Incentives to Inflate Reported Cash from Operations
Using Classification and Timing

by

Lian Fen Lee

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
(Business Administration)
in The University of Michigan
2009

Doctoral Committee:

    Professor Russell J. Lundholm, Chair
    Professor Ilia Dichev
    Professor James P. Walsh
    Associate Professor Ji Zhu
    Assistant Professor Catherine Shakespeare

To my parents,
Lee Aik Jin and Mary Lim,
for their unconditional support and encouragement, and for believing in me.

Acknowledgements

Though only my name appears on the cover of this dissertation, a great many people have contributed to this dissertation and my development as a scholar.

I am grateful to my dissertation chair, Russ Lundholm, for his patience and guidance from the preliminary to the completion of this dissertation. I am fortunate to have an advisor who gave me the freedom to explore on my own, and provided the guidance to recover when my steps faltered.

I am also grateful to Cathy Shakespeare for her mentoring and friendship. Her enthusiasm for accounting has taught me that rigorous scholarship can and must be accessible to everyone.

I thank the other members of my dissertation committee, Ilia Dichev, Jim Walsh, and Ji Zhu, for providing a great amount of encouragement, inspiration, and critical thinking. I also thank Greg Miller for numerous discussions, and his time and attention.

Most importantly, I could not have done this without my family and friends, especially Lee Aik Jin, Mary Lim, Lee Lian Siong, Shirley Le, and Simon Tay. They have been a constant source of encouragement, strength and support all these years. I deeply appreciate their belief in me and the sacrifices that they have made for my need to be intellectually stimulated.

Table of Contents

List of Appendices

List of Figures

List of Tables

Abstract

This paper examines when firms manage reported cash from operations in the statement of cash flows (CFO) and the mechanisms through which CFO can be managed. CFO management as investigated in this paper is distinct from earnings management. Unlike the manipulation of accruals, firms cannot manage CFO with biased estimates, but must resort to *classification* and *timing*. I identify five firm characteristics associated with incentives to manage reported CFO: (i) financial distress, (ii) a long-term credit rating near the investment/non-investment grade cutoff, (iii) less persistent earnings, (iv) a trend of diverging earnings and CFO, and (v) the existence of analyst cash flow forecasts. Results indicate that firms manage reported CFO at times when the incentives to do so are particularly high. Specifically, CFO is managed by shifting items between the statement of cash flows categories both within and outside the boundaries of GAAP and by timing certain transactions such as delaying payments to suppliers or accelerating collections from customers.

Chapter 1. Introduction

Cash from operations (CFO) and earnings are complementary measures of firm performance. Investors advocate the use of CFO to gauge the credibility of earnings on the basis that CFO is more "real" than earnings.[1] However, cases of cash flow misreporting have raised concerns that managers exercise discretion in financial reporting and in the timing of transactions to alter reported CFO (hereafter referred to as CFO management).[2] Despite the concerns about misreporting of CFO, there is limited research about when, why and how firms manage reported CFO.

This paper examines the following questions: (1) What are the incentives to manage reported CFO? (2) What are the mechanisms through which CFO is managed? In this paper, CFO management is distinct from earnings management. Particularly, CFO management stems from incentives to inflate reported CFO and not earnings.[3] To the extent that investors focus solely on earnings, CFO management would be pointless. However, depending on the firm characteristics, CFO and earnings have different information content for future earnings and, correspondingly, for investors. For example, executives rank earnings as the most important financial metric to external constituents in

---

[1] See *The Wall Street Journal* article "Cash Flow Reigns Once Again" by Lauricella (2008) and others such as Fink (2000), Glassman (2002), Henry (2004) and Robinson (2006).

[2] As an example, in 1999 Enron was $500 million short of the cash flow target which it had told the national credit rating agencies it intended to achieve for the year. To make up for the shortfall, Enron entered into a transaction internally known as Project Nahanni which allowed Enron to generate cash from operations by selling Treasury bills bought with the proceeds of a loan.

[3] This does not mean that incentives to manage earnings and CFO are mutually exclusive.

general but consider CFO to be more important than earnings when the firm is under distress (Graham, Harvey, and Rajgopal 2005).

Empirically, the multitude of transactions that increase both reported CFO and earnings simultaneously poses a challenge to distinguish between CFO management and earnings management. For example, reducing discretionary expenses increases both earnings and CFO (Dechow and Sloan 1991; Bushee 1998; Roychowdhury 2006). To investigate CFO management as a separate phenomenon from earnings management, I examine how reported CFO can be managed using *classification* and *timing*. Classification refers to the shifting of items between the statement of cash flows categories, namely operating, financing, and investing, *holding earnings and aggregate cash flows constant*. Timing refers to the adjustment of working capital to alter reported CFO, *holding earnings constant*. The choice to investigate CFO management holding earnings constant possibly understates the economic prevalence of the behavior but offers a clean setting to examine CFO management net of the confounding effects of earnings management.

