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Debt Covenants and Accounting Conservatism in a Private Debt Setting

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Abstract: Using a sample of 6,540 private debt issues, we test whether firms with more debt covenants in their debt contracts show evidence of more timely recognition of economic losses in earnings. We find in my sample of private debt issues that firms with more debt covenants in their debt contracts do not appear to have a higher degree of timely loss recognition, or accounting conservatism. This study complements the findings of Nikolaev (2010) that finds that, in a sample of public debt issues, firms with more debt covenants are more likely to recognize economic losses in accounting earnings in a more timely fashion. The results are consistent with the differing incentives that exist in the environments of public and private debt.

Key words: debt markets; debt covenants; accounting conservatism; private lending
JEL codes: G01, M4, M49

1. Introduction

Nikolaev (2007) tests whether firms that use more debt covenants in their public debt contracts are more likely to recognize economic losses in earnings in a more timely fashion and can therefore be considered more conservative than firms that use relatively fewer debt covenants. He finds that for his sample of 5,412 public debt issues over the period 1964 to 2006, firms with more debt covenants in their debt contracts have a statistically and economically higher degree of timely loss recognition (Basu, 1997). In this study we extend the findings of Nikolaev (2007) by testing whether firms that use more debt covenants in their private debt contracts are more likely to recognize economic losses in earnings in a more timely fashion. We find that for my sample of private debt issues, firms with more debt covenants in their debt contracts do not appear to have a higher degree of timely loss recognition.[1] These findings are consistent with a difference in incentives between the public and private debt markets.

Debt contracting is one of the main economic explanations offered for the existence of accounting conservatism.[2] Conservative accounting is said to address the moral hazard problems faced by stakeholders of the firm having asymmetric information and payoffs, limited horizons, and limited liability (Watts, 2003). Because

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[1] I use the term conservatism to mean the more timely recognition in earnings of bad news regarding future cash flows than good news, and I therefore use the terms accounting conservatism and timely loss recognition interchangeably throughout this paper (Basu, 1997).

[2] The literature offers several explanations for conservatism in accounting including litigation costs, tax incentives, and political costs (Watts, 2003). This paper focuses on the contracting explanation for conservatism.

debt holders only suffer from economic losses (Guay & Verrecchia, 2006), and are relatively unaffected by economic gains, they are concerned about gaining control of the firm as quickly as possible when their investment is as risk. To accomplish this, debt covenants are included in debt contracts in order to limit management's ability to opportunistically extract rents from debt holders.[3] Because debt covenant violations are usually triggered by imperfect accounting translations of deterioration, they will not always reflect real financial distress nor will they necessarily prevent detrimental managerial actions that destroy value. An accounting system that is systematically biased downwards for earnings, assets, and owner's equity can ameliorate the problem by causing debt covenants to be triggered faster than they would be if the reporting were unbiased. This bias, which causes a decrease in risk to lenders, causes a demand for conservative reporting (Ball & Shivakumar, 2006) that is consistent with the view that accounting information serves the needs of contracting participants (Watts & Zimmerman, 1986).

Nikolaev (2007) uses a sample of public debt issues to investigate the relation between debt and conservatism. Investors in the public debt markets have limited access to internal reporting and to internal information about management action. Nikolaev (2007) argues that to compensate for this difficulty in monitoring once the debt has been issued, debt holders must rely on contracting mechanisms that impose a higher degree of accounting conservatism in the firm once the contract is in effect. Because most covenants rely on accounting information, debt covenants will become most effective in resolving agency conflicts when they coexist with an accounting system that generates timely signals of firms' poor economic health. The Nikolaev results are consistent with the notion that conservatism and debt covenants are complements. This complementarity arises from lenders reducing agency costs in two distinct ways, through increased debt covenant use in the debt contract, and through increased pressure on management to be conservative in their accounting. Nikolaev (2007) does not assert that there is a causal relation between debt covenants and conservatism, but that these two devices are both tools that lenders can and do use to reduce agency costs, and will therefore be positively associated. He finds evidence consistent with debt covenants and conservatism being positively associated in his sample of public debt firms.

Whether or not debt covenants and conservatism are complements in a private debt setting is not as clear. Prior research on the differences between private and public debt has found that private debt has advantages over public debt in terms of monitoring efficiency, access to private information, and the ease of liquidation and renegotiation in periods of financial distress (Denis & Mihov, 2003). Private debt holders have more access to internal reporting and can more easily monitor management actions than can public debt holders. Because of this increased internal information, public debt holders should not have as great a demand for conservative accounting in conjunction with debt covenants. We hypothesize that this weaker demand for conservatism may lead to a weaker association between debt covenants and conservatism than Nikolaev (2007) observes in his sample. We find that there is not a statistically positive association between debt covenants and conservatism in my sample of private debt issues.

