

The Use of Accounting Accruals in Debt Contracts: Evidence from the Measurement of Financial Covenants*

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Abstract

This study investigates the measurement of interest coverage, fixed charges coverage, and debt to cash flow covenants in a large sample of loan agreements to shed light on how accounting accruals are used in debt contracts and the underlying economic reasons. The descriptive evidence indicates that in measuring firm performance in these covenants, i) long-term accruals (depreciation and amortization expense) are less useful than working capital accruals and other components of earnings, and ii) other non-cash income items (including non-cash income items in working capital accruals), especially other non-cash expense, are less useful than cash components of earnings. Cross-sectionally, firms with higher agency costs of debt are more likely to exclude long-term accruals and other non-cash income items in measuring these covenants, suggesting that concerns about reliability of non-cash income items are likely to be one primary reasons underlying the use of performance measures in the measurement of credit risk.

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1 Introduction

The accrual process is central to financial reporting. Accruals increase the usefulness of earnings by ameliorating transitory changes in operating cash flows (Dechow [1994]; Dechow, Kothari, and Watts [1998]) and free cash flows (Ball and Shivakumar [2006]), as well as through timely recognition of gains and losses, especially losses (Ball and Shivakumar [2006]). Prior studies have extensively investigated the properties of accruals and their role in security valuation (e.g., Dechow [1994], Sloan [1996], Richardson et al. [2005]). In contrast, we know not much about the role of accruals in debt contracting. To shed light on this problem, I investigate the use of accruals in the measurement of the three most common earnings-based financial covenants – interest coverage (IC), fixed charges coverage (FCC), and debt to cash flow (DCF) covenants – in a large sample of loan agreements.¹ Since the accounting ratios in these covenants are common measures of credit risk, one can generalize the conclusions to the use of accruals in the measurement of credit risk in debt contracts.

The accrual process mitigates the timing and matching problems in firms' cash flows, which could make earnings a better performance measure for debt contracting. Ball and Shivakumar [2006] argue that working-capital accruals adjust operating cash flow to produce an earnings variable that is less noisy in measuring periodic performance and more efficient for debt contracting. They also contend that long-term (depreciation and amortization) accruals, which are moving averages of past period investments in durable assets, ameliorate transitory variation in free cash flow (the sum of operating

¹Debt to cash flow covenants are also called debt to EBITDA covenants since the denominators are typically EBITDA. Given that the purpose of this paper is to investigate the cross-sectional variation of the denominators, the name “debt to cash flow covenant” is simply a label for a financial covenant measured with the ratio of certain debt to certain performance measures.

and investing cash flows) to increase the usefulness of accounting earnings for contracting purposes.

The accrual process, however, is subject to estimation errors, managerial discretion, and potential manipulation, which may induce noise and/or bias into earnings numbers, reducing their usefulness in debt contracting. Leftwich [1983] argues that accounting numbers that can be relatively easily manipulated are less useful for debt contracting and more likely to be excluded from the contracting variables through negotiated accounting measurement rules. Watts [2006] contends that if fair value measures create too much noise in accounting variables, debt contracts would probably stop using accounting numbers.

The aforementioned tension is essentially a trade-off between relevance and reliability. Given this trade-off, theoretically, it is unclear whether earnings are superior to cash flows in measuring credit risk, which is a function of the borrower's ability to generate sufficient amount of cash for interest and principal payment *in the future*. The empirical evidence on the relative predictive ability of current earnings versus cash flows for future cash flows is also mixed.² Consequently, it is an interesting empirical question how different components of accruals are used in the measurement of earnings-based financial covenants and what drives the cross-sectional variation.

I infer the *relative* usefulness of long-term and working capital accruals from whether they are included in the performance measures. The measurement of debt covenants typically does not assign continuous weights to different accounting variables or their components.³ For example, the numerator of IC ratio could be EBIT or EBITDA,

²Greenberg et al. [1986] document that the predictive ability of aggregate earnings is superior to cash flows. Barth, Cram, and Nelson [2001], however, find that cash flows are superior to earnings in predicting future cash flows. Bowen et al. [1986] find that earnings are at least not superior to cash flows. Finger [1994] shows that earnings and cash flows have similar predictive ability for longer horizons, but cash flows are slightly superior to earnings for short horizons.

³Although theoretically it is more efficient to assign continuous weights, it is rarely observed in practice.

whereas it is rarely defined as EBIT plus certain percentage of depreciation and amortization expense. Given this contracting feature, all inferences in this paper about the contracting usefulness of certain accounting variable are about *relative* usefulness. For example, if the numerator of IC ratio is EBIT, one cannot conclude that long-term accruals are not useful in measuring credit risk; the correct inference is that long-term accruals are less useful than other earnings components in measuring credit risk.

Using the bank loan agreements provided by Nini, Smith, and Sufi [2009], I pinpoint the exact definitions of the numerators of IC and FCC ratios and the denominators of DCF ratios. The definitions usually *explicitly* begin with EBITDA, EBIT, or other commonly used performance measures that are separately defined in the contracts (labeled as “benchmark variables,” Panel A of table 2), with certain other accounting variables (labeled as “adjustment variables,” Panel B of table 2) added or subtracted. For example, the numerator of a FCC ratio could be defined as EBITDA plus operating lease expense minus capital expenditure, where EBITDA is the benchmark variable and operating lease expense and capital expenditure are adjustment variables. Since the benchmark and adjustment variables are usually defined separately in the contract, one need to trace down the chain of definition to obtain the precise performance measures.

Interestingly, almost all definitions of the performance measures begin with the GAAP net income, when traced down the chain of variables involved, even if the benchmark variable is certain cash flow measure, such as “Operating Cash Flows,” “Cash Flows,” “Cash Flows from Operation,” and so on.⁴ I identify six cash features from the adjustment variables and the definitions of the benchmark variables (Panel C of table 2).⁵

⁴Given that cash flow statements are available in the sample period, this observation suggests that debt contracting parties generally view earnings as a variable “closer” than cash flows to the optimal measurement of credit risk, consistent with Ball and Shivakumar’s [2006] argument that earnings are superior to cash flows for debt contracting purpose.

⁵See section 5 for more details.

Using the GAAP net income before interest and income tax expense as a benchmark, these features are:

i) adding depreciation and amortization expense (80%, 89%, and 96% in the IC, FCC, and DCF samples, respectively),

ii) adding other non-cash expense (34%, 37%, and 37% in the IC, FCC, and DCF samples, respectively),⁶

iii) subtracting non-cash income (15%, 14%, and 15% in the IC, FCC, and DCF samples, respectively),⁷

iv) subtracting capital expenditure (5%, 40%, and 1% in the IC, FCC, and DCF samples, respectively),⁸

v) subtracting tax paid in cash (1%, 17%, and 0.3% in the IC, FCC, and DCF samples, respectively), and

vi) subtracting dividend, stock repurchase, or other cash distribution (1%, 5%, and 1% in the IC, FCC, and DCF samples, respectively).

The descriptive evidence has the following implications. First, different treatment of cash versus non-cash items is an important feature of performance measures in debt contracts. Second, long-term accruals are generally less useful than other components of earnings (including working capital accruals) in measuring credit risk. The exclusion of long-term accruals in most contracts is consistent with the notion that long-term accruals

⁶Throughout this paper, the term “other non-cash expense” means non-cash expense other than depreciation and amortization expense. Some contracts only add back other non-cash expense that require no cash payment in the future. The percentages reported only include adjustments that are stated in general terms, such as “other non-cash expense,” “other non-cash charges,” and “other non-cash items that decrease net income.” I do not take into account the exclusion of specific non-cash expenses, such as non-cash compensation expense and non-cash restructuring charges.

⁷These percentages only include adjustments that are stated in general terms, such as “non-cash income,” and “non-cash items that increase net income.” I do not take into account exclusion of specific non-cash income, such as non-cash extraordinary gains. Definitions that only exclude “non-cash gains” are not included in these percentages either.

⁸Although capital expenditure is not necessarily in cash, I treat this adjustment as a cash feature because it relates to the concept of free cash flow. The percentage in the FCC sample includes 3% of definitions that subtract unfunded capital expenditure and 1.6% that subtract cash capital expenditure.

are generally less relevant than working capital accruals in mitigating the timing and matching problems in operating cash flows (e.g., Dechow [1994]). Third, other non-cash income items (including non-cash income items in working capital accruals), especially other non-cash expense, are less useful than cash components of earnings in measuring credit risk.⁹ Fourth, investing and financing cash flows are generally not included in the measurement of IC and DCF covenants.¹⁰ Finally, investing cash outflows are an important consideration in measuring FCC covenants.

The main cross-sectional findings are as follows. First, proxies for the smoothing benefits of long-term and working capital accruals generally have no explanatory power for the cross-sectional variation in the use of long-term accruals and other non-cash income items. Second, contracts with higher agency costs of debt are more likely to exclude long-term accruals in measuring the IC and FCC covenants, and more likely to exclude other non-cash income items in measuring IC, FCC, and DCF covenants; these contracts also tend to use performance measures closer to operating cash flows *in general* to measure IC, FCC, and DCF covenants.¹¹ Additional analysis indicates that firms with more reputational capital, proxied with banking relationship, are less likely to exclude long-term accruals in measuring IC covenants, less likely to exclude other non-cash items, and more likely to use performance measures closer to operating cash flows *in general* in measuring IC, FCC, and DCF covenants. These cross-sectional results suggest that concerns about reliability of non-cash income items are likely to be one primary reasons underlying the use of performance measures in the measurement of

⁹Throughout this paper, the term “other non-cash income items” means non-cash income and non-cash expense other than depreciation and amortization expense.

¹⁰The denominators of FCC ratios are not standard. One needs to look at both the numerators and denominators of FCC ratios to know how investing and financing cash flows are used. See Section 5 for details.

¹¹I do not analyze the cross-sectional variation of the use of long-term accruals in the DCF sample because 96% of the contracts exclude long-term accruals from the measurement of DCF covenants.

credit risk in debt contracts.

This study makes several contributions. First, it contributes to the literature on the role of accounting accruals. While creditors and shareholders claim on the same assets and profits, their use of accounting information could be fundamentally different, due to the different cash flow rights and contracting horizons.¹² This study complements the literature on the role of accruals in the capital markets by exploring the use of accruals in debt contracts and the cross-sectional variation. I show that concerns about accruals reliability are one primary factor that drives the cross-sectional variation of the usefulness of accruals in a debt contracting setting, complementing findings in the capital market research (e.g., Richardson et al. [2005]).

