6 Leverage_{t-1} + Loan\ Variables + Year\ Indicators + Industry\ Indicators + \eta_{it}$. *IMR1* is the inverse Mills' ratio obtained from the first stage regression presented in Table 15. *Post_ret1* is the raw stock returns over four quarters after covenant violations. *Chg_Con* is one of the three conservatism measures and the composite measure. *Vio* is an indicator variable, equal to 1 for the violating firm-quarters, and 0 other wise. Definitions of other variables are given in Appendix A. Standard errors are clustered by firm and presented below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively.

	Predicted Sign	NonAcc	SK	C-Score	CCM
IMR1	?	-0.040	-0.025	-0.033	-0.024
		(0.059)	(0.057)	(0.057)	(0.058)
Chg_con	+	-0.032	0.000	0.066	0.005
		(0.521)	(0.005)	(0.071)	(0.042)
Vio	+	-0.035	-0.085	-0.060	-0.200
		(0.174)	(0.166)	(0.168)	(0.258)
Vio*Chg_Con	**+**	**-0.824**	**0.017**	**0.576****	**0.072**
		(1.590)	**(0.017)**	**(0.293)**	**(0.131)**
Size	-	-0.046***	-0.047***	-0.044***	-0.047***
		(0.011)	(0.011)	(0.011)	(0.011)
Leverage	-	-0.007	-0.007	-0.008	-0.007
		(0.007)	(0.007)	(0.007)	(0.007)
MB	-	-0.008***	-0.008***	-0.009***	-0.008***
		(0.004)	(0.004)	(0.004)	(0.004)
Constant	?	0.310	0.313	0.290	0.309
		(0.203)	(0.201)	(0.203)	(0.212)
Loan Variables		Yes	Yes	Yes	Yes
Year Fixed Effect		Yes	Yes	Yes	Yes
Industry Fixed Effect		Yes	Yes	Yes	Yes
# of Obs		5,639	5,639	5,639	5,639
# of Firms		838	838	838	838
Adj. R^2		0.076	0.077	0.078	0.076

Table 20 The Implications of Conservatism for Stock Market Performance (Eight-Quarter Returns) Using the Heckman Selection (Heckman, 1979) Model

This table presents the results using the inverse Mills' ratio to correct the selection bias in the following model $Post\_Ret2_{it} = a_0 + b_0 IMR1 + a_1 Vio + a_2\, Chg\_Con_{it-1} + a_3 Vio * Chg\_Con_{it-1} + a_4 SIZE_{it-1} + a_5 MB_{it-1} + a_6 Leverage_{t-1} + Loan\ Variables + Year\ Indicators + Industry\ Indicators + \eta_{it}$. *IMR1* is the inverse Mills' ratio obtained from the first stage regression presented in Table 15. *Post_ret2* is the raw stock returns over eight quarters after covenant violations. *Chg_Con* is one of the three conservatism measures and the composite measure. *Vio* is an indicator variable, equal to 1 for the violating firm-quarters, and 0 otherwise. Definitions of other variables are given in Appendix A. Standard errors are clustered by firm and presented below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively.

	Predicted Sign	NonAcc	SK	C-Score	CCM
IMR1	?	-0.128	-0.123	-0.123	-0.101
		(0.094)	(0.092)	(0.092)	(0.096)
Chg_con	+	0.105	-0.001	0.090	0.007
		(0.960)	(0.009)	(0.153)	(0.076)
Vio	+	0.130	0.106	0.115	-0.342
		(0.280)	(0.268)	(0.273)	(0.414)
Vio*Chg_Con	**+**	**-0.083**	**0.041***	**0.947*****	**0.247**
		(2.306)	**(0.029)**	**(0.451)**	**(0.211)**
Size	-	-0.104***	-0.104***	-0.100***	-0.105***
		(0.021)	(0.021)	(0.022)	(0.020)
Leverage	-	-0.012	-0.011	-0.012	-0.011
		(0.012)	(0.012)	(0.012)	(0.012)
MB	-	-0.007	-0.008	-0.010	-0.008
		(0.007)	(0.007)	(0.008)	(0.007)
Constant	?	0.513	0.504	0.478	0.506
		(0.371)	(0.369)	(0.371)	(0.381)
Loan Variables		Yes	Yes	Yes	Yes
Year Fixed Effect		Yes	Yes	Yes	Yes
Industry Fixed Effect		Yes	Yes	Yes	Yes
# of Obs		5,639	5,639	5,639	5,639
# of Firms		838	838	838	838
Adj. R^2		0.116	0.117	0.118	0.116

Table 21 The Implications of Conservatism for Debt Issuing Activities Using the Propensity Score Matching Approach

This table presents the results for the testing of H1 using the model: $Chg\_Debt = a_0 + a_1 Vio + a_2\ Chg\_Con_{it-1} + a_3 Vio * Chg\_Con_{it-1} + a_4 Ebitda_{it-1} + a_5 MB_{it-1} + a_6 Size_{it-1} + a_7 Leverage_{it-1} + a_8 Cret_{it-1} +$ *Loan Variables + Year Indicators + Industry Indicators* $+ \eta_{it}$. *Chg_Debt* is change in debt issuance from four quarters prior to covenant violation to four quarters after covenant violations. *Chg_Con* is one of the three conservatism measures and the composite measure. *Vio* is an indicator variable, equal to 1 for the violating firm-quarters and 0 for the matched non-violating control sample (matched by propensity score). Definitions of other variables are given in Appendix A. Standard errors are clustered by firm and presented below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively.

	Predicted Sign	NonAcc	SK	C-Score	CCM
Chg_Con	-	-2.562	0.776*	-1.420	-2.630***
		(29.648)	(0.547)	(1.593)	(1.180)
Vio	-	-4.763***	-5.230***	-1.514***	-8.074***
		(1.836)	(1.882)	(0.515)	(2.598)
Vio*Chg_Con	**+**	**126.551***	**1.265**	**7.239***	**4.890*****
		(93.613)	**(1.186)**	**(5.324)**	**(1.796)**
Size	?	-1.913**	0.335	-0.859**	-0.042
		(0.901)	(1.277)	(0.344)	(0.280)
EBITDA	?	4.087	-40.373	-8.919	11.254
		(22.207)	(30.872)	(13.001)	(14.611)
MB	+	-0.012	-0.113	0.110	-0.116
		(0.410)	(0.287)	(0.218)	(0.175)
Leverage	-	-4.352***	-2.774***	-0.583***	-0.006
		(1.735)	(0.979)	(0.199)	(0.155)
Cret	+	3.261*	-0.011	0.623	0.795*
		(2.090)	(2.529)	(0.640)	(0.616)
P_lending	+	1.993	4.337***	1.161*	1.008*
		(2.133)	(1.843)	(0.737)	(0.701)
Constant	?	25.373***	22.520***	-2.054	3.997
		(9.650)	(8.680)	(6.351)	(4.061)
Loan Variables		Yes	Yes	Yes	Yes
Year Fixed Effect		Yes	Yes	Yes	Yes
Industry Fixed Effect		Yes	Yes	Yes	Yes
# of Obs		582	566	578	572
# of Firms		443	431	438	440
Adj. R^2		0.112	0.100	0.092	0.060

Table 22 The Implications of Conservatism for Investing Activities Using the Propensity Score Matching Approach

This table presents the results for the testing of H2 using the model: $Chg\_Cap\_X_{it} = a_0 + a_1 Vio + a_2 Chg\_Con_{it-1} + a_3 Vio * Chg\_Con_{it-1} + a_4 Ebitda_{it-1} + a_5 MB_{it-1} + a_6 Size_{it-1} + a_7 Leverage_{it-1} + a_8 Cret_{it-1} + a_9 Rating\_D_{it-1} + Loan\ Variables + Year\ Indicators + Industry\ Indicators + \eta_{it}$. *Chg_Cap_X* is change in capital expenditures from four quarters prior to covenant violation to four quarters after covenant violations. *Chg_Con* is one of the three conservatism measures and the composite measure. *Vio* is an indicator variable, equal to one for the violating firm-quarters and 0 for the matched non-violating control sample (matched by propensity score). Definitions of other variables are given in Appendix A. Standard errors are clustered by firm and presented below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively

