CASH FLOW MANAGEMENT AND THE COST OF DEBT

by

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A Dissertation Submitted to the Faculty of the

COMMITTEE ON BUSINESS ADMINISTRATION

In Partial Fulfillment of the Requirements
For the Degree of

DOCTOR OF PHILOSOPHY
WITH A MAJOR IN MANAGEMENT

In the Graduate College

THE UNIVERSITY OF ARIZONA

2007

THE UNIVERSITY OF ARIZONA
GRADUATE COLLEGE

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ACKNOWLEDGMENTS

I appreciate the helpful comments and time provided by my dissertation committee: I am grateful for the guidance and many helpful suggestions I have received from my dissertation committee: Dan S. Dhaliwal (chair), Mark A. Trombley and Bill C. Schwartz. I also thank Leslie Eldenburg, Lance Fisher, Ted Goodman, Shane Heitzman, Kristian Mortenson, Rohit Singh, and Kevin Smith for their help and suggestions.

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ABSTRACT

I decompose operating cash flow into two components, unmanaged operating cash flow and managed operating cash flow, to examine the association between managed operating cash flow and the cost of debt. For all firms the results suggest the cost of debt has a significant negative association with both components of operating cash flow, however, the managed component is less negative. Also, when firms are likely to engage in cash flow management and bondholders have increased incentives to scrutinize firm information, the bond market positively prices managed operating cash flow information. Specifically, my findings report a positive association between managed operating cash flows and the cost of debt when firms use cash flow management to meet the zero operating cash flow benchmark. Also, I find a more pronounced positive association between managed operating cash flows for a group of distressed firms.

1. INTRODUCTION

Although reputed as a measure free from managerial influence, recent evidence suggests cash flows are not immune to manipulation (e.g., Zhang 2006; Roychowdhury 2005; Frankel 2005; Hardiman 2005; Henry 2004). This paper examines transactions that impact operating cash flows, and the extent to which cash flow management is priced in the bond market. Documenting the importance of cash flow information, Defond and Hung (2003) find a 14 percent increase in the number of cash flow forecasts from 1993 to 1999.[1] This suggests that cash flow information is gaining market attention, providing managers with increased incentives to meet or beat cash flow targets. Literature shows firms engage in earnings management and are rewarded for achieving benchmarks such as meeting forecasts, avoiding losses and increasing earnings. (Frankel 2005; Bartov, Givoly and Hayn 2002; Park and Matsunaga 2001). More emphasis on cash flows lead to increased managerial incentives to meet or beat cash flow targets and thus, increases the likelihood that cash flows are affected by deliberate manipulation.

This study examines two research questions. First, what is the impact of operating cash flow management on the cost of debt? Second, what is the impact of operating cash flow management on the cost of debt when firms have incentives to manage operating cash flows? I predict the managed operating cash flow will be correctly priced when it is 1) easier to detect and 2) when bondholders are highly motivated to scrutinize operating cash flow information. Specifically, I predict easier detection of cash flow management by bondholders when the managed component of

[1] The 14 percent increase is for firms that also have earnings forecasts.

operating cash flows is used to meet operating cash flow benchmarks. Also, bondholders will be motivated to scrutinize the components of operating cash flow management when firms are in financial distress. That is, the components of operating cash flow may have a greater role in determining borrowing costs when the firm's financial condition is relatively weak.

Anecdotal evidence suggests cash flow information is priced in the bond market. Numerous articles cite cash flow levels as explanatory reasons for a particular change in bond rating. For example, in 2005, "S&P's Ms. Mary Lou Burde said that given the top three supermarket operators' huge cash flow, S&P doesn't 'see these (companies) going below investment grade" (WSJ, 2005). If managers deliberately classify operating cash flow transactions inconsistent with underlying operations, the quality of financial statement information is reduced, thus reducing its usefulness to creditors. Francis, LaFond, Olsson and Schipper (2005) define information risk as firm specific information that investors use in pricing decisions. They find that information risk proxied by low accrual quality is associated with larger costs of debt and equity. The information risk associated with operating cash flows increases to the extent that cash flow management is present. If the operating cash flow information is of lower quality, there is greater information risk and the firm will incur a higher cost of debt. Prior research on cost of debt shows a negative relationship with profitability measures such as ROA, cash flows or EBIT, suggesting the stronger a firm's profitability, the lower the cost of debt (e.g., Anderson et al. 2004; Mansi et al. 2004; Pittman & Fortan 2004; Shi 2003; Minton and

Schrand 1999). I test whether an increase in the information risk associated with managed operating cash flows is reflected in the cost of debt.

Between 1994 and 2004, I examine two samples, a full sample of 1,523 observations and an EPS forecast sample of 455 observations. The two components of operating cash flows are negative and significant for the full sample with the managed component of operating cash flows having a less negative association than the unmanaged component. When firms are likely to engage in cash flow management and bondholders have increased incentives to scrutinize firm information, I provide some evidence that the bond market does detect and price operating cash flow information. Specifically, I argue it is relatively easy for the bond market to detect and price cash flow management when firms are in financial distress or use cash flow management to meet benchmarks. My findings report a positive association between managed operating cash flows and the cost of debt when firms use cash flow management to meet the zero operating cash flow benchmark. Also, I find a positive and significant association with managed operating cash flows when firms have losses, low cash flow and low earnings levels when I partition the sample into the low Z score group used as a proxy for distressed firms. This suggests bondholders are more likely to detect and price the components of operating cash flow when firms are in financial distress.

This study may be relevant to creditors, policy makers, and academic researchers for three reasons. First, my results suggest managed operating cash flow has different bond pricing implications for different firms. Depending on the level of financial distress or default risk, creditors value management of operating cash flows differently. Second,

my study is informative for policy makers because flexibility in current generally accepted accounting principles GAAP allows for the operating section of the statement of cash flows to contain non-operating transactions that may mislead creditors regarding operating cash flow performance. If transactions reported under the operating section of the statement of cash flows do not result from operations, the economic substance may be misrepresented. Poor quality cash flow information may limit financial statement users' ability to evaluate a firm's performance, inconsistent with the Financial Accounting Standards Board FASB emphasis on more transparent financial statements. In a 2005 'Speech by SEC Staff', concerns were raised about discretionary classification of finance subsidiary activities resulting in an artificial increase in operating cash flows. Ultimately the SEC ruled this treatment was inappropriate (Hardiman 2005).[2] The SEC concern warrants examination of the use of other non-operating transactions, and its impact on the transparency of financial statement information. Third, while most prior research focuses on the impact of earnings management, I add to the small body of literature on cash flow management. My results provide evidence of managed operating cash flows and bond pricing implications.

The remainder of this paper is organized as follows. Section two discusses the prior literature and develops the hypotheses. Section three describes the sample and methodology. Section four presents results, section five discusses robustness tests and limitations and section six concludes.

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[2] This study covers 1996-2004, the treatment was ruled inappropriate in 2005, therefore the transaction is still present for my sample.

2. BACKGROUND AND HYPOTHESES DEVELOPMENT

2.1 Background on cash flow adjustments

Managers have numerous transactions available to engage in operating cash flow management. Current operating cash flow is cash available from normal recurring operating activities of a business (Hartman et al. 2004). However, under generally accepted accounting principles firms may include several transactions in the operating section of the statement of cash flows that do not result from normal operations. Business Week outlines four examples of specific transactions related to financing and investing decisions but reported under operating cash flows (Henry, 2004). The transactions include: working capital changes, factoring accounts receivable, purchases and sales of securities classified as trading, and establishing and using finance subsidiaries. Under GAAP all four of these transactions may be reported in the operating section of the statement of cash flows. Managers may engage in these activities and/or deliberately time the transactions to manage operating cash flow. Manipulation of these transactions leads to abnormal or unsustainable operating cash flows.

This section explains how the four examples above deviate from the normal operations of a firm. First, examples of changes in working capital include selling off inventory, reducing the collection period on accounts receivable, and delaying payments to suppliers. Decreases in working capital translate into increases in operating cash flows. For example, when inventory is sold off or accounts receivables are collected faster, the decrease in the two asset accounts is reported as a cash inflow and increases operating cash flows. Similarly when accounts payable remains elevated, due to delayed

payments to suppliers, firms report smaller cash outflows resulting in larger net operating cash flows.[3] Hence, deliberate timing of transactions that affect working capital accounts also manipulates reported operating cash flows.

Second, firms sell accounts receivable when they need cash sooner than the collection period allows (Hartman et al. 1998). In the short term, accounts receivable factorization provides companies with a large increase in cash; however, the accounts receivable are usually sold at a small discount. This is a financing activity and most often is not a recurring transaction of normal operations, yet it may be reported in the operating section of the statement of cash flows.

Third, trading securities are investments not related to operations yet are reported under the operating section of the statement of cash flows. Firms are able to manipulate the timing of trading securities activity to increase operating cash flows. Securities are separated into three classifications: held to maturity, available for sale, or trading. Cash flows related to trading securities are reported in the operating section of the statement of cash flows while available-for-sale and held-to-maturity securities are reported in the investing section of the statement of cash flows. Manipulation of this classification can occur in the following scenario: Firms have excess cash and build up a reserve in trading securities through purchases. Later, with deliberate timing, the firm sells off the securities when operating cash flow needs improvement. Although this event is reported

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[3] Working capital decreases can also be illustrated via the direct method of the statement of cash flows: Cash flows from operations are cash receipts from customers less cash payments to various entities including suppliers. The larger the cash to suppliers, the smaller the operating cash flow following the formula that operating cash flow = receipts less payments. Therefore firms want cash paid to suppliers as low as possible and delaying payments reduces the outflow of cash.

in the operating section of the statement of cash flows, the cash flows do not come from operations. An alternative manipulation is when firms purchase securities as available-for-sale, classified as investing cash flows, and then reclassify them to trading securities to sell them and increase operating cash flows.

Finally, finance subsidiaries are wholly owned subsidiaries that finance the parent company's accounts receivable. Use of finance subsidiaries can create positive operating cash flows on the consolidated statement. The subsidiary loans money to customers of the parent, which increases sales and thus increases operating cash flow on the consolidated statement. However, the loan that financed the receivables is reported in the investing section of the consolidated statement of cash flows. This treatment results in a boost to operating cash flow from a financing activity.

When firms engage in purposeful transactions to manipulate operating cash flow, the reported financial statements do not accurately convey true periodic cash from operations. Manipulation of these transactions produces abnormal and unsustainable operating cash flows. Sustainable operating cash flow is defined as "recurring cash derived from a company's profitable operations" (Mulford 2005). The four transactions described result in unsustainable operating cash flows. To better illustrate why a working capital change is unsustainable I include an example from Home Depot. Between 2001 and 2002, Home Depot delayed its payments to vendors by 12 days, resulting in a $1.1 billion increase in operating cash flows. Between 2002 and 2003, Home Depot further increased payment time by seven more days, resulting in an $800 million increase in operating cash flows (Mulford 2005). The cash flows related to these increases cannot be

repeated in subsequent years because vendors will not allow infinite payment delays. Such artificial increases to operating cash flows are likely unsustainable.

2.2 Cash flow management

Cash flow management achieves two goals. First, firms can manipulate operating cash flow to achieve *earnings* targets and second, firms may manipulate operating cash flows to achieve *cash flow* targets. Regardless of the reason, manipulation of operating cash flows impacts the quality of reported financial information. Roychowdhury (2005) finds that firms manipulate operating cash flows through operational activities, such as price discounts, sales increases and overproduction to lower cost of goods sold, in order to report small profits and positive earnings changes. This finding is consistent with firms engaging in cash flow manipulation to achieve earnings targets such as avoiding losses and reporting positive earnings. Similarly, Burgstahler and Dichev (1997) decompose earnings into cash flow from operations, change in working capital and other accruals and find firms are manipulating cash flows from operations to transform small losses into small positive earnings. Again, this is consistent with firms manipulating operating cash flows to achieve earnings targets.