Second, this study contributes to the literature on the use of accounting information in debt contracts. I provide detailed descriptive evidence on how performance measures are used in financial covenants to measure credit risk and facilitate monitoring from creditors. The descriptive and cross-sectional evidence indicates that reliability is an important concern in the selection of debt contracting variables. While a large body of research examines the value relevance of accounting numbers, there is relatively little research on reliability (Richardson et al. [2005]). The evidence supports Leftwich's [1983] argument that restricting managerial opportunism is an important economic reason for negotiated accounting measurement rules in debt contracts.

Third, this study provides additional insights on the “debt covenant hypothesis” - the idea that managers make accounting choices to reduce the likelihood their firms will violate accounting-based debt covenants. My findings indicate that the *ex post* debt contracting incentives for accruals manipulation are probably not so strong as one ex-

¹²Relative to shareholders, creditors claim on economic resources within a shorter horizon.

pects because debt contracting parties anticipate this potential managerial opportunism and contract on less manipulatable accounting variables for firms that are more likely to manipulate accounting numbers, which may explain why the empirical evidence on the debt covenant hypothesis remains largely mixed (Dichev and Skinner [2002]).

Finally, this study has important policy implications for the current debates on the fair value accounting. Based on FASB's fair-value-based conceptual framework, changes in assets and liabilities flow through income statement as non-cash income items. These non-cash income items are likely to be subject to measurement errors and managerial bias, which reduce contracting efficiency. My study shows that reliability of these non-cash income items is an important concern when debt contracting parties choose performance measures. Consequently, it is unclear whether fair value accounting is superior to the current accounting standard solely from the perspective of debt contracting, which justifies Watts's [2006] concern that debt contracts would probably stop using accounting measures if the fair value measures create too much noise in accounting variables.

Section 2 reviews prior studies. Section 3 provides theoretical backgrounds. Section 4 describes the data. Sections 5 and 6 present descriptive and cross-sectional analysis, respectively. Section 7 provides additional cross-sectional analysis. Section 8 concludes.

2 Prior Studies

A long line of accounting literature investigates the use of accounting information in the equity market since the seminal publication of Ball and Brown [1968]. Given the importance of accrual accounting, prior studies examine the properties and usefulness of

cash flows, accruals, and earnings. For example, Dechow [1994] show that, compared to cash flows, earnings have a stronger association with stock price; Sloan [1996] documents that cash flows are more persistent than accruals; Dechow, Kothari, and Watts [1998] find that a cash flow prediction model that disaggregates the working capital and other accruals components of earnings results in lower cash flow forecast errors and improved predictability.

While creditors and shareholders claim on the same assets and profits, their use of accounting information could be fundamentally different. First, creditors' payoffs are different from those of shareholders. Shareholders' payoffs can be viewed as a call option in the firm's assets, while creditors' payoffs can be viewed as a long position in the firm's assets and short position in a call option, which implies that all upside benefits of the firm accrue to shareholders. Consistent with this feature, Easton, Monahan, and Vasvari [2009] document that the bond market reactions to earnings are larger when earnings convey bad news or when the underlying bond is more risky; Wittenberg-Moerman [2008] finds that timely loss recognition reduces the bid-ask spread in the secondary loan market. Second, compared to shareholders, creditors are less concerned about the long-term prospects of the firm beyond the debt horizon. Consequently, accounting numbers that are more informative about firm performance within the debt horizon are more useful for debt contracting. Consistent with this argument, Li [2010] finds that transitory earnings are more likely to be excluded from the measurement of earnings in private debt contracts when the debt maturity is longer.

These differences warrant separate investigation of the relative usefulness of earnings versus cash flows in a debt contracting setting. Studies along this line, however, are relatively rare. Janes [2006] finds that lenders do not use information in accruals in set-

ting debt covenant slacks. Ozel [2010] utilizes data on estimates of credit losses and realizable value of loans at the economy-wide level to show that private debt holders focus primarily on operating earnings, not operating cash flows, to evaluate credit losses. He also documents that private debt holders consider some accruals (e.g., working capital accruals) more informative than others (e.g., depreciation). Begley and Freedman [2004] provide some descriptive evidence on how accounting variables in dividend restrictions and additional borrowing restrictions are defined in a small sample of public debt contracts for three sample periods.

In a closed related study using the Tearsheets in the LPC's Dealscan databas, Demerjian [2009] documents that the numerators of IC ratios are more likely to be measured with EBIT relative to EBITDA when firms have larger depreciation and amortization expense. My study differs from Demerjian [2009] in at least two aspects. First, the purpose of my study is to explicitly investigate the economic role of accounting accruals in debt contract, while Demerjian [2009] uses the choice of EBIT vs. EBITDA in IC and FCC covenants as a setting to investigate the economic role of covenant measurement in debt contracts. Second, the real loan contracts in my study provide more comprehensive information than that contained in the Tearsheets. The Tearsheets provide no information on the definitions of the benchmark vairables, and thus no information about the use of working capital accruals in any covenants or the use of both working capital and long-term accruals when the benchmark variables are not EBIT, EBITDA, or their variants, such as EBITR, EBITDAR, and so on.¹³

¹³Tearsheets are only informative about whether long-term accruals are used in the measurement when the benchmark variables are EBIT, EBITDA, or their variants. When other benchmark variables, such as "operating cash flows," are used, Tearsheets contain no information about whether certain accruals are excluded.

3 Theoretical Background

Accounting information plays an important role in reducing the agency costs that arise in the debt contracting process (Smith and Warner [1979], Watts and Zimmerman [1986]). Debt contracts typically contains covenants, which are usually based on accounting variables. Debt covenants mitigate the moral hazard and adverse selection problems arising in debt financing due to the agency conflicts between creditors and shareholders (Jensen and Meckling [1979], Smith and Warner [1979]). As an important dimension of debt covenants, the choice of accounting variables directly affects contracting efficiency (Leftwich [1983], Li [2010]).

In incomplete contracts, contracting parties choose the best signal on the underlying construct on which they wish they could contract. Accounting numbers generated from the financial reporting system are outcomes of the underlying economic transactions, measurement methods, and managerial discretion and opportunism. Consequently, the contracting usefulness of accounting variables depends on the underlying economic transactions, measurement methods, and managerial discretion and opportunism. Some accounting variables are more useful in measuring the debt contracting constructs simply due to the economic transactions and related measurement approaches. For example, Leuz [1996] argues that the use of transactions and events in the accrual process leads to a better specification of the upper bound on dividends in an earnings-based dividend constraint than in a cash-based constraint. Li [2010] contends that due to the forward-looking nature of debt contracting constructs, the more persistent part of earnings is more useful for debt contracting.

Managerial discretion and opportunism bring noise and/or bias into reported ac-

counting numbers, which would reduce their ability to measure the underlying debt contracting constructs. Costello and Wittenber-Moerman [2011] document that when a firm experiences material internal control weakness over financial reporting, lenders decrease their reliance on financial covenants and financial-ratio-based performance pricing provisions, indicating that accounting quality is an important consideration in covenant designs. Leftwich [1983] argues that accounting numbers that can be relatively easily manipulated are less useful for debt contracting and more likely to be excluded from the contracting variables through negotiated accounting measurement rules.

It is usually claimed that accrual accounting is superior to cash accounting. With respect to the use of accruals in the measurement of financial covenants, however, it is unclear whether the benefits dominate the costs. Regarding the benefits, Ball and Shivakumar [2006] argue that working capital accruals adjust operating cash flows to produce an earnings variable that is less noisy in measuring periodic performance and more efficient for contracting with lenders, managers, and others; they also contend that depreciation and amortization accruals, which are moving averages of past period investments in durable assets, ameliorate transitory variation in free cash flow (the sum of operating and investing cash flows) to increase the usefulness of accounting earnings for performance measurement and contracting purposes.

Accounting accruals, however, are subject to measurement errors and managerial discretion and opportunism. If certain accruals contain too much noise or bias due to measurement errors or managerial discretion and opportunism, debt contracting parties may remove them from the contracting variables. The use of accounting numbers in debt contracts is different from that in security valuation in that one can assign smaller weights to more noisy variables in security valuation, whereas the assignment of different

weights is quite rare in debt contracts. Consequently, if accruals are too noisy or biased due to measurement problems or managerial opportunism, they would be excluded from the performance measures. Leftwich [1983] predicts that “Negotiated measurement rules reduce management’s ability to circumvent restrictions in lending agreements when the rules ensure that (i) reported income and asset values are not increased unless the firm’s cash flows increase, and (ii) reported income and asset values are decreased when the firm’s cash flows decrease” (p. 29).

4 Data and Summary Statistics

I use the bank loan contracts data from Nini, Smith, and Sufi [2009] (NSS, hereafter). NSS begin with a sample of loans from Reuters LPC’s Dealscan database that are matched to firm financial characteristics from Standard & Poor’s COMPUSTAT database for the years 1996 through 2005. They then use text-search programs to scan SEC filings in Edgar for loan contracts and match the contracts to Dealscan based on the dates of the loan agreements and the names of the companies. Their final sample consists of 3,720 loan agreements for 1,939 borrowers. I delete documents that are incomplete or misclassified as loan contracts and contracts without definition sections. Some contracts include the definition section in the appendix. NNS do not pull out the appendixes for some contracts. My final sample consists of 3,485 contracts for 1,826 borrowers.

Panels A and B of table 1 present the year and industry distribution for the sample. The industry classification follows Barth et al. [1999]. With the exception of the year 1996, the contracts are distributed relatively evenly across years. Panels C and D of table

I summarize the main loan and borrower characteristics. The borrower characteristics are measured with annual data for the fiscal year prior to the agreement date. DCF covenants are the most commonly used earnings-based financial covenants, used in 57% of the contracts. 38% (37%) of the contracts contain IC (FCC) covenants. The average loan amount is 452 million, which represents 37.5% of book assets on average. The median loan amount is about twice the number reported in Dichev and Skinner [2002] for the Dealscan-COMPUSTAT intersection sample, indicating that the sample is biased toward contracts of large loans, which is not surprising because firms are required to file debt contracts as part of the public record only when debt amounts exceed 10% of total assets.