Under SFAS No. 95, cash flows are classified in the statement of cash flows as either operating, investing, or financing.[4] Although the classification of cash flows into categories might be useful to investors in making decisions, the classification system is arguably arbitrary.[5] An SEC staff speech in December 2005 expressed the SEC's concern over cash flow classification:

---

[4] More recently, the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) have a joint project on financial statement presentation, and they propose that all financial statements be presented in a format that would separate the different functional activities of an entity into operating, investing, financing, discontinued operations, and tax categories.

[5] For example, SFAS No. 95 requires that interest be classified as an operating cash flow, while the receipt or repayment of the principal on a loan should be classified as a financing cash flow. Vent, Cowling and Sevalstad (1995) and Nurnberg (2006) discuss how this requirement is subject to a variety of reasonable

> The staff has been giving this Statement greater scrutiny, and it is becoming a growing source of comments, many of which have resulted in restatement…. It may be a good time also to take a fresh look at your cash flows statement in its entirety to make sure you are properly categorizing all cash flows.

This paper hypothesizes that firms manage reported CFO in response to incentives. I identify five firm characteristics that are associated with stronger incentives to manage reported CFO on the basis that reported CFO is perceived by managers to be of particular importance to investors for these firms. The firm characteristics are (i) financial distress, (ii) a long-term credit rating near the investment/non-investment grade cutoff, (iii) less persistent earnings, (iv) a trend of diverging earnings and CFO, and (v) the existence of analyst cash flow forecasts.

To test the hypothesis that firms manage reported CFO at times when the incentives to do so are high, I decompose CFO into expected and unexpected components by modeling expected CFO based on Dechow, Kothari, and Watts (1998). The results show that unexpected CFO is increasing in incentives to manage reported CFO. In terms of magnitude, a one standard deviation change in one of the firm characteristic listed above increases unexpected CFO by an amount that is between 1% and 10% of total CFO, depending on the firm characteristic.[6]

---

interpretations, resulting in at least four methods of classifying the cash flows related to long-term debt in current practice. As another example, cash flows from trading securities are classified as operating cash flows while cash flows from non-trading securities are classified as investing cash flows. However, each company determines the boundaries between trading and non-trading activities, consistent with how each manages its securities holdings.

[6]One limitation of the test using the unexpected CFO measure is that it relies on a model of expected cash flows. In chapter 5.3, I validate the measure using a sample of firms that restated CFO. I also compare the persistence of the unexpected component of CFO between firms that are suspected to have managed CFO and firms that are non-suspects on the assumption that the managed portion of CFO in the current period is likely to be more transitory. I find some evidence that unexpected CFO is less persistent for firms that have stronger incentives to manage reported CFO than other firms.

To understand how CFO can be managed, I conducted an array of tests based on the familiar equation: Earnings = Cash Flows + Accruals. Each component in the equation consists of items in the operating and non-operating (financing and investing) categories. Managers can increase CFO by classification and/or timing. To document classification, I use (i) a sample of firms that restated CFO due to classification errors (restatement sample) and (ii) firms that reported tax benefits from the exercise of stock options as a separate line item in the cash flow statement (tax benefit sample) for the years 1994 to 2000. For the restatement sample, there is evidence that firms are more likely to latter restate CFO when managerial incentives to manage CFO are stronger. The coefficients suggest that depending on the firm characteristic, on average, a one standard deviation or one unit increase in the firm characteristic changes the odds of having a cash flow restatement by at least 16%. For the tax benefit sample, I investigate whether the decision to classify the cash inflow from tax benefit of stock options exercised in the operating section versus the financing section is associated with incentives to manage reported CFO. Companies are not allowed to take a deduction on their tax returns when options are granted if they did not treat the options granted as an expense. However, companies can take a tax deduction for the difference between the exercise price and the market price of the option in the year when the stock option is exercised. Since there was no uniformity on where to classify this tax benefit from stock options exercised prior to July 2000, this setting allows for managerial discretion over the classification of the cash inflow.[7,8] I find some evidence that firms are more likely to classify the tax benefit in the

---

[7] The Emerging Issues Task Force (EITF) Issue No. 00-15 provided specific guidance on the classification of tax benefit, effective after July 20, 2000.

operating section of the cash flow statement at times when incentives to manage CFO are stronger. Depending on the firm characteristic, a one standard deviation or one unit increase in the firm characteristic changes the odds of classifying the tax benefit in the operating section of the cash flow statement by 3% to 22%. Taken together, the results suggest that firms use classification to manage reported CFO.

Next, I investigate whether firms manage reported CFO by carefully timing certain transactions such as delaying payments to suppliers or accelerating collections from customers.[9] A deliberate effort to make reported CFO look better at the end of the fiscal year would result in a shorter industry-adjusted cash conversion cycle in the last quarter of the fiscal year that reverses in the first quarter of the following year. Alternatively, if the shorter cycle persists into the first quarter of the following year, this would indicate a general improvement in working capital management. The results show that incentives to manage CFO are positively associated with a shorter cycle in the fourth quarter of the year that reverses in the next quarter. Further analysis on timing reveals that the association is stronger for non-December year-end firms. For these firms, it is likely that the fiscal year-end of their customers or suppliers does not match their own year-end, making them more amenable to "timing" the transaction in a favorable way for the firm.