Providing evidence that firms try to meet cash flow targets, Frankel (2005) examines working capital reductions that increase operating cash flows. Specifically, decreases in current assets and increases in current liabilities result in an increase to operating cash flows. He finds a significant fourth quarter reduction in working capital and that managers attempt to exceed operating cash flow benchmarks. That is, managers

are orchestrating decreases in working capital to achieve cash flow targets. Further, he demonstrates a contracting incentive to engage in manipulation by showing that cash flow management is more prevalent in firms where 'working capital' wording is found in executive compensation contracts. This provides specific evidence that managers are rewarded for meeting working capital or operating cash flow targets. This paper contributes to the evidence on managers' incentive to manipulate operating cash flows for bond pricing rewards. Zhang (2006) also provides evidence of firms engaging in operating cash flow management to achieve targets such as positive operating cash flows, meeting forecasts and cash-dividend targets. Consistent with prior literature on operating cash flows, she finds the abnormal cash flow component has lower persistence. This is consistent with operating cash flow management producing unsustainable lower quality financial information.

As discussed, prior research often focuses on cash flow manipulation to achieve earnings targets. As a result, a reader may question if the operating cash flow management I examine in this paper is just used to hit earnings targets and not used to hit operating cash flow targets. I argue operating cash flow management doesn't always result in a one direction impact to earnings. For example, Roychowdury examines activities to increase earnings including discounts on sales, overproduction and reduced discretionary expenses. However these activities do not result in consistent directional movement of operating cash flows and earnings. All three likely increase earnings but sales discounts and overproduction lead to lower operating cash flow, while reduction of discretionary expenses increase operating cash flow.

The four examples I discuss in section 2.1 also have different operating cash flow and earnings implications. Decreases in working capital may or may not increase earnings. Both delayed vendor payments and quicker accounts receivable collection have no impact on earnings as the payable or receivable is previously recorded with the purchase or sale. When a firm factors accounts receivable, the sale is previously recorded and only the cash inflow, lowering of accounts receivable, and possibly a loss on the sale is recorded. Only the loss may reduce earnings. When trading securities are sold only the unadjusted gain or loss impacts earnings, as the unrealized gains and losses are continuously recorded in earnings. Finally, finance subsidiaries may increase sales and thus earnings via ease of financing to customers. Overall, there is no direct relationship that shows all the discussed transactions that may increase operating cash flow directly increase earnings. Therefore, I argue firms do not use operating cash flow management solely to increase earnings.

2.3 Cash flow management and the cost of debt

Given the level of discretion associated with accruals, creditors may rely more on operating cash flow information, thought to be less subjective than accruals, for an unbiased assessment of a firm's performance. Cash flow information is useful to the bond market because creditors use financial statements to predict the amounts, timing, and uncertainties of future cash flows (Statement of Financial Accounting Concept No. 1). Bhojraj (2003) finds bonds of firms with high levels of accruals underperform bonds of firms with lower accruals. Assuming high accruals are accompanied by low cash

flows, this implies bonds of firms with higher cash flows relative to accruals require lower market yields. Prior literature has documented a significant negative relationship between cash flows and various measures of the cost of debt (Pittman, 2004; Minton and Schrand, 1999; Anderson, 2004). That is, higher cash flows are associated with lower cost of debt.

I extend this stream of literature by decomposing operating cash flows into normal or unmanaged operating cash flows (NOCF), and abnormal or managed operating cash flow (ABNOCF). By analyzing the two components of operating cash flow I can examine how the bond market prices 1) unmanaged cash flows associated with actual operations and 2) managed cash flow that is likely due to strategic choice by firm management. Similar to Healy and Wahlen's (1999) definition of earnings management, I define cash flow management as managers' judgment and choice of transactions to alter financial reporting either to mislead external users or to produce positive outcomes in response to compensation contracts. The association between the cost of debt and managed operating cash flow provides insight regarding the bond markets' relative efficiency in processing operating cash flow information.

2.3.1 Managed and unmanaged operating cash flow outcomes

There are several possible explanations for the association between managed operating cash flows and cost of debt. First, if there is a negative association of similar magnitude for both the unmanaged and managed components of operating cash flows and

the cost of debt, this suggests the market is not efficient and does not distinguish between the managed and unmanaged components of operating cash flows.[4]

Second, if both components of operating cash flow are negatively associated with the cost of debt, but the managed component has a stronger negative association than the unmanaged component; bondholders are interpreting a positive signal.[5] For example, if a manager has knowledge that future cash flows are likely to increase, the manager's decisions currently depend on this knowledge. The market may infer this knowledge from the observed decision. Managers are likely rewarded for reducing information asymmetry and uncertainty, thus incurring a lower cost of debt.

Third, if the managed component of operating cash flow is either less negatively associated with cost of debt than the unmanaged component or not associated with cost of debt at all, the bond market is placing less or no weight on the managed cash flow information. Such pricing implies the market is relatively efficient in processing cash flow information by lowering the weight of or discarding the information in the managed component, and thus relying largely on the unmanaged operating cash flows.

Lastly, if the managed component of operating cash flows has a positive association with the cost of debt, the market is relatively efficient and assesses a penalty for managing operating cash flows. The managed component of operating cash flows may be interpreted as a signal regarding the quality of all cash flow information, or even a signal regarding total firm information risk and uncertainty. The bond market may

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[4] I acknowledge the joint hypothesis problem that the market may identify the managed component of operating cash flows but choose not to price the information differently from the unmanaged component.

[5] This scenario is unlikely due to the smaller magnitude of ABNOCF compared to NOCF.

penalize the firm with an increase in the cost of debt via a positive association with the managed component of cash flows and/or a less negative association between the unmanaged component and cost of debt. Given the increase in the cost of debt associated with either the managed or unmanaged components of operating cash flows, the firm would have been better off without engaging in cash flow management.

The above alternatives imply either a positive, negative or zero association between the cost of debt and managed operating cash flows. Accordingly, H1 stated in null form is:

H1: Managed operating cash flows have no association with the cost of debt.

2.3.2 When firms have incentives to manage operating cash flows

Typically regulators and financial statement users are more concerned with misleading or aggressive applications of GAAP than conservative applications. Specifically, they are concerned about firms overstating performance. Therefore, the following discussion focuses on two circumstances when firms have incentives to manage operating cash flows and where an efficient market is likely to detect and assess a penalty for the behavior.

The most obvious case of cash flow management occurs when cash flows are managed to achieve operating cash flow benchmarks. Firms opportunistically meet a cash flow benchmark when the firm would have missed the benchmark without the use of the managed component of operating cash flow. This is a situation where the bond market is most likely to detect and price the components of operating cash flow. This

implies a different association between cost of debt and managed cash flows for these firms versus firms that easily achieve or clearly miss the cash flow targets. Cash flow management solely to achieve cash flow targets likely tied to management compensation may elicit more severe bondholder scrutiny.[6]

Second, when firms are in financial distress, cash flow information may become more important to the bond market because the firm is closer to default. Bondholder scrutiny is likely to increase as bondholder risk increases. That is, bondholders have greater incentives to correctly detect and price financial information when a firm is at greater risk of default. Cash flow management reflects managers' choices that may result in unsustainable operating cash flows and may mislead investors. This is consistent with Zhang's (2006) finding that the abnormal component of operating cash flows has less persistence. In this situation bondholders are highly motivated to identify operating cash flow management. A manager's attempt to mislead investors should be viewed as a negative signal regarding the firm. As a result, the bond market can assess a penalty in the form of a higher cost of debt. In summary, when firms opportunistically meet operating cash flow benchmarks or are in financial distress, the bond market is more likely to detect the quality of the components of operating cash flow and correctly price the information.

H2: Managed operating cash flows have an incremental positive association with the cost of debt when firms have incentives to manage operating cash flows.

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[6] I do not specifically measure bondholder scrutiny levels in this paper, except as proxied by cash flow information priced in the cost of debt.

2.3.3 Managed operating cash flow predictions conditioned on opportunistically meeting benchmarks

There are several studies that suggest managers have incentives to meet benchmarks (e.g.Burgstahler and Dichev, 1997; Bartov et al., 2002; Park and Matsunaga, 2001). For example, firms that beat analysts' forecasts have higher abnormal returns than firms missing analysts' forecasts (Bartov et al., 2002). Similarly, firms that repeatedly exceed the benchmark of previous years earnings have higher price-to-earnings multiples (Barth et al., 1999). Jiang (2005) provides evidence that firms who beat earnings benchmarks incur a lower cost of debt. In all, the literature supports that meeting benchmarks is positive for a firm, implying that investors and creditors price whether a firm meets benchmarks. I predict the bond market has incentives to detect when cash flow management was used to achieve the benchmarks. If a manager's choice to manipulate operating cash flow results in unsustainable operating cash flows, this has negative implications for future performance and if bondholders detect this, the information should be negatively priced.

I examine three well-established benchmarks; zero operating cash flow target, prior year operating cash flow target and analysts' operating cash flow forecast. Using these benchmarks for operating cash flows, I attempt to isolate firms that have a high probability of engaging in cash flow management by identifying firms that would have missed their cash flow targets without managing operating cash flows. That is, normal operating cash flows (NOCF) would have missed the target but total operating cash flows did meet the target. The managed component of operating cash flow is likely due to a manipulation of accounting rules or a result of a transaction involving low quality

operating cash flows. Therefore, if bondholders detect the low quality cash flows, I predict firms will be penalized for opportunistically meeting benchmarks.

H2i: Managed operating cash flow has an incremental positive association with the cost of debt when firms opportunistically meet a benchmark.

2.3.4 Managed operating cash flow predictions for firms in financial distress

Firms in financial distress are closer to default and thus incur higher costs of debt. Financial distress can be indicated by losses, low levels of cash flows, or low levels of earnings. Alternative measures of financial distress include the Altman Z score and a firm's credit rating. Hayn (1995) suggests loss firms are valued differently and have a lower earnings return relation, and concludes that losses provide less information than profits about a firm's future. Both the poor performance and increased uncertainty embedded in losses suggest loss firms have a higher default risk.

Minton and Schrand (1999) find a positive association between quarterly operating cash flow volatility and various proxies for external financing costs, including the cost of debt. This suggests that firms with more volatile cash flows incur a higher cost of debt.[7] They show firms with low levels of operating cash flows have high cash flow variability.[8] This suggests that both the volatility of the cash flows and the interaction between cash flow levels and cash flow volatility may be important to investors. The importance of cash flow levels is also shown in Ali (1994) where small cash flow

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[7] Volatility is defined as the coefficient of variation for 24 quarters, or the standard deviation of operating cash flow/ |mean|.

[8] Minton and Schrand (1999) "For firms that have cash flows that are in the lowest three deciles when compared to firms in their respectively two digit SIC code (LO), the average cash flow variation is 6.574, compared to cash flow variation of .368 for firms in the highest three deciles (HI)."

changes appear to contain incremental information to earnings, however, this effect does not hold in firms with large cash flow changes. These results indicate investors place differential importance on cash flows depending on the level or change in cash flow values. Similarly, bondholders are concerned with a firm's proximity to default and the ability of the firm to pay interest payments. If operating cash flow levels are low, bondholders become increasingly concerned about a firm's ability to maintain a payment schedule. However, extremely high levels of operating cash flow do not generally impact bondholders positively because they are not compensated above a contracted amount.

Prior literature identifies whether a loss is transitory or persistent by the combined information in cash flow and earnings values. For example, Joos and Plesko (2004) conclude transitory losses are made up of positive cash flows and negative accruals, while persistent losses include large negative cash flows and negative accruals. If the combined information from cash flows and earnings implies different future scenarios, then the interaction of managed cash flows and earnings levels is also likely to impact creditors' predictions of future performance. Melendrez, Schwartz and Trombley (2005) also support the use of combined information from cash flows and earnings by showing that the market prices cash flow surprises differently depending on earnings performance. Again, this implies investors consider the interaction of cash flow and earnings information. Documenting that earnings is priced in the cost of debt, Jiang (2005) shows reporting profits has the largest effect on cost of debt for high default risk firms.[9]

[9] Jiang classifies firms with a rating of BBB or less as having a high default risk.