Conservatism in accounting has been a very active area in accounting research since Basu (1997). In exploring the firm characteristics that determine the level of accounting conservatism the literature has examined (1) high versus low-tech firms; (2) board composition; (3) whether the firm's auditor is large and has industry expertise; (4) US cross-listing by foreign firms; (5) the extent of firms' earnings smoothing or earnings persistence and (6) firm size. In examining the different economic contexts that affect the level of conservatism the literature

[3] Jensen and Meckling (1976) list unwarranted distributions to shareholders, issuance of higher priority debt claims, and investments in negative net present value projects for purposes of empire building and diversification as potential actions that debt covenants attempt to prevent.

has examined (1) the quarters of the fiscal year, (2) the phases of the business cycle, and (3) countries (Ryan, 2006). Overall, the accounting literature reflects an interest in both the characteristics and contexts in which the level of conservatism changes. This paper adds to the literature on the contracting explanation for conservatism and supplements the prior research on the association of conservatism and debt covenants by expanding the investigation into a private debt setting.

The rest of this paper is organized as follows: Section II provides the background, related literature, and the hypotheses. Section III discusses the sample selection procedure and research design. Section IV discusses the results. Section V provides conclusions.

2. Background, Related Literature, and Hypotheses

Although there is support in the literature for the view that the debt contracting demand to address agency problems is the explanation for conservatism (Watts, 2003; Holthausen & Watts, 2001), there is an alternative view that suggests that debt contracts can remove accounting bias by adjusting accounting information to meet contract-specific needs (Guay & Verrecchia, 2006). If a contract can replace accounting conservatism with pre-specified adjustments to accounting information using debt covenants, then covenants and accounting adjustments could be substitutes and could be thought of as two separate tools used to achieve the same goal of resolving agency problems.[4]

Nikolaev (2007) provides evidence that in a public debt setting the relation between debt covenants and conservatism is positive, suggesting that the two are complements. Beatty, Weber, and Yu (2008) finds that in a sample of syndicated loans, the association between conservatism and one specific type of debt covenant, income escalators, is positive and significant. They claim these findings support the hypothesis that debt contracting is less costly in an environment with a higher degree of financial reporting conservatism.[5] In addition, they suggest that there are situations where both accounting conservatism and conservative debt covenants are needed to satisfy the lenders' demands for conservatism.

Ball and Shivakumar (2005) use a sample of public and private companies in the United Kingdom to investigate whether public companies recognize losses in a more or less timely manner than do private firms. Consistent with the notion that public firms have more pressure from the demand of investors to be conservative in their financial reporting, Ball and Shivakumar (2005) find that public firms have a higher level of conservatism. Ahmed, Billings, Morton, and Stanford-Harris (2002) and Zhang (2008) find that lenders reduce the interest rates of borrowers when there is higher level of conservatism in the borrowing firm. This finding is indicative of lenders' belief that conservatism in financial reporting is one important way to reduce the agency costs associated with debt.

Schipper (2005) and Guay and Verrecchia (2006) suggest that specific biased debt contracts can be used instead of demanding overall biased reporting which might cause other problems for accounting information users. If we accept that either biased (conservative) reporting or biased contracting (including the use of debt covenants) can be used to reduce agency costs for lenders, then the device with the lower cost will be used. One cost of creating contracts that are biased in such a way as to lower agency costs for lenders is that it is difficult to write a

[4] Schipper (2005) suggests that perhaps debt holders can "protect themselves by writing conservative contracts, without requiring biased reporting that potentially affects decision usefulness for equity investors". It is not clear from the prior literature what the relation between debt covenants and conservatism should be.

[5] Income escalators are systematic adjustments to net worth covenants that exclude a certain percentage of positive income from the covenant restrictions, often referred to as build-up parameters (Dichev & Skinner, 2002).

contract that includes all possible future states and outcomes (Hart, 1995). Because it may be difficult to anticipate in what manner agency costs will be visible in accounting reports, lenders may use both conservatism and debt covenants to reduce agency costs leading to a positive association of the two. This prediction is consistent with the findings of Nikolaev (2007) and Beatty, Weber, and Yu (2008).

Nikolaev (2007) finds that timely loss recognition of economic losses increases with the use of debt covenants in a sample of public debt contracts. He uses both the Basu (1997) and Ball and Shivakumar (2006) measures of conservatism and finds that the level of conservatism, using either measure, increases with the number of debt covenants in the public debt contract. He suggests that this positive association results from both debt covenants and conservatism being used by lenders to address agency problems. He does not assert a causal relation.[6]

Ball and Shivakumar (2006) argue that the relation between accruals and cash flows cannot be linear because the recognition of gains and losses is asymmetric (Basu, 1997). They find that a nonlinear model of accruals, that allows loss recognition asymmetry, is able to explain more variation in accruals than a linear specification. They include an indicator variable for negative cash flows from operations and they interact this indicator variable with cash flows from operations to allow a different intercept and slope for cash in years when it is negative. Ball and Shivakumar find a positive and statistically significant coefficient on this interaction of cash flows and an indicator for negative cash flows. They find that the R^2 values for the nonlinear model specifications are substantially higher than similar specifications where linearity is imposed. They conclude that accrued loss recognition is more prevailing than accrued gain recognition and that models that do not allow for nonlinearity in gain and loss recognition are misspecified.