5 Descriptive Evidence

To pinpoint the exact definition of the numerator of IC or FCC ratio, one needs to track down the chain of variables involved. For example, in the credit agreement of Oakley Inc. signed on August 19, 2004, the FCC covenant is stated as:

“Borrower shall not permit, as of the end of any fiscal quarter, the ratio of (i) Consolidated EBITDA, less cash expenditures in connection with Capital Expenditures (excluding Capital Expenditures comprising Permitted Acquisitions), less cash payments made in respect of taxes based on income, less actual cash payments for stock repurchases, less actual cash payments for dividends, to (ii) Consolidated Fixed Charges, for each four-quarter-fiscal period ending on such date, to be less than 2.00 to 1.00.”

In the measurement of the numerator for the covenant above, I label EBITDA as the “benchmark variable” and the other variables, such as cash capital expenditure, “adjustment variables.”¹⁴ I identify three cash features from the adjustment variables in

¹⁴I use the terms “benchmark variable” and “adjustment variable” simply for explanation purpose. Benchmark variables are commonly used performance measures, such as EBIT, EBITDA, operating cash flows, and so on. Adjustment variables

this example, namely, subtraction of cash expenditure, tax paid in cash, and cash paid for dividend and repurchase. The benchmark variable cannot be taken at the face value because it is defined separately. In this example, EBITDA is defined as:

“CONSOLIDATED EBITDA means, for any period, the sum of the amounts for such period of (i) Consolidated Adjusted Net Income, (ii) Interest Expense, (iii) provisions for taxes, if any, based on income, (iv) total depreciation expense, (v) total amortization expense, and (vi) non-cash charges reducing net income (excluding any charge constituting an extraordinary item or any such charge which requires an accrual of or a reserve for charges for any future period); less other non-cash items increasing net income, all of the foregoing as determined on a consolidated basis for Borrower and its Subsidiaries in conformity with GAAP.”

From the definition of EBITDA above, I identify three more cash features, namely, adding depreciation and amortization expense, adding other non-cash expense, and subtracting non-cash income. The identification process continues because Adjusted Net Income is further defined separately. I trace down the chain of contractual definitions until the variables are based on the GAAP numbers. I apply this procedure to all definitions of the numerators of IC and FCC ratios and the denominators of DCF ratios. Panels A and B of table 2 report the frequency of benchmark variables and adjustment variables. EBITDA is the most common benchmark variable. When traced down the chain of variables involved, almost all definitions of the performance measures begin with the GAAP net income, even when the benchmark variable is certain cash flow measure, such as “Operating Cash Flows,” “Cash Flows,” “Cash Flows from Operation,” and so on. Since cash flow statements are available in the sample period, this observation suggests that debt contracting parties generally view earnings as a variable “closer” than cash flows to the optimal measurement of credit risk.

are other variables adjusted for in the definitions.

Panel C of table 2 reports the frequency of the six cash features observed in the performance measures.¹⁵ I do not include adjustment for specific non-cash items, such as non-cash compensation expense, or adjustment for non-cash items that are unusual or non-recurring in nature, such as non-cash gains and extraordinary non-cash items. The exclusion of unusual or non-recurring non-cash items is probably due to their transitory nature (Li [2010]). Using the GAAP net income before interest expense and income tax expense as a benchmark, these features are:

i) adding depreciation and amortization expense (80%, 89%, and 96% in the IC, FCC, and DCF samples, respectively),

ii) adding other non-cash expense (34%, 37%, and 37% in the IC, FCC, and DCF samples, respectively),

iii) subtracting non-cash income (15%, 14%, and 15% in the IC, FCC, and DCF samples, respectively),

iv) subtracting capital expenditure (5%, 40%, and 1% in the IC, FCC, and DCF samples, respectively),

v) subtracting tax paid in cash (1%, 17%, and 0.3% in the IC, FCC, and DCF samples, respectively), and

vi) subtracting dividend, stock repurchase, or other cash distribution (1%, 5%, and 1% in the IC, FCC, and DCF samples, respectively).

The descriptive evidence provides interesting insights on the performance measures used in the measurement of credit risk in debt contracts. First, different treatment of cash versus non-cash items is an important feature of performance measures in debt contracts. Second, consistent with Ozel [2010], long-term accruals are generally less useful

¹⁵Since maintenance capital expenditure is expensed under the current GAAP, subtraction of maintenance capital expenditure is redundant.

than other components of earnings (including working capital accruals) in measuring credit risk.¹⁶ Third, other non-cash income items (including non-cash income items in working capital accruals), especially other non-cash expense, are less useful than cash components of earnings. Fourth, investing and financing cash flows are generally not included in the measurement of IC and DCF covenants. Finally, investing cash outflows are an important consideration in measuring FCC covenants.

The exclusion of long-term accruals in most contracts is consistent with the fact that long-term accruals are generally less relevant than working capital accruals in mitigating the timing and matching problems in operating cash flows. Dechow [1994] document that the association of operating cash flows with stock returns is less sensitive to the magnitude of long-term accruals than to that of working capital accruals.¹⁷ Working capital accruals such as accounts receivables have existed for centuries (Littleton [1966]), while depreciation was not treated as an expense prior to the twentieth century (Watts [1977], Watts and Zimmerman [1979]). Watts and Zimmerman [1979] argue that rationalizing depreciation as an expense is influenced by the political process, and the economic motivation of its inclusion in earnings is less clear. Additionally, depreciation is typically a predetermined schedule of cost allocation, and there is usually no single correct way to allocate the costs of durable assets (Stickney et al. [2009]).

The frequencies of subtracting capital expenditure, cash tax, and cash distribution to shareholders are much higher in the FCC sample than in the other two. To understand the reasons, I compare the definitions of the denominators of IC and FCC ratios.

¹⁶This observation does not conflict with Ball and Shivakumar's [2006] argument that long-term accruals improve contracting efficiency. The exclusion of long-term accruals does not imply that they are useless, but that they are less useful than other earnings components. Additionally, long-term accruals are used in some other covenants, such as dividend restrictions.

¹⁷Although the debt contracting demand is different from the valuation demand, Dechow's [1994] evidence at least indicates that long-term accruals are less useful than working capital accruals in improving the predictive ability of current earnings over current cash flows for future cash flows.

The denominators of IC ratios are always interest expense, while the denominators of FCC ratios are not standard. Panel D of table 2 reports the variables included in the denominators of FCC ratios and their frequencies. All of the definitions include interest expense; 75% include principal payment of debt; 48% include rental and lease expense; 21% include capital expenditure; 30% include dividend and other cash distributions to shareholders; 26% include taxes paid in cash. Capital expenditure, cash distributions, and cash taxes are either subtracted from the numerators or included in the denominators, but not both.¹⁸ It seems that these three cash outflows are included in the measurement of FCC covenants because the contracting parties view them as part of “fixed charges.” Taking both the numerator and denominator into consideration, 61% of contracts treat capital expenditure as fixed charges; 47% include taxes paid in cash; 35% include cash distributions. Overall, investing and financing cash outflows are important in measuring FCC covenants.

6 Cross-Sectional Analysis

In this section, I investigate how the use of accruals varies cross-sectionally with the costs and benefits of using accruals. Since accruals reliability is notoriously difficult to measure empirically, I rely on proxies for managerial incentives associated with accrual reliability. In particular, I focus on the effects of the agency costs of debt in the main tests. The agency costs of debt are positively correlated with not only managerial incentives to manipulate accounting numbers to circumvent covenant violations, but also other managerial incentives related to accrual reliability. First, the agency costs of

¹⁸Subtracting these cash outflows from the numerator is conceptually similar to including these cash outflows in the denominator, though they are mathematically different.

debt are negatively correlated with corporate governance quality. Anderson et al. [2004] find that firms with higher board independence, higher audit committee independence, and larger board size have lower costs of debt measured as the yield spread. Li, Tuna, and Vasvari [2010] document that corporate governance quality is negatively associated with debt covenant restrictiveness.

Second, the agency costs of debt are negatively correlated with firm performance and positively correlated with firm riskiness, and risky firm and firms with poor performance are more likely to manipulate accounting numbers. Francis et al. [2005] find that firms with lower quality accruals have a higher ratio of interest expense to interest-bearing outstanding debt and lower S&P issuer credit ratings. Dechow et al. [2009] document that during accounting misstatement years, firms earnings and the number of employees are declining. Dechow et al. [1996] find that manipulation firms have higher leverage ratios and are more likely to violate debt covenants during and after the manipulation period than control firms.

6.1 Research Design and Variable Measurement

The main dataset is an unbalanced panel of contract and firm data. I perform the analysis at the loan package level because different tranches of a loan package are governed by the same credit agreement. I estimate probit models in the main specifications. The dependent variables are dummies for whether to exclude long-term accruals (*Plus_DA*) and whether to exclude other non-cash income items (*Ex_Non_Cash*). *Ex_Non_Cash* is set to one if either non-cash expense or non-cash income is excluded, and zero otherwise. The main treatment variables are proxies for the agency costs of debt and the smoothing benefits of working capital and long-term accruals.

I control for firm size (*Log_Asset*), leverage ratio (*Leverage*), market-to-book ratio (*Market_to_Book*), and profitability (*Profitability*) in all regressions. These firm characteristics are potentially related to agency problems or the usefulness of accruals. For example, since operating cash flows are not a poor measure of firm performance for firms that are in steady state (Dechow [1994]), accruals are likely to be more useful for growth firms. All regressions include year and industry indicators. Standard errors are clustered at the firm level. I also control for asset tangibility (*Tangibility*) in regressions related to long-term accruals. Whether a firm is capital-intensive is likely to affect the use of long-term accruals. Demerjian [2009] documents that the numerators of IC ratios are more likely to be measured with EBIT relative to EBITDA when firms have larger depreciation and amortization expense. Since only 3.6% of contracts in the DCF sample exclude long-term accruals, the DCF sample is not used when the dependent variable is *Plus_DA*.

6.1.1 Measures of Agency Costs of Debt

I measure the agency costs of debt with five contract and firm characteristics suggested by previous research (e.g., Beatty, Weber, and Yu [2008]): loan interest spread (*Interest*), firm credit rating (*Credit_Rating*), covenant intensity (*Cov_Intensity*), loan maturity (*Maturity*), and loan security (*Secured*). The use of interest spread and credit rating is based on the notion that firms with higher credit risk are likely to have higher agency costs of debt (Myers [1977]). Agency theory suggests that firms with more agency problems are more likely to use covenants (Jensen and Meckling [1976], Myers [1977], Smith and Warner [1979]), which is supported by empirical evidence (e.g., Bradley and Roberts [1994], Demiroglu and James [2010]).