	Predicted Sign	NonAcc	SK	C-Score	CCM
Chg_con	?	(3.528)	(0.085)	-1.362	-0.247
		(14.360)	(0.166)	(2.170)	(0.858)
Vio	-	-1.056**	-1.266***	-1.427***	-3.578*
		(0.583)	(0.487)	(0.501)	(2.246)
Vio*Chg_Con	**+**	**15.923**	**0.282**	**11.231*** **	**2.005***
		(25.092)	**(0.264)**	**(4.824)**	**(1.503)**
Size	-	-0.254	-0.583*	-0.561*	-0.572**
		(0.438)	(0.436)	(0.378)	(0.293)
EBITDA	+	30.885*	28.828	2.421	23.48
		(24.017)	(29.290)	(14.004)	(26.141)
MB	+	-0.264	-0.447	-0.007	-0.195
		(0.308)	(0.323)	(0.103)	(0.221)
Leverage	-	0.106	-0.160	0.006	0.104
		(0.179)	(0.179)	(0.151)	(0.162)
Cret	+	1.888***	-0.054	0.214	0.232
		(0.876)	(0.792)	(0.630)	(0.674)
Rating_D	+	0.883	1.540**	0.407	1.109*
		(0.725)	(0.823)	(0.677)	(0.691)
Constant	?	1.752	4.467	8.330***	2.264
		(3.878)	(3.309)	(3.198)	(3.359)
Loan Variables		Yes	Yes	Yes	Yes
Year Fixed Effect		Yes	Yes	Yes	Yes
Industry Fixed Effect		Yes	Yes	Yes	Yes
# of Obs		578	564	575	568
# of Firms		439	429	435	437
Adj. R^2		0.039	0.016	0.056	0.043

Table 23 The Implications of Conservatism for Operating Performance Using the Propensity Score Matching Approach

This table presents the results for the testing of H3 using the model: $Chg\_GM_{it} = a_0 + a_1 Vio + a_2\ Chg\_Con_{it-1} + a_3 Vio * Chg\_Con_{it-1} + a_4 Size_{it-1} + a_5 MB_{it-1} + a_6 Cret_{it-1} + Loan\ Variables + Year\ Indicators + Industry\ Indicators + \eta_{it}$. *Chg_GM* is change in gross margin from four quarters prior to covenant violation to four quarters after covenant violations. *Chg_Con* is one of the three conservatism measures and the composite measure. *Vio* is an indicator variable, equal to one for the violating firm-quarters and 0 for the matched non-violating control sample (matched by propensity score). Definitions of other variables are given in Appendix A. Standard errors are clustered by firm and presented below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively.

	Predicted Sign	NonAcc	SK	C-Score	CCM
Chg_Con	?	1.002	0.007	0.009	0.090*
		(1.035)	(0.011)	(0.053)	(0.054)
Vio	+	-0.047**	-0.071***	-0.045**	0.044
		(0.018)	(0.021)	(0.020)	(0.087)
Vio*Chg_Con	**+**	**-1.212**	**-0.009**	**0.028**	**-0.064**
		(1.170)	**(0.012)**	**(0.123)**	**(0.064)**
Size	-	-0.007	0.005	0.003	-0.001
		(0.008)	(0.012)	(0.009)	(0.006)
MB	+	0.009**	0.002	0.003	0.003
		(0.005)	(0.007)	(0.004)	(0.004)
Cret	?	0.024	0.028	-0.017	-0.001
		(0.020)	(0.030)	(0.023)	(0.024)
Constant	?	0.218*	0.301*	0.184	0.043
		(0.123)	(0.179)	(0.169)	(0.104)
Loan Variables		Yes	Yes	Yes	Yes
Year Fixed Effect		Yes	Yes	Yes	Yes
Industry Fixed Effect		Yes	Yes	Yes	Yes
# of Obs		580	564	578	570
# of Firms		442	430	438	440
Adj. R^2		0.030	0.065	0.030	0.049

Table 24 The Implications of Conservatism for Stock Market Performance (Four-Quarter Returns) Using the Propensity Score Matching Approach

This table presents the results for the testing of H4 using the model: $Post\_Ret1_{it} = a_0 + a_1 Vio + a_2\ Chg\_Con_{it-1} + a_3 Vio * Chg\_Con_{it-1} + a_4 Size_{it-1} + a_5 MB_{it-1} + a_6 Leverage_{t-1} + Loan\ Variables + Year\ Indicators + Industry\ Indicators + \eta_{it}$. *Post_ret1* is the raw stock returns over four quarters after covenant violations. *Chg_Con* is one of the three conservatism measures and the composite measure. *Vio* is an indicator variable, equal to one for the violating firm-quarters and 0 for the matched non-violating control sample (matched by propensity score). Definitions of other variables are given in Appendix A. Standard errors are clustered by firm and presented below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively

	Predicted Sign	NonAcc	SK	C-Score	CCM
Chg_Con	?	-0.033	-5.203***	0.409**	-0.203
		(0.022)	(1.581)	(0.166)	(0.133)
Vio	+	-0.163***	-0.124**	-0.166***	-0.508**
		(0.052)	(0.052)	(0.053)	(0.244)
Vio*Chg_Con	**+**	**0.065*** **	**3.544** **	**0.141**	**0.260***
		(0.027)	**(2.071)**	**(0.362)**	**(0.171)**
Size	-	-0.019	-0.049*	-0.008	-0.007
		(0.030)	(0.030)	(0.031)	(0.026)
MB	-	-0.008	0.005	-0.011	-0.018*
		(0.013)	(0.013)	(0.014)	(0.013)
Leverage	-	-0.013	-0.001	0.023	-0.003
		(0.030)	(0.037)	(0.028)	(0.028)
Constant	?	-0.528*	-0.029	-0.258	0.288
		(0.282)	(0.213)	(0.228)	(0.320)
Loan Variables		Yes	Yes	Yes	Yes
Year Fixed Effect		Yes	Yes	Yes	Yes
Industry Fixed Effect		Yes	Yes	Yes	Yes
# of Obs		566	582	578	572
# of Firms		431	443	438	440
Adj. R^2		0.077	0.116	0.119	0.060

Table 25 The Implications of Conservatism for Stock Market Performance (Eight Quarter Returns) Using the Propensity Score Matching Approach

This table presents the results for the testing of H4 using model: $Post\_Ret2_{it} = a_0 + a_1 Vio + a_2\ Chg\_Con_{it-1} + a_3 Vio * Chg\_Con_{it-1} + a_4 SIZE_{it-1} + a_5 MB_{it-1} + a_6 Leverage_{t-1} + Loan\ Variables + Year\ Indicators + Industry\ Indicators + \eta_{it}$. *Post_ret2* is the raw stock returns over four quarters after covenant violations. *Chg_Con* is one of the three conservatism measures and the composite measure. *Vio* is an indicator variable, equal to one for the violating firm-quarters and 0 for the matched non-violating control sample (matched by propensity score). Definitions of other variables are given in Appendix A. Standard errors are clustered by firm and presented below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively.

	Predicted Sign	NonAcc	SK	C-Score	CCM
Chg_Con	?	-6.079***	-0.043	0.742	-0.265
		(1.862)	(0.034)	(0.456)	(0.183)
Vio	+	-0.119	-0.309***	-0.274***	-0.759**
		(0.080)	(0.082)	(0.083)	(0.343)
Vio*Chg_Con	**+**	**6.548*** **	**0.076** **	**0.461**	**0.437** **
		(2.811)	**(0.044)**	**(0.672)**	**(0.246)**
Size	-	-0.035	-0.008	0.036	0.024
		(0.050)	(0.052)	(0.053)	(0.041)
MB	-	-0.005	-0.022	-0.027*	-0.020
		(0.018)	(0.018)	(0.018)	(0.019)
Leverage	-	0.014	-0.006	0.001	0.016
		(0.063)	(0.053)	(0.038)	(0.048)
Constant	?	-0.335	-0.890*	-0.952**	-0.004
		(0.408)	(0.455)	(0.401)	(0.469)
Loan Variables		Yes	Yes	Yes	Yes
Year Fixed Effect		Yes	Yes	Yes	Yes
Industry Fixed Effect		Yes	Yes	Yes	Yes
# of Obs		582	566	578	572
# of Firms		443	431	438	440
Adj. R^2		0.064	0.069	0.103	0.070

Table 26 The Probit Regression Results to Predict the Probability of Change in Conservative Reporting

This table presents the Probit regression results for the model used to predict the probability of change in conditional conservative reporting with inverse Mills' ratio (*IMR1*) calculated from the first stage modeling the probability of violation. The *Probit* model predicting the probability of change in conditional conservatism is: *Pr (Chg=1) = F (IMR1, $ConPre_{it-n}$, $ResPre_{it-n}$, $Leverage_{it-n}$, $Size_{it-n}$, MB_{it-n}, $P\_lending_{it-n}$, $Litigation_{it-n}$, $ChgRating_{it-1}$, $Insti1_{it-n}$, $Insti2_{it-n}$, $Insti3_{it-n}$, Year Indicator, Industry Indicator)*. The dependent variable is an indicator variable *Chg*, equal to 1 if change in conditional conservatism is above the median of the sample, and 0 otherwise. *IMR1* is the inverse Mills' ratio from the probability model presented in Table 15. *ConPre* is the pre-contracting conditional conservatism. Conditional conservatism is measured by three conservatism measures (*NonAcc, SK, C-Score*) and a composite measure. *Res_pre* is a measure of unconditional conservatism at the time of loan initiation. Subscript *t-n* indicates that the variable is measured at the quarter of loan initiation. Subscript *t-1* indicates that the variable is measured at the quarter of covenant violation. Variable definitions are given in Appendix A. Standard errors are clustered by firm and presented in the parentheses below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively.