As lenders have access to increased information about the internal processes of a firm they will become less concerned with contracting ex ante in a biased manner in order to protect their investment. Borrowers subjected to biased contracting will demand compensation in some form which will impose a cost to the lender. The more that lenders are able to carefully monitor the health of firms using inside information to directly monitor management action, the less they will require biased accounting and restrictive debt covenants. Using a sample of private debt, Frankel and Litov (2007) predicts that accounting-based covenants and covenant slack will occur more often when earnings are more timely (that is, more conservative) and manager discretion is restricted. They find no support, however, that these characteristics are related to the ability of debt covenants to solve agency problems.

The different environments of public and private debt provide a suitable setting in which to investigate the demand for conservatism in conjunction with debt covenants. With respect to Frankel and Litov (2007), Nikolaev (2007) says, “One possible explanation for these weak findings may be due to their focus on private rather than public debt: it is generally easier for private debtholders to directly monitor and control the use of their funds, as well as to discipline management, and hence it is likely that demands for timely loss recognition are of secondary importance in that market.” Thus, Nikolaev predicts a difference between public and private debt issues regarding debt covenants and accounting conservatism. In this paper we attempt to test this prediction and to extend the

[6] Basu (1997) uses positive and negative returns as proxies for “bad news” and “good news” respectively. He includes an indicator variable for negative returns (“bad news”) in a returns-on-earnings model specification and interacts the negative returns indicator variable with returns. This allows a different intercept and slope for returns of firms with “bad news”. Basu finds a positive and statistically significant coefficient on this interaction of returns and an indicator for negative returns. He interprets this coefficient as evidence that earnings are more timely for “bad news” than for good news. This measure of timely loss recognition has been accepted in the literature as a valid measure of accounting conservatism. Ball, Kothari, and Robin (2000) find that this result holds in an international sample.

literature on debt and conservatism by using a sample of private debt issues to investigate whether the inclusion of more debt covenants in a debt contract is associated with a higher degree of conservatism in the borrowing firm compared to borrowing firms with fewer debt covenants in their debt contracts. We predict that the relation between the number of debt covenants and conservatism in my private debt sample will be weaker than that observed by Nikolaev (2007), consistent with his predictions.

Beatty, Weber, and Yu (2008) use a sample of syndicated loans, a form of private debt, to investigate the association between conservatism and one specific type of debt covenant, income escalators. They find that accounting conservatism and income escalators are positively associated. We follow the methodology of Nikolaev (2007) because his study measures the relation of all financial debt covenants and conservatism. Specifically he shows that, in a public debt sample, firms with more debt covenants are more conservative. Frankel and Litov (2007) uses indicator variables for whether a firm has a few different types of debt covenants. Nikolaev (2007) predicts that the presence of more debt covenants will be positively associated with conservatism and therefore uses a variable which is the number of debt covenants present in a firm's debt contract. In addition, Nikolaev (2007) uses both the Basu (1997) and Ball and Shivakumar (2006) measures of conservatism which are often used in the literature to measure conservatism.

Nikolaev (2007) tests the following main hypothesis: 1) Ceteris paribus, timely recognition of economic losses is increasing in the use of debt covenants in public debt contracts. I directly extend his paper by testing the following similar hypothesis:

H1: *Timely recognition of economic losses is increasing in the use of debt covenants in private debt contracts.*

Because the incentives are not as strong in the private debt setting to demand both a higher level of accounting conservatism and more debt covenant usage, we expect the degree of timely loss recognition to be lower in the private debt setting than in the public debt setting. It is reasonable to assume that increasing the usage of debt covenants and forcing a higher degree of accounting conservatism in a borrowing firm will be costly to the lender. So, as the demand for these wealth protection tools decreases, so will the observed association between the two in the borrowing firm. The focus of this paper is the magnitude of the association between accounting conservatism and debt covenants in a sample of private debt contracts. Nikolaev (2007) shows that there is a positive association in his sample of public debt issues, but the extent of this association, if any, in a setting with different incentives is left unanswered currently in the literature.