Last, the findings on using classification to increase reported CFO are weaker when the firm has analyst cash flow forecasts. I test the conjecture that timing is a more

---

[8] For the nine months ended June 30, 2000, Lucent Technologies reported CFO of -$378 million and would have shown a decline instead of an improvement in CFO when compared with the same period in the prior year if not for the $1,026 million in tax benefit from stock options.
[9] As an anecdotal example of an alleged case of cash flow "misreporting," Goldman Sachs analyst Gary Lapidus estimated that Ford Motor's cash balance as of June 30, 2002, was overstated by as much as $10 billion because of the way Ford Motor delayed paying the costs of lease or loan incentives to Ford Credit, the company's financial arm. By stretching the payments out over time, Ford Motor boosted its annual cash flow by $1.4 billion a year at the expense of Ford Credit.

effective tool than classification if firms are motivated to meet or beat analyst cash flow forecasts. Using a sample of firms that have both analyst earnings forecasts and cash flow forecasts, I document a prominent upward shift from the left of zero to the right of zero in a distribution of cash flow forecast error. The discontinuity suggests that firms manage CFO to meet or beat analyst cash flow forecasts.[10]

The evidence in this paper indicates that the trichotomy in the statement of cash flows is arguably ambiguous (Mulford and Comiskey 2005; Numberg 2006; Ohlson and Aier 2007), thus creating avenues for firms to manage reported CFO. Other studies have documented that managers make choices to achieve a desired income statement classification that has no effect on bottom-line earnings (Bowen, Davis, and Rajgopal 2002; McVay 2006; Robinson 2007). The results in this paper suggest that such behavior also occurs for cash flow statements. Specifically, managers not only take actions that affect the classification in the statement of cash flows but use real activities to increase reported CFO. In this regard, this paper contributes to our understanding of managers' financial reporting incentives to take actions that do not change bottom-line earnings but can have a significant impact on the expectations of investors and other financial statement users.

The next chapter reviews relevant literature and develops the hypothesis. Chapter 3 presents the data, sample, and descriptive statistics. Chapter 4 describes the test design and presents the results. Additional tests and results are provided in chapter 5, and chapter 6 concludes, including directions for future research.

---

[10]A working paper by Brown and Pinello (2008) examines the characteristics of firms that meet or beat analyst cash flow forecasts but miss their earnings forecasts. Another working paper by Zhang (2008) documents a similar discontinuity for a histogram of cash flow surprise.

Chapter 2. Prior Literature and Hypotheses Development

Several studies have noted an increase in analyst and management cash flow forecasts over time.[11] One explanation for this trend is market participants' demand for cash flow information (Wasley and Wu 2006), especially after the series of corporate scandals occurring in 2000-2001. Analyzing CFO was viewed as a useful way to uncover earnings management.[12] Consistent with this view, recent studies suggest that the existence of analyst cash flow forecasts helps to mitigate earnings management (DeFond and Hung 2003; Wasley and Wu 2006; DeFond and Hung 2007; McInnis and Collins 2007). However, anecdotes suggest that firms also manage reported CFO. Appendix 1 provides the details on how Dynegy structured a complex transaction using a special purpose entity (SPE) to masquerade a loan as a cash inflow from operations. The terms of the contract and mark-to-market accounting rules allowed Dynegy to record a $300 million increase in reported CFO for the year 2001 without an effect on earnings. Subsequently, the SEC required Dynegy to restate its cash flow statement by reclassifying the $300 million from the operating section of the cash flow statement to the financing section.

---

[11] DeFond and Hung (2003) report that the proportion of earnings forecasts that also include cash flow forecasts increased from 1% in 1993 to 15% in 1999, and Wasley and Wu (2006) find that analyst forecasts of cash flow during the 2000-2003 period more than doubled from pre-2000 levels. In a more recent paper, Call (2007) documents that analyst cash flow forecasts have increased dramatically in last decade, from 4% of firms with an earnings forecast in 1993 to 54% in 2005.

[12] See articles by Fink (2000), Glassman (2002), Henry (2004), Robinson (2006), Lauricella (2008), and others.