I partition my sample into low and high groups using credit rating and Z score. I predict the low groups represent firms with relatively more distress and therefore higher default risk. Bondholders are interested in a firm's ability to pay interest and principle from current operating cash flows. Therefore, I predict a stronger association between managed operating cash flows and the cost of debt the closer a firm is to default.

When firms are underperforming, financial statement users may rely on multiple indicators of financial strength, thus drawing more attention to operating cash flow quality. Bondholders have incentives to accurately assess the future implications reflected in current financial information. For example, if managers use cash flow management to improve reporting results, the underlying cash flow information is likely of lower quality. Since distressed firms are already close to default, bondholders can not afford to let cash flow management go undetected. Therefore, bondholders have greater incentives to detect and correctly price cash flow management for firms in financial distress.

H2ii: Managed operating cash flow has an incremental positive association with the cost of debt when firms have losses, low levels of cash flows and earnings, and are distressed.

3. DATA DESCRIPTION

3.1 Sample

As outlined in Table 1, I initially identified 6,547 bond issues from the Securities Data Company SDC database. After deleting firms without yield data and Standard and Poors Compustat data, my sample is 4,090 issues. Consistent with other cost of debt studies, I delete subsequent issues after the first issue of the year thereby reducing my final sample to 1,523. A second sample is further reduced by earning per share EPS data availability resulting in 455 observations. Defond and Hung (2003) show that the number of cash flow forecasts stabilizes around 1996. They argue that firms with cash flow forecasts are firms where the market demands cash flow information. My sample begins in 1996 where the average number of analysts per firm making cash flow forecasts does not change dramatically. The date range of 1996 to 2004 allows me to have consistent reporting of operating cash flows, as Compustat started reporting operating cash flows, (data item 308), in 1987.

3.2 Methodology

Similar to prior research, I use the following model to examine a firm's cost of debt (e.g. Mansi et al. 2004; Pittman and Fortin 2004; Anderson et al. 2003; Shi 2003; Minton and Schrand 1999; Sengupta 1998;):

$$\begin{aligned} YIELD = {} & B_0 + B_1\, SIZE + B_2\, LEV + B_3\, TIMES + B_4\, ZSCORE + B_5\, ISIZE + \\ & B_6\, MAT + B_7\, IGRADE + B_8\, SUB + B_9\, CALL + B_{10}\, CONV + \\ & B_{11}\, EARNZERO + B_{12}\, PYREARN + B_{13}\, OCF + \varepsilon \end{aligned} \qquad (1)$$

Where variables are defined as follows:

YIELD	The yield on the first issue of year $_{t+1}$ less the yield on a corresponding Treasury bill of similar maturity (as reported in the SDC New Issues database)
SIZE	Log of total assets $_t$
LEV	Long-term debt $_t$/ total assets $_t$
TIMES	1/[Income before interest expense $_t$ / interest expense $_t$]
ZSCORE	Altman Z score = 1.2(working capital t/total assets t) + 1.4(retained earnings$_t$ /total assets $_t$) + 3.3(EBIT $_t$/total assets $_t$) + .6(MVE $_t$/BVE $_t$) + 0.999(sales$_t$/total assets $_t$)
ISIZE	First bond issue proceeds$_t$/issuer's total assets$_t$
MAT	Log of number of years until maturity
IGRADE	Indicator variable equal to 1 if the firm's S&P Issuer Credit Rating is BBB or higher, 0 otherwise
SUB	Indicator variable equal to 1 if firm's debt is subordinate, 0 otherwise
CALL	Number years to first call / years to maturity
CONV	Indicator variable equal to 1 if the bond is convertible, 0 otherwise
EARNZERO	Indicator variable equal to 1 if the firm had positive earnings
PYRARN	Indicator variable equal to 1 if the firm increased earnings from the prior year
OCF	Total reporting operating cash flows/ total assets$_t$

The expected signs for the coefficients are $B_1 < 0$, $B_2 > 0$, $B_3 > 0$, $B_4 < 0$, $B_5 > 0$, $B_6 > 0$, $B_7 < 0$, $B_8 > 0$, $B_9 < 0$, $B_{10} < 0$, $B_{11} < 0$, $B_{12} < 0$ $B_{13} < 0$ as discussed below. The following section discusses the dependent variable, the firm risk control variables, and bond issue risk control variables

Yield

Recent literature uses the yield or premium as a primary measure capturing the cost of debt (e.g., Sengupta 1998; Amir 2005; Anderson et al. 2004; Mansi et al. 2004; Shi 2003). The discount rate that equates the present value of the future cash flows to the security price is the yield. My dependent variable (YIELD) is yield on the first issue of the year $_{t+1}$ less the yield on the US Treasury bill with comparable maturity on issuance

date. This measure reflects how many basis points the firm incurs over the treasury rate.[10]

Firm Risk Control Variables

I include well-established control variables from the literature in testing cost of debt (e.g., Sengupta 1998; Anderson et al. 2004; Pittman and Fortin 2004; Mansi et al. 2004; and Shi 2003). The variables include firm size (SIZE), leverage, (LEV) interest coverage (TIMES), default risk (ZSCORE), positive earnings, (EARNZERO), positive change in earnings (PYREARN), and operating cash flows, (OCF). I expect the SIZE coefficient to be negative. Larger firms are perceived to have lower default risk and therefore are expected to incur lower costs of debt. (Carey et al. 1993), so SIZE should be negatively related to YIELD. LEV proxies for default risk. A higher debt ratio indicates a greater risk of default, so firms with more debt are likely to have a higher cost of debt, resulting in a positive coefficient. The TIMES interest earned ratio is frequently used to measure a firm's ability to pay its interest obligations (Hartman et al. 1998). I report 1/TIMES and predict that higher times ratios are associated with higher cost of debt. The Altman Z score measures a firm's proximity to bankruptcy, the lower the score the more likely is bankruptcy.

I include two earnings benchmarks to control for achieving earnings targets to isolate the association of operating cash flow information and the cost of debt. By

[10] I do not track the impact of changes in operating cash flow components over the life of the bond. I focus on the first issue of the year per firm and delete subsequent issues from the sample. Yield analysis would be an alternative measure of capturing the bond market pricing of operating cash flow components.

controlling for the earnings targets, I hope to control for operating cash flow management to achieve earnings targets, thus capturing manipulation to achieve cash flow targets. EARNZERO is an indicator variable equal to 1 if the firm's earnings were positive and PYREARN is an indicator variable if the firm had a positive increase in earnings. EARNZERO also controls for increased likelihood of bankruptcy. That is, a company with negative earnings is expected to incur a higher cost of debt (Amir et al. 2005). OCF measures a firm's profitability and a firm's ability to meet interest payments. Consistent with prior literature, OCF should have a negative association with the cost of debt (Pittman, 2004; Minton and Schrand, 1999; Anderson, 2004).

Bond Issue Risk Control Variables

Prior literature has suggested characteristics of the bond issue are related to the YIELD. Consistent with prior findings I include bond issue size (ISIZE), bond issue maturity (MAT), an indicator of investment or non-investment grade issues (IGRADE), the ratio of years to call divided by years to maturity (CALL) and whether the bond is convertible (CONV) or subordinated (SUB).

Similar to Amir et al. (2005) I measure the ratio of issue proceeds to issuer's total assets (ISIZE). The larger the bond issue relative to total assets, the higher the probability of default and hence the higher the cost of debt. The maturity of the bond (MAT) is related to interest rate exposure risk. That is, the longer the bond the greater the risk of interest rates changing over time. Thus, the longer the maturity of the bond, the higher is the expected cost of debt. Investment grade ratings (IGRADE) are issues above BBB. Prior literature suggests there is an increase in cost of debt for issues rated

below investment grade (below BBB). I predict a negative association between IGRADE and cost of debt (Dhaliwal, Gleason, Heitzman, and Melendrez, 2005). A bond is subordinated (SUB) if senior debt holders get paid in full before subordinated debt holders at the time of default. Subordinated debt is more risky than unsubordinated debt and is expected to be positively associated with cost of debt. Callable bonds (CALL) are bonds where the issuers can redeem the bond prior to its maturity. Callable bonds are most likely to be called when there is a decline in interest rates, because the issuer has incentives to refinance the debt at a lower rate. The higher the call ratio is, (years to call over years to maturity), the lower the interest rate protection from the issuer, the lower the risk to the bondholders and thus a lower cost of debt. Convertible bonds (CONV) are bonds that can be converted into a specific amount of stock at certain times during the life of the bond, usually at the discretion of the bondholder. Convertible bonds give the investor an option of exchanging the bond for stock. Investors are willing to pay a premium for this option and hence the cost of debt to the issuer is reduced.

Managed Operating Cash Flow Measure

I measure the components of operating cash flow similar to Roychowdhury (2005) and Zhang (2006) who apply the Dechow, Kothari and Watts (1998) abnormal accruals model to measure abnormal cash flows. I estimate the following model for each two-digit industry year:

$$OCF_t/TA_t = \beta_0 + \beta_1(1/TA_t) + \beta_2(REV_t/TA_t) + \beta_3(\Delta REV_t/TA_t) + \varepsilon \qquad (2)$$

where,

TA = total assets for year t (Compustat data item 6)
OCF = total operating cash flow divided by total assets for year t (Compustat data item 308/Compustat data item 6)
REV = total revenue divided by total assets for year t (Compustat data item 12)
ΔREV_t = change in revenue divided by total assets for year t (Compustat data item 12)
ε = error term.

The estimates of $\beta_1, \beta_2, and\ \beta_3$ obtained from the above regressions are then used to estimate abnormal operating cash flow as follows:

$$ABNOCF_t/TA_t = OCF_t/TA_t - [\hat{\beta}_1(1/TA_t) + \hat{\beta}_2(REV_t/TA_t) + \hat{\beta}_3(\Delta REV_t/TA_t)] \quad (3)$$

Models for hypotheses testing

To examine H1, the relation between managed cash flows and cost of debt, I modify the cost of debt model (Equation (1)) as follows:

$$YIELD = B_0 + B_1\ SIZE + B_2\ LEV + \mathbf{B_3}\ TIMES + B_4\ ZSCORE + B_5\ ISIZE + B_6\ MAT + B_7\ IGRADE + B_8\ SUB + B_9\ CALL + B_{10}\ CONV + B_{11}\ EARNZERO + B_{12}\ PYREARN + \mathbf{B_{13}ABNOCF + B_{14}\ NOCF} + \varepsilon \quad (4)$$

where,

$NOCF$ = total reported operating cash flow less abnormal operating cash flow, (ABNOCF) divided by total assets reported in year t.