3. Sample Selection and Research Design

We use a sample of 6,540 debt issues in Dealscan from 1986 to 2006. These 6,540 debt issues involve 2,304 unique firms. We use all the debt issues that have financial covenant or net worth covenant data. Dealscan, a dataset created and offered by Loan Pricing Corporation (LPC), provides a unique package identification number for each debt issue as well as a company identification number and the stock ticker. We match these tickers with the Compustat and CRSP databases to create a dataset that includes all the loan information from Dealscan and all the financial statement information from Compustat and the monthly returns data from CRSP. We require each debt issue observation to have all the required Compustat and CRSP data. We include all the firm-years between 1986 and 2006 that have non-missing Compustat and CRSP data for each of the 2,304 firms with at least one private debt issue. For debt contracts with at least one covenant, the mean number of covenants is 2.57 with a

maximum number of covenants of 7.[7]

We construct our measure of contract restrictiveness (Restrict) as the total number of debt covenants in a particular debt issue contract. This allows the association between conservatism and debt covenants to change with the number of debt covenants. To test the relation between debt covenants and accounting conservatism in my sample of private debt issues, we use the two measures of conservatism that Nikolaev (2007) uses that are prevalent in the literature, Basu's (1997) measure and Ball and Shivakumar's (2006) measure. The former measure is used extensively in accounting (Ryan, 2006).

Consistent with Nikolaev (2007), we estimate the Basu (1997) measure of conservatism with the addition of a covenant measure which is interacted with each of the Basu variables. The following model is estimated:

$$E_t / P_{t-1} = \alpha_0 + \alpha_1 D(Ret_t < 0) + \alpha_2 Ret_t + \alpha_3 Ret_t D(Ret_t < 0) + \\ + \beta_0 Restrict_s + \beta_1 Restrict_s D(Ret_t < 0) + \beta_2 Restrict_s Ret_t + \beta_3 Restrict_s D(Ret_t < 0) Ret_t + \varepsilon_t \quad (1)$$

Where E_t is earnings in year t (Compustat item data123), P_{t-1} is the market value of equity in year t-1 (Compustat item data199 multiplied by data25), Ret_t is the annual return, and D(.) is an indicator function. Restrict is the variable reflecting contract restrictiveness and is measured as the total number of financial and net worth debt covenants in a particular debt issue contract. As in Nikolaev (2010), β_3 is the coefficient of primary interest and is expected to be positive and significant if conservatism and debt covenants are complements. This coefficient represents the additional amount of conservatism that the firm will experience, on average, if one additional debt covenant is placed in the debt contract. If this coefficient is not significant, this would be indicative of no statistically reliable association between debt covenants and conservatism in this sample of private debt. The second test employed is designed to measure the same association between debt covenants and conservatism but using a different measure of conservatism, the measure used by Ball and Shivakumar (2006) who are motivated by the observation that accruals improve the timeliness of earnings as well as reduce noise in operating cash flows (Dechow, 1994).[8] This provides the motivation for the following model:[9]

$$ACC_t = \alpha_0 + \alpha_1 D(CF_t < 0) + \alpha_2 CF_t + \alpha_3 CF_t D(CF_t < 0) + \delta_1 CF_{t-1} + \delta_2 CF_{t+1} + \delta_3 \Delta REV_t + \delta_4 PPE_t + \\ + \beta_0 Restrict_s + \beta_1 Restrict_s D(CF_t < 0) + \beta_2 Restrict_s CF_t + \beta_3 Restrict_s D(CF_t < 0) CF_t + \varepsilon_t, \quad (2)$$

One of the concerns with estimating Equations (1) and (2) is that the association between covenants and conservatism may be affected by correlated omitted variables. Conservatism has been shown to vary with firm-specific factors which might also be correlated with the use of debt covenants within that firm's debt contract. To control for major firm-specific characteristics, Nikolaev (2007) uses a two-stage approach to mitigate concerns that these characteristics are driving the results.[10] Following his approach, in the first stage we orthogonalize the

[7] Following Nikolaev (2010) we scale the Compustat data by assets, and, to mitigate the influence of outliers, we truncate 1% of the Compustat data at each tail. In the event that firms have more than one debt issue in a given year, we retain only the last debt issue of that year. The standard errors are clustered by year to correct for cross-sectional dependencies. In addition, to be consistent with Nikolaev (2010), we exclude the observation that represents the year of the debt issue for each firm.

[8] They find that the R^2 values for the nonlinear model specifications are substantially higher than similar specifications where linearity is imposed. They show that the demand for conservatism causes accruals to reflect revisions in future cash flow expectations more for economic losses than for economic gains.

[9] ACC_t is defined as income before extraordinary items (Compustat item data123) in year t minus cash from operations in year t (Compustat item data305), CF_t, D(.) is an indicator function, Restrict is the same measure of contract restrictiveness used in Equation (1), ΔREV_t is the change in revenue (Compustat item data12) from year t-1 to t, PPE_t is gross property, plant, and equipment in year t (Compustat item data7), and CF_{t-1} and CF_{t+1} are year t-1 and year t+1 cash flows from operations respectively (Dechow & Dichev, 2002; McNichols, 2002).