Flannery [1986] argues that if transaction costs are high enough, high quality borrowers can signal their quality through short-term debt, resulting a negative relation between borrower quality and debt maturity.¹⁹ Moral hazard models (e.g., Holmstrom and Tirole [1997], Stulz and Johnson [1985], Boot, Thakor, and Udell [1991]) argue that low quality borrowers can credibly commit to lower asset substitution by providing collateral, predicting a negative relation between borrower quality and the use of laterals. Consistent with this argument, most of the empirical studies document that secured loans have significantly higher rates than unsecured ones (e.g., Casolaro et al. [2004], Harjoto et al. [2006], Asquith et al. [2005]); Berger and Udell [1990] show that collateral is typically associated with riskier loans. Since *Secured*, *Cov_Intensity*, *Interest*, and *Credit_Rating* are highly correlated (Panel B of table 3), I include them in the regressions separately or use their first principal component (labeled as “*Agency_Cost*”) to address the potential multicollinearity problem.²⁰

6.1.2 Measures of Smoothing Benefits of Accruals

Accruals improve the contracting usefulness of earnings by smoothing transitory changes in firms’ working capital requirements and investment activities (Dechow [1994], Ball and Shivakumar [2006]). For firms that are in steady state, the timing and matching problems in cash flows are less serious, and the improvement of earnings over cash flows as a performance measure is limited. However, for firms that experience large changes in their working capital requirements or volatile investment activities, realized cash flows suffer from more serious timing and matching problems and are less able to reflect performance. Consequently, the smoothing benefits of working capital and long-term accruals increases

¹⁹Diamond [1991], however, predicts a nonmonotonic relation between debt maturity and borrower quality.

²⁰Only the first principal component has eigenvalue greater than one. *Credit_Rating* is not used in the principal component analysis because only 60% of the contracts are for firms with credit rating.

with the volatilities of working capital accruals and investment activities, respectively (Dechow [1994]). *In absence of managerial manipulation*, the smoothing benefits of working capital accruals (long-term accruals) increase with the volatility of working capital accruals (long-term accruals). An alternative way to understand this argument is as follows. If working capital or long-term accruals are an indispensable part of the performance measure, the costs of excluding them are higher if they are more volatile. In the extreme, if the accruals are constant, their exclusion is almost costless because the information users can adjust the number accordingly.²¹

Since volatility of accruals is likely to negatively correlated with accruals reliability, my proxies for the smoothing benefits are not based on accrual measures. I proxy for the smoothing benefits of working capital accruals with the length of a firm's operating cycle.²² The length of operating cycle is an underlying determinant of the volatility of working capital requirement (Dechow [1994]). Firms with longer operating cycles generally have larger working capital requirements for a given level of operating activity. Consequently, the ability of cash from operations to measure firm performance is expected to decline and the importance of working capital accruals is expected to increase as the length of operating cycle increases. Dechow [1994] documents a positive association between the operating cycle and the absolute change in working capital; she also documents a negative relation between the operating cycle and the association of operating cash flows with stock returns.

Following Dechow [1994], I measure the length of the operating cycle with *Op_Cycle*

²¹In the debt contracting setting, this argument is only valid for covenants that uses performance measures linearly (e.g., minimum cash flows covenants). In other covenants, where performance measures are used in the numerators or the denominators, exclusion of a constant from the performance measure still reduces information if that constant is relevant. However, in general, the information loss is still more serious if the excluded relevant variable is more volatile.

²²The results are qualitatively the same when I use accruals volatility measures, including the mean absolute value and the standard deviation of working capital accruals (unscaled and scaled by sales).

and *Tr_Cycle*, the means of

$$\frac{(AR_t + AR_{t-1})/2}{Sales_t/360} + \frac{(Inv_t + Inv_{t-1})/2}{COGS_t/360} \quad (1)$$

and

$$\frac{(AR_t + AR_{t-1})/2}{Sales_t/360} + \frac{(Inv_t + Inv_{t-1})/2}{COGS_t/360} - \frac{(AP_t + AP_{t-1})/2}{Purchases_t/360}, \quad (2)$$

respectively, where AR_t , Inv_t , $COGS_t$, and $Purchases_t$ are accounts receivable, inventory, costs of goods sold, and purchases of inventory, respectively. *Op_Cycle* and *Tr_Cycle* are calculated with annual data within 10 years before the loan agreement date. To mitigate the effects of outliers, I only use firms with data of at least five years, and winsorize *Op_Cycle* and *Tr_Cycle* at 1 and 99 percentiles. Panel D of table 1 indicates that the average operating cycle (*Op_Cycle*) is 122 days, and the average trading cycle *Tr_Cycle* is 55 days.

I measure the volatility of investment activities with the coefficient of variation of net capital expenditure (*Capex_CV*) and the standard deviation of net capital expenditure scaled by average total assets (*Capex_Std_Scaled*), calculated with annual data within 10 years before the loan agreement date for firms with data of at least five years. I winsorize *Capex_CV* and *Capex_Std_Scaled* at 1 and 99 percentiles to mitigate the effects of outliers.²³ These two volatility measures are highly correlated with the volatility of depreciation expense, but are not subject to the subjectivity in the estimation of depreciation expense.²⁴

²³The empirical results are qualitatively the same when the volatility measures are calculated using gross capital expenditures and depreciation expense.

²⁴The correlation between *Capex_CV* and the coefficient of variation of depreciation expense is 0.67. The correlation between *Capex_Std_Scaled* and the standard deviation depreciation expense scaled by mean asset is 0.47.

6.2 Empirical Results

The correlation matrix in Panel A of table 3 shows strong evidence that the likelihoods of excluding long-term accruals and other non-cash income items increase with the agency costs of debt. *Ex_Non_Cash* and *Plus_DA* are both positively correlated with *Maturity*, *Secured*, *Cov_Intensity*, *Interest*, *Credit_Rating*, and *Agency_Cost*. They are also positively correlated with *Leverage* and negatively correlated with *Profitability*. In contrast, *Ex_Non_Cash* is not correlated with *Op_Cycle*, and is only weakly negatively correlated with *Tr_Cycle*; the correlations between *Plus_DA* and volatility of investment activities (*Capex_CV* and *Capex_Std_Scaled*) are either insignificant or inconsistent with the prediction.

Tables 4 and 5 report the results of probit regressions for the likelihood of excluding long-term accruals in the IC and FCC samples. The reported numbers are average marginal effects. The marginal effects of *Maturity*, *Secured*, *Cov_Intensity*, *Interest*, *Credit_Rating*, and *Agency_Cost* are all significantly positive in the two samples, consistent with the notion that firms with higher agency costs of debt are more likely to exclude long-term accruals in the measurement of IC and FCC covenants. The marginal effects of the measures of the agency costs of debt are also economically significant. For example, contracts of secured loans are more likely to exclude long-term accruals by 10% (8%) in the IC (FCC) sample. One notch increase in credit rating would decrease the likelihood of excluding long-term accruals by 2% (1%) in the IC (FCC) sample.²⁵ One interquartile increase in *Agency_Cost* would increase the likelihood by about 15% (8%) in the IC (FCC) sample. In addition, the marginal effects of *Leverage* are significantly positive in all regressions except Regression 3 in table 5, indicating that riskier firms are

²⁵Note that higher values of *Credit_Rating* means lower credit ratings.

more likely to exclude long-term accruals in the measurement of IC and FCC covenants. In contrast, the marginal effects of *Capex_CV* and *Capex_Std_Scaled* are insignificant. The effects of firm size are generally significant but inconsistent in the two samples. The effects of asset tangibility are generally insignificant in both samples.

Tables 6-8 present the results of probit regressions for the probability of excluding other non-cash items in the IC, FCC, and DCF samples. Consistent with the notion that firms with higher agency costs are more likely to exclude other non-cash income items in the performance measures, the marginal effects of *Maturity*, *Secured*, *Cov_Intensity*, *Interest*, *Credit_Rating*, and *Agency_Cost* are all significantly positive in the three samples. The marginal effects of the measures of the agency costs of debt are also economically significant. For example, contracts of secured loans are more likely to exclude other non-cash income items by 10%, 7%, and 9% in the IC, FCC, and DCF samples, respectively. One notch increase in credit rating would decrease the likelihood of excluding other non-cash income items by about 3% in all samples. One interquartile increase in *Agency_Cost* would increase the likelihood by about 15%, 9%, and 12% in the IC, FCC, and DCF samples, respectively. In addition, the marginal effects of *Leverage* are also weakly positive in the three samples. In contrast, the marginal effects of *Op_Cycle* and *Tr_Cycle* are insignificant. The effects of other control variables are all insignificant.

To provide further evidence on the effects of the agency costs of debt on the use of other non-cash income items, I investigate the likelihood of excluding non-cash income and other non-cash expense separately in table 9. The results are consistent with tables 6-8. The effects of *Op_Cycle* and *Tr_Cycle* are insignificant in all samples. The likelihood of excluding non-cash income and excluding other non-cash expense significantly increase with *Agency_Cost* in all samples. One interquartile increase in *Agency_Cost* would

increase the likelihood of excluding other non-cash expense (non-cash income) by about 15%, 7%, and 9% (8%, 5%, and 7%) in the IC, FCC, and DCF samples, respectively. The likelihood of excluding other non-cash expense significantly increase with *Maturity* in all samples. One interquartile increase in *Maturity* would increase the likelihood of excluding other non-cash expense by about 11%, 10%, and 8% in the IC, FCC, and DCF samples, respectively. The likelihood of excluding non-cash income significantly increases with *Maturity* in the IC and DCF samples. One interquartile increase in *Maturity* would increase the likelihood of excluding non-cash income by about 4% and 3% in the IC and DCF samples, respectively. Relative to the average likelihood of excluding non-cash income items (about 15% in the IC and FCC samples), these marginal effects are nontrivial.

7 Additional Tests

7.1 The Effects of Reputational Capital

To provide further evidence on the effects of the agency costs of debt on the use of long-term accruals and other non-cash income items, I investigate the effects of reputational capital. Reputational considerations act to alleviate both moral hazard and information problems for firms (Diamond [1989, 1991], Dahiya et al. [2003], Sufi [2007]). For example, in Diamond's [1991] model of reputation acquisition, monitoring becomes unnecessary as the borrower establishes a reputation, and thus the borrower "graduates" from bank loans to public debt. In support of this argument, Sufi [2007] document that reputable borrowers obtain syndicated loans that are similar to public debt: The syndicate is dispersed and the lead arranger retains a smaller share of the loan. Consequently,

I hypothesize that firms with lower reputational capital have more informational and moral hazard problems and are more likely to exclude long-term accruals and other non-cash income items in the measurement of financial covenants.