	Predicted Sign	NonAcc	SK	C-Score	CCM
IMR1	?	-0.001	-0.026	0.016	-0.002
		(0.057)	(0.061)	(0.054)	(0.059)
Con_Pre	-	-109.991***	-1.103***	-17.386***	-5.963***
		(11.298)	(0.063)	(3.504)	(0.418)
Res_pre	-	-2.124***	0.267	1.191	-1.264*
		(1.019)	(0.844)	(1.061)	(0.950)
MB	-	-0.018	0.000	0.341***	0.032*
		(0.019)	(0.018)	(0.146)	(0.023)
Leverage	?	-0.018	-0.009	0.013	0.023
		(0.026)	(0.031)	(0.039)	(0.033)
Size	?	-0.025	0.079	-0.790***	-0.052
		(0.063)	(0.064)	(0.154)	(0.065)
P_lending	?	-0.153	0.208	-0.322*	0.059
		(0.180)	(0.164)	(0.173)	(0.164)
Chg_rating	?	-0.038	0.134***	0.107**	0.085*
		(0.053)	(0.055)	(0.064)	(0.059)
Insti1	+	-0.001	-0.002	0.000	-0.001
		(0.002)	(0.002)	(0.003)	(0.002)
Insti2	+	0.010	-0.015	0.017	0.034
		(0.064)	(0.064)	(0.063)	(0.061)
Insti3	+	0.007	0.010	-0.008	0.001
		(0.040)	(0.038)	(0.046)	(0.038)
Litigation	+	0.277	-0.218	-0.188	-0.158
		(0.223)	(0.177)	(0.229)	(0.206)
Constant	?	4.317***	0.043	24.287	8.329***
		(1.576)	(0.722)	0.000	(0.955)
# of Obs		5,639	5,639	5,639	5,639
# of Firms		838	838	838	838
Pseudo. R^2		0.204	0.265	0.195	0.236

Table 27 The Implications of Conservatism for Debt Issuing Activities Using the Double Selection Model

This table presents the results using the double selection approach with the inclusion of the second inverse Mills' ratio (*IMR2*) estimated from the model presented in Table 26 to correct the selection bias in the following model: $Chg\_Debt = a_0 + b_0 IMR2 + a_1 Vio + a_2\, Chg\_Con_{it-1} + a_3 Vio * Chg\_Con_{it-1} + a_4 Ebitda_{it-1} + a_5 MB_{it-1} + a_6 Size_{it-1} + a_7 Leverage_{it-1} + a_8 Cret_{it-1} +$ *Loan Variables + Year Indicators + Industry Indicators* $+ \eta_{it}$. *Chg_Debt* is change in debt issuance from four quarters prior to covenant violation to four quarters after covenant violations. *IMR2* is the inverse Mills' ratio obtained from the *Probit* model in Table 26; *Chg_Con* is one of the three conservatism measures and the composite measure. *Vio* is an indicator variable, equal to 1 for the violating firm-quarters, and 0 other wise. Definitions of other variables are given in Appendix A. Standard errors are clustered by firm and presented below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively.

	Predicted Sign	NonAcc	SK	C-Score	CCM
IMR2	?	-0.029	-0.260*	0.141	-0.154
		(0.162)	(0.140)	(0.134)	(0.152)
Chg_Con	-	-4.841	0.139*	-1.928*	0.393
		(8.059)	(0.096)	(1.460)	(0.817)
Vio	-	-5.688***	-5.253***	-5.115***	-30.161**
		(1.932)	(1.753)	(1.686)	(16.625)
Vio*Chg_Con	**+**	**137.631***	**1.900***	**-8.486**	**15.788***
		(104.125)	**(1.331)**	**(16.268)**	**(9.868)**
Size	?	0.301	0.311	0.243	0.317*
		(0.187)	(0.191)	(0.188)	(0.192)
Leverage	-	-0.037	-0.034	-0.036	-0.032
		(0.337)	(0.335)	(0.335)	(0.334)
EBITDA	?	2.757	2.298	2.574	2.241
		(8.199)	(8.290)	(8.241)	(8.261)
MB	+	-0.063	-0.059	-0.030	-0.062
		(0.059)	(0.058)	(0.062)	(0.059)
Cret	+	1.553***	1.551***	1.508***	1.553***
		(0.433)	(0.430)	(0.438)	(0.430)
P_lending	+	-0.148	-0.157	-0.147	-0.169
		(0.435)	(0.432)	(0.435)	(0.433)
Constant	?	-3.688	-4.349	-3.383	-4.826
		(3.926)	(4.076)	(3.913)	(4.454)
Loan Variables		Yes	Yes	Yes	Yes
Year Fixed Effect		Yes	Yes	Yes	Yes
Industry Fixed Effect		Yes	Yes	Yes	Yes
# of Obs		5,639	5,639	5,639	5,639
# of Firms		838	838	838	838
Adj. R^2		0.034	0.037	0.029	0.039

Table 28 The Implications of Conservatism for Investing Activities Using the Double Selection Model

This table presents the results using the double selection approach with the inclusion of the second inverse Mills' ratio (*IMR2*) estimated from the model presented in Table 26 to correct the selection bias in the following model: $Chg\_Cap\_X_{it} = a_0 + b_0 IMR2 + a_1 Vio + a_2\ Chg\_Con_{it-1} + a_3 Vio * Chg\_Con_{it-1} + a_4 Ebitda_{it-1} + a_5 MB_{it-1} + a_6 Size_{it-1} + a_7 Leverage_{it-1} + a_8 Cret_{it-1} + a_9 Rating\_D_{it-1} + Loan\ Variables + Year\ Indicators + Industry\ Indicators + \eta_{it}$. *Chg_Cap_X* is change in capital expenditures from four quarters prior to covenant violation to four quarters after covenant violations. *IMR2* is the inverse Mills' ratio obtained from the *Probit* model in Table 26; *Chg_Con* is one of the three conservatism measures and the composite measure. *Vio* is an indicator variable, equal to 1 for the violating firm-quarters, and 0 other wise. Definitions of other variables are given in Appendix A. Standard errors are clustered by firm and presented below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively.

	Predicted Sign	NonAcc	SK	C-Score	CCM
IMR2	?	-0.079	-0.051	-0.075	-0.005
		(0.100)	(0.089)	(0.063)	(0.085)
Chg_con	?	-3.263	-0.003	0.538	-0.344
		(8.016)	-0.048	(0.975)	(0.509)
Vio	-	-1.023***	-0.966***	-0.946***	-4.286**
		(0.444)	(0.418)	(0.412)	(2.460)
Vio*Chg_Con	**+**	**19.035**	**0.152**	**9.438*** **	**2.099***
		(20.906)	**(0.195)**	**(4.197)**	**(1.484)**
Size	-	-0.268**	-0.274***	-0.256**	-0.277***
		(0.136)	(0.136)	(0.133)	(0.137)
EBITDA	+	11.060	10.798	10.545	10.885
		(9.372)	(9.340)	(9.367)	(9.314)
MB	+	-0.021	-0.020	-0.028	-0.019
		(0.041)	(0.040)	(0.045)	(0.040)
Leverage	-	0.009	0.007	0.004	0.008
		(0.017)	(0.016)	(0.016)	(0.017)
Cret	+	1.616***	1.609***	1.619***	1.609***
		(0.215)	(0.215)	(0.215)	(0.215)
Rating_D	+	0.345*	0.337*	0.327*	0.339*
		(0.219)	(0.218)	(0.220)	(0.217)
Constant	?	2.681	2.738	2.670	3.264
		(2.420)	(2.422)	(2.391)	(2.423)
Loan Variables		Yes	Yes	Yes	Yes
Year Fixed Effect		Yes	Yes	Yes	Yes
Industry Fixed Effect		Yes	Yes	Yes	Yes
# of Obs		5,639	5,639	5,639	5,639
# of Firms		838	838	838	838
Adj. R^2		0.045	0.044	0.046	0.045