[10] Nikolaev (2010) states that, "This concern is only partial, however, as we are interested in identifying companies that are conservative; the fact that they differ from the other companies that are conservative in some respects does not render the analysis useless."

measure of contract restrictiveness (Restrict) by regressing it on a set of control variables found to be important determinants of covenant use in the prior literature. The residual from this regression is then used in the second stage. At this point the residual represents that portion of the contract restrictiveness measure that is unrelated to the control variables included in Equation (3) which is shown below.[11]

$$Restrict_t = \alpha_0 + \alpha_1 log(Assets_{t-1}) + \alpha_2 Leverage_{t-1} + \alpha_3 \Delta Leverage_t + \alpha_4 BTM_{t-1} + \alpha_5 ROA_{t-1} + \alpha_6 DivYield_{t-1} + \alpha_7 Loss_{t-1} + \alpha_8 CapInt_{t-1} + \alpha_9 log(Time) + \varepsilon_t \quad (3)$$

In the second stage, we use the residual from the first stage, or the unexplained variation in the covenant restrictiveness, and re-estimate Equations (1) and (2). Because the residual is orthogonal to the control variables in Equation (3), we can rule out the association being affected by the firm-specific factors controlled for that could be correlated with both conservatism and debt covenant use. The following two additional models are estimated:

$$E_t / P_{t-1} = \alpha_0 + \alpha_1 D(Ret_t < 0) + \alpha_2 Ret_t + \alpha_3 Ret_t D(Ret_t < 0) + \beta_0 ORestrict_t + \beta_1 ORestrict_t D(Ret_t < 0) + \beta_2 ORestrict_t Ret_t + \beta_3 ORestrictD(Ret_t < 0) Ret_t + \varepsilon_t \quad (4)$$

$$ACC_t = \alpha_0 + \alpha_1 D(CF_t < 0) + \alpha_2 CF_t + \alpha_3 CF_t D(CF_t < 0) + \delta_1 CF_{t-1} + \delta_2 CF_{t+1} + \delta_3 \Delta REV_t + \delta_4 PPE_t + \beta_0 ORestrict_t + \beta_1 ORestrict_t D(CF_t < 0) + \beta_2 ORestict_t CF_t + \beta_3 ORestrict_t D(CF_t < 0) CF_t + \varepsilon_t \quad (5)$$

Where the only difference between Equations (1) and (4) and between Equations (2) and (5) is that we replace Restrict, the total number of financial and net worth covenants, with ORestrict, which is that part of Restrict that is orthogonal to the control variables that have been found to be correlated both with covenants and conservatism. As in the first two models, β_3 will be positive and significant if timely recognition of economic losses is increasing in the use of debt covenants in this sample of private debt contracts.

4. Empirical Results

The first test of H1 is the estimation of Equation (1), which is the Basu (1997) measure of conservatism with the additional variable, Restrict, representing the number of debt covenants that a firm has in its debt contract. The estimates from Equation (1) are reported in Table 1. Consistent with the original Basu result, the coefficient on the interaction of returns and an indicator for negative returns, α_3, is positive and significant. Nikolaev finds a similar result in his sample. Basu (1997) reports a coefficient of .059 with a t-statistic of 18.34 for α_2, the coefficient on positive returns. However, we find an α_2 on positive returns that, while positive, is not significant with a t-statistic of 1.22. Interestingly, while Nikolaev (2007) also observes an insignificant coefficient on positive returns he reports that it is negative with a t-statistic of -1.38. Abarbanell and Lehavy (2008) find that the coefficient on positive returns is insignificant in many samples using data from after 1990, the end of Basu's sample period. They question the validity of the Basu (1997) in samples where this coefficient is negative, but claim that it is too early in the investigation to come to any conclusions.

[11] Restrict is the same covenant restrictiveness measure used in Equations (1) and (2), log(Assets) is used as a proxy for size, Leverage is the ratio of long-term debt (Compustat item data9) to total assets (Compustat item data6), ΔLeverage is the change in leverage over the year of debt issue, BTM is the book-to-market ratio (Compustat item data60 divided by data199*data25), ROA is return on assets (Compustat item data 172 divided by data6), DivYield is the dividend yield (Compustat item data21 divided by market value), Loss is an indicator variable for negative earnings, CapInt is the ratio of property, plant, and equipment (Compustat item data8) to total assets, and log(Time) is the log of a time variable which equals 1 in 1986 and increases by one for each year thereafter.