H2i predicts a positive association between the managed component of operating cash flow and the cost of debt when firms have incentives to manage operating cash flows. The opportunistic indicator variable, (OPP) is equal to 1 for firms that would have missed the benchmark (ZERO, LAST, or FORECAST) if the managed operating cash flow component was absent. The OPP variable represents firms most likely to have engaged in operating cash flow management. I believe these firms give the bond market

the best chance at identifying the managed component of operating cash flow which likely includes lower quality operating cash flow information. Hence, I predict B_{17} to be positive for regressions (5), (6), and (7). This would suggest that the bond market assesses a penalty to firms where they detect and price the lower quality managed operating cash flows. I use the following models:

$$YIELD = B_0 + B_1\,SIZE + B_2\,LEV + B_3\,TIMES + B_4\,ZSCORE + B_5\,ISIZE + B_6\,MAT + B_7 IGRADE + B_8\,SUB + B_9\,CALL + B_{10}\,CONV + B_{11}\,ZEROEARN + B_{12}\,PYREARN + B_{13}\,ABNOCF + B_{14}\,NOCF + \mathbf{B_{15}\,ZERO + B_{16}\,ZERO*OPP + B_{17}\,ZERO*OPP*ABNOCF} + \varepsilon \quad (5)$$

$$YIELD = B_0 + B_1\,SIZE + B_2\,LEV + B_3\,TIMES + B_4\,ZSCORE + B_5\,ISIZE + B_6\,MAT + B_7 IGRADE + B_8\,SUB + B_9\,CALL + B_{10}\,CONV + B_{11}\,ZEROEARN + B_{12}\,PYREARN + B_{13}\,ABNOCF + B_{14} NOCF + \mathbf{B_{15}\,LAST + B_{16} LAST*OPP + B_{17}\,LAST*OPP*ABNOCF} + \varepsilon \quad (6)$$

$$YIELD = B_0 + B_1\,SIZE + B_2\,LEV + B_3\,TIMES + B_4\,ZSCORE + B_5\,ISIZE + B_6\,MAT + B_7 IGRADE + B_8\,SUB + B_9\,CALL + B_{10}\,CONV + B_{11}\,ZEROEARN + B_{12}\,PYREARN + B_{13}\,ABNOCF + B_{14}\,NOCF + \mathbf{B_{15}\,FCC + B_{16}\,FCC*OPP + B_{17}\,FCC*OPP*ABNOCF} + \varepsilon \quad (7)$$

Where,

ZERO = indicator variable equal to 1 if the firm has positive operating cash flows, 0 otherwise.

LAST = indicator variable equal to 1 if the firm met operating cash flows from the prior year, 0 otherwise.

FCC = indicator variable equal to 1 if the firm met the operating cash flow forecast, 0 otherwise.

OPP = indicator variable equal to 1 if the firm met the benchmark but would have missed the benchmark without the managed operating cash flow component, 0 otherwise.

H2ii predicts that bondholders are motivated to detect and price the managed component of operating cash flows when firms are in financial distress. I measure financial distress using the following indicators; 1) losses, 2) low cash flow levels and 3) low earnings levels. Following Minton and Schrand (1999) I rank the operating cash

flows and earnings into deciles where the low (LOW) group is deciles 1 through 3 and the high (HI) group is deciles 7 through 10. I use the following models:

$$YIELD = B_0 + B_1\,SIZE + B_2\,LEV + \mathbf{B_3\,TIMES} + B_4\,ZSCORE + B_5\,ISIZE + B_6\,MAT + B_7 IGRADE + B_8\,SUB + B_9\,CALL + B_{10}\,CONV + B_{11}\,ZEROEARN + \mathbf{B_{12}\,PYREARN} + B_{13}\,ABNOCF + B_{14}\,NOCF + \mathbf{B_{15}\,LOSS*ABNOCF} + \varepsilon \quad (8)$$

$$YIELD = B_0 + B_1\,SIZE + B_2\,LEV + \mathbf{B_3\,TIMES} + B_4\,ZSCORE + B_5\,ISIZE + B_6\,MAT + B_7 IGRADE + B_8\,SUB + B_9\,CALL + B_{10}\,CONV + B_{11}\,ZEROEARN + B_{12} PYREARNABNOCF + B_{13}\,ABNOCF + B_{14} NOCF + \mathbf{B_{15}\,OCFLOW + B_{16}\,OCFHI + B_{17}\,OCFLOW*ABNOCF + B_{18}\,OCFHI*ABNOCF} + \varepsilon \quad (9)$$

$$YIELD = B_0 + B_1\,SIZE + B_2\,LEV + \mathbf{B_3\,TIMES} + B_4\,ZSCORE + B_5\,ISIZE + B_6\,MAT + B_7 IGRADE + B_8\,SUB + B_9\,CALL + B_{10}\,CONV + B_{11}\,ZEROEARN + B_{12} PYREARNABNOCF + B_{13}\,ABNOCF + B_{14} NOCF + B_{15}\,OCFLOW + B_{16}\,OCFHI + B_{17}\,OCFLOW*ABNOCF + B_{18}\,OCFHI*ABNOCF + B_{19} EARNLOW + B_{20} EARNHI + B_{21} ABNOCF*EARNLOW + B_{22} ABNOCF*EARNHI + \mathbf{B_{23} ABNOCF*OCFLOW*EARNLOW} + \varepsilon \quad (10)$$

Where,
OCFLOW = bottom 3 deciles of reported operating cash flow
OCFHI = top 3 deciles of reported operating cash flow
EARNLOW = bottom three deciles of earnings before interest and tax
EARNHI = top three deciles of earnings before interest and tax

For regressions (8),(9), and (10), I predict a positive association for managed cash flows and cost of debt when conditioned on losses or cash flow and earnings levels. Significant coefficients on $B_{15,}$ B_{17} and B_{23} for regressions (8), (9), and (10) respectively may suggest when firms are in a loss positions or have low levels of cash flows or earnings, cash flow information comes under stronger scrutiny by bondholders. As a result, bondholders will penalize the firm for managed operating cash flows through an increase the cost of debt.

4. RESULTS

4.1 Descriptive Statistics

Table 1 reports two samples, the full sample of 1,523 bond issuances, and the EPS forecast sample limited by availability of EPS forecast data of 455 bond issuances. Panel B of Table 1 categorizes industry classification for both samples. Industry membership is widely distributed and no one single industry represents over 13 percent of the either sample.

Table 2 presents the descriptive statistics for the variables used in both samples. In panel A, full sample, the median values for ABNOCF (0.05) and NOCF (0.03) are larger and smaller than the respective means, (0.01 and 0.08), indicating these variables are skewed in opposite directions. These values are relatively consistent with Zhang (2006) who reports mean normal operating cash flow of .008 and abnormal operating cash flow of 0.051. However, her sample includes 81,825 observations from 1987-2003. The EPS forecast sample in panel B reports a similar median and mean for ABNOCF (0.06, 0.04) and NOCF (0.03, 0.07). The average yield spread is 168 (171 for EPS forecast sample) basis points, which is fairly close to Klock et al. (2005) who report 193 basis points. The mean bond proceeds are $286 million similar to Dhaliwal et al. (2006) who report $279 million. The EPS forecast sample has a higher mean proceeds of $363 million, although this is not surprising since firms with EPS data are larger and likely to be covered by analysts and thus likely issuing larger debt. The mean level of debt is 36 percent (36 percent for EPS forecast sample) of assets, similar to Dhaliwal et al's level of 38 percent. Investment grade bond ratings (above BBB) make up 72 percent (78 percent

for EPS forecast sample) of the sample. In examining the benchmarks, 95 percent (98 percent for EPS forecast sample) of the sample met the ZERO benchmark and 62 percent (64 percent for EPS forecast sample) met prior years' reported operating cash flow. However, only 19 percent (24 percent for EPS forecast sample) and 47 percent and (50 percent for EPS forecast sample) met the zero and prior year benchmarks opportunistically. For the subsample of firms with cash flow forecasts, 47 percent (48 percent for EPS forecast sample) of the firms met the forecast. The cash flow forecast benchmark was met opportunistically 33 percent of the time (34 for EPS forecast sample). Overall, the EPS forecast sample is consistent with the full sample.

Table 3 reports Pearson correlations coefficients for the full sample. As expected the dependent variable, YIELD, has a significant correlation with most explanatory variables including SIZE, LEV, TIMES, ZSCORE, IGRADE, SUB, CALL, EARNZERO, PYREARN, and OCF. YIELD has a significant negative association with the unmanaged component of operating cash flows. SIZE is highly correlated with ZSCORE (.790, p value <.0001) and ISIZE (.504, p value <.0001). However, high correlation among control variables is consistent with prior literature on the cost of debt (Jiang, 2005; Dhaliwal et al., 2006; Pittman and Fortin, 2004; Sengupta, 1998). Even in the presence of multicollinearity the coefficient is still the best linear unbiased estimator. The coefficient measures the variation unique to the each correlated variable and ignores the common variation, suggesting the coefficient is biased against finding results (Kennedy 2003).

4.2 Regression Results

Table 4 presents the results for estimating the regression of yield spread on both the baseline model including total operating cash flows, OCF, and on the components of operating cash flows shown in equations (1) and (4). For equation (1), column 1 under the full sample, OCF is negative and significant (coeff.=-101.63, t-stat.=-2.66). For equation (4), column 2, both ABNOCF, managed operating cash flows, and NOCF, unmanaged operating cash flows are negative and significant (coeff.=-97.22, t-stat=-2.55, coeff.=-107.83, t-stat.=-2.83). That is, both components of operating cash flows are associated with a lower cost of debt. Although the coefficients are similar, the managed component of operating cash flows does have a lower negative coefficient. This is consistent with the bond market relatively discounting the cash flow information in the managed component. In Panel B, the EPS forecast sample does not provide evidence of the operating cash flow information being priced. Overall, the control variables are generally significant in the predicted direction except for SIZE.

The coefficients on ABNOCF and NOCF are -97.22 and -107.83 respectively. This indicates a relatively small basis point impact on the cost of debt at 0.97 and 8.62 basis points. However, when I examine the 25^{th} -75^{th} percentiles, the range expands to 2.92 to -9.72 for ABNOCF and 0.0 to -10.78 for NOCF.

Table 5 testing H2i identifies firms in where bondholders are most likely to detect and price the components of operating cash flows. Because the managed component of operating cash flows was used to meet benchmarks, the bond market is likely to recognize the manipulation and assign a penalty. As a result, I predict an incremental

positive association between the managed operating cash flow component and the cost of debt. Table 5, column 1, reports a strong negative association for meeting the ZERO benchmark (coeff.=-62.13, t-stat.=4.97), indicating a lower cost of debt. This is followed by a weak positive association for ZEROOPP (coeff.= 12.76, t-stat. =1.96) suggesting an incremental increase in the cost of debt if the managed component of operating cash flows was used to meet the benchmark. This indicates that even though firms experience a penalty for using operating cash flow management, the net reward to meeting the benchmark lowers the cost of debt. This is consistent with the bondholders detecting and penalizing firms when managed operating cash flows are likely to have been used to hit the zero benchmarks, but not directly related to the managed component of operating cash flows. Weaker but similar associations are reported for the EPS forecast sample. Table 5 does not provide evidence regarding the bond market pricing the LAST or CFF benchmarks for either sample

The ZEROOPP coefficient on 12.77 indicates almost 13 basis points increase in the cost of debt. Calculating the interest rate impact on the average issue proceeds of 286 million, the result suggests firms incur a $356,222 dollar increase in the cost of debt. Similarly for the EPS forecast sample. A 20.23 basis point coefficient suggests an increase in the cost of debt by $734,349.

Table 6 panel A reports regression results for the full sample for H2ii, when managed operating cash flows are conditioned on losses, cash flow and earnings levels. Overall, in panel A for the full sample, the two components of operating cash flows are negative and significant. Also, there is a consistency with the managed component of

operating cash flows having a less negative association with the cost of debt than the unmanaged component. Panel A does not provide evidence of the bond market detecting and pricing managed operating cash flows when conditioned on distress measures.

However, Table 6, columns 2 and 3 examine managed operating cash flows conditioned on low cash flow levels. Consistent with Minton and Schrand (1999), low cash flow levels, (OCFLOW) is positive and significant indicating when cash flow levels are low, firms incur higher costs of debt (coeff.=21.48, t-stat=3.11 and coeff.=16.67, t-stat.=-2.32 for columns 2 and 3). However the interaction variables ABNOCF*OCFLOW and ABNOCF*OCFLOW*EARNLOW are not significant. Table 6 panel B does not provide any additional insight into the pricing of managed operating cash flows.