Table 29 The Implications of Conservatism for Operating Performance Using the Double Selection Model

This table presents the results using the double selection approach with the inclusion of the second inverse Mills' ratio (IMR2) estimated from the model presented in Table 26 to correct the selection bias in the following model: $Chg\_GM_{it} = a_0 + b_0 IMR2 + a_1 Vio + a_2\ Chg\_Con_{it-1} + a_3 Vio * Chg\_Con_{it-1} + a_4 SIZE_{it-1} + a_5 MB_{it-1} + a_6 Cret_{it-1} + Loan\ Variables + Year\ Indicators + Industry\ Indicators + \eta_{it}$. *Chg_GM* is change in gross margin from four quarters prior to covenant violation to four quarters after covenant violations. *IMR2* is the inverse Mills' ratio obtained from the *Probit* model in Table 26; *Chg_Con* is one of the three conservatism measures and the composite measure. *Vio* is an indicator variable, equal to 1 for the violating firm-quarters, and 0 other wise. Definitions of other variables are given in Appendix A. Standard errors are clustered by firm and presented below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively.

	Predicted Sign	NonAcc	SK	C-Score	CCM
IMR2	?	0.160	0.114	-0.049	0.076
		(0.117)	(0.133)	(0.144)	(0.105)
Chg_Con	?	-3.343	0.123	-2.648	0.611
		(10.208)	(0.086)	(2.085)	(0.671)
Vio	+	-0.864	-0.888	-0.911	0.765
		(0.575)	(0.565)	(0.561)	(2.967)
Vio*Chg_Con	**+**	**-5.753**	**-0.177**	**3.693**	**-1.056**
		(20.883)	**(0.256)**	**(5.298)**	**(1.845)**
Size	-	0.105	0.130	0.018	0.127
		(0.221)	(0.222)	(0.204)	(0.221)
MB	+	0.086*	0.088*	0.151**	0.083*
		(0.058)	(0.058)	(0.078)	(0.057)
Cret	+	1.165***	1.179***	1.134***	1.168***
		(0.307)	(0.308)	(0.314)	(0.308)
Constant	?	-0.739	-0.887	-0.160	-1.842
		(4.193)	(4.096)	(3.975)	(4.386)
Loan Variables		Yes	Yes	Yes	Yes
Year Fixed Effect		Yes	Yes	Yes	Yes
Industry Fixed Effect		Yes	Yes	Yes	Yes
# of Obs		5,639	5,639	5,639	5,639
# of Firms		838	838	838	838
Adj. R^2		0.028	0.030	0.031	0.029

Table 30 The Implications of Conservatism for Stock Market Performance (Four-Quarter Returns) Using the Double Selection Model

This table presents the results using the double selection approach with the inclusion of the second inverse Mills' ratio (IMR2) estimated from the model presented in Table 26 to correct the selection bias in the following model: $Post\_Ret1_{it} = a_0 + b_0 IMR2 + a_1 Vio + a_2\, Chg\_Con_{it-1} + a_3 Vio * Chg\_Con_{it-1} + a_4 SIZE_{it-1} + a_5 MB_{it-1} + a_6 Leverage_{t-1} + Loan\ Variables + Year\ Indicators + Industry\ Indicators + \eta_{it}$. *Post_ret1* is the raw stock returns over four quarters after covenant violations. *IMR2* is the inverse Mills' ratio obtained from the *Probit* model in Table 26. *Chg_Con* is one of the three conservatism measures and the composite measure. *Vio* is an indicator variable, equal to 1 for the violating firm-quarters, and 0 otherwise. Definitions of other variables are given in Appendix A. Standard errors are clustered by firm and presented below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively

	Predicted Sign	NonAcc	SK	C-Score	CCM
IMR2	?	0.004	0.009	-0.011	-0.001
		(0.008)	(0.009)	(0.008)	(0.008)
Chg_con	+	-0.142	-0.003	0.100*	0.008
		(0.587)	(0.006)	(0.074)	(0.048)
Vio	+	-0.151***	-0.158***	-0.153***	-0.268
		(0.037)	(0.036)	(0.036)	(0.208)
Vio*Chg_Con	**+**	**-0.712**	**0.017**	**0.605*** **	**0.071**
		(1.583)	**(0.017)**	**(0.291)**	**(0.131)**
Size	-	-0.048***	-0.048***	-0.046***	-0.047***
		(0.011)	(0.011)	(0.011)	(0.011)
Leverage	-	-0.007	-0.007	-0.007	-0.007
		(0.007)	(0.007)	(0.007)	(0.007)
MB	-	-0.008***	-0.008***	-0.009***	-0.008***
		(0.004)	(0.004)	(0.004)	(0.004)
Constant	?	0.332*	0.323	0.316	0.315
		(0.201)	(0.200)	(0.202)	(0.214)
Loan Variables		Yes	Yes	Yes	Yes
Year Fixed Effect		Yes	Yes	Yes	Yes
Industry Fixed Effect		Yes	Yes	Yes	Yes
# of Obs		5,639	5,639	5,639	5,639
# of Firms		838	838	838	838
Adj. R^2		0.076	0.077	0.078	0.076

Table 31 The Implications of Conservatism for Stock Market Performance (Eight-Quarter Returns) Using the Double Selection Model

This table presents the results using the double selection model with the inclusion of the second inverse Mills' ratio (IMR2) estimated from the model presented in Table 26 to correct the selection bias in the following model: $Post\_Ret2_{it} = a_0 + b_0 IMR2 + a_1 Vio + a_2\, Chg\_Con_{it-1} + a_3 Vio * Chg\_Con_{it-1} + a_4 SIZE_{it-1} + a_5 MB_{it-1} + a_6 Leverage_{t-1} + Loan\ Variables + Year\ Indicators + Industry\ Indicators + \eta_{it}$. *Post_ret2* is the raw stock returns over eight quarters after covenant violations. *IMR2* is the inverse Mills' ratio obtained from the *Probit* model in Table 26. *Chg_Con* is one of the three conservatism measures and the composite measure. *Vio* is an indicator variable, equal to 1 for the violating firm-quarters, and 0 other wise. Definitions of other variables are given in Appendix A. Standard errors are clustered by firm and presented below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively.

	Predicted Sign	NonAcc	SK	C-Score	CCM
IMR2	?	-0.003	0.013	0.002	-0.001
		(0.013)	(0.014)	(0.014)	(0.014)
Chg_con	+	0.272	-0.006	0.079	0.008
		(1.033)	(0.010)	(0.164)	(0.087)
Vio	+	-0.242***	-0.248***	-0.239***	-0.632*
		(0.060)	(0.059)	(0.060)	(0.325)
Vio*Chg_Con	**+**	**0.180**	**0.039***	**0.952*****	**0.247**
		(2.273)	**(0.030)**	**(0.446)**	**(0.211)**
Size	-	-0.108***	-0.108***	-0.104***	-0.108***
		(0.021)	(0.021)	(0.022)	(0.021)
Leverage	-	-0.011	-0.011	-0.011	-0.011
		(0.012)	(0.012)	(0.012)	(0.012)
MB	-	-0.009*	-0.009*	-0.011*	-0.009*
		(0.007)	(0.007)	(0.008)	(0.007)
Constant	?	0.568	0.555	0.532	0.549
		(0.371)	(0.368)	(0.369)	(0.388)
Loan Variables		Yes	Yes	Yes	Yes
Year Fixed Effect		Yes	Yes	Yes	Yes
Industry Fixed Effect		Yes	Yes	Yes	Yes
# of Obs		5,639	5,639	5,639	5,639
# of Firms		838	838	838	838
Adj. R^2		0.115	0.116	0.117	0.116

Table 32 Summary of the Analysis

This table summarizes the test results presented in Chapter 5. *ΔDebt, ΔCap_X,* and *ΔGM* are changes in debt issuance, changes in capital expenditures, and changes in gross margin from four-quarters prior to covenant violations to four-quarters after the covenant violations, respectively. *Post_ret1* and *Post_Ret2* are cumulative raw stock returns over four quarter and eight quarters after covenant violation, respectively. *ΔNonAcc, ΔSK, ΔC-Score*, and *ΔCCM* are four measures of change in conservatism. *Vio* is an indicator variable, equal to 1 for the violating firm-quarter, and 0 otherwise. The models used in the testing are presented in Chapter 3. While √ indicates that the test results support the respective hypothesis, X indicates there is no evidence supporting the respective hypothesis.