Table 1 Asymmetric Timeliness of Earnings and the Use of Covenants: Evidence from the Return-Earnings Relation

$$E_t / P_{t-1} = \alpha_0 + \alpha_1 D(Ret_t < 0) + \alpha_2 Ret_t + \alpha_3 Ret_t D(Ret_t < 0) + \\ + \beta_0 Restrict_s + \beta_1 Restrict_s D(Ret_t < 0) + \beta_2 Restrict_s Ret_t + \beta_3 Restrict_s D(Ret_t < 0) Ret_t + \varepsilon_t \quad (1)$$

E_t is earnings in year t (Compustat item data123), P_{t-1} is the market value of equity in year t-1 (Compustat item data199 multiplied by data25), Ret_t is the annual return, and D(.) is an indicator function. Restrict is the variable reflecting contract restrictiveness and is measured as the total number of financial and net worth debt covenants in a particular debt issue contract. I retain only the last debt issue per year for any given firm. The standard errors are clustered by year to correct for cross-sectional dependencies. We scale all Compustat data by total assets and truncate 1% of scaled Compustat data at each tail.

Variable	Estimate	Standard Error	T-stat	P-value
Intercept	0.0021	0.0001	16.48	<0.0001
$D(Ret_t <0)$	0.0007	0.0002	2.84	0.0088
Ret	0.0005	0.0004	1.22	0.2348
$D(Ret_t <0)$* Ret	0.0132	0.0013	10.37	<0.0001
Restrict	-0.0001	0.0001	-0.87	0.3942
Restrict* $D(Ret_t <0)$	0.0000	0.0002	-0.13	0.8975
Restrict*Ret	-0.0002	0.0002	-1.01	0.3243
Restrict* $D(Ret_t <0)$*Ret	0.0011	0.0007	1.62	0.1182

Note: Adjusted R-square = 0.0699; N = 22,230.

Table 2 Asymmetric Timeliness of Earnings and the Use of Covenants: Evidence from the Accrual-Cash Flow Relation

$$ACC_t = \alpha_0 + \alpha_1 D(CF_t < 0) + \alpha_2 CF_t + \alpha_3 CF_t D(CF_t < 0) + \delta_1 CF_{t-1} + \delta_2 CF_{t+1} + \delta_3 \Delta REV_t + \delta_4 PPE_t + \\ + \beta_0 Restrict_s + \beta_1 Restrict_s D(CF_t < 0) + \beta_2 Restrict_s CF_t + \beta_3 Restrict_s D(CF_t < 0) CF_t + \varepsilon_t, \quad (2)$$

ACC_t is defined as income before extraordinary items (Compustat item data123) in year t minus cash from operations in year t (Compustat item data305), CF_t, D(.) is an indicator function, ΔREV_t is the change in revenue (Compustat item data12) from year t-1 to t, PPE_t is gross property, plant, and equipment in year t (Compustat item data7), and CF_{t-1} and CF_{t+1} are year t-1 and year t+1 cash flows from operations respectively. The standard errors are clustered by year to correct for cross-sectional dependencies. We scale all Compustat data by total assets and truncate 1% of scaled Compustat data at each tail.

Variable	Estimate	Standard Error	T-stat	P-value
Intercept	0.0255	0.0026	9.90	<0.0001
$D(CF_t < 0)$	0.0166	0.0024	6.95	<0.0001
CF_t	0.8810	0.2361	3.73	0.0017
$D(CF_t < 0)$*CF_t	-1.6156	0.3070	-5.26	<0.0001
CF_{t-1}	0.4117	0.2024	2.03	0.0578
CF_{t+1}	0.1287	0.0663	1.94	0.0691
ΔREV	0.0655	0.0070	9.35	<0.0001
PPE_t	0.0004	0.0017	0.24	0.8095
Restrict	-0.0024	0.0013	-1.91	0.0725
Restrict* $D(CF_t < 0)$	0.0025	0.0016	1.57	0.1348
Restrict*CF_t	-0.0062	0.1016	-0.06	0.9519
Restrict* $D(CF_t < 0)$*CF_t	0.1484	0.2726	0.54	0.5933

Note: Adjusted R-square = 0.0578; N = 6,716.

The coefficient of interest, β_3, is positive with a coefficient estimate of .0011 and a t-statistic of 1.62. Though positive, this coefficient is statistically insignificant at the 10% level. Nikolaev (2007) found a coefficient of .0167 with a t-statistic of 6.53 for this test in his sample of public debt contracts. The coefficient we find for, α_1, the indicator for negative returns, is positive and significant, while Nikolaev's is negative and insignificant. Basu finds an insignificantly positive coefficient on this indicator variable. Where Nikolaev finds a significantly positive coefficient on the interaction of Restrict with the indicator for negative returns, we find no significance.