I measure reputational capital with the number of repeated relationships with the lead arranger(s) within five years before the loan agreement date (*Relationship*). Previous studies documents lower interest rate and collateral requirement and fewer covenants for relationship loans (Bharath et al. [2009], Lou [2011]), consistent with the reputation effects of banking relationship. Table 10 reports the regression results for the effects of banking relationship. After controlling for other measures of the agency costs of debt, the marginal effects of reputational capital on the likelihood of excluding other non-cash income items are significantly negative in all samples. One more repeated relationship with the lead arranger(s) in the previous five years would lower the likelihood of excluding other non-cash income items about about 3-4%. The effects of reputational capital on the use of long-term accruals are only significantly negative in the IC sample. One more repeated relationship with the lead arranger(s) in the previous five years would lower the likelihood of excluding long-term accruals in measuring IC covenants by about 1-2%. Overall, Table 10 is consistent with the notion that firms with more reputational capital are less likely to exclude non-cash income items from the measurement of financial covenants.

7.2 Closeness to Operating Cash Flows

To provide evidence on firms' *general* preference for operating cash flows as a performance measure, I run OLS regressions to investigate the cross-sectional variation of *CScore*, the sum of dummies for adding depreciation and amortization expense, adding

other non-cash expense, and subtracting non-cash income. Table 11 presents the OLS regression results. *C_Score* significantly increase with *Maturity*, *Agency_Cost*, and *Credit_Rating* in all regressions, and significantly decreases with reputational capital in all regressions except Regression 4, indicating that firms with higher agency costs of debt are more likely to use performance measures closer to operating cash flows in measuring credit risk.

8 Conclusions

This study investigates the measurement of IC, FCC, and DCF covenants and the cross-sectional variation in loan agreements to shed light on how accounting accruals are used in debt contracts and the underlying economic reasons. The descriptive evidence indicates that in measuring these covenants, long-term accruals are less useful than working capital accruals and other components of earnings, and other non-cash income items (including non-cash income items in working capital accruals), especially other non-cash expense, are less useful than cash components of earnings. Since these the accounting ratios used in these three covenants are common measures of credit risk, these conclusions can be generalized to the use of accounting accruals in measuring credit risk in debt contracts.

Cross-sectionally, proxies for the smoothing benefits of long-term and working capital accruals generally have no explanatory power for the cross-sectional variation in the use of long-term accruals and other non-cash income items. In contrast, contracts with higher agency costs of debt are more likely to exclude long-term accruals in measuring the IC and FCC covenants, and more likely to exclude other non-cash income items

in measuring IC, FCC, and DCF covenants; these contracts also tend to use performance measures closer to operating cash flows *in general* to measure IC, FCC, and DCF covenants. Firms with lower reputational capital are more likely to exclude long-term accruals in measuring IC covenants, more likely to exclude other non-cash items, and more likely to use performance measures closer to operating cash flows *in general* in measuring IC, FCC, and DCF covenants. These cross-sectional results suggest that concerns about reliability of non-cash income items are likely to be one primary reasons underlying the use of performance measures in the measurement of credit risk in debt contracts.

The findings in this paper are informative about the debt contracting demand for accounting numbers and have important policy implications. This study suggests the reliability of accounting numbers is one primary concern in the use of accounting variables in debt contracts. The use of accounting numbers in debt contracts is different from that in security valuation in that one can assign smaller weights to more noisy variables in security valuation, whereas the assignment of different weights is quite rare in debt contracts. Consequently, if accounting numbers are too noisy or biased due to measurement problems or managerial opportunism, they are likely be excluded from the contracting variables in debt contracts, which justifies Watts's [2006] concern that debt contracts would probably stop using accounting measures if the fair value measures create too much noise in accounting variables.

In this study, I only proxy for the costs of using accruals with the agency costs of debt. Future studies can explore how the use of non-cash income items varies other managerial incentives or information environments related to accrual quality. For example, one can directly investigate how the quality of corporate governance or audit quality affects the

use of non-cash income items in debt contracts. Future studies can also examine the use of accounting accruals in other contracting settings, such as compensation contracts.

Appendices

A Variable Definitions

Agency_Cost: The first principal component of *Interest*, *Cov_Intensity*, and *Secured*.

Cov_Intensity: The total number of financial covenants and general covenants.

C_Score: The sum of dummies for adding depreciation and amortization expense, adding other non-cash expense, and subtracting non-cash income.

Credit_Rrating: The numerical value for S&P crediting rating, with AAA equal to 1, AA+ equal to 2, \dots , and D equal to 22. The rating information is from Compustat and Dealscan. Moody's rating is converted to S&P rating through the conventional conversion table.

Capex_CV: The coefficient of variation of net capital expenditure, calculated with annual data within 10 years before the agreement date for contracts with at least 5 data points for calculation.

Capex_Std_Scaled: The standard deviation of net capital expenditure scaled by average assets, calculated with annual data within 10 years before the agreement date for contracts with at least 5 data points for calculation.

Ex_Non_Cash: A dummy variable equal to one if other non-cash expense or non-cash income is excluded from the performance measures and zero otherwise.

Interest: Loan interest spread measured with basis points over LIBOR (London In-

terbank Offer Rate).

Leverage: The ratio of long-term debt to total assets.

Log_Asset: Natural log of total assets.

Market_to_Book: The market value of equity plus the book value of debt divided by total assets.

Maturity: Loan maturity in months.

Op_Cycle: The mean of $\frac{(AR_t+AR_{t-1})/2}{Sales_t/360} + \frac{(Inv_t+Inv_{t-1})/2}{COGS_t/360}$, where AR_t , Inv_t , and $COGS_t$ are accounts receivable, inventory, and costs of goods sold, respectively, calculated with annual data within 10 years before the agreement date for contracts with at least 5 data points for calculation..

Plus_DA: A dummy variable equal to one if depreciation and amortization expenses are added back in performance measures and zero otherwise.

Profitability: Income before extraordinary items divided by total assets.

Relationship: The number of repeated borrowing relationships with the lead arranger(s) within 5 years before the agreement date.

Secured: A dummy variable equal to one if the loan is secured and zero otherwise.

Tangibility: Net properties, plants, and equipments divided by total assets.

Tr_Cycle: The mean of $\frac{(AR_t+AR_{t-1})/2}{Sales_t/360} + \frac{(Inv_t+Inv_{t-1})/2}{COGS_t/360}$, where AR_t , Inv_t , $COGS_t$, and $Purchases_t$ are accounts receivable, inventory, costs of goods sold, and purchases of inventory, respectively, calculated with annual data within 10 years before the agreement date for contracts with at least 5 data points for calculation.

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Table 1 Year and Industry Distributions and Summary Statistics

This table presents the distribution of contracts and borrowers across years and industries, and summary statistics for loan characteristics and firm characteristics for the sample of 3,485 private loan agreements for 1,826 borrowers from Nini, Smith, and Sufi [2009], which are collected from the SEC's Edgar electronic filing system over the period 1996-2005. The industry classification follows Barth et al. [1999]. All borrower characteristics are measured for the fiscal year prior to the agreement date. A rating lower than BBB is considered to be speculative grade. The numerical value for credit rating is set to 1 if the S&P rating is AAA, through 22 if the rating is D. Variable definitions are in Appendix A.

Panel A Agreement Year Distribution				
Year	Contract		Borrower	
	Frequency	Percentage	Frequency	
1996	106	3.04	106	
1997	419	12.02	390	
1998	382	10.96	358	
1999	370	10.62	350	
2000	341	9.78	325	
2001	333	9.56	321	
2002	374	10.73	362	
2003	366	10.50	340	
2004	448	12.86	428	
2005	346	9.93	332	
Total	3,485	100		

Panel B Industry Distribution				
Industry	Contract		Borrower	
	Frequency	Percentage	Frequency	Percentage
Mining and Construction	24	0.69	14	0.76
Food	82	2.35	45	2.45
Textile, Printing, and Publishing	271	7.78	132	7.19
Chemicals	115	3.30	59	3.21
Pharmaceuticals	64	1.84	41	2.23
Extractive Industries	276	7.92	135	7.35
Durable Manufacturers	785	22.53	441	24.02
Computers	276	7.92	160	8.71
Transportation	280	8.03	151	8.22
Utilities	246	7.06	90	4.90
Retails	478	13.72	258	14.05
Services	501	14.38	270	14.71
Others	87	2.50	40	2.18
Total	3,485	100	1,826	100

(Table 1 Continued)

Panel C Loan Characteristics				
	Mean	Median	Std	N
Loan amount (\$ in millions)	452	200	975	3,485
Loan amount/assets	0.375	0.254	0.417	3,485
Maturity (month)	39.8	36.0	21.3	3,438
Secured {0,1}	0.531	1.000	0.499	3,485
Performance pricing {0,1}	0.769	1.000	0.421	3,485
Number of lenders	9.4	7.0	9.1	3,485
Interest spread (basis points above LIBOR)	169.2	148.1	130.2	3,485
Debt to cash flows covenant {0,1}	0.571	1.000	0.492	3,485
Interest coverage covenant {0,1}	0.383	0.000	0.486	3,485
Fixed charge coverage covenant {0,1}	0.374	0.000	0.485	3,485
Debt service coverage covenant {0,1}	0.046	0.000	0.210	3,485
Minimum cash flows covenant {0,1}	0.123	0.000	0.329	3,485
Capital expenditure restriction {0,1}	0.317	0.000	0.466	3,485

Panel D Borrower Characteristics				
	Mean	Median	Std	N
Total assets (\$ in millions)	3354	701	10374	3,485
Leverage (long-term debt/total assets)	0.254	0.233	0.210	3,485
Market-to-book	1.814	1.450	1.600	3,439
Asset Tangibility	0.352	0.287	0.247	3,478
Operating Cycle (<i>Op_Cycle</i>)	121.973	105.023	88.669	2,810
Trading Cycle (<i>Tr_Cycle</i>)	54.582	57.027	132.393	2,805
<i>Capex_CV</i>	0.638	0.572	0.349	2,983
<i>Capex_Std_Scaled</i>	0.055	0.031	0.090	2,985
Firm has a credit rating {0,1}	0.597	1.000	0.491	3,485
Credit rating (1=AAA, 2=AA+, ..., 22=D)	11.137	11.000	3.223	2,080
Speculative grade {0,1}	0.559	1.000	0.497	2,080

Table 2 Performance Measures in IC, FCC, and DCF Covenants

This table reports the "benchmark variables" (Panel A), "adjustment variables" (Panel B), cash features in the performance measures in interest coverage, fixed charge coverage, and debt to cash flow covenants (Panel C), and the definitions of the denominators of the FCC covenants (Panel D). Benchmark variables are the names of accounting variables *explicitly* used to define the numerators, such as EBIT, EBITDA, and so on. Adjustment variables are variables added to or subtracted from the benchmark variables in defining the performance measures. *C-Score* is the sum of dummies for adding depreciation and amortization expense, adding other non-cash expense, and subtracting non-cash income. All variables except *C-Score* are dummy variables.