	H1: ΔDebt				H2: ΔCap_X			
	OLS	Heckman Selection	PSM	Double Selection	OLS	Heckman Selection	PSM	Double Selection
ΔNonAcc *Vio	√	√	√	√	X	X	X	X
Δ SK *Vio	√	√	X	√	X	X	X	X
ΔC-Score *Vio	X	X	√	X	√	√	√	√
ΔCCM *Vio	√	√	√	√	√	√	√	√
	H3: ΔGM				H4: Post_Ret1(Ret2)			
	OLS	Heckman Selection	PSM	Double Selection	OLS	Heckman Selection	PSM	Double Selection
ΔNonAcc *Vio	X	X	X	X	X(X)	X (X)	√(√)	X(X)
Δ SK*Vio	X	X	X	X	X(√)	X(√)	√(√)	X(√)
ΔC-Score*Vio	X	X	X	X	√(√)	√(√)	X (X)	√(√)
ΔCCM *Vio	X	X	X	X	X(X)	X(X)	√ (√)	X(X)

Table 33 The Test Results for H1 Using the Violating Sample

This table presents the results for the testing of H1 using the violating sample: $Chg\_Debt_{it} = a_0 + a_1 Chg\_Con_{it-1} + a_2 Ebitda_{it-1} + a_3 MB_{it-1} + a_4 Size_{it-1} + a_5 Leverage_{it-1} + a_6 Cret_{it-1} + Loan\ Variables + Year\ Indicators + Industry\ Indicators + \eta_{it}$. *Chg_Debt* is change in debt issuance from four quarters prior to covenant violation to four quarters after covenant violations. *Chg_Con* is one of the three conservatism measures and the composite measure. Definitions of other variables are given in Appendix A. Standard errors are clustered by firm and presented below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively.

	Predicted Sign	NonAcc	SK	C-Score	CCM
Chg_Con	+	**161.313****	**1.708***	**13.172**	**13.568****
		(92.151)	**(1.204)**	**(14.610)**	**(8.000)**
Size	?	2.017	2.005	2.156	2.265
		(2.070)	(2.081)	(2.097)	(2.150)
Leverage	-	-4.511*	-4.482*	-4.603*	-4.858*
		(3.380)	(3.456)	(3.513)	(3.538)
EBITDA	?	-115.575*	-123.329*	-123.398*	-119.087*
		(68.074)	(69.176)	(68.966)	(68.581)
MB	+	0.192	0.326	0.122	0.359
		(0.800)	(0.771)	(0.725)	(0.767)
Cret	+	6.914**	6.155*	6.475*	6.789**
		(4.008)	(4.153)	(4.162)	(3.956)
Constant	?	41.108	26.160	37.867	16.760
		(37.857)	(40.123)	(37.346)	(40.083)
Loan Variables		Yes	Yes	Yes	Yes
Year Fixed Effect		Yes	Yes	Yes	Yes
Industry Fixed Effect		Yes	Yes	Yes	Yes
# of Obs		312	312	312	312
# of Firms		303	303	303	303
Adj. R^2		0.140	0.136	0.125	0.140

Table 34 The Test Results for H2 Using the Violating Sample

This table presents the results for the testing of H2 using the violating sample: $Chg\_Cap\_X_{it} = a_0 + a_1 Chg\_Con_{it-1} + a_2 Ebitda_{it-1} + a_3 MB_{it-1} + a_4 Size_{it-1} + a_5 Leverage_{it-1} + a_6 Cret_{it-1} + a_7 Rating\_D_{it-1} + Loan\ Variables + Year\ Indicators + Industry\ Indicators + \eta_{it}$. *Chg_Cap_X* is change in capital expenditures from four quarters prior to covenant violation to four quarters after covenant violations. *Chg_Con* is one of the three conservatism measures and the composite measure. Definitions of other variables are given in Appendix A. Standard errors are clustered by firm and presented below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively.

	Predicted Sign	NonAcc	SK	C-Score	CCM
Chg_Con	**+**	**13.904**	**0.198**	**10.434*** **	**1.652**
		(18.675)	**(0.207)**	**(4.718)**	**(1.378)**
Size	-	-1.000***	-1.010***	-0.772**	-0.975***
		(0.429)	(0.440)	(0.409)	(0.432)
EBITDA	+	50.766*	50.008*	47.020	50.494*
		(34.786)	(34.609)	(36.893)	(34.819)
MB	+	0.008	0.020	-0.138	0.024
		(0.200)	(0.198)	(0.199)	(0.199)
Leverage	-	0.209	0.211	0.172	0.166
		(0.148)	(0.146)	(0.146)	(0.148)
Cret	+	1.717*	1.638*	1.691*	1.714*
		(1.107)	(1.103)	(1.053)	(1.106)
Rating_D	+	1.806**	1.910**	1.888**	1.899**
		(1.048)	(1.017)	(1.030)	(1.032)
Constant	?	22.026***	20.676**	23.361***	19.448**
		(8.021)	(8.025)	(8.047)	(8.172)
Loan Variables		Yes	Yes	Yes	Yes
Year Fixed Effect		Yes	Yes	Yes	Yes
Industry Fixed Effect		Yes	Yes	Yes	Yes
# of Obs		312	312	312	312
# of Firms		303	303	303	303
Adj. R^2		0.080	0.081	0.099	0.083

Table 35 The Test Results for H3 Using the Violating Sample

This table presents the results for the testing of H3 using the violating sample: $Chg\_GM_{it} = a_0 + a_1 Chg\_Con_{it-1} + a_2 MB_{it-1} + a_3 Size_{it-1} + a_4 Cret_{it-1} + Loan\ Variables + Year\ Indicators + Industry\ Indicators + \eta_{it}$. *Chg_GM* is change in gross margin from four quarters prior to covenant violation to four quarters after covenant violations. *Chg_Con* is one of the three conservatism measures and the composite measure. Definitions of other variables are given in Appendix A. Standard errors are clustered by firm and presented below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively.

	Predicted Sign	NonAcc	SK	C-Score	CCM
Chg_Con	+	**0.045**	**0.003**	**0.066**	**0.036**
		(0.344)	**(0.006)**	**(0.081)**	**(0.039)**
Size	-	-0.002	-0.002	0.000	0.000
		(0.009)	(0.009)	(0.009)	(0.009)
MB	+	0.002	0.002	0.001	0.002
		(0.006)	(0.006)	(0.006)	(0.006)
Cret	?	0.034	0.033	0.034	0.035
		(0.023)	(0.023)	(0.023)	(0.023)
Constant	?	0.791***	0.773***	0.800***	0.739***
		(0.239)	(0.238)	(0.236)	(0.228)
Loan Variables		Yes	Yes	Yes	Yes
Year Fixed Effect		Yes	Yes	Yes	Yes
Industry Fixed Effect		Yes	Yes	Yes	Yes
# of Obs		312	312	312	312
# of Firms		303	303	303	303
Adj. R^2		0.034	0.035	0.035	0.037

Table 36 The Test Results for H4 (Four-Quarter Returns) Using the Violating Sample

This table presents the results for the testing of H4 using the violating sample: $Post\_ret1_{it} = a_0 + a_1 Chg\_Con_{it-1} + a_2 MB_{it-1} + a_3 Size_{it-1} + a_4 Leverage_{it-1} + Loan\ Variables + Year\ Indicators + Industry\ Indicators + \eta_{it}$. *Post_ret1* is the cumulative raw returns over four quarter after violation. *Chg_Con* is one of the three conservatism measures and the composite measure. Definitions of other variables are given in Appendix A. Standard errors are clustered by firm and presented below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively.