The second test of H1 is the estimation of Equation (2), the Ball and Shivakumar (2006) measure of conservatism, with the additional variable, Restrict, representing the number of debt covenants that a firm has in its debt contract. The estimates from Equation (2) are reported in Table 2. The coefficient of interest, the interaction of cash flows from operations in time t with an indicator variable for negative cash flows and Restrict, is again positive but not statistically significant with an estimated coefficient of 0.1484 and a t-statistic of 0.54. Nikolaev (2007) found a coefficient of .0246 with a t-statistic of 2.57 for this test in his sample of public debt contracts. We observe a significant coefficient on the indicator variable for negative cash flows consistent with Ball and Shivakumar (2006) but differing from Nikolaev who found a significantly negative coefficient on this variable in his sample. Change in sales, cash flows, lagged cash flows, and leading cash flows are all significantly positive, consistent with Nikolaev (2007). Taken together, the results in Tables 1 and 2 do not provide evidence that there is a positive association between debt covenants and timely loss recognition in this sample of private debt contracts.

It is possible that the model estimation in Equations (1) and (2) is being driven by factors that are correlated with both debt covenants and conservatism. Therefore, we test Equations (4) and (5). Table 3 reports summary statistics for the control variables used in the first stage regression (Equation (3)).[12] The results from the first-stage regression, Equation (3), are reported in Table 4. Most of the control variables are statistically significant at the 5% level. The number of debt covenants decreases with firm size, change in leverage, capital intensity, and dividend yield and increases with firm leverage, the book-to-market ratio, and over time. This is generally consistent with Nikolaev, except that Nikolaev finds a significant positive relation with change in leverage, return on assets, and capital intensity.

Table 3 Descriptive Firm Characteristics that Determine the Use of Covenants

Restrict is the same covenant restrictiveness measure used in Equations (1) and (2) and is measured as the total number of financial and net worth debt covenants in a particular debt issue contract, log(Assets) is used as a proxy for size, Leverage is the ratio of long-term debt (Compustat item data9) to total assets (Compustat item data6), ΔLeverage is the change in leverage over the year of debt issue, BTM is the book-to-market ratio (Compustat item data60 divided by data199*data25), ROA is return on assets (Compustat item data 172 divided by data6), DivYield is the dividend yield (Compustat item data21 divided by market value), Loss is an indicator variable for negative earnings, CapInt is the ratio of property, plant, and equipment (Compustat item data8) to total assets, and log(Time) is the log of a time variable which equals 1 in 1986 and increases by one for each year thereafter.

Variable	Mean	Median	Standard Deviation	Number of Observations
Log(assets)	6.5383	6.4816	1.9462	6,540
BTM	0.6033	0.5394	1.9599	6,540
Leverage	0.2342	0.2107	0.1907	6,540
Change in Leverage	0.0028	-0.0021	0.0956	6,540
ROA	0.0317	0.0414	0.1193	6,540
Dividend Yield	0.0203	0.0063	0.0916	6,540
Loss	0.1749	0	0.3793	6,540
Capital Intensity	0.3401	0.2877	0.2502	6,540
Log(time)	2.2221	2.3997	0.7195	6,540

[12] We include the following controls: the log of assets, the book-to market ratio, leverage, change in leverage, return on assets, dividend yield, an indicator variable for losses, capital intensity, and the log of a time variable where time is defined as one for 1986 and increases by one every year through 2006. The average firm has $691 million in assets, a return on assets of 3.2%, and a dividend yield of 2.03%. This compares with $1.5 billion in average assets, an average ROA of 0.5%, and an average dividend yield of 1.1% for the firms in Nikolaev's sample.

Table 4 Determinants of Covenant Use

$$Restrict_t = \alpha_0 + \alpha_1 log(Assets_{t-1}) + \alpha_2 Leverage_{t-1} + \alpha_3 \Delta Leverage_t + \alpha_4 BTM_{t-1} + \alpha_5 ROA_{t-1} + \alpha_6 DivYield_{t-1} + \alpha_7 Loss_{t-1} + \alpha_8 CapInt_{t-1} + \alpha_9 log(Time) + \varepsilon_t \quad (3)$$

The standard errors are clustered by year to correct for cross-sectional dependencies. We scale all Compustat data by total assets and truncate 1% of scaled Compustat data at each tail.

Variable	Estimate	Standard Error	T-stat	P-value
Intercept	-0.3626	0.3172	-1.14	0.2671
Log(Assets)	-0.0633	0.0215	-2.95	0.0083
BTM	0.0077	0.0050	1.55	0.1378
Leverage	0.4847	0.0907	5.35	<0.0001
ΔLeverage	-0.2573	0.1051	-2.45	0.0243
ROA	0.0133	0.0767	0.17	0.8641
Loss	0.0323	0.0309	1.05	0.3086
CapInt	-0.3986	0.0513	-7.77	<0.0001
DivYield	-0.1500	0.0951	-1.58	0.1312
Log(Time)	0.6391	0.1453	4.40	0.0003

Note: Adjusted R-square = 0.1490; N = 6,540.