Panel A Benchmark Variables for Performance Measures									
	IC Covenants			FCC Covenants			DCF Covenants		
	Mean	Std	N	Mean	Std	N	Mean	Std	N
EBITDA related ¹	0.733	0.442	1,335	0.804	0.397	1,303	0.934	0.248	1,991
EBITDA	0.646	0.481	1,335	0.590	0.492	1,303	0.776	0.417	1,991
EBIT related ²	0.184	0.387	1,335	0.067	0.249	1,303	0.000	0.000	1,991
EBIT	0.174	0.379	1,335	0.038	0.192	1,303	0.000	0.000	1,991
Cash flow related ³	0.061	0.239	1,335	0.077	0.266	1,303	0.061	0.239	1,991
Operating Cash Flow	0.041	0.206	1,335	0.039	0.194	1,303	0.035	0.184	1,991
Earnings related ⁴	0.017	0.130	1,335	0.051	0.219	1,303	0.005	0.071	1,991
Other ⁵	0.005	0.072	1,335	0.002	0.048	1,303	0.000	0.000	1,991

Panel B Adjustment Variables in Performance Measures									
	IC Covenants			FCC Covenants			DCF Covenants		
	Mean	Std	N	Mean	Std	N	Mean	Std	N
Plus rental and lease expense	0.013	0.115	1,335	0.166	0.372	1,303	0.010	0.097	1,991
Minus capital expenditure	0.033	0.179	1,335	0.304	0.460	1,303	0.001	0.032	1,991
Minus unfunded capital expenditure	0.000	0.000	1,335	0.028	0.164	1,303	0.001	0.032	1,991
Minus cash capital expenditure	0.000	0.000	1,335	0.016	0.126	1,303	0.000	0.000	1,991
Minus maintenance capital expenditure	0.002	0.047	1,335	0.018	0.132	1,303	0.000	0.000	1,991
Minus cash dividend and/or repurchase	0.003	0.055	1,335	0.045	0.207	1,303	0.002	0.045	1,991
Minus cash tax paid	0.004	0.067	1,335	0.157	0.364	1,303	0.000	0.000	1,991
Other	0.014	0.118	1,335	0.078	0.269	1,303	0.003	0.055	1,991

¹ EBITDA (the most frequent), EBITDAR, Adjusted EBITDA, etc.

² EBIT (the most frequent), EBITR, Adjusted EBIT, etc.

³ Operating Cash Flow (the most frequent), Cash Flow, Adjusted Cash Flow, etc.

⁴ Operating Income, Earnings Available for Fixed Charges, etc.

⁵ Benchmark variables that cannot be classified into the four groups above based on the name, e.g., Funds available for fixed charges.

Panel C Cash Features in Performance Measures									
	IC Covenants			FCC Covenants			DCF Covenants		
	Mean	Std	N	Mean	Std	N	Mean	Std	N
Plus depreciation and amortization	0.802	0.398	1,335	0.892	0.311	1,303	0.964	0.185	1,991
Plus other non-cash expense	0.337	0.473	1,335	0.365	0.482	1,303	0.368	0.482	1,991
Minus non-cash income	0.150	0.357	1,335	0.139	0.346	1,303	0.154	0.361	1,991
Plus other non-cash expense or minus non cash income	0.359	0.479	1,335	0.391	0.488	1,303	0.398	0.490	1,991
Minus capital expenditure (one of the following)	0.051	0.220	1,335	0.403	0.491	1,303	0.009	0.092	1,991
Minus capital expenditure	0.049	0.219	1,335	0.351	0.478	1,303	0.008	0.086	1,991
Minus unfunded capex	0.000	0.000	1,335	0.030	0.170	1,303	0.001	0.032	1,991
Minus cash capex	0.000	0.000	1,335	0.016	0.126	1,303	0.000	0.000	1,991
Minus maintenance capex	0.002	0.039	1,335	0.005	0.073	1,303	0.000	0.000	1,991
Minus cash dividend and/or repurchase	0.007	0.086	1,335	0.054	0.227	1,303	0.007	0.086	1,991
Minus cash tax paid	0.010	0.098	1,335	0.186	0.390	1,303	0.003	0.050	1,991
<i>C-Score</i>	1.289	0.909	1,335	1.396	0.808	1,303	1.486	0.709	1,991

Panel D Measurement of the Denominators of FCC Covenants			
	Mean	Std	N
(Cash) Interest expense	1.000	0.000	1,303
Debt principal payment	0.746	0.435	1,303
Rent/lease expense	0.478	0.500	1,303
Any capital expenditure (one of the following)	0.209	0.407	1,303
Capital expenditure	0.163	0.369	1,303
Unfunded capex	0.013	0.114	1,303
Cash capex	0.011	0.103	1,303
Maintenance capex	0.022	0.148	1,303
Cash dividend and/or repurchase	0.299	0.458	1,303
Tax related (one of the following)	0.325	0.469	1,303
Taxes paid	0.236	0.425	1,303
Taxes paid or payable	0.027	0.162	1,303
Tax expense	0.064	0.246	1,303
Other	0.010	0.300	1,303

Table 3 Correlation Matrixes for the Multivariate Analysis

This table presents correlation matrixes for the multivariate analysis. The whole sample consists of 3,485 private loan agreements for 1,826 borrowers from Nini, Smith, and Sufi [2009], which are collected from the SEC's Edgar electronic filing system over the period 1996-2005. Panel A reports correlations between *Ex_Non_Cash* and other variables for the IC, FCC, and DCF samples, and the correlations between *Plus_DA* and other variables for the IC, FCC, and DCF samples. Panel B reports the correlation matrix for variables in the whole sample. * and ** denote statistical significance at 1% and 5% levels, respectively. Variable definitions are in Appendix A.

Panel A Correlation Matrixes for the IC, FCC, and DCF samples					
	<i>Ex_Non_Cash</i>			<i>Plus_DA</i>	
	IC Sample	FCC Sample	DCF Sample	IC Sample	FCC Sample
<i>Ex_Non_Cash</i>				0.313**	0.198**
<i>Maturity</i>	0.173**	0.161**	0.139**	0.140**	0.127**
<i>Secured</i>	0.201**	0.112**	0.128**	0.166**	0.258**
<i>Cov_Intensity</i>	0.182**	0.109**	0.131**	0.152**	0.131**
<i>Interest</i>	0.207**	0.113**	0.116**	0.190**	0.247**
<i>Credit_Rating</i>	0.284**	0.230**	0.205**	0.242**	0.319**
<i>Agency_Cost</i>	0.246**	0.149**	0.163**	0.211**	0.288**
<i>Log_asset</i>	-0.049	0.056*	0.005	0.116**	-0.112**
<i>Market_to_Book</i>	-0.008	-0.025	-0.027	-0.115**	-0.039
<i>Leverage</i>	0.191**	0.130**	0.127**	0.234**	0.095**
<i>Profitability</i>	-0.077**	-0.084**	-0.071**	-0.146**	-0.092**
<i>Tangibility</i>	0.056*	0.061*	0.049*	0.079**	-0.054*
<i>Op_Cycle</i>	-0.059	-0.019	-0.002	-0.062*	-0.010
<i>Tr_Cycle</i>	-0.097**	-0.069*	-0.034	-0.114**	-0.031
<i>Capex_CV</i>	0.201**	0.093**	0.070**	0.083**	0.075*
<i>Capex_Std_Scaled</i>	0.114**	0.118**	0.090**	0.063*	0.004

(Table 2 Continued)

Panel B Correlation Matrix for the Whole Sample									
	<i>Maturity</i>	1	2	3	4	5	6	7	8
1. <i>Secured</i>	0.172**								
2. <i>Cov_Intensity</i>	0.287**	0.342**							
3. <i>Interest</i>	0.020	0.520**	0.195**						
4. <i>Credit_Rating</i>	0.279**	0.629**	0.442**	0.627**					
5. <i>Agency_Cost</i>	0.196**	0.855**	0.617**	0.782**	0.713**				
6. <i>Log_Asset</i>	-0.092**	-0.419**	-0.202**	-0.336**	-0.537**	-0.432**			
7. <i>Market_to_Book</i>	-0.030	-0.077**	-0.022	-0.108**	-0.164**	-0.095**	-0.101**		
8. <i>Leverage</i>	0.127**	0.139**	0.157**	0.164**	0.301**	0.200**	0.171**	-0.149**	
9. <i>Profitability</i>	0.073**	-0.198**	0.046**	-0.334**	-0.341**	-0.233**	0.117**	0.132**	-0.135**
10. <i>Tangibility</i>	0.021	-0.046**	-0.032	-0.010	0.008	-0.039	0.126**	-0.121**	0.258**
11. <i>Op_Cycle</i>	-0.041*	0.015	-0.005	0.026	-0.001	0.017	-0.159**	0.061**	-0.143**
12. <i>Tr_Cycle</i>	-0.004	-0.016	0.051**	-0.011	-0.025	0.005	-0.159**	0.019	-0.119**
13. <i>Capex_CV</i>	0.315**	0.249**	0.151**	0.194**	0.315**	0.264**	-0.272**	0.046*	0.062**
14. <i>Capex_Std_Scaled</i>	0.249**	0.143**	0.078**	0.109**	0.249**	0.147**	-0.164**	0.017	0.125**
	9	10	11	12	13				
10. <i>Tangibility</i>	-0.013								
11. <i>Op_Cycle</i>	-0.038*	-0.355**							
12. <i>Tr_Cycle</i>	0.037	-0.369**	0.447**						
13. <i>Capex_CV</i>	-0.067**	0.065**	0.061**	-0.063**					
14. <i>Capex_Std_Scaled</i>	-0.052**	0.456**	-0.072**	-0.279**	0.545**				