In tables 7 and 8, I test H2ii, whether distressed firms are likely to exhibit more pronounced associations between managed operating cash flows and cost of debt. I partition the full sample into low and high groups based on Z score and credit ratings. I predict a stronger association between the components of operating cash flows and the cost of debt in the low partition versus the high partition, because the low groups proxy for distressed firms. I predict distressed firms are closer to default and may experience higher scrutiny of cash flow information by the bond market. In table 7, I find a significant negative relationship between the two components of operating cash flow and the cost of debt (ABNOCF (coeff.=-222.32, t-stat.=-3.75) NOCF (coeff.=-245.89, t-stat.=-4.11) for panel B, ABNOCF(coeff.=-191.60, t-stat.=-2.93) NOCF (coeff.=-212.62, t-stat.=-3.24)). In both samples the managed component of operating cash flows is less

negative than the unmanaged component as shown with significant F statistics. This suggests that, although the market is associating the managed component of operating cash flows with a lower cost of debt, the bond market is not placing as much weight on the managed component as the unmanaged component. Also, Table 7 reports no significance for the either component of operating cash flows for firms in the high partitions (column 2). This indicated operating cash flow information is not priced by the bond market when firms are performing well.

Table 8 examines equations 6-10 for distressed firms measured by Z score for the full sample. Panel A reports the results for the low partition while panel B is the high partition. First, panel A, column 1 reports that managed operating cash flow conditioned on losses is positive and significantly associated with the cost of debt for distressed firms. So for distressed firms with losses, there is an incremental increase in the cost of debt associated with managed operating cash flows. Second, panel A, columns 2 and 3, OCFLOW and EARNLOW is positive and significant (coeff.=37.22, t-stat.=3.67, coeff.=28.60, t-stat.=2.75, and coeff.=33.51, t-stat.=3.14, respectively) and as predicted, suggesting for firms in financial distress low cash flow levels and low earnings levels are associated with a higher cost debt. Third, in columns 3 and 4, ABNOCF*OCFLOW*EARNLOW and PYROCFOPP*ABNOCF (coeff.=29.71, t-stat=1.91 and coeff.=49.82, t-stat=1.60, respectively) are positive and significant for the low Z score group but not for the high group. Interestingly, both these interactions suggest that the bond market detects the managed operating cash flows and assesses a penalty for the low quality information. This is consistent with the bond market being

motivated to correctly detect and price the components of operating cash flows when firms are in financial distress.

5. ROBUSTNESS TESTS AND LIMITATIONS

In this section, I discuss additional results and some factors and limitations of the data used.

First, I examine the regressions on quintiles of Z score and credit rating. Consistent for both partitions, the second quintile is the only significant partition. An explanation for this observation is that there is very little variation in the dependent variable in the lowest quintiles. Simply stated, highly distressed firms already have the highest cost of debt. Only in the second quintile is there some variation in yield spread, and significant results are obtained. Also, I partition my sample on high and low credit ratings to test H2ii however, the results do not provide evidence for the hypotheses.

Second, I examine the regressions using the Fama French 12-industry classification to calculate industry adjusted managed operating cash flows (French, URL). The results are less significant but similar to those reported.

Third, I use credit rating as the dependent variable. The results are generally the same although the difference between the two components of operating cash flow is not significantly different from each other.

Fourth, I include credit rating as a control variable instead of the investment grade indicator variable. This results in a negative and significant association with operating cash flow variables for the EPS forecast sample, but reports no significance for the full sample.

Fifth, I exclude utilities and include a leverage interaction variable. The results are similar when utilities are excluded and the leverage interaction is not significant.

Finally and most interesting, I partition the full sample based on positive and negative ABNOCF, managed operating cash flows. Table 9 Panel A reports the regression results for positive ABNOCF, showing no significance on any operating cash flow components. However, Panel B reports strong negative and significant results for both the total operating cash flow and two components of operating cash flow. These results suggest that the main findings for the negative relationship between operating cash flow information and the cost of debt are driven by negative managed operating cash flows. That is, when firms manage operating cash flow down, they are rewarded with a lower cost of debt.

I acknowledge that the sample used in this study may have some unique characteristics. First, bondholders are largely institutional investors with block holdings. For example a pension fund manager might buy in large blocks, which is not cost effective to move, due to a small increase in default risk from the presence of operating cash flow management. That is, a cost benefit analysis might not allow for portfolio rebalancing due to a small change in bond value. Second, my EPS forecast sample is most likely subject to some bias, because analysts are more likely to cover firms with strong disclosure practices. Lang and Lundholm (1993) show these firms are larger and better performers. This has implications for how managed operating cash flows may be priced.

6. CONCLUSION

I investigate the association between managed operating cash flows and the cost of debt. My study is motivated by recent SEC concerns that some firms misrepresent underlying transactions in the operating, investing and financing section of the statement of cash flows. There are several actions and reporting options that managers can manipulate to boost operating cash flow. While operating cash flow is often thought of as a value not manipulated, I add to the small body of literature that suggests firms do manage operating cash flow and provide evidence regarding pricing implications. I examine various samples and partitions of firms to find when managed operating cash flow is mostly likely to be priced in the bond market. In general the bond market does detect and positively price cash flow management when firms use the management to meet the operating cash flow ZERO benchmark and when firms are in financial distress. Also, I find that operating cash flow information is valued differently depending on the firm's proximity to default. These findings may be of interest to creditors and policy makers because there appears to be valuation implications for firms with managed operating cash flows.

APPENDIX A

TABLES

Table 1
Sample selection and industry composition for a sample period 1996 through 2004

Panel A: Sample Selection

	Full	EPS
Number of SDC bond issues excluding financial firms	6,547	6,547
Missing yield data	(1,167)	(1,167)
Issues following first issue for the year	(2,567)	(2,567)
Missing compustat data	(1,290)	(1,290)
Missing IBES data		(1,068)
Final sample	1,523	455

Panel B: Industry composition

	Full		EPS	
	Frequency	Percent	Frequency	Percent
Nondurable	120	8%	28	6%
Durables	61	4%	7	2%
Manufacturing	200	13%	58	13%
Energy	122	8%	77	17%
Chemicals	97	6%	39	9%
Business Equipment	90	6%	15	3%
Telecommunications	114	8%	51	11%
Utilities	190	13%	54	12%
Shops	176	12%	43	9%
Health	70	5%	19	4%
Other	283	19%	64	14%
	1,523	100%	455	100%

Table 2
Panel A Full Sample
Descriptive Statistics for regression

	n	Mean	Standard Deviation	25%	Median	75%
YIELD	1523	168.14	132.40	77.00	125.00	218.00
SIZE	1523	8.50	1.40	7.58	8.52	9.52
LEV	1523	0.36	0.16	0.27	0.35	0.44
TIMES	1523	0.20	0.25	0.09	0.16	0.26
ZSCORE	1523	4.59	2.83	2.00	5.00	7.00
ISIZE	1523	286.09	293.33	124.00	200.0	349.80
MAT	1523	11.85	8.55	7.00	10.00	10.00
IGRADE	1523	0.72	0.45	0.00	1.00	1.00
SUB	1523	0.06	0.23	0.00	0.00	0.00
CALL	1523	0.47	0.47	0.00	0.50	1.00
CONV	1523	0.01	0.09	0.00	0.00	0.00
EARNZERO	1523	0.88	0.32	1.00	1.00	1.00
PYREARN	1523	0.66	0.47	0.00	1.00	1.00
OCF	1523	0.10	0.07	0.06	0.09	0.13
ABNOCF	1523	0.01	0.57	-0.03	0.05	0.10
NOCF	1523	0.08	0.57	0.00	0.03	0.10
OCFLOW	1523	0.24	0.43	0.00	0.00	0.00
OCFHI	1523	0.35	0.48	0.00	0.00	1.00
EARNLOW	1523	0.27	0.44	0.00	0.00	1.00
EARNHI	1523	0.35	0.48	0.00	0.00	1.00
ZERO	1523	0.95	0.22	1.00	1.00	1.00
LAST	1523	0.62	0.49	0.00	1.00	1.00
FORECAST	472	0.47	0.49	0.00	0.00	1.00
ZEROOPP	1523	0.19	0.40	0.00	0.00	0.00
LASTOPP	1523	0.47	0.50	0.00	0.00	1.00
FCCOPP	472	0.33	0.47	0.00	0.00	1.00

Table 2 cont.
Panel B EPS forecast sample
Descriptive Statistics for regression variables

	n	Mean	Standard Deviation	25%	Median	75%
YIELD	577	171.02	122.40	88.00	135.00	215.00
SIZE	577	9.04	1.27	8.14	9.10	9.93
LEV	577	0.36	0.13	0.27	0.35	0.44
TIMES	577	0.21	0.24	0.09	0.16	0.27
ZSCORE	577	5.30	2.69	3.00	6.00	8.00
ISIZE	577	363.15	363.23	160.00	297.80	497.60
MAT	577	11.45	8.63	5.00	10.00	10.00
IGRADE	577	0.78	0.42	1.00	1.00	1.00
SUB	577	0.04	0.18	0.00	0.00	0.00
CALL	577	0.35	0.46	0.00	0.00	1.00
CONV	577	0.00	0.07	0.00	0.00	0.00
EARNZERO	577	0.85	0.35	1.00	1.00	1.00
PYREARN	577	0.62	0.49	0.00	1.00	1.00
EPSMBE	577	0.70	0.46	0.00	1.00	1.00
OCF	577	0.11	0.06	0.06	0.10	0.14
ABNOCF	577	0.04	0.59	-.003	0.06	0.13
NOCF	577	0.07	0.60	0.00	0.03	0.09
OCFLOW	577	0.15	0.36	0.00	0.00	0.00
OCFHI	577	0.44	0.50	0.00	0.00	1.00
EARNLOW	577	0.25	0.43	0.00	0.00	1.00
EARNHI	577	0.40	0.49	0.00	0.00	1.00
ZERO	577	0.98	0.13	1.00	1.00	1.00
LAST	577	0.64	0.48	0.00	1.00	1.00
FORECAST	461	0.48	0.50	0.00	0.00	1.00
ZEROOPP	577	0.24	0.43	0.00	0.00	0.00
LASTOPP	577	0.50	0.50	0.00	1.00	1.00
FCCOPP	461	0.34	0.47	0.00	0.00	1.00

Table 2 cont., Variables defined:

YIELD	The yield on the first issue of year t+1 less the yield on a corresponding Treasury bill of similar maturity
SIZE	Log of total assets
LEV	Long-term debt divided by total assets at the end of year t
TIMES	Income before interest expense/interest expense
ZSCORE	1.2(working capital/TA) +1.4 (RE/TA) + 3.3(EBIT/TA) +.6 (MVE/BVE)+.999(Sales/TA)
ISIZE	First bond issue proceed/issuer's total assets
MAT	long of number of years until maturity
IGRADE	Indicator variable equal to 1 if the firm's S&P issuer credit rating is BBB or higher
SUB	Indicator variable equal to 1 if firm's debt is subordinate
CALL	Number of years to first call/years to maturity
CONV	Indicator variable equal to 1 if the bond is convertible
OCF	Reported operating cash flows
EARNZERO	Indicator variable equal to 1 if the firm has a positive earnings
PYREARN	Indicator variable equal to 1 if the firm increased earnings over the prior year
EPSMBE	Indicator variable equal to 1 if the firm meets or beat the EPS forecast
ANBOCF	Abnormal operating cash flow
NOCF	Reported operating cash flows less ABNOCF
LOSS	Indicator variable equal to 1 if earnings are less than zero
OCFLOW	deciles 1-3 for operating cash flows
OCFHI	deciles 7-10 for operating cash flows
EARNLOW	deciles 1-3 for earnings before interest and tax
EARNHI	deciles 7-10 for earnings before interest and tax
ZERO	Indicator variable equal to 1 if the firm had positive operating cash flows
ZEROOPP	Indicator variable equal to 1 if the firm's normal ocf would have missed the zero benchmark but total ocf met the benchmark
LAST	Indicator variable equal to 1 if the firm met last years operating cash flows
LASTOPP	Indicator variable equal to 1 if the firm's normal ocf would have missed the last year benchmark but total ocf met the benchmark
FCC	Indicator variable equal to 1 if the firm met the operating cash flow forecast
CFFOPP	Indicator variable equal to 1 if the firm's normal ocf would have missed the forecast benchmark but total ocf met the benchmark