In addition to anecdotal evidence, prior research suggests that firms may have incentives to manage reported CFO, even in the absence of an effect on bottom-line earnings. First, studies have documented that managers engage in activities to manage the presentation of items in the financial statements even when there is no change in bottom-line earnings. Engel, Erickson, and Maydew (1999) find that firms use the proceeds of trust preferred stock issuances to retire debt in order to reclassify obligations out of the liability section of the balance sheet. Bowen et al. (2002) provide evidence that Internet firms with greater individual investor interest and those that seek external financing adopt aggressive revenue-reporting practices that increase both revenue and expense and thus do not affect bottom-line earnings. McVay (2006) finds that managers inflate core earnings by opportunistically shifting expenses from core expenses to special items, while Robinson (2007) finds that managers are willing to incur costs to shift an expense from core expense to tax expense. Second, there is some evidence of capital market benefits associated with meeting or beating cash flow benchmarks, suggesting that firms may have incentives to manage reported CFO. Call (2007) finds that when setting stock prices, investors place more weight on CFO for firms with analyst cash flow forecasts, even after controlling for earnings. DeFond and Hung (2003) and Zhang (2007) document that the stock market reaction to cash flow surprise is positive even after controlling for earnings surprise.

In this paper, firms are hypothesized to manage reported CFO in response to incentives. I identify five firm characteristics that are associated with stronger incentives to manage reported CFO on the basis that reported CFO is perceived by managers to be

of particular importance to investors for these firms.[13] The firm characteristics are (i) financial distress, (ii) a long-term credit rating nearer the investment/non-investment grade cutoff, (iii) less persistent earnings, (iv) a trend of diverging earnings and CFO, and (v) the existence of analyst cash flow forecasts. In chapter 2.1, I elaborate on why firms have incentives to manage reported CFO when one or more of the characteristics are present. I then discuss the mechanisms through which CFO can be managed in chapter 2.2.

2.1 Firm characteristics associated with incentives to manage cash from operations

Financial distress

Prior research provides mixed evidence on whether cash flow information is relevant for financially distressed firms. Casey and Bartzcak (1985) find that cash flows do not provide incremental information in distinguishing between bankrupt and non-bankrupt firms, but a more recent paper by Sharma (2001) finds that they do. Furthermore, while Gombola, Haskins, Ketz, and Williams (1987) and Gentry, Newbold, and Whitford (1985) find that cash flows are not significant in predicting firm failure, Pervits, Bricker, Robinson, and Young (1994) find that cash flows appear to be more important to analysts in evaluating companies that are highly leveraged, and Graham et al. (2005) document that executives consider cash flow measures to be more important to external constituents than earnings when the firm is in financial distress. The more recent results supporting the importance of cash flow information for distressed firms are

---

[13] In analysis not tabulated, I investigate whether investors incorporate more CFO information into stock prices for firms that exhibit the characteristics identified in this paper. Similar to Call (2007), I regress the twelve-month buy-and-hold stock returns for each firm beginning three months after fiscal year-end on earnings and CFO. Given that earnings is the sum of accruals and CFO, the coefficient on CFO can be interpreted as the incremental weight investors place on the cash component of earnings. The results provide some support that the weight on CFO is increasing in the firm characteristics associated with incentives to manage reported CFO.

consistent with cash flows being a traditional measure in evaluating credit and bankruptcy risks (Beaver 1966; Ohlson 1980; DeFond and Hung 2003). In this regard, managerial incentives to manage CFO are predicted to be increasing in financial distress.

Investment versus non-investment grade cutoff for credit ratings

Cash flow adequacy is a major concern when rating agencies assign credit ratings to firms (Standard and Poor's 2008). Backer and Gosman (1980) find that senior executives at the major bond rating agencies consider the CFO to long-term debt ratio is a key variable in their decision process.[14] Beaver, Shakespeare, and Soliman (2006) argue that the investment grade and non-investment grade boundary is a critical point in the distribution of ratings. Certified credit ratings are used in several contractual settings, and a downgrade below investment grade has real economic consequences such as violation of debt covenants or the loss of investment from firms that can only hold investment grade bonds. Thus, firms have incentives to manage reported CFO to avoid downgrades, particularly at the investment and non-investment grade cutoff.[15]

Earnings persistence

High earnings persistence is a desirable attribute of earnings (Penman and Zhang 2002; Francis, LaFond, Olsson, and Schipper 2004). Prior studies have shown that firms with low earnings persistence have low earnings response coefficients (Collins and Kothari 1989; Easton and Zmijewski 1989; Subramanyam and Wild 1996), suggesting that the informativeness of earnings is compromised when earnings persistence is low. In addition, Richardson, Sloan, Soliman, and Tuna (2005) find that firms with less reliable

---

[14] In April 2007, an analyst at Fitch Ratings downgraded Japan Airlines (JAL) to non-investment grade on the basis that JAL's cash flow from operations was too weak.

[15] A similar argument can be made for firms that are just below investment grade, particularly the ones with credit ratings of "BB+," "BB," and "BB-." I repeat the analysis using these firms as the suspect firms, and the results are similar.

accruals have lower earnings persistence. While low earnings persistence alone is not necessarily indicative of low earnings quality, investors may perceive this to be so and rely on alternative measures of firm performance such as CFO (Defond and Hung, 2003). Thus, CFO management is predicted to be negatively related to earnings persistence.