	Predicted Sign	NonAcc	SK	C-Score	CCM
Chg_Con	+	**-0.636**	**0.020**	**0.873*** **	**0.132**
		(1.532)	**(0.016)**	**(0.307)**	**(0.119)**
Size	-	-0.013	-0.010	0.009	-0.008
		(0.032)	(0.033)	(0.032)	(0.033)
Leverage	-	-0.001	0.000	-0.003	-0.004
		(0.023)	(0.024)	(0.023)	(0.023)
MB	-	0.014	0.013	0.000	0.014
		(0.017)	(0.017)	(0.017)	(0.017)
Constant	?	0.214	0.126	0.369	0.041
		(0.663)	(0.637)	(0.638)	(0.636)
Loan Variables		Yes	Yes	Yes	Yes
Year Fixed Effect		Yes	Yes	Yes	Yes
Industry Fixed Effect		Yes	Yes	Yes	Yes
# of Obs		312	312	312	312
# of Firms		303	303	303	303
Adj. R^2		0.051	0.055	0.071	0.055

Table 37 The Test Results for H4 (Eight Quarter Returns) Using the Violating Sample
This table presents the results for the testing of H4 using the violating sample: $Post\_ret2_{it} = a_0 + a_1 Chg\_Con_{it-1} + a_2 MB_{it-1} + a_3 Size_{it-1} + a_4 Leverage_{it-1} + Loan\ Variables + Year\ Indicators + Industry\ Indicators + \eta_{it}$. *Post_ret2* is the cumulative raw returns over eight quarter after violation. *Chg_Con* is one of the three conservatism measures and the composite measure. Definitions of other variables can be found in Appendix A. Standard errors are clustered by firm and presented below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively.

	Predicted Sign	NonAcc	SK	C-Score	CCM
Chg_Con	+	**-0.357**	**0.032**	**1.251*** **	**0.241***
		(2.125)	**(0.028)**	**(0.509)**	**(0.183)**
Size	-	0.002	0.006	0.032	0.011
		(0.051)	(0.051)	(0.051)	(0.052)
Leverage	-	-0.025*	-0.024*	-0.029**	-0.031**
		(0.017)	(0.017)	(0.017)	(0.018)
MB	-	-0.003	-0.004	-0.023	-0.002
		(0.024)	(0.024)	(0.022)	(0.023)
Constant	?	-0.561	-0.724	-0.355	-0.900
		(1.056)	(1.065)	(1.021)	(1.072)
Loan Variables		Yes	Yes	Yes	Yes
Year Fixed Effect		Yes	Yes	Yes	Yes
Industry Fixed Effect		Yes	Yes	Yes	Yes
# of Obs		312	312	312	312
# of Firms		303	303	303	303
Adj. R^2		0.079	0.085	0.097	0.086

Table 38 The Test Results for the Implications of Pre-Contracting Conservatism for the Outcomes of Violations

This table reports the testing results using the following regression model for the violating sample: $Outcome_{it} = a_0 + a_1\ Con\_Pre_{it-n} + a_2\ Chg\_Con_{it-1} + a_3\ Con\_pre_{it-n} * Chg\_Con_{it-1} + Control\ Variables$. The dependent variables are change in debt issuance, change in capital expenditures, change in gross margin, and post-violation four-quarter and eight-quarter returns, respectively. *Chg_Con* is one of the three conservatism measures (*NonAcc*, *SK*, *C-Score*) or the composite measures. *Con_pre* is an indicator variable, equal to 1 if the pre-contracting conditional conservatism is greater than the median of the sample, and 0 otherwise. Control variables are the same as those control variables presented in Table 10 through Table 14. Standard errors are clustered by firm and presented below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level, respectively. Panel A presents the results for the models using *Chg_Debt*, *Chg_Cap_X*, and *Chg_GM* as the dependent variables, respectively. Panel B presents the results using *Post_Ret1* and *Post_Ret2* as the dependent variables, respectively.

Panel A

	Chg_Debt				Chg_Cap_X				Chg_GM			
	NonAcc	SK	CSCORE	CCM	NonAcc	SK	CSCORE	CCM	NonAcc	SK	CSCORE	CCM
Chg_Con	274.261**	1.235	-47.477	14.483	-22.994	0.210	8.399*	1.765	-0.435	0.001	0.032	0.033
	(136.370)	(3.039)	(98.584)	(16.251)	(15.152)	(0.392)	(5.060)	(1.802)	(0.273)	(0.005)	(0.046)	(0.025)
Con_Pre	9.585**	2.470	-2.002	-18.864	-0.970	0.389	-1.409	-1.743	-0.011	0.005	-0.023*	0.083
	(4.667)	(5.780)	(3.589)	(32.231)	(0.840)	(0.894)	(0.944)	(4.799)	(0.012)	(0.012)	(0.014)	(0.059)
Con_Pre*Chg_Con	-43.680	1.649	94.382	17.555	58.728	0.082	6.474	1.030	0.708	-0.001	0.066	-0.055
	(227.185)	(3.800)	(108.942)	(18.962)	(40.843)	(0.451)	(8.980)	(3.179)	(0.438)	(0.007)	(0.106)	(0.039)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
# of Obs	312	312	312	312	312	312	312	312	312	312	312	312
# of Firms	303	303	303	303	303	303	303	303	303	303	303	303
Adj R^2	0.150	0.132	0.125	0.156	0.084	0.075	0.099	0.083	0.079	0.070	0.086	0.077

Panel B

	Post_Ret1				Post_Ret2			
	NonAcc	SK	CSCORE	CCM	NonAcc	SK	CSCORE	CCM
Chg_Con	-2.229	0.035	0.850***	0.099	-3.873	0.090	1.380**	0.252
	(2.058)	(0.030)	(0.326)	(0.212)	(3.280)	(0.056)	(0.537)	(0.382)
Con_Pre	-0.059	0.025	-0.034	0.200	-0.172	0.067	0.045	0.246
	(0.075)	(0.077)	(0.094)	(0.451)	(0.118)	(0.118)	(0.140)	(0.744)
Con_Pre*Chg_Con	1.967	-0.022	1.535**	-0.252	3.566	-0.095	3.357***	-0.244
	(3.425)	(0.041)	(0.865)	(0.286)	(5.324)	(0.073)	(1.313)	(0.475)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
# of Obs	312	312	312	312	312	312	312	312
# of Firms	303	303	303	303	303	303	303	303
Adj R^2	0.050	0.053	0.077	0.073	0.086	0.092	0.118	0.089

Table 39 The Test Results for H1 with Changes in Debt Calculated over Two Quarters before and after Violations

This table presents the results using the same model in Table 10: $Chg\_Debt_{it} = a_0 + a_1 Vio + a_2\ Chg\_Con_{it-1} + a_3 Vio^*\ Chg\_Con_{it-1} + a_4 Ebitda_{it-1} + a_5 MB_{it-1} + a_6 Size_{it-1} + a_7 Leverage_{it-1} + a_8 Cret_{it-1} + Loan\ Variables + Year\ Indicators + Industry\ Indicators + \eta_{it}$. *Chg_Debt* is change in debt issuance from two quarters prior to covenant violation to two quarters after covenant violations. *Chg_Con* is one of the three conservatism measures and the composite measure. *Vio* is an indicator variable, equal to 1 for the violating firm-quarters, and 0 otherwise. Definitions of other variables are given in Appendix A. Standard errors are clustered by firm and presented below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively.

		NonAcc			SK			C-Score			CCM		
	Predicted Sign	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Chg_Con	-	6.240	2.278	1.734	0.066	0.077	0.074	-0.920	-1.296*	-1.369*	0.302	0.186	0.137
		(7.164)	(7.068)	(7.119)	(0.065)	(0.063)	(0.064)	-0.727	(0.904)	(0.909)	(0.512)	(0.500)	(0.503)
Vio	-	-1.559**	-1.040	-1.007	-1.543**	-1.005	-0.979	-1.488**	-0.979	-0.942	-6.055	-5.766	-5.785
		(0.893)	(0.893)	(0.896)	(0.852)	(0.851)	(0.854)	(0.855)	(0.855)	(0.858)	(5.008)	(4.969)	(4.968)
Vio*Chg_Con	+	10.702	14.650	14.785	0.381	0.397	0.403	5.240	4.771	4.705	2.966	3.13	3.162
		(34.835)	(34.928)	(34.995)	(0.454)	(0.449)	(0.448)	(8.303)	(8.489)	(8.481)	(3.264)	(3.230)	(3.228)
Size	?		0.135*	0.064		0.140*	0.075		0.111	0.026		0.142*	0.075
			(0.076)	(0.117)		(0.076)	(0.116)		(0.079)	(0.118)		(0.077)	(0.117)
Leverage	-		0.251**	0.239*		0.251**	0.239*		0.258**	0.245**		0.251**	0.239*
			(0.126)	(0.127)		(0.125)	(0.125)		(0.121)	(0.122)		(0.126)	(0.126)
EBITDA	?		10.718**	11.093**		10.662**	11.025**		10.859**	11.231**		10.636**	10.996**
			(5.066)	(5.218)		(5.109)	(5.248)		(5.097)	(5.232)		(5.080)	(5.223)
MB	+		-0.104*	-0.103*		-0.104*	-0.103*		-0.079	-0.076		-0.109*	-0.108*
			(0.056)	(0.056)		(0.056)	(0.056)		(0.062)	(0.062)		(0.057)	(0.057)
Cret	+		1.286***	1.282***		1.298***	1.292***		1.274***	1.269***		1.295***	1.289***
			(0.368)	(0.368)		(0.364)	(0.365)		(0.368)	(0.368)		(0.365)	(0.365)
Constant	?	-0.059	-1.938**	-2.764	-0.054	-1.970**	-2.943	-0.053	-1.788**	-2.501	-0.505	-2.245*	-3.129
		(0.093)	(0.880)	(2.355)	(0.092)	(0.876)	(2.340)	(0.094)	(0.859)	(2.342)	(0.758)	(1.167)	(2.535)
loan Variables		No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
Industry Fixed Effect		No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Year Fixed Effect		No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
# of Obs		5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639
# of Firms		838	838	838	838	838	838	838	838	838	838	838	838
Adj. R^2		0.001	0.011	0.010	0.002	0.012	0.011	0.001	0.012	0.011	0.002	0.012	0.011