Table 3
Correlations among regression variables for full sample

n=1523	*SIZE*	*LEV*	*TIMES*	*ZSCORE*	*ISIZE*	*MAT*	*IGRADE*	*SUB*	*CALL*	*CONV*	*EARN ZERO*	*PYR EARN*
YIELD	-0.333	0.323	0.315	-0.517	0.004	-0.091	-0.614	0.324	-0.173	-0.065	-0.275	-0.104
	<.0001	*<.0001*	*<.0001*	*<.0001*	*0.856*	*0.004*	*<.0001*	*<.0001*	*<.0001*	*0.011*	*<.0001*	*<.0001*
SIZE		-0.160	-0.062	0.790	0.504	0.073	0.374	-0.301	-0.083	-0.095	0.039	-0.068
		<.0001	*0.016*	*<.0001*	*<.0001*	*0.004*	*<.0001*	*<.0001*	*0.001*	*0.002*	*0.132*	*0.008*
LEV			0.383	-0.226	-0.037	-0.057	-0.400	0.264	-0.005	-0.012	-0.115	-0.065
			<.0001	*<.0001*	*0.141*	*0.239*	*<.0001*	*<.0001*	*0.983*	*0.649*	*<.0001*	*0.011*
TIMES				-0.222	-0.013	-0.017	-0.322	0.128	0.002	-0.023	-0.132	-0.100
				<.0001	*0.599*	*0.499*	*<.0001*	*<.0001*	*0.929*	*0.365*	*<.0001*	*<.0001*
ZSCORE					0.388	0.098	0.443	-0.271	0.059	-0.023	0.086	0.033
					<.0001	*0.0001*	*<.0001*	*<.0001*	*0.020*	*0.369*	*0.0007*	*0.195*
ISIZE						0.032	0.076	-0.070	-0.207	-0.008	-0.047	-0.030
						0.213	*0.003*	*0.006*	*<.0001*	*0.759*	*0.062*	*0.235*
MAT							0.115	-0.061	-0.104	-0.046	0.049	-0.001
							<.0001	*0.017*	*<.0001*	*0.073*	*0.053*	*0.981*
IGRADE								-0.383	0.055	-0.101	0.179	0.022
								<.0001	*0.031*	*<.0001*	*<.0001*	*0.389*
SUB									-0.010	0.313	-0.101	-0.010
									0.692	*<.0001*	*<.0001*	*0.681*
CALL										0.029	-0.012	0.018
										0.258	*0.619*	*0.465*
CONV											-0.054	0.004
											0.033	*0.850*
PYREARN												*0.191*
												<.0001

Table 3 cont.
Correlations among regression variables for full sample

	OCF	*ABNOCF*	*NOCF*
YIELD	-0.274	0.027	-0.059
	<.0001	*0.283*	*0.019*
SIZE	0.04	-0.026	0.031
	0.110	*0.302*	*0.2251*
LEV	-0.073	0.030	-0.038
	0.005	*0.247*	*0.135*
TIMES	-0.314	.001	-0.045
	<.0001	*0.073*	*0.0723*
ZSCORE	0.252	-0.034	0.064
	<.0001	*0.177*	*0.012*
ISIZE	0.026	-0.053	0.056
	0.314	*0.039*	*0.029*
MAT	0.041	-0.012	0.017
	0.111	*0.647*	*0.518*
IGRADE	0.226	0.039	-0.012
	<.0001	*0.132*	*0.643*
SUB	-0.073	-0.008	-0.017
	0.004	*0.742*	*0.504*
CALL	0.012	0.052	-0.051
	0.617	*0.040*	*0.047*
CONV	-0.033	0.002	-0.057
	0.185	*0.945*	*0.821*
EARNZERO	*0.164*	*0.001*	*0.019*
	<.0001	0.984	0.458
PYREARN	0.070	0.038	-0.029
	0.006	*0.137*	*0.245*
ABNOCF		0.050	0.0681
		0.049	*0.001*
NOCF			-0.993
			<.0001

See Table 2 for variable definitions

Table 4
Panel A OLS regression of the cost of debt on abnormal operating cash flow for bond issues from 1996-2004

		Dependent Variable = YIELD			
	Predicted Sign	Full Sample N=1523			
INTERCEPT		326.96		330.46	
		(13.38)	***	(13.53)	***
SIZE	-	6.29		5.99	
		(2.03)	*	(1.94)	*
LEV	+	21.76		20.31	
		(2.39)	**	(1.26)	
TIMES	+	25.66		25.18	
		(2.39)	**	(2.35)	**
ZSCORE	-	-17.33		-17.09	
		(-11.51)	***	(-11.35)	***
ISIZE	+	0.06		0.06	
		(6.16)	***	(6.25)	***
MAT	+	-0.27		-0.27	
		(-1.01)		(-1.00)	
IGRADE	-	-112.54		-113.59	
		(-17.41)	***	(-17.58)	***
SUB	+	67.47		67.09	
		(5.91)	***	(5.89)	***
CALL	-	-26.87		-27.52	
		(-5.21)	***	(-5.34)	***
CONV	-	-213.20		-213.81	
		(-8.06)	***	(-8.10)	***
EARNZERO	-	-58.92		-58.58	
		(-7.96)	***	(-7.93)	***
PYREARN	-	-9.50		-10.09	
		(-1.90)	*	(-2.02)	*

Table 4 cont.
Panel A

OCF	-	-101.63			
		(-2.66)	***		
ABNOCF	+			-97.22	
				(-2.55)	*
NOCF	-			-107.83	
				(-2.83)	**
R^2		0.552		0.555	

*,**,***are significance at the 0.05, 0.01 and 0.005 levels respectively, see Table 2 for variable definitions. Table 4 panel A tests equations 1 and 4.

Table 4
Panel B OLS regression of the cost of debt on abnormal operating cash flow for bond issues from 1996-2004

		Dependent Variable = YIELD			
		EPS Forecast Sample n= 455			
	Predicted Sign				
INTERCEPT		186.56		186.74	
		(3.63)	***	(3.63)	***
SIZE	-	22.57		22.44	
		(3.74)	***	(3.71)	***
LEV	+	3.59		4.34	
		(0.11)		(0.13)	
TIMES	+	88.17		88.18	
		(4.24)	***	(4.24)	***
ZSCORE	-	-20.92		-20.82	
		(-8.08)	***	(-8.02)	***
ISIZE	+	0.03		0.03	
		(2.22)	*	(2.23)	*
MAT	+	0.11		0.12	
		(0.24)		(0.27)	
IGRADE	-	-123.09		-122.95	
		(-10.87)	***	(-10.84)	***
SUB	+	70.17		70.04	
		(2.92)	**	(2.92)	**
CALL	-	-12.03		-12.23	
		(-1.36)		(-1.38)	
CONV	-	-122.06		-122.09	
		(-2.03)	*	(-2.03)	*
EARNZERO	-	-47.94		-48.17	
		(-4.07)	***	(-4.08)	***
PYREARN	-	-9.93		-9.93	
		(-1.21)		(-1.21)	
EPSMBE		0.86		0.83	
		(0.10)		(0.09)	

Table 4 cont.
Panel B

OCF	-	40.05	
		(0.54)	
ABNOCF	+		43.99
			(0.59)
NOCF	-		40.56
			(0.55)
R^2		.558	.558

*,**,***are significance at the 0.05, 0.01 and 0.005 levels respectively, see Table 2 for variable definitions. Table 4 panel B tests equations 1 and 4.

Table 5

Panel A OLS regression of the cost of debt on abnormal operating cash flow for bond issues from 1996 - 2004

		Dependent Variable = YIELD					
		Full Sample n=1523, forecast n= 455					
Variable	Predicted Sign	Zero		Last		Forecast	
INTERCEPT		357.85		330.95		182.64	
		-14.38	***	-13.48	***	-51.66	***
SIZE	-	8.25		5.9		25.15	
		-2.64	**	-1.9	*	-6.11	***
LEV	+	28.21		20.34		27.7	
		-1.76	*	-1.26		-32.5	***
TIMES	+	22.97		25.36		38.22	
		-2.15	**	-2.36	***	-14.5	***
ZSCORE	-	-17.6		-17.08		-21.44	
		(-11.68)	***	(-11.30)	***	-2.64	***
ISIZE	+	0.05		0.06		0.03	
		-5.86	***	-6.22	***	-0.01	
MAT	+	-0.19		-0.26		0.08	
		(-0.72)		(-0.96)		-0.46	
IGRADE	-	-113.01		-113.24		-124.85	
		(-17.55)	***	(-17.43)	***	-10.99	***
SUB	+	62.3		67.26		66.6	
		-5.49	***	-5.9	***	-23.96	***
CALL	-	-27.22		-27.42		-8.38	
		(-5.31)	***	(-5.31)	***	(-0.96)	
CONV	-	-219.69		-214.49		-112.95	
		(-8.38)	***	(-8.11)	***	(-1.87)	*
EARNZERO	-	-57.82		-58.66		-58.66	
		(-7.87)	***	(-7.93)	***	(-5.13)	***
PYREARN	-	-10.37		-10.41		-15.31	
		(-2.09)	*	(-2.06)	*	(-1.88)	*

Table 5 cont.
Panel A OLS regression of the cost of debt on abnormal operating cash flow for bond issues from 1996 - 2004

		Dependent Variable = YIELD				
		Full Sample n=1523, forecast n= 455				
Variable	Predicted Sign	Zero		Last		Forecast
ABNOCF	+	0.41		-106.05		0.37
		(0.01)		(-2.61)	**	(0.00)
NOCF		-10.23		-115.19		-5.26
		(-0.24)		(-2.85)	***	(-0.07)
ZERO	-	-62.13				
		(-4.97)	***			
ZEROOPP	+	12.766				
		(-1.96)	*			
*ZEROOPP*ABNOCF*		-2.92				
		(0.24)				
LAST				0.05		
	-			(-0.01)		
LASTOPP				-0.16		
	+			(-0.02)		
LASTOPP ABNOCF*				14.8		
	+			(-1.00)		
CFF						3.27
	-					(0.27)
CFFOPP						6.04
						(0.47)
*CFFOPP*ABNOCF*						-26.37
						(-1.05)
R^2		0.562		0.555		0.552

*,**,***are significance at the 0.05, 0.01 and 0.005 levels respectively, see Table 2 for variable definitions. Table 5 panel A reports tests of equations 5-7. Columns 1-3 are results from equations 5-7 for the full sample.