Diverging earnings and cash flows

When a company shows strong earnings but generates little cash from its core operations, it could be a warning that the earnings are illusory (O'glove 1987; McLean 2001; Fink 2003).[16] Conversely, many investors take comfort in the quality of a company's earnings if they also see operating cash flows that do not diverge wildly from earnings. Since CFO helps investors uncover earnings management in the suspected firm, investors are likely to place more importance on CFO in valuing the firm if earnings and cash flows are diverging. Hence, firms with diverging earnings and cash flows have stronger incentives to manage CFO in an attempt to adjust cash flows to more closely parallel earnings.[17]

Analyst cash flow forecasts

DeFond and Hung (2003) argue that analysts issue cash flow forecasts in addition to earnings forecasts when CFO is more useful to market participants in interpreting earnings and valuing securities.[18,19] Their results suggest that analysts are more likely to

---

[16] In 2001, an article in *Fortune* by McLean pointed out that Enron could be overpriced and one red flag was the company's deteriorating cash from operations. "….in 1999 its cash flow from operations fell from $1.6 billion the previous year to $1.2 billion. In the first nine months of 2000, the company generated just $100 million in cash…"

[17] In fact, investigators revealed that Dynegy created project Alpha to address the widening gap between reported profits and cash from operations.

[18] DeFond and Hung (2003) and McInnis and Collins (2007) indicate that analysts' cash flow forecasts do not merely represent crude adjustments of earnings, such as EBITDA. Rather, they represent relatively sophisticated projections of cash flows from continuing operations. However, Givoly, Hayn and Lehavy (2008) find that analysts' cash flow forecasts are of a considerable lower quality than their earnings forecasts. They suggest that it is plausible that the existence of a cash flow forecast affects management

forecast cash flows for firms where accounting, operating, and financing characteristics suggest that cash flows are useful in interpreting earnings and assessing firm viability. This implies that the existence of an analyst cash flow forecast is a summary statistic for the importance that market participants place on CFO. They further show that the market rewards these firms for exceeding cash flow expectations, suggesting that firms with analyst cash flow forecasts may have stronger incentives to manage reported CFO than those without analyst cash flow forecasts.

2.2 Mechanisms to manage cash from operations

Figure 1 succinctly illustrates the mechanisms through which CFO is managed. I begin with the familiar equation: EARNINGS = CASH FLOWS + ACCRUALS. Each component in the equation consists of items in the operating and non-operating (financing and investing) categories. The simple framework illustrates how firms can manage reported CFO using classification and timing. Understanding how CFO is managed holding earnings constant is beneficial because transactions that increase earnings and CFO simultaneously could be motivated by incentives to manage earnings and not CFO. Thus, limiting the examination of CFO management activities to those that increase CFO *only* may understate the economic prevalence of the behavior, but provides a clean setting to examine CFO management net of the confounding effects of earnings management.

---

reporting behavior regardless of the quality of the forecast. The mere presence of cash flow forecasts investors' attention to them and may influence management reporting behavior because these forecasts provide an additional financial measure against which the reported results might be evaluated.

[19]In addition, to address the concern that the cash flow per share forecasted relates to the cash from operations number reported in the statement of cash flows, I compare the actual cash flow per share as reported in I/B/E/S with the actual cash from operations scaled by number of shares reported in Compustat. The two numbers are identical for 75% of the sample, and on average, the difference is not statistically significant. Furthermore, the inferences from the results are the same when the sample is limited to those that reported the same number in I/B/E/S and Compustat.

Recall that classification refers to the shifting of items between the statement of cash flows categories, namely operating, financing, and investing, holding earnings and aggregate cash flows constant. The example on cash flow misreporting by Dynegy in Appendix 1 shows how firms structure transactions to alter reported CFO. In the absence of the complex transaction, the cash inflow of $300 million would have been classified as a financing activity instead of an operating activity. The Dynegy case was sufficiently severe to warrant a restatement. However, not all classifications to manage reported CFO are violations of GAAP. Within the boundaries of GAAP, firms can exercise some discretion over where to classify cash flows because of the ambiguity associated with classifying cash flows into a specific category (Mulford and Comiskey 2005; Nurnberg 2006; Ohlson and Aier 2007).[20] In chapter 4, I investigate whether firms manage reported CFO using classification by focusing on cash flow restatements due to classification errors and the classification of tax benefits from stock options exercised.