The results from the estimation of Equations (4) and (5) are reported in Tables 5 and 6. The results do not change using ORestrict instead of Restrict. The coefficient of interest, β_3, is not significant in either specification. The coefficient actually becomes negative under the Basu (1997) specification, but with a t-statistic of only -0.45. The Ball and Shivakumar (2006) specification yields a coefficient estimate of 0.3167 with a t-statistic of 1.10.

Overall, the tests that we conduct using the Nikolaev (2007) methodology do not support the hypothesis that debt covenants and accounting conservatism are positively associated and, therefore, complements in a private debt setting. These findings add to Nikolaev (2007) who concludes that debt covenants and conservatism are complements in a sample of public debt contracts. We find no evidence to suggest a significant relation between debt covenants and conservatism in my sample of private debt contracts.

Table 5 Asymmetric Timeliness of Earnings and the Use of Covenants Controlling for Firm Characteristics: Evidence from the Return-Earnings Relation

$$E_t/P_{t-1} = \alpha_0 + \alpha_1 D(Ret_t < 0) + \alpha_2 Ret_t + \alpha_3 Ret_t D(Ret_t < 0) + \beta_0 ORestrict_t + \beta_1 ORestrict_t D(Ret_t < 0) + \beta_2 ORestrict_t Ret_t + \beta_3 ORestrictD(Ret_t < 0) Ret_t + \varepsilon_t \quad (4)$$

The standard errors are clustered by year to correct for cross-sectional dependencies. We scale all Compustat data by total assets and truncate 1% of scaled Compustat data at each tail.

Variable	Estimate	Standard Error	T-stat	P-value
Intercept	0.0017	0.0001	12.15	< 0.0001
D (Ret < 0)	0.0016	0.0003	5.09	< 0.0001
Ret	0.0002	0.0005	0.52	0.6084
RetD*(Ret < 0)	0.0235	0.0014	16.53	< 0.0001
ORestrict	0.0001	0.0002	0.81	0.43
ORestrict*D(Ret < 0)	0.0001	0.0003	0.20	0.8472
ORestrict*Ret	0.0000	0.0002	0.10	0.9202
ORestrict*D(Ret < 0)*Ret	-0.0004	0.0009	-0.45	0.6563

Note: Adjusted R-square = 0.0708; N = 19,729.

Table 6 Asymmetric Timeliness of Earnings and the Use of Covenants Controlling for Firm Characteristics: Evidence from the Accrual-Cash Flow Relation

$$ACC_t = \alpha_0 + \alpha_1 D(CF_t < 0) + \alpha_2 CF_t + \alpha_3 CF_t D(CF_t < 0) + \delta_1 CF_{t-1} + \delta_2 CF_{t+1} + \delta_3 \Delta REV_t + \delta_4 PPE_t + \beta_0 ORestrict_t + \beta_1 ORestrict_t D(CF_t < 0) + \beta_2 ORestict_t CF_t + \beta_3 ORestrict_t D(CF_t < 0) CF_t + \varepsilon_t \quad (5)$$

The standard errors are clustered by year to correct for cross-sectional dependencies. We scale all Compustat data by total assets and truncate 1% of scaled Compustat data at each tail.

Variable	Estimate	Standard Error	T-stat	P-value
Intercept	0.0243	0.0022	10.98	<0.0001
$D(CF_t < 0)$	0.0181	0.0023	7.75	<0.0001
CF_t	0.9495	0.2365	4.02	0.0009
$D(CF_t < 0)*CF_t$	-1.6921	0.3093	-5.47	<0.0001
CF_{t-1}	0.4055	0.2016	2.01	0.0604
CF_{t+1}	0.1255	0.0660	1.90	0.0741
ΔREV	0.0661	0.0070	9.46	<0.0001
PPE_t	0.0006	0.0015	0.39	0.699
ORestrict	0.0015	0.0018	0.86	0.4026
ORestrict* $D(CF_t < 0)$	-0.0013	0.0019	-0.68	0.5027
ORestrict*CF_t	-0.1750	0.1156	-1.51	0.1486
ORestrict* $D(CF_t < 0)*CF_t$	0.3167	0.2878	1.10	0.2865

Note: Adjusted R-square = 0.0577, N = 6,706.

5. Conclusions

This study extends the findings of Nikolaev (2010) by testing whether firms that use more debt covenants in their private debt contracts are more likely to recognize economic losses in earnings in a more timely fashion. We find that for my sample of private debt issues, firms with more debt covenants in their debt contracts do not appear to have a higher degree of timely loss recognition. These findings are consistent with a difference in incentives between the public and private debt markets. The results reported in this paper add to the understanding of the interaction of debt covenants and accounting conservatism in the private debt market and, by extension, to the understanding of the underlying demand for accounting conservatism.

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