Table 5

Panel B OLS regression of the cost of debt on abnormal operating cash flow for bond issues from 1996 - 2004

		Dependent Variable = YIELD					
	Predicted	*EPS sample n=455, forecast=454*					
Variable	Sign	Zero		Last		Forecast	
INTERCEPT		228.02		187.99		182.21	
		-3.82	***	-3.65	***	-3.46	***
SIZE	-	21.93		22.67		23.01	
		-3.63	***	-3.74	***	-3.73	***
LEV	+	18.48		4.97		3.94	
		-0.55		-0.15		-0.12	
TIMES	+	81.8		88.28		87.73	
		-3.85	**	-4.23	***	-4.17	***
ZSCORE	-	-20.55		-20.81		-20.86	
		(-7.93)	***	(-7.99)	***	(-7.88)	***
ISIZE	+	0.03		0.03		0.03	
		-2.18	*	-2.22	*	-2.12	*
MAT	+	0.15		0.19		0.11	
		-0.34		-0.26		-0.24	
IGRADE	-	-122.39		-123.63		-123.21	
		(-10.81)	***	(-10.80)	***	(-10.79)	***
SUB	+	65.48		70.06		70.19	
		-2.72	***	-2.91	***	-2.91	***
CALL	-	-11.15		-12.31		-11.87	
		(-1.26)		(-1.38)		(-1.33)	
CONV	-	-116.7		-119.98		-121.9	
		(-1.95)	*	(-1.99)	*	(-2.02)	*
EARNZERO	-	-47.64		-48.84		-47.89	
		(-4.02)	***	(-4.12)	***	(-4.04)	***
PYREARN	-	-8.72		-8.59		-10.43	
		(-1.06)		(-1.02)		(-1.26)	
EPSMBE	-	-1.00		1.10		0.71	
		(-0.11)		-0.12		-0.08	

Table 5 cont.
Panel B OLS regression of the cost of debt on abnormal operating cash flow for bond issues from 1996 - 2004

		Dependent Variable = YIELD		
	Predicted	*EPS sample n=455, forecast=454*		
Variable	Sign	Zero	Last	Forecast
ABNOCF	+	73.25	58.09	52.96
		-0.96	-0.75	-0.64
NOCF	-	70.7	56.29	47.76
		-0.93	-0.73	-0.59
ZERO	-	-51.01		
		(-1.60)		
ZEROOPP	+	20.23		
		-1.99 *		
*ZEROOPP*ABNOCF*	+	-7.62		
		(-0.49)		
LAST	-		-10.72	
			(-0.83)	
LASTOPP	+		2.3	
			-0.18	
LASTOPP ABNOCF*	+		6.21	
			-0.39	
CFF	-			1.35
				-0.11
CFFOPP				
				-0.07
*CFFOFF*ABNOCF*	+			-20.05
				(-0.80)
R^2		0.571	0.559	0.568

*,**,***are significance at the 0.05, 0.01 and 0.005 levels respectively, see Table 2 for variable definitions. Table 5 panel B reports tests of equations 5-7. Columns 1-3 are results from equations 5-7 for the EPS sample.

Table 6
Panel A OLS regression of the cost of debt on abnormal operating cash flow for bond issues from 1996 - 2004

		Dependent Variable = YIELD					
		Full Sample n=1523					
Variable	Predicted Sign	Loss		OCF Levels		Earn Levels	
INTERCEPT		331.42		314.54		302.4	
		-13.56	***	-11.61	***	-10.47	***
SIZE	-	5.73		6.39		6.82	
		-1.85	*	-2.00	*	-2.13	*
LEV	+	21.31		22.11		18.86	
		-1.32		-1.38		-1.17	
TIMES	+	25.26		25.7		24.11	
		-2.36	*	-2.41	**	-2.25	*
ZSCORE	-	-16.99		-17.33		-17.95	
		(-11.27)	***	(-10.40)	***	(-9.80)	***
ISIZE	+	0.06		0.06		0.06	
		-6.3	***	-6.1	***	-5.98	***
MAT	+	-0.28		-0.28		-0.27	
		(-1.02)		(-1.02)		(-1.00)	
IGRADE	-	-113.55		-111.42		-111.46	
		(-17.57)	***	(-17.20)	***	(-17.20)	***
SUB	+	66.03		63.61		63.36	
		-5.78	***	-5.58	***	-5.55	***
CALL	-	-27.34		-26.72		-26.65	
		(-5.30)	***	(-5.19)	***	(-5.18)	***
CONV	-	-212.46		-214.77		-216.33	
		(-8.04)	***	(-8.17)	***	(-8.20)	***
EARNZERO	-	-58.04		-58.98		-51.57	
		(-7.84)	***	(-7.97)	***	(-5.35)	***
PYREARN	-	-10.22		-10.55		-9.71	

Table 6 cont.
Panel A

Variable	Predicted Sign	Loss		OCF Levels		Earn Levels	
ABNOCF	+	-100.09		-69.32		-69.17	
		(-2.62)	**	(-1.75)	*	(-1.71)	*
NOCF	-	-110.05		-87.87		-89.15	
		(-2.88)	**	(-2.23)	*	(-2.26)	*
ABNOCF LOSS*	+	32.25					
		-1.13					
OCFLOW	+			21.48		16.67	
				-3.11	**	-2.32	*
OCFHI				14.38		9.04	
				-2.06	*	-1.21	
EARNLOW	+					16.02	
						-2.01	*
EARNHI						14.55	
						-1.91	*
ABNOCF OCFLOW*	+			-26.94		-18.56	
				(-1.13)		(-0.60)	
ABNOCF OCFHI*				-11.33		-34.46	
				(-1.34)		(-1.23)	
ABNOCF EARNLOW*						-1.43	
						(-0.10)	
ABNOCF EARNHI*						22.44	
						-0.8	
ABNOCF OCFLOW* EARNLOW*	+					-28.5	
						(-0.59)	
R^2		0.555		0.559		0.562	

Table 6 cont.
Panel A

*,**,***are significance at the 0.05, 0.01 and 0.005 levels respectively, see Table 2 for variable definitions. Table 6 reports tests of equations 8-10. Columns 1-3 are results from equations 8-10 for the full sample.

Table 6

Panel B OLS regression of the cost of debt on abnormal operating cash flow for bond issues from 1996 - 2004

		Dependent Variable = YIELD					
		EPS sample n= 455					
Variable	Predicted Sign	Loss		OCF Levels		Earn Levels	
INTERCEPT		187.16		155.41		153.78	
		-3.64	***	-2.7	***	-2.5	**
SIZE	-	21.79		24.27		23.36	
		-3.6	***	-3.81	***	-3.64	***
LEV	+	12.97		14.6		8.3	
		-0.39		-0.43		-0.24	
TIMES	+	86.79		83.2		87.78	
		-4.17	**	-3.95	**	-4.14	**
ZSCORE	-	-20.48		-18.87		-20.49	
		(-7.86)	***	(-6.59)	***	(-6.55)	***
ISIZE	-	0.03		0.03		0.02	
		-2.34	**	-2.16	**	-1.95	*
MAT	+	0.09		0.2		0.26	
		-0.21		-0.44		-0.56	
IGRADE	-	-123.59		-123.8		-121.89	
		(-10.90)	***	(-10.87)	***	(-10.68)	***
SUB	+	66.01		64.6		61.35	
		-2.73	**	-2.63	**	-2.49	**
CALL	-	-11.28		-11.85		-12.69	
		(-1.27)		(-1.33)	*	(-1.42)	*
CONV	-	-120.3		-122.2		-129.8	
		(-2.00)	***	(-2.03)	***	(-2.16)	***
EARNZERO	-	-48.4		-45.78		-37.03	
		(-4.10)	***	(-3.82)	***	(-2.14)	***
PYREARN	-	-10.13		-10.94		-9.13	
		(-1.23)		(-1.32)		(-1.10)	
EPSMBE	-	1.13		0.78		0.1	
		-0.13		-0.09		-0.01	

Table 6 cont.
Panel B OLS regression of the cost of debt on abnormal operating cash flow for bond issues from 1996 - 2004

		Dependent Variable = YIELD			
		EPS sample n=455			
Variable	Predicted Sign	Loss	OCF Levels	Earn Levels	
ABNOCF	+	53.02	70.82	63.59	
		(-0.71)	(-0.91)	(-0.81)	
NOCF	-	51.12	57.43	50.45	
		(-0.68)	(-0.75)	(-0.65)	
*ABNOCF*LOSS*	+	51.95			
		(-1.35)			
OCFLOW	+		17.88	6.21	
			(-1.33)	(-0.43)	
OCFHI			-9.81	-14.1	
			(-0.85)	(-1.18)	
EARNLOW	+			22.27	
				(-1.44)	
EARNHI				25.35	
				(-2.02)	*
ABNOCF OCFLOW*	+		24.49	-19.39	
			(-0.42)	(-0.25)	
ABNOCF OCFHI*			-12.92	-54.33	
			(-0.87)	(-1.78)	*
ABNOCF EARNLOW*				-5.93	
				(-0.15)	
ABNOCF EARNHI*				44.19	
				(-1.44)	
ABNOCF OCFLOW* EARNLOW*	+			72.33	
				(-0.58)	

Table 6 cont.
Panel B

R^2	0.569	0.571	0.579

*,**,***are significance at the 0.05, 0.01 and 0.005 levels respectively, see Table 2 for variable definitions. Table 6 panel B reports tests of equations 8-10. Columns 1-3 are results from equations 8-10 for the EPS sample.

Table 7

Panel A OLS regression of the cost of debt on abnormal operating cash flow for bond issues from 1996 - 2004

		Dependent Variable = YIELD			
		Full Sample			
		Z score Partition			
		N=760		N= 763	
Variable	Predicted Sign	Low		High	
INTERCEPT		563.06		249.91	
		-14.9	***	-9.17	***
SIZE	-	-25.46		-4.37	
		(-5.52)	***	(-1.75)	*
LEV	+	50.45		0.23	
		-1.94	*	-0.01	
TIMES	+	22.73		103.63	
		-1.42		-7.34	***
ISIZE	+-	0.15		0.04	
		-4.29	***	-5.48	***
MAT	+	-2.23		0.51	
		(-3.82)	***	-2.2	*
IGRADE	-	-134.76		-80.48	
		-13.81	***	(-10.22)	***
CALL	-	-31.77		-37.65	
		(-3.15)	***	(-8.07)	***
CONV	-	-244.67		-90.23	
		(-6.01)	***	(-3.24)	***
EARNZERO	-	-63		-33.86	
		(-5.18)	***	(-4.13)	***
PYREARN	-	-18.73		-9.07	
		(-2.11)	*	-1.87	*

Table 7 cont.
Panel A

ABNOCF	+	-222.32		-40.63
		(-3.75)	***	(-0.95)
NOCF	-	-245.89		-49.43
		(-4.11)	***	(-1.16)
F test		*p*=.0098		
R^2		0.463		0.405

*,**,***are significance at the 0.05, 0.01 and 0.005 levels respectively, see Table 2 for variable definitions. Table 7 reports results from equation (4). The full sample was partitioned into high and low groups based on Z scores.

Table 7

Panel B OLS regression of the cost of debt on abnormal operating cash flow for bond issues from 1996 - 2004

		Dependent Variable = YIELD			
		Full Sample			
		Credit Rating Partition			
		N= 758		N= 765	
Variable	Predicted Sign	Low		High	
INTERCEPT		470.14		74.84	
		(-10.97)	***	(-3.51)	***
SIZE	-	-19.16		16.12	
		(-3.51)	***	(-5.83)	***
LEV	+	78.28		30.97	
		(-3.26)	***	(-1.56)	
TIMES	+	36.99		-10.09	
		(-2.5)	**	(-0.35)	
ISIZE	-	-23.66		-14.61	
		(-7.92)	***	(-10.81)	***
MAT	+	0.22		0.02	
		(-7.70)	***	(-4.14)	***
IGRADE	-	-1.4		0.46	
		(-2.19)	*	(-2.47)	**
CALL	-	-17.42		-29.59	
		(-1.57)		(-7.83)	***
CONV	-	-204.01		59.49	
		(-5.46)	***	(-1.72)	*
EARNZERO	-	-63.49		-35.01	
		(-5.23)	***	(-4.74)	***
PYREARN	-	-11.95		-4.76	
		(-1.24)		(-1.23)	

Table 7 cont.
Panel B

ABNOCF	+	-191.6		-17.79
		(-2.93)	**	(-0.49)
NOCF	-	-212.62		-22.79
		(-3.24)	***	(-0.63)
F test		p=.0142		
R^2		0.373		0.335

*,**,***are significance at the 0.05, 0.01 and 0.005 levels respectively, see Table 2 for variable definitions. Table 7 panel B reports results from equation (4). The full sample was partitioned into high and low groups based on credit rating.