Timing refers to the adjustment of working capital to alter reported CFO, holding earnings constant. Generally, managers have some discretion over the timing of CFO through influencing *when* to disburse the cash outflow or receive the cash inflow; and a way to increase reported CFO at the end of the year is to delay payments to suppliers and accelerate collections from customers. Such actions may strain customer and supplier

---

[20] For example, capitalization of interest cost results in differences between total interest payments and total interest costs. Nurnberg and Largay (1998) and Nurnberg (2006) illustrate the ambiguity in distinguishing between uncapitalized and capitalized interest payments under SFAS No. 95. Assume total interest cost of $30,000, including $3,000 of accrued interest or discount amortization and $27,000 of interest payments. Of the $30,000, $20,000 is expensed and $10,000 is capitalized as plant assets. If interest payments are allocated between operating and investing activities as interest cost is allocated between amounts expensed and amounts capitalized, $18,000 is reported as an operating outflow and $9,000 is reported as an investing outflow. Alternatively, as little as $17,000 or as much as $20,000 could be reported as an operating outflow, and as much as $10,000 or as little as $7,000 could be reported as an investing outflow. They further note that companies seem to favor the method that reports $17,000 of operating outflow, presumably in order to maximize reported CFO.

relations, and profit margins would be compromised if discounts need to be given to customers for early payments. However, unlike classification, timing involves real actions on the business operations and hence, reduces the cost associated with getting caught by the auditors or the SEC. I examine whether firms manage reported CFO using timing by looking at irregularities in cash conversion cycles, which will be elaborated in chapter 4.

Chapter 3. Data and Descriptive Statistics

3.1 Data and sample selection

The sample initially includes all firms from 1988 to 2007 with available data on Compustat. The sample period begins in 1988 because of the availability of cash from operations data from the statement of cash flows. The expected cash flows model discussed in the next chapter is estimated at a firm level; so I require at least 10 years of data for each firm. The 10-year data requirement biases the sample toward surviving firms but a shorter time series could introduce noise into the estimation process.[21] Firms in the banking, insurance and financial industries, based on the industry classification in Fama and French (1997), are excluded from the analysis because the model for predicting expected level of CFO is not appropriate for such firms. All financial variables are winsorized at the extreme 1% to remove the influence of outliers.

3.2 Descriptive statistics

Table 1 Panel A presents descriptive statistics for the variables used in the main analyses. Note that the sample sizes differ across the firm characteristics due to the data required to construct each variable. *DISTRESS* is the probability of bankruptcy based on Shumway (2001). The mean and median *DISTRESS* in the sample are 2.1% and 0.2% respectively consistent with expectation that the *DISTRESS* variable has a positively skewed distribution. In subsequent analyses, I take the natural logarithm of the

---

[21] The results are similar when the data requirement is relaxed to 5 years of data.

DISTRESS variable to normalize the positively skewed distribution. *IGRADE* is an indicator set to 1 if the firm has a 'BBB+', 'BBB' or 'BBB-' on its long-term credit rating and set to 0 if the firm has other long term credit ratings. About 10.2% of the firms in the sample are near the investment/non-investment grade cutoff in the distribution of long term credit ratings. Earnings persistence (*PERSISTENCE)* is measured at a firm level over a 10-year rolling window. The mean *PERSISTENCE* in the sample is 36.7%. *ACCSCORE* is equal to the sum of the level of operating accruals' decile rank and the change in operating accruals' decile rank measured over a 5-year rolling window. A high *ACCSCORE* represents a firm with diverging earnings and cash flows. *CFF* is an indicator set to 1 if the firm has at least one analyst cash flow forecast and one EPS forecast, and set to 0 if the firm only has an EPS forecast. About 24% of the firms with at least one EPS forecast have at least one cash flow forecast.

Table 1 Panel A also presents the dependent variables, which will be discussed in detail in the next chapter, and the control variables used in the main regressions. The control variables include measures such as return on assets (*EARN*), firm size (*SIZE*) measured as the natural logarithm of total assets, market-to-book ratio (*MB*), and abnormal accruals (*ABACC*) based on Jones (1991).

Table 1 Panel B reports the Pearson and Spearman correlations among the variables.[22] As expected, firms in financial distress have lower earnings (Pearson correlation between *DISTRESS* and *EARN* = -0.389), are smaller (Pearson correlation between *DISTRESS* and *SIZE* = -0.433), and have lower market to book ratios (Pearson correlation between *DISTRESS* and *MB* = -0.200). Analysts tend to disseminate cash flow forecasts for firms that are generally larger (Pearson correlation between *CFF* and *SIZE* =

---

[22] The correlations are based on the largest sample, which is the *DISTRESS* sample.

0.454) and have higher market to book ratios (Pearson correlation between *CFF* and *MB* = 0.054). Last, the five firm characteristics (*DISTRESS*, *IGRADE*, *PERSISTENCE*, *ACCSCORE,* and *CFF*) are not highly correlated suggesting that while these characteristics are not mutually exclusive, each characteristic still captures a different aspect of managerial incentives. Specifically, the highest correlation is between *DISTRESS* and *ACCSCORE* with a Pearson correlation of 0.152.

Chapter 4. Test Design and Results

In this chapter, I discuss the research design and results for the three sets of tests in the main analysis. I first test the hypothesis that firms manage reported CFO in response to incentives using a measure of unexpected CFO based on Dechow et al. (1998). To further investigate how CFO can be managed, the second and third tests examine specific CFO management techniques. I elaborate on the design and results for each test in the remainder of this chapter.