Table 4 The Probability of Excluding Long-Term Accruals: the IC Sample

This table presents the results of probit regressions for the likelihood of excluding long-term accruals in the numerators of interest coverage ratios in the IC sample. All regressions include year and industry indicator variables. Standard errors are clustered for each borrower in all specifications. The reported numbers are average marginal effects and p-values for testing zero marginal effects. Intercepts are not reported. *Agency_Cost* is the first principal component of interest spread, covenant intensity, and loan security. Other variable definitions are in Appendix A. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	Dependent variable: <i>Plus_DA</i>					
	1	2	3	4	5	6
<i>Maturity</i>	0.002*** (0.001)	0.002*** (0.002)	0.002*** (0.000)	0.002*** (0.002)	0.001** (0.027)	0.001** (0.023)
<i>Secured</i>	0.103*** (0.000)					
<i>Cov_Intensity</i>		0.018*** (0.000)				
<i>Interest</i>			0.001*** (0.000)			
<i>Credit rating</i>				0.019*** (0.010)		
<i>Agency_Cost</i>					0.084*** (0.001)	0.087*** (0.000)
<i>Log_Asset</i>	0.035*** (0.002)	0.028*** (0.008)	0.045*** (0.000)	0.019 (0.229)	0.046*** (0.001)	0.045*** (0.001)
<i>Market_to_Book</i>	-0.010 (0.431)	-0.013 (0.320)	-0.005 (0.698)	-0.022 (0.108)	-0.028* (0.097)	-0.026 (0.117)
<i>Leverage</i>	0.300*** (0.000)	0.308*** (0.000)	0.242*** (0.001)	0.102* (0.058)	0.264*** (0.001)	0.265*** (0.001)
<i>Profitability</i>	-0.298* (0.081)	-0.322* (0.077)	-0.121 (0.439)	0.085 (0.670)	-0.129 (0.447)	-0.124 (0.473)
<i>Tangibility</i>	-0.017 (0.778)	-0.036 (0.564)	0.003 (0.965)	-0.019 (0.755)	-0.014 (0.840)	-0.028 (0.707)
<i>Capex_CV</i>					0.067 (0.273)	
<i>Capex_Std_Scaled</i>						0.081 (0.700)
No. of Obs.	1,291	1,291	1,290	928	1,096	1,096
No. of Firms	793	793	793	521	682	682
R-square	14.8%	15.1%	17.1%	14.0%	16.7%	16.4%

Table 5 The Probability of Excluding Long-Term Accruals: the FCC Sample

This table presents the results of probit regressions for the likelihood of excluding long-term accruals in the numerators of fixed charges coverage ratios in the FCC sample. All regressions include year and industry indicator variables. Standard errors are clustered for each borrower in all specifications. The reported numbers are average marginal effects and p-values for testing zero marginal effects. Intercepts are not reported. *Agency_Cost* is the first principal component of interest spread, covenant intensity, and loan security. Other variable definitions are in Appendix A. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	Dependent variable: <i>Plus_DA</i>					
	1	2	3	4	5	6
<i>Maturity</i>	0.001*** (0.002)	0.001*** (0.000)	0.001*** (0.001)	0.001*** (0.009)	0.001** (0.015)	0.001** (0.015)
<i>Secured</i>	0.080*** (0.000)					
<i>Cov_Intensity</i>		0.009*** (0.000)				
<i>Interest</i>			0.001*** (0.000)			
<i>Credit_Rating</i>				0.009*** (0.001)		
<i>Agency_Cost</i>					0.051*** (0.000)	0.052*** (0.000)
<i>Log_Asset</i>	-0.016*** (0.010)	-0.023*** (0.000)	-0.008 (0.149)	-0.007 (0.203)	-0.011** (0.072)	-0.012* (0.066)
<i>Market_to_Book</i>	0.001 (0.771)	-0.000 (0.937)	0.003 (0.533)	0.004 (0.413)	0.003 (0.584)	0.003 (0.513)
<i>Leverage</i>	0.111*** (0.009)	0.112*** (0.006)	0.052 (0.145)	0.085** (0.014)	0.074* (0.085)	0.072* (0.095)
<i>Profitability</i>	-0.178*** (0.008)	-0.224*** (0.001)	-0.042 (0.443)	-0.122** (0.037)	-0.092 (0.127)	-0.093 (0.128)
<i>Tangibility</i>	-0.055 (0.133)	-0.061* (0.091)	-0.032 (0.268)	0.016 (0.548)	-0.012 (0.738)	-0.000 (0.992)
<i>Capex_CV</i>					0.001 (0.971)	
<i>Capex_Std_Scaled</i>						-0.089 (0.423)
No. of Obs.	1,216	1,216	1,216	577	1,030	1,030
No. of Firms	765	765	765	341	654	654
R-square	23.9%	22.9%	27.4%	36.7%	28.7%	28.8%

Table 6 The Probability of Excluding other Non-Cash Income Items: the IC Sample

This table presents the results of probit regressions for the likelihood of excluding non-cash income or expense (other than depreciation and amortization expense) in the numerators of interest coverage ratios in the IC sample. All regressions include year and industry indicator variables. Standard errors are clustered for each borrower in all specifications. The reported numbers are average marginal effects and p-values for testing zero marginal effects. Intercepts are not reported. *Agency_Cost* is the first principal component of interest spread, covenant intensity, and loan security. Other variable definitions are in Appendix A. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	Dependent variable: <i>Ex_Non_Cash</i>					
	1	2	3	4	5	6
<i>Maturity</i>	0.004*** (0.000)	0.004*** (0.000)	0.004*** (0.000)	0.004*** (0.000)	0.004*** (0.000)	0.004*** (0.000)
<i>Secured</i>	0.097** (0.015)					
<i>Cov_Intensity</i>		0.018*** (0.004)				
<i>Interest</i>			0.001*** (0.000)			
<i>Credit_Rating</i>				0.030*** (0.000)		
<i>Agency_Cost</i>					0.087*** (0.000)	0.086*** (0.000)
<i>Log_Asset</i>	-0.004 (0.766)	-0.008 (0.573)	0.001 (0.943)	-0.019 (0.415)	0.003 (0.811)	0.004 (0.798)
<i>Market_to_Book</i>	-0.018 (0.405)	-0.019 (0.369)	-0.008 (0.714)	-0.010 (0.718)	-0.011 (0.629)	-0.011 (0.628)
<i>Leverage</i>	0.148* (0.090)	0.146* (0.093)	0.112 (0.216)	0.015 (0.896)	0.095 (0.284)	0.095 (0.282)
<i>Profitability</i>	0.115 (0.557)	0.105 (0.584)	0.197 (0.349)	0.068 (0.833)	0.183 (0.361)	0.177 (0.378)
<i>Op_Cycle</i>					0.000 (0.728)	
<i>Tr_Cycle</i>						0.023 (0.958)
No. of Obs.	1,044	1,044	1,043	767	1,043	1,041
No. of Firms	642	642	642	439	642	640
R-square	10.7%	10.8%	11.9%	12.5%	11.8%	11.8%

Table 7 The Probability of Excluding other Non-Cash Income Items: the FCC Sample

This table presents the results of probit regressions for the likelihood of excluding non-cash income or expense (other than depreciation and amortization expense) in the numerators of fixed charges coverage ratios in the FCC sample. All regressions include year and industry indicator variables. Standard errors are clustered for each borrower in all specifications. The reported numbers are average marginal effects and p-values for testing zero marginal effects. Intercepts are not reported. *Agency_Cost* is the first principal component of interest spread, covenant intensity, and loan security. Other variable definitions are in Appendix A. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	Dependent variable: <i>Ex_Non_Cash</i>					
	1	2	3	4	5	6
<i>Maturity</i>	0.003*** (0.000)	0.003*** (0.000)	0.003*** (0.000)	0.004*** (0.002)	0.003*** (0.000)	0.003*** (0.001)
<i>Secured</i>	0.074** (0.047)					
<i>Cov_Intensity</i>		0.014** (0.018)				
<i>Interest</i>			0.0004** (0.018)			
<i>Credit_Rating</i>				0.032** (0.015)		
<i>Agency_Cost</i>					0.056*** (0.007)	0.056*** (0.006)
<i>Log_Asset</i>	0.012 (0.434)	0.007 (0.629)	0.012 (0.433)	0.005 (0.855)	0.019 (0.258)	0.017 (0.297)
<i>Market_to_Book</i>	0.007 (0.636)	0.004 (0.759)	0.008 (0.591)	0.015 (0.550)	0.015 (0.401)	0.015 (0.414)
<i>Leverage</i>	0.170* (0.051)	0.170* (0.053)	0.163* (0.060)	0.218* (0.060)	0.106 (0.243)	0.101 (0.264)
<i>Profitability</i>	-0.219 (0.169)	-0.238 (0.136)	-0.158 (0.323)	0.106 (0.651)	-0.185 (0.294)	-0.185 (0.292)
<i>Op_Cycle</i>					0.000 (0.534)	
<i>Tr_Cycle</i>						-0.000 (0.913)
No. of Obs.	1,269	1,269	1,269	648	1,023	1,023
No. of Firms	797	797	797	382	644	644
R-square	6.9%	7.0%	7.1%	13.0%	7.4%	7.4%

Table 8 The Probability of Excluding other Non-Cash Income Items: the DCF Sample

This table presents the results of probit regressions for the likelihood of excluding non-cash income or expense (other than depreciation and amortization expense) in the denominators of debt to cash flow ratios in the DCF sample. All regressions include year and industry indicator variables. Standard errors are clustered for each borrower in all specifications. The reported numbers are average marginal effects and p-values for testing zero marginal effects. Intercepts are not reported. *Agency_Cost* is the first principal component of interest spread, covenant intensity, and loan security. Other variable definitions are in Appendix A. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	Dependent variable: <i>Ex_Non_Cash</i>					
	1	2	3	4	5	6
<i>Maturity</i>	0.002*** (0.005)	0.002*** (0.003)	0.003*** (0.000)	0.004*** (0.000)	0.003*** (0.000)	0.003** (0.013)
<i>Secured</i>	0.087*** (0.003)					
<i>Cov_Intensity</i>		0.018*** (0.000)				
<i>Interest</i>			0.0004*** (0.001)			
<i>Credit_Rating</i>				0.026*** (0.009)		
<i>Agency_Cost</i>					0.065*** (0.000)	0.066*** (0.000)
<i>Log_Asset</i>	-0.004 (0.751)	-0.007 (0.526)	-0.004 (0.759)	-0.015 (0.464)	0.003 (0.813)	0.003 (0.835)
<i>Market_to_Book</i>	0.007 (0.575)	0.005 (0.700)	0.008 (0.539)	0.022 (0.308)	0.005 (0.724)	0.006 (0.697)
<i>Leverage</i>	0.204*** (0.004)	0.206*** (0.004)	0.194*** (0.007)	0.094 (0.303)	0.081 (0.303)	0.073 (0.354)
<i>Profitability</i>	-0.185 (0.172)	-0.170 (0.210)	-0.115 (0.397)	0.073 (0.716)	-0.115 (0.445)	-0.123 (0.418)
<i>Op_Cycle</i>					0.000 (0.198)	
<i>Tr_Cycle</i>						0.000 (0.721)
No. of Obs.	1,931	1,931	1,931	1,098	1,509	1,509
No. of Firms	1,147	1,147	1,147	599	907	907
R-square	4.8%	5.1%	5.0%	8.2%	5.2%	5.1%