Table 40 The Test Results for H2 with Changes in Capital Expenditures Calculated over Two Quarters before and after Violations

This table presents the results using the same model in Table 11: $Chg\_Cap\_X_{it} = a_0 + a_1 Vio + a_2\, Chg\_Con_{it-1} + a_3 Vio * Chg\_Con_{it-1} + a_4 Ebitda_{it-1} + a_5 MB_{it-1} + a_6 Size_{it-1} + a_7 Leverage_{it-1} + a_8 Cret_{it-1} + a_9 Rating\_D_{it-1} + Loan\ Variables + Year\ Indicators + Industry\ Indicators + \eta_{it}$. *Chg_Cap_X* is change in capital expenditures from two quarters prior to covenant violation to two quarters after covenant violations. *Chg_Con* is one of the three conservatism measures and the composite measure. *Vio* is an indicator variable, equal to 1 for the violating firm-quarters, and 0 otherwise. Definitions of other variables are given in Appendix A. Standard errors are clustered by firm and presented below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively.

	Predicted Sign	Non- Acc			SK			C-Score			CCM		
		Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Chg_con	?	-2.835	-6.046	-6.325	-0.036	-0.020	-0.026	0.333	0.539	0.397	-0.193	-0.197	-0.275
		(8.464)	(8.634)	(8.749)	(0.043)	(0.045)	(0.045)	(0.960)	(1.056)	(1.090)	(0.356)	(0.370)	(0.379)
Vio	-	-1.641***	-1.056**	-0.964*	-1.657***	-1.082**	-0.989**	-1.668***	-1.071**	-0.986**	-2.223	-2.045	-1.937
		(0.500)	(0.503)	(0.513)	(0.496)	(0.492)	(0.502)	(0.492)	(0.489)	(0.500)	(2.297)	(2.268)	(2.259)
Vio*Chg_con	**+**	**-4.023**	**-0.584**	**-0.268**	**-0.064**	**-0.043**	**-0.048**	**7.55***	**8.193****	**8.020***	**0.365**	**0.627**	**0.618**
		(24.229)	**(23.595)**	**(23.376)**	**(0.226)**	**(0.226)**	**(0.227)**	**(5.013)**	**(4.939)**	**(4.913)**	**(1.442)**	**(1.418)**	**(1.411)**
Size	-		-0.098	-0.267**		-0.099	-0.270**		-0.081	-0.245*		-0.103	-0.277**
			(0.083)	(0.135)		(0.084)	(0.136)		(0.079)	(0.130)		(0.085)	(0.138)
EBITDA	+		7.061	8.104		6.765	7.808		6.432	7.480		6.854	7.930
			(8.882)	(8.884)		(8.865)	(8.860)		(8.835)	(8.831)		(8.870)	(8.877)
MB	+		-0.058	-0.042		-0.057	-0.041		-0.071	-0.053		-0.054	-0.036
			(0.045)	(0.047)		(0.045)	(0.047)		(0.049)	(0.051)		(0.044)	(0.046)
Leverage	-		0.031	0.012		0.030	0.011		0.026	0.009		0.031	0.013
			(0.022)	(0.019)		(0.021)	(0.019)		(0.019)	(0.018)		(0.022)	(0.019)
Cret	+		1.370***	1.373***		1.361***	1.364***		1.376***	1.377***		1.362***	1.364***
			(0.216)	(0.217)		(0.216)	(0.217)		(0.217)	(0.218)		(0.216)	(0.217)
Rating_D	+		0.508**	0.409*		0.502**	0.403*		0.495**	0.401*		0.509**	0.412*
			(0.221)	(0.213)		(0.221)	(0.214)		(0.222)	(0.214)		(0.221)	(0.214)
Constant	?	-0.231***	0.440	2.402	-0.233***	0.451	2.483	-0.235***	0.389	2.287	0.055	0.764	2.909
		(0.079)	(0.938)	(2.766)	(0.074)	(0.940)	(2.807)	(0.074)	(0.946)	(2.776)	(0.553)	(1.119)	(2.907)
loan Variables		No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
Industry Fixed Effect		No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Year Fixed Effect		No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
# of Obs		5,617	5,617	5,617	5,617	5,617	5,617	5,617	5,617	5,617	5,617	5,617	5,617
# of Firms		836	836	836	836	836	836	836	836	836	836	836	836
Adj. R^2		0.003	0.017	0.018	0.003	0.017	0.017	0.004	0.018	0.018	0.003	0.017	0.017

Table 41 The Testing Results for H3 with Changes in Gross Margin Calculated over Two Quarters before and after Violations

This table presents the results using the same model in Table 12: $Chg\_GM_{it} = a_0 + a_1 Vio + a_2\, Chg\_Con_{it-1} + a_3 Vio * Chg\_Con_{it-1} + a_4 SIZE_{it-1} + a_5 MB_{it-1} + a_6 Cret_{it-1} + Loan\ Variables + Year\ Indicators + Industry\ Indicators + \eta_{it.}$ *Chg_GM* is change in gross margin from two quarters prior to covenant violation to two quarters after covenant violations. *Chg_Con* is one of the three conservatism measures and the composite measure. *Vio* is an indicator variable, equal to 1 for the violating firm-quarters, and 0 otherwise. Definitions of other variables are given in Appendix A. Standard errors are clustered by firm and presented below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively.

		NonAcc			SK			C-Score			CCM		
	Predicted Sign	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Chg_con	?	21.891	20.981	22.825	0.328*	0.321	0.336*	-1.325	-3.013	-3.281*	2.034	1.701	1.811
		(20.035)	(19.896)	(20.047)	(0.189)	(0.204)	(0.202)	(1.879)	(1.847)	(1.960)	(1.621)	(1.491)	(1.460)
Vio	+	-1.101	-0.244	-0.233	-0.972	-0.073	-0.066	-0.840	-0.044	-0.010	-9.113	-8.982	-8.493
		(1.761)	(1.824)	(1.884)	(1.683)	(1.758)	(1.820)	(1.672)	(1.738)	(1.801)	(8.957)	(8.967)	(8.966)
Vio*Chg_Con	**+**	**41.474**	**36.205**	**35.096**	**0.868**	**0.893**	**0.835**	**-5.467**	**-1.432**	**-1.783**	**5.347**	**5.856**	**5.534**
		(41.958)	**(42.616)**	**(42.533)**	**(0.842)**	**(0.855)**	**(0.855)**	**(11.727)**	**(11.515)**	**(11.652)**	**(5.521)**	**(5.502)**	**(5.486)**
Size	-		-0.139	-0.373		-0.117	-0.331		-0.201*	-0.484		-0.092	-0.293
			(0.142)	(0.410)		(0.138)	(0.397)		(0.140)	(0.429)		(0.130)	(0.387)
MB	+		0.144	0.175*		0.144	0.173*		0.207**	0.247**		0.111	0.137
			(0.115)	(0.136)		(0.115)	(0.135)		(0.117)	(0.147)		(0.107)	(0.126)
Cret	+		1.996	2.009		2.058	2.073		1.978	1.993		2.051	2.064
			(1.928)	(1.946)		(1.947)	(1.964)		(1.924)	(1.938)		(1.938)	(1.955)
Constant	?	-0.003	0.140	13.941**	0.009	0.038	13.347**	0.029	0.558	14.560**	-3.034	-2.651	10.467*
		(0.202)	(1.422)	(6.514)	(0.206)	(1.446)	(6.491)	(0.195)	(1.419)	(6.722)	(2.526)	(2.720)	(5.946)
loan Variables		No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
Industry Fixed Effect		No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Year Fixed Effect		No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
# of Obs		5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639
# of Firms		838	838	838	838	838	838	838	838	838	838	838	838
Adj. R^2		0.000	0.000	-0.001	0.000	0.001	0.000	0.000	0.000	-0.001	0.000	0.001	-0.001

Table 42 The Test Results for H1 with Changes in Debt Deflated by Assets

This table presents the results using the same model in Table 10: $Chg\_Debt_{it} = a_0 + a_1 Vio + a_2\ Chg\_Con_{it-1} + a_3 Vio * Chg\_Con_{it-1} + a_4 Ebitda_{it-1} + a_5 MB_{it-1} + a_6 Size_{it-1} + a_7 Leverage_{it-1} + a_8 Cret_{it-1} + Loan\ Variables + Year\ Indicators + Industry\ Indicators + \eta_{it}$. *Chg_Debt* is change in debt issuance from four quarters prior to covenant violation to four quarters after covenant violations deflated by *assets*. *Chg_con* is one of the three conservatism measures and the composite measure. *Vio* is an indicator variable, equal to 1 for the violating firm-quarters, and 0 other wise. Definitions of other variables can be found in Appendix A. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively.