4.1 Test using unexpected cash from operations

To derive expected levels of CFO, I use the model developed by Dechow et al. (1998) as implemented in Roychowdhury (2006).[23] Expected CFO is expressed as a linear function of sales and change in sales:

$$CFO_t / TA_{t-1} = \lambda_0 + \lambda_1(1 / TA_{t-1}) + \lambda_2(SALE_t / TA_{t-1}) + \lambda_2(\Delta SALE_t / TA_{t-1}) + \varepsilon_t \quad (1)$$

where CFO_t is the cash flow from operations (Compustat data item 'oancf') for the period t, TA_{t-1} is the total assets (Compustat data item 'at') at the end of period t-1, $SALE_t$ and $\Delta SALE_t$ are the sales (Compustat data item 'sale') and change in sales during period t. For every firm-year, unexpected CFO is the residual from the firm-specific regression.

---

[23] I include an intercept in the model to allow the average CFO_t / TA_{t-1} for a particular firm-year to be non-zero even when the primary explanatory variables in the model, sales, and change in sales, are zero. The results are similar when the intercept is excluded. As an additional robustness check, unexpected CFO is also estimated based on the model in Barth, Cram, and Nelson (2001) and the tenor of the results is the same.

Table 2 reports the mean and median regression coefficients and adjusted R^2 for equation (1). The mean and median parameter estimates on $SALE_t / TA_{t-1}$ are positive, and the mean and median parameter estimates on $\Delta SALE_t / TA_{t-1}$ are negative, consistent with Roychowdhury (2006). All are statistically significant at the 1% level. The mean adjusted R^2 across firms is 38%, which is only somewhat lower than the mean adjusted R^2 of 45% reported by Roychowdhury (2006) who estimated the regression at the industry level every year.

To test the hypothesis, I estimate the coefficients in the following regression:

$$UCFO_t = \beta_0 + \beta_1 FC_t + \beta_2 EARN_t + \beta_3 SIZE_t + \beta_4 MB_t + \beta_5 ABACC_t + \varepsilon_t \qquad (2)$$

where FC is the firm characteristic associated with incentives to manage reported CFO, either *DISTRESS, IGRADE, PERSISTENCE, ACCSCORE,* or *CFF*. β_1 is predicted to be positive when FC is *DISTRESS, IGRADE, ACCSCORE,* and *CFF* and negative when *FC* is *PERSISTENCE*.

Following Roychowdhury (2006), *EARN*, *SIZE,* and *MB* are included as control variables in the model. *SIZE* is included in the model as a control because large firms have more stable and predictable operations than small firms. I include *EARN* and *MB* to address the possibility that unexpected CFO values from the estimation model have measurement error correlated with firm performance and growth opportunities. I also include unexpected accruals (*ABACC*) to control for systematic variation in unexpected CFO with managerial incentives to manage earnings using accruals.[24]

Estimating the regression model using panel data poses an econometric issue because the unexpected CFO for each observation is the residual from firm-specific

---

[24] I acknowledge that since *ABACC* is a component of *EARN*, the coefficient estimates for the two control variables should be interpreted with caution and multicollinearity is likely to result in imprecise coefficient estimates. However, I am only interested in the predicted value, not the individual coefficient estimates.

regression. Consequently, the residuals for a given firm might be correlated across years for that given firm. In addition, the residuals for a given year may be correlated across firms due to macro economic factors. Therefore, I adjust the OLS standard errors using two-way clustering based on Cameron, Gelbach and Miller (2006) and discussed in Petersen (2009).[25]

The results in Table 3 are generally consistent with the hypothesis that firms manage reported CFO in response to incentives, with the support for the prediction on *PERSISTENCE* (coefficient = -0.002, t-statistic = -1.72) weaker than the other predictions. In column (1), the coefficient on *DISTRESS* is 0.002 (t-statistic = 4.61). This indicates that an increase in the probability of bankruptcy of one standard deviation (8.8%) away from the mean (2.1%) increases *UCFO* by about 0.008. This increase in unexpected CFO translates to about 10% of reported CFO for the average firm in the sample. The rest of the results in Table 3 show that firms with a long-term credit rating near the investment grade/non-investment grade cutoff, firms with less persistent earnings, firms that exhibit a trend of diverging earnings and CFO, and firms with analyst cash flow forecasts have higher unexpected CFO.

In all columns in Table 3, the coefficients on *EARN* and *ABACC* are significantly positive and negative respectively, consistent with the univariate correlations in Table 1 Panel B. CFO and operating accruals are negatively correlated (Dechow and Dichev 2002); and given the positive correlation between each element and its unexpected

---

[25] I obtain the variance-covariance matrix of the OLS parameter estimates using clustering on firm (VC$_{firm}$), followed by the variance-covariance matrix of the OLS parameter estimates using clustering on year (VC$_{year}$) and finally the variance-covariance matrix of the OLS parameter estimates using clustering on firm-year (VC$_{firm-year}$). The asymptotic variance-covariance matrix of the OLS parameter estimates is given by VC$_{firm}$+ VC$_{year}$- VC$_{firm-year}$.

component, the negative correlation between *UCFO* and *ABACC* is not surprising.[26] This is also consistent with Roychowdhury (2006) who documented a negative correlation between abnormal CFO and abnormal accruals based on cross-sectional regressions estimated for every industry and year. The coefficient on *SIZE* is generally negative, consistent with the idea that bigger firms have more stable and predictable operating environments resulting in more predictable CFO and lower unexpected CFO. The coefficient on *MB* is generally positive, probably due to the greater uncertainty surrounding future cash flows for firms with more growth opportunities.