Table 9 The Probability of Excluding other Non-Cash Expense and Non-Cash Income

This table presents the results of probit regressions for the likelihood of other non-cash expense (Panel A) and non-cash income (Panel B) in the performance measures of IC, FCC, and DCF covenants. All regressions include year and industry indicator variables. Standard errors are clustered for each borrower in all specifications. The reported numbers are average marginal effects and p-values for testing zero marginal effects. Intercepts are not reported. *Agency_Cost* is the first principal component of interest spread, covenant intensity, and loan security. Other variable definitions are in Appendix A. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	Exclude other Non-Cash Expense					
	IC Sample		FCC Sample		DCF Sample	
	1	2	3	4	5	6
<i>Maturity</i>	0.003*** (0.000)	0.003*** (0.000)	0.004*** (0.000)	0.004*** (0.004)	0.003*** (0.000)	0.003* ** (0.007)
<i>Agency_Cost</i>	0.082*** (0.000)	0.082*** (0.000)	0.043** (0.032)	0.044** (0.029)	0.050*** (0.003)	0.051*** (0.002)
<i>Log_Asset</i>	0.005 (0.701)	0.006 (0.715)	0.023 (0.155)	0.021 (0.189)	0.005 (0.711)	0.003 (0.785)
<i>Market_to_Book</i>	-0.016 (0.466)	-0.016 (0.464)	0.007 (0.696)	0.006 (0.719)	-0.003 (0.860)	-0.002 (0.877)
<i>Leverage</i>	0.068 (0.432)	0.068 (0.435)	0.084 (0.336)	0.079 (0.366)	0.079 (0.304)	0.071 (0.354)
<i>Profitability</i>	0.155 (0.420)	0.148 (0.443)	-0.253 (0.137)	-0.253 (0.135)	-0.201 (0.177)	-0.204 (0.169)
<i>Op_Cycle</i>	0.000 (0.503)		0.000 (0.597)		0.000 (0.331)	
<i>Tr_Cycle</i>		0.021 (0.960)		-0.000 (0.787)		-0.000 (0.876)
No. of Obs.	1,043	1,041	1,023	1,023	1,509	1,509
No. of Firms	642	640	644	644	907	907
R-square	12.1%	12.1%	7.1%	7.1%	5.4%	5.3%

Panel B The Probability of Excluding Non-Cash Income

	Exclude Non-Cash Income					
	IC Sample		FCC Sample		DCF Sample	
	1	2	3	4	5	6
<i>Maturity</i>	0.001** (0.039)	0.001** (0.034)	0.001 (0.196)	0.001 (0.197)	0.001* (0.067)	0.001* (0.070)
<i>Agency_Cost</i>	0.045*** (0.001)	0.044*** (0.002)	0.033*** (0.008)	0.033*** (0.008)	0.040*** (0.001)	0.040*** (0.001)
<i>Log_Asset</i>	-0.009 (0.300)	-0.010 (0.278)	-0.001 (0.951)	-0.002 (0.881)	0.000 (0.950)	0.000 (0.947)
<i>Market_to_Book</i>	0.004 (0.742)	0.004 (0.753)	0.014 (0.155)	0.014 (0.161)	0.007 (0.474)	0.007 (0.456)
<i>Leverage</i>	0.010 (0.832)	0.011 (0.818)	0.010 (0.827)	0.007 (0.872)	-0.020 (0.670)	-0.022 (0.646)
<i>Profitability</i>	0.143 (0.204)	0.152 (0.175)	-0.002 (0.988)	-0.001 (0.990)	0.054 (0.634)	0.052 (0.648)
<i>Op_Cycle</i>	0.000 (0.823)		0.000 (0.907)		0.000 (0.490)	
<i>Tr_Cycle</i>		-0.000 (0.291)		-0.000 (0.646)		0.000 (0.742)
No. of Obs.	1,043	1,041	1,023	1,023	1,509	1,509
No. of Firms	642	640	644	644	907	907
R-square	11.2%	11.4%	6.1%	6.2%	5.8%	5.8%

Table 10 The Effects of Reputational Capital

This table presents the results of probit regressions for the effects of reputational capital on the use of long-term accruals and other non-cash income items in the measurement of IC, FCC, and DCF covenants. Reputational capital is measured with the number of repeated relationship (*Relationship*) with the lead arranger(s) within five years before the loan agreement date. All regressions include year and industry indicator variables. Standard errors are clustered for each borrower in all specifications. The reported numbers are average marginal effects and p-values for testing zero marginal effects. Intercepts are not reported. *Agency_Cost* is the first principal component of interest spread, covenant intensity, and loan security. Other variable definitions are in Appendix A. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	Exclude other Non-Cash Income Items						Exclude Long-Term Accruals			
	IC Sample		FCC Sample		DCF Sample		IC Sample		FCC Sample	
	1	2	3	4	5	6	7	8	9	10
<i>Relationship</i>	-0.031** (0.018)	-0.029** (0.043)	-0.039** (0.014)	-0.035* (0.095)	-0.026** (0.025)	-0.025* (0.076)	-0.017** (0.041)	-0.011* (0.089)	-0.000 (0.952)	-0.004 (0.466)
<i>Maturity</i>	0.003*** (0.001)	0.003*** (0.004)	0.003*** (0.003)	0.004*** (0.005)	0.002*** (0.002)	0.004*** (0.000)	0.002*** (0.004)	0.002*** (0.002)	0.000** (0.026)	0.001** (0.023)
<i>Agency_Cost</i>	0.093*** (0.000)		0.058*** (0.003)		0.068*** (0.000)		0.085*** (0.000)		0.045*** (0.000)	
<i>Credit_Rating</i>		0.033*** (0.001)		0.031** (0.020)		0.028*** (0.006)		0.018** (0.012)		0.010*** (0.000)
<i>Log_Asset</i>	0.010 (0.491)	-0.014 (0.545)	0.024 (0.135)	0.006 (0.840)	0.008 (0.528)	-0.008 (0.702)	0.047*** (0.000)	0.021 (0.204)	-0.011* (0.064)	-0.006 (0.274)
<i>Market_to_Book</i>	0.007 (0.713)	0.012 (0.634)	0.008 (0.592)	0.011 (0.679)	0.009 (0.505)	0.019 (0.394)	-0.007 (0.613)	-0.019 (0.164)	0.002 (0.687)	0.005 (0.316)
<i>Leverage</i>	0.253*** (0.004)	0.110 (0.313)	0.166** (0.060)	0.232** (0.046)	0.187** (0.011)	0.114 (0.220)	0.250*** (0.001)	0.092* (0.091)	0.067* (0.091)	0.082** (0.013)
<i>Profitability</i>	0.114 (0.594)	0.197 (0.544)	-0.159 (0.330)	0.099 (0.673)	-0.074 (0.594)	0.162 (0.452)	-0.159 (0.398)	0.070 (0.737)	-0.120* (0.052)	-0.121** (0.037)
<i>Tangibility</i>							-0.012 (0.846)	-0.015 (0.796)	-0.049 (0.149)	0.017 (0.524)
No. of Obs.	1,259	911	1,219	633	1,862	1,075	1,256	910	1,168	564
No. of Firms	776	514	771	376	1,110	588	774	513	740	337
R-square	11.4%	11.9%	7.8%	13.3%	5.7%	8.7%	16.5%	14.4%	26.3%	35.6%

Table 11 Cross-Sectional Variation of C-Score

This table presents the results of OLS regressions for the cross-sectional variation of *C-Score*. *C-Score* is the sum of dummies for adding depreciation and amortization expense, adding other non-cash expense, and subtracting non-cash income. All regressions include year and industry indicator variables. Standard errors are clustered for each borrower in all specifications. The reported numbers are estimated coefficients and p-values for testing zero marginal effects. *Agency_Cost* is the first principal component of interest spread, covenant intensity, and loan security. Other variable definitions are in Appendix A. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	<i>C-Score</i>					
	IC Sample		FCC Sample		DCF Sample	
	1	2	3	4	5	6
<i>Relationship</i>	-0.067*** (0.001)	-0.059*** (0.004)	-0.046** (0.033)	-0.045 (0.133)	-0.049*** (0.001)	-0.053*** (0.002)
<i>Maturity</i>	0.004** (0.002)	0.005*** (0.003)	0.005*** (0.000)	0.006*** (0.001)	0.002** (0.021)	0.004*** (0.009)
<i>Agency_Cost</i>	0.222*** (0.000)		0.146*** (0.000)		0.085*** (0.000)	
<i>Credit_Rating</i>		0.067*** (0.000)		0.063*** (0.000)		0.033** (0.014)
<i>Log_Asset</i>	0.059** (0.013)	-0.006 (0.885)	-0.011 (0.630)	-0.014 (0.708)	-0.008 (0.647)	-0.018 (0.509)
<i>Market_to_Book</i>	0.020 (0.599)	0.011 (0.824)	0.018 (0.456)	0.026 (0.575)	0.014 (0.491)	0.031 (0.356)
<i>Leverage</i>	0.507*** (0.000)	0.179 (0.268)	0.237* (0.065)	0.270* (0.076)	0.172* (0.098)	0.049 (0.701)
<i>Profitability</i>	-0.123 (0.745)	0.268 (0.630)	-0.278 (0.273)	-0.027 (0.945)	-0.169 (0.429)	-0.017 (0.961)
<i>Tangibility</i>	-0.021 (0.894)	-0.174 (0.342)	-0.126 (0.339)	-0.205*** (0.236)	0.008 (0.941)	-0.160 (0.268)
No. of Obs.	1,256	910	1,219	633	1,860	1,075
No. of Firms	774	513	771	376	1,110	588
R-square	18.3%	17.5%	15.4%	22.1%	5.9%	8.6%