		NonAcc			SK			C-Score			CCM		
	Predicted Sign	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Chg_Con	-	-6.865**	-8.617***	-8.684***	-0.049*	-0.026	-0.028	-0.889*	-0.963*	-1.071**	-0.707***	-0.650***	-0.691***
		(3.912)	(3.942)	(3.987)	(0.037)	(0.038)	(0.039)	(0.633)	(0.603)	(0.626)	(0.290)	(0.290)	(0.299)
Vio	-	-1.302***	-0.830***	-0.794***	-1.291***	-0.829***	-0.791***	-1.269***	-0.819***	-0.780***	-4.205***	-3.780***	-3.715***
		(0.306)	(0.315)	(0.315)	(0.302)	(0.310)	(0.312)	(0.300)	(0.309)	(0.310)	(1.894)	(1.843)	(1.829)
Vio*Chg_Con	**+**	**10.671**	**13.381**	**13.692**	**0.167**	**0.158**	0.150	**5.283***	**5.079***	**5.007***	**1.922***	**1.941***	**1.927***
		(17.606)	(17.394)	(17.237)	(0.148)	(0.143)	(0.142)	(3.825)	(3.754)	(3.750)	(1.216)	(1.180)	(1.172)
Size	?		0.031	-0.055		0.028	-0.058		0.011	-0.084		0.017	-0.077
			(0.040)	(0.064)		(0.040)	(0.065)		(0.040)	(0.069)		(0.040)	(0.066)
Leverage	-		-0.043	-0.048		-0.045	-0.049*		-0.042	-0.046*		-0.040	-0.044
			(0.038)	(0.038)		(0.038)	(0.038)		(0.035)	(0.035)		(0.036)	(0.036)
EBITDA	?		6.879*	7.810**		6.444*	7.380*		6.433*	7.392*		6.738*	7.683**
			(3.730)	(3.875)		(3.725)	(3.879)		(3.729)	(3.875)		(3.711)	(3.858)
MB	+		-0.007	-0.002		-0.005	0.000		0.013	0.021		0.005	0.011
			(0.035)	(0.035)		(0.035)	(0.035)		(0.035)	(0.035)		(0.035)	(0.036)
Cret	+		0.678***	0.682***		0.665***	0.670***		0.659***	0.664***		0.661***	0.666***
			(0.186)	(0.186)		(0.186)	(0.185)		(0.186)	(0.186)		(0.185)	(0.185)
Constant	?	-0.165***	-0.563	1.608	-0.173***	-0.553	1.644	-0.181***	-0.436	1.912	0.889**	0.486	2.767*
		(0.054)	(0.608)	(1.460)	(0.054)	(0.608)	(1.468)	(0.054)	(0.609)	(1.513)	(0.440)	(0.749)	(1.602)
loan Variables		No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
Industry Fixed Effect		No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Year Fixed Effect		No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
# of Obs		5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639
# of Firms		838	838	838	838	838	838	838	838	838	838	838	838
Adj. R^2		0.005	0.022	0.023	0.005	0.021	0.022	0.006	0.022	0.023	0.006	0.023	0.023

Table 43 The Test Results for H1 with Changes in Capital Expenditures Deflated by Assets

This table presents the results using the same model in Table 11:$Chg\_Cap\_X_{it} = a_0 + a_1 Vio + a_2\, Chg\_Con_{it-1} + a_3 Vio * Chg\_Con_{it-1} + a_4 Ebitda_{it-1} + a_5 MB_{it-1} + a_6 Size_{it-1} + a_7 Leverage_{it-1} + a_8 Cret_{it-1} + a_9 Rating\_D_{it-1} + Loan\ Variables + Year\ Indicators + Industry\ Indicators + \eta_{it}$. *Chg_cap_x* is change in capital expenditures from four quarters prior to covenant violation to four quarters after covenant violations deflated by assets. Chg_Con is one of the three conservatism measures and the composite measure. *Vio* is an indicator variable, equal to 1 for the violating firm-quarters, and 0 other wise. Definitions of other variables can be found in Appendix A. Standard errors are clustered by firm and presented below the estimates. ***, **, * represent statistical significance at the 1%, 5%, and 10% level (one-tailed test for directional predictions and two-tailed test otherwise), respectively.

		NonAcc			SK			C-Score			CCM		
	Predicted Sign	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Chg_Con	?	-0.847	-1.468	-1.349	-0.001	0.003	0.004	0.097	0.050	0.029	-0.010	-0.024	-0.019
		(1.509)	(1.421)	(1.418)	(0.010)	(0.010)	(0.010)	(0.172)	(0.179)	(0.181)	(0.089)	(0.086)	(0.087)
Vio	-	0.412	0.559**	0.544**	0.315	0.461*	0.446*	0.316	0.465*	0.449*	1.496	1.508	1.545
		(0.263)	(0.259)	(0.258)	(0.253)	(0.248)	(0.247)	(0.251)	(0.246)	(0.245)	(1.509)	(1.507)	(1.501)
Vio*Chg_con	**+**	**-20.320***	**-19.393***	**-19.661***	**0.014**	**0.018**	**0.014**	**0.747**	**1.006**	**0.963**	**-0.768**	**-0.681**	**-0.715**
		(10.838)	**(10.794)**	**(10.709)**	**(0.128)**	**(0.129)**	**(0.128)**	**(2.721)**	**(2.697)**	**(2.692)**	**(0.939)**	**(0.937)**	**(0.933)**
Size	-		-0.014	-0.040*		-0.014	-0.039*		-0.012	-0.037*		-0.014	-0.041*
			(0.020)	(0.027)		(0.020)	(0.027)		(0.021)	(0.028)		(0.020)	(0.027)
EBITDA	+		0.363	1.022		0.310	0.976		0.278	0.949		0.336	1.006
			(1.553)	(1.608)		(1.565)	(1.622)		(1.557)	(1.612)		(1.561)	(1.619)
MB	+		0.006	0.007		0.005	0.007		0.004	0.006		0.006	0.007
			(0.008)	(0.008)		(0.008)	(0.008)		(0.008)	(0.009)		(0.008)	(0.009)
Leverage	-		0.006	0.003		0.006	0.003		0.005	0.003		0.006	0.003
			(0.013)	(0.014)		(0.014)	(0.014)		(0.014)	(0.014)		(0.014)	(0.014)
Cret	+		0.346***	0.343***		0.347***	0.344***		0.348***	0.345***		0.345***	0.342***
			(0.068)	(0.068)		(0.068)	(0.068)		(0.068)	(0.068)		(0.068)	(0.068)
Rating_D	+		0.039	0.018		0.038	0.019		0.036	0.017		0.035	0.016
			(0.065)	(0.066)		(0.065)	(0.066)		(0.065)	(0.066)		(0.065)	(0.066)
Constant	?	-0.143***	0.240	1.085*	-0.145***	0.245	1.119*	-0.144***	0.240	1.105*	-0.129	0.284	1.175*
		(0.021)	(0.242)	(0.591)	(0.021)	(0.245)	(0.594)	(0.021)	(0.250)	(0.603)	(0.131)	(0.286)	(0.621)
loan Variables		No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
Industry Fixed Effect		No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Year Fixed Effect		No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
# of Obs		5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639	5,639
# of Firms		838	838	838	838	838	838	838	838	838	838	838	838
Adj. R^2		0.008	0.035	0.037	0.002	0.029	0.031	0.002	0.029	0.031	0.003	0.030	0.032