Table 8

Panel A OLS regression of the cost of debt on abnormal operating cash flow for bond issues from 1996 - 2004

		Dependent Variable = YIELD				
		Full Sample partitioned on Z score				
		Low n=760				
Variable	Predicted Sign	Loss	OCF	Earn	Pry	Fore
INTERCEPT		562.32	463.24	407.19	564.84	384.08
		(-14.91)	**(-9.95)**	**(-8.25)**	**(-14.92)**	**(-4.75)**
SIZE	-	-25.65	-17.26	-13.44	-25.59	0.05
		(-5.57)	**(-3.35)**	**(-2.55)**	**(-5.54)**	(-0.01)
LEV	+	48.74	53.75	46.39	50.49	4.02
		(-1.87)	**(2.060**	**(-1.79)**	**(-1.92)**	(-0.07)
TIMES	+	23.41	23.48	17.13	23.16	7.85
		(-1.47)	**(-1.48)**	(-1.08)	**(-1.45)**	(-0.36)
ISIZE	+	0.16	0.17	0.17	0.15	0.12
		(-4.37)	**(-4.74)**	**(-4.68)**	**(-4.18)**	**(-2.55)**
MAT	+	-2.23	-2.04	-2.03	-2.22	-1.27
		(-3.82)	**(-3.48)**	**(-3.48)**	**(-3.78)**	(-1.43)
IGRADE	-	-133.68	-132.39	-131.22	-133.76	-165.34
		(-13.71)	**(-13.57)**	**(-13.50)**	**-13.62**	**(-10.16)**
CALL	-	-31.02	-22.59	-21.8	-32.9	16.57
		(-3.08)	**(-2.17)**	**(-2.100**	**(-3.25)**	(-1.01)
CONV	-	-237.52	-245.8	-241.92	-247.45	-281.98
		(-5.83)	**(-6.08)**	**(-6.01)**	**9-6.07)**	**(-2.74)**
EARNZERO	-	-60.3	-60.77	-41.23	-62.97	-82.29
		(-4.94)	**(-5.01)**	**(-3.06)**	**(-5.17)**	**(-4.56)**
PYREARN	-	-18.53	-17.74	-13.16	-19.24	-19.41
		(-2.09)	**(-2.01)**	(-1.48)	**(-2.15)**	(-1.39)

Table 8
cont.
Panel A

ABNOCF	+	-.244.55	-145.4	-137.88	-249.49	-114.2
		(-4.07)	**(-2.28**)	**(-2.11)**	**(-3.84)**	(-0.93)
NOCF	-	-265.17	169.13	-170.92	-267.26	-128.28
		(-4.039)	**(-2.66)**	**(-2.70)**	**(-4.13)**	(-1.04)
*ABNOCF** *LOSS*	+	111.99				
		(-2.08)				
OCFLOW	+		37.22	28.6		
			(-3.67)	**(-2.75)**		
OCFHI			-1.33	1.99		
			(-0.05)	(-0.07)		
EARNLOW	+			33.51		
				(-3.14)		
EARNHI				-18.46		
				(-0.65)		
*ABNOCF** *OCFLOW*	+		-14.2	-30.11		
			(-0.46)	(-0.93)		
*ABNOCF** *OCFHI*			-89.93	-130.28		
			(-0.57)	(-0.76)		
*ABNOCF** *EARNLOW*	+			-9.98		
				(-0.47)		
*ABNOCF** *EARNHI*						
				(-0.83)		

Table 8
cont.
Panel A

*ABNOCF**						
*OCFLOW**						
EARNLOW	+			29.71		
				(-1.91)		
LAST	-				-4.59	
					(-0.36)	
LASTOPP	+				4.59	
					(-0.36)	
*LASTOPP**						
ABNOCF	+				49.82	
					(-1.60)	
CFF	-					14.63
						(0.66)
CFFOPP	+					3.57
						(0.13)
*CFFOPP**						
ABNOCF	+					60.14
						(0.50)
R^2		0.466	0.473	0.484	0.466	0.508

0.05 significance is in bold print, see Table 2 for variable definitions. Table 8 reports results from equations 6-10. The full sample was partitioned into low and high groups based on Z scores. I exclude the ZERO benchmark since there are not enough observations with firms opportunistically meeting this benchmark.

Table 8

Panel B OLS regression of the cost of debt on abnormal operating cash flow for bond issues from 1996 - 2004

		Dependent Variable = YIELD				
		Full Sample partitioned on Z score				
		High n= 763				
Variable	Predicted Sign	Loss	OCF	Earn	Pry	Fore
INTERCEPT		249.89	217.34	205.34	249.71	111.78
		(-9.16)	**(-7.25)**	**(-5.66)**	**(-9.13)**	**(-1.98)**
SIZE	-	-4.31	-0.43	1.25	-4.39	1.52
		(-1.72)	(-0.15)	(-0.42)	**(-1.75)**	(-0.31)
LEV	+	-1.14	1.02	-0.28	-0.5	84.86
		(-0.07)	(-0.06)	(-0.02)	(-0.03)	**(-2.53)**
TIMES	+	103.79	101.88	101.13	102.93	117.5
		(-7.34)	**(-7.1)**	**(-7.07)**	**(-7.26)**	**(-6.59)**
ISIZE	+	0.04	0.04	0.04	0.04	0.03
		(-5.43)	**(-5.18)**	**(-5.01)**	**(-5.49)**	**(-2.62)**
MAT	+	0.51	0.54	0.52	0.5	1.01
		(-2.21)	**(-2.32)**	**(-2.27)**	**(-2.17)**	**(-2.41)**
IGRADE	-	-80.35	-80.71	-80.85	-80.66	-47.39
		(-10.19)	**(-10.25)**	**(-10.28)**	**(-10.21)**	**(-3.55)**
CALL	-	-37.77	-37.04	-37.02	-37.82	-26.4
		(-8.08)	**(-7.91)**	**(-7.93)**	**(-8.05)**	**(-3.23)**
CONV	-	-89.21	-91.98	-88.72	-90.7	65.59
		(-3.19)	**(-3.30)**	**(-3.20)**	**(-3.25)**	(-1.13)
EARNZERO	-	-33.85	-31.74	-27.53	-33.57	-5.96
		(-4.16)	**(-3.85)**	(-1.29)	**(-4.12)**	(-0.48)
PYREARN	-	-8.9	-8.71	-7.52	-8.9	-4.99
		(-1.83)	**(-1.79)**	(-1.54)	**(-1.80)**	(-0.63)
ABNOCF	+	-42.6	-15.07	-1.12	-33.36	-142.3
		(-0.99)	(-0.33)	(-0.02)	(-0.74)	(-1.74)
NOCF	-	-51.66	-21.97	-1.75	-43.06	-148.29
		(-1.21)	(-0.50)	(-0.04)	(-0.97)	**(-1.84)**

Table 8 cont.
Panel B

*ABNOCF**					
LOSS	+	-16.29			
		(-0.60)			
OCFLOW	+		1.53	6.02	
			(-0.12)	(-0.46)	
OCFHI			-14.4	-8.32	
			(-2.48)	(-1.37)	
EARNLOW	+			-8.32	
				(-0.41)	
EARNHI				-19	
				(-3.14)	
*ABNOCF**					
OCFLOW	+		-17.9	2.83	
			(-0.23)	(-0.03)	
*ABNOCF**					
OCFHI			2.03	-27.36	
			(-0.18)	(-1.34)	
*ABNOCF**					
EARNLOW	+			-5.97	
				(-0.20)	
*ABNOCF**					
EARNHI				36.12	
				(-1.78)	
*ABNOCF**					
*OCFLOW**					
EARNLOW	+			-26.75	
				(-0.18)	
LAST	-				-2.44
					(-0.35)
LASTOPP	+				5.22
					(-0.77)
*LASTOPP**					
ABNOCF	+				-16.17
					(-1.27)

Table 8 cont.
Panel B

CFF	-					-2.17
						(-0.20)
CFFOPP	+					2.73
						(-0.23)
*CFFOPP**						
ABNOCF	+					-25.37
						(-1.41)
R^2		0.405	0.41	0.419	0.406	0.505

0.05 significance is in bold print, see Table 2 for variable definitions. Table 8 reports results from equations 6-10. The full sample was partitioned into high and low groups based on Z scores. I exclude the ZERO benchmark since there are not enough observations with firms opportunistically meeting this benchmark.

Table 9
Panel A OLS regression of the cost of debt on abnormal operating cash flow for bond issues from 1996-2004

		Dependent Variable = YIELD			
	Predicted Sign	Full Sample Positive ABNOCF N=1060			
INTERCEPT		305.84		306.22	
		(9.98)	***	(10.00)	***
SIZE	-	11.41		11.26	
		(3.04)	***	(3.00)	***
LEV	+	-4.54		-4.66	
		(-0.25)		(-0.25)	
TIMES	+	8.88		9.36	
		(0.72)		(0.76)	**
ZSCORE	-	-18.29		-18.25	
		(-10.46)	***	(-10.44)	***
ISIZE	+	0.05		0.05	
		(4.69)	***	(4.69)	***
MAT	+	-0.23		-0.91	
		(-0.73)		(-0.67)	
IGRADE	-	-117.27		-117.32	
		(-15.54)	***	(-15.55)	***
SUB	+	78.45		78.47	
		(5.66)	***	(5.66)	***
CALL	-	-29.53		-29.60	
		(-4.94)	***	(-4.95)	***
CONV	-	-188.97		-189.08	
		(-5.81)	***	(-5.81)	***
EARNZERO	-	-66.31		-66.29	
		(-7.51)	***	(-7.51)	***
PYREARN	-	-15.50		-15.54	
		(-2.64)	***	(-2.65)	***

Table 9 cont.
Panel A

OCF	-	5.81	
		(0.11)	
ABNOCF	+		8.34
			(0.16)
NOCF	-		-5.04
			-(0.10)
R^2		.535	.536

*,**,***are significance at the 0.05, 0.01 and 0.005 levels respectively, see Table 2 for variable definitions. Table 9 tests equation (4) partitioned on positive and negative ABNOCF.

Table 9
Panel B OLS regression of the cost of debt on abnormal operating cash flow for bond issues from 1996-2004

		Dependent Variable = YIELD			
	Predicted Sign	Full Sample Negative ABNOCF N=463			
INTERCEPT		323.72		326.76	
		(7.53)	***	(7.61)	***
SIZE	-	-2.74		-2.83	
		(-0.49)		(-0.51)	
LEV	+	89.49		88.71	
		(2.72)	**	(2.70)	**
TIMES	+	78.13		76.62	
		(3.71)	***	(3.64)	***
ZSCORE	-	-14.47		-14.23	
		(-4.80)	***	(-4.72)	***
ISIZE	+	0.07		0.08	
		(4.06)	***	(4.16)	***
MAT	+	-0.17		-0.19	
		(-0.33)		(-0.36)	
IGRADE	-	-97.34		-99.17	
		(-7.99)	***	(-8.11)	***
SUB	+	37.13		36.80	
		(1.85)	*	(1.83)	*
CALL	-	-18.95		-20.16	
		(-1.91)	*	(-2.03)	**
CONV	-	-256.97		-257.05	
		(-5.68)	***	(-5.69)	***
EARNZERO	-	-40.25		-39.68	
		(-3.03)	***	(-2.99)	***
PYREARN	-	2.91		1.86	
		(0.32)		(0.20)	

Table 9 cont.
Panel B

OCF	-	-253.31			
		(-3.89)	***		
ABNOCF	+			-239.55	
				(-3.64)	***
NOCF	-			-246.42	
				(-3.78)	***
R^2					

*,**,***are significance at the 0.05, 0.01 and 0.005 levels respectively, see Table 2 for variable definitions. Table 9 tests equation (4) partitioned on positive and negative ABNOCF.

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