Some important caveats must be mentioned in the interpretations of the results in Table 3. First, the construct validity of the unexpected CFO measure is dependent on how well the cash flows expectation model captures what the reported CFO would have been absent CFO management. I validate the unexpected CFO measure in chapter 5 using a sample of firms known to have managed CFO. Second, to the extent that the abnormal accruals measure is not a perfect control for incentives to manage earnings, a limitation of the test is that the observed relation between unexpected CFO and the firm characteristics could be a result of earnings management.

4.2 Classification Tests

The second set of tests focuses on classification as a tool to manage reported CFO. In this set of tests I explore whether firms with stronger incentives to manage reported CFO do so by examining (i) cash flow restatements due to classification errors and (ii) cash flow classification of tax benefits from stock options exercised.

---

[26] As *ABACC* is a component of *EARN*, multicollinearity may lead to less precise coefficient estimates. However, the inference from the coefficients on the variables of interest remains unchanged.

4.2.1 Cash flow restatements

To collect a sample of firms that restated reported CFO in the statement of cash flows, I search for the words "classify and cash flow" and "restate and cash flow" in the headline and lead paragraph of press releases in Factiva. Cash flow restatements not relating to the operating section are excluded from the sample. Cash flow restatements that are accompanied by earnings restatements are excluded from the sample as well, because in such cases the manager's intention could be to manage earnings rather than CFO. If the restated CFO is higher than the originally reported CFO, the restatement is excluded from the sample. The result is a sample of 48 firms that made classification errors in their cash flow statements over the period 2001 to 2006 (restatement sample). The magnitude of the restatement is statistically significant at the 1% level with a mean of $751 million and a median of $40 million. Panel A of Table 4 provides a breakdown of the sample based on the cause of the cash flow restatement, and Appendix 2 provides examples of cash flow restatements.

The firms in the restatement sample are first matched to a control group of firms based on industry and year because cash flow classification for some transactions may be determined by industry norms. The sample firm is then matched to a control firm of a size that is between 90% and 110% of that of the sample firm. From this subset of firms, I pair each sample firm to the control firm that has the closest market-to-book ratio. I choose to match on firm size and market-to-book ratio because restating firms are likely to differ from non-restating firms in their firm sizes and growth opportunities (Burns and Kedia 2006). To test the relation between the incentives to manage CFO and cash flows restatement, I estimate the following logistic regression:

$$RESTATE_t = \beta_0 + \beta_1 FC_t + \varepsilon_t \tag{3}$$

where *RESTATE* is an indicator variable set to 1 if it is a restatement sample firm and 0 if it is a control firm.[27] *FC* is as defined in Table 1.

The results are presented in Panel B of Table 4. Overall, there is evidence that firms are more likely to restate cash flows due to classification errors at times when the incentives to manage reported CFO are high. The percentages in the row titled "Change in odds (%)" estimate the change in the odds of a firm having a cash flow restatement in response to a one standard deviation increase in the firm characteristic if it is a continuous variable, and a one unit increase in the firm characteristic if it is a binary or ranked variable. The results show that a one standard deviation increase in *DISTRESS* increases the odds of a firm having a cash flow restatement by 48%, a one standard deviation decrease in *PERSISTENCE* increases the odds by 66%, and a one unit increase in *ACCSCORE* increases the odds by 16%. Firms with long-term credit rating near the investment/non-investment grade are 2.4 times more likely than firms with other long-term credit ratings to restate their cash flow statements. The coefficient on *CFF* is statistically insignificant suggesting that classification shifting is not used as a CFO management tool for firms with analyst cash flow forecasts. One possible explanation is that cash flow restatements are typically of a large magnitude and managers may not need an amount of such magnitude to meet or beat the analyst cash flow forecast. I provide some support for this conjecture in chapter 5.

---

[27] Richardson, Tuna and Wu (2002) find that restating firm-years have higher accruals than non-restating firm-years, but Burns and Kedia (2006) find no difference in the discretionary accruals of restating firm-years and those of non-restating firm-years. As a robustness check, I include *ABACC* as a control variable in the regression model and the results are similar.

4.2.2 Classification of the tax benefit from exercise of employee stock options

Prior to the mandatory expensing of stock options, most companies avoided recording stock options as an expense when granted. To be consistent with the treatment of the option-based compensation expense, Internal Revenue Service rules do not allow companies to take a deduction on their tax returns when options are granted. However, at the time the stock option is exercised, the company is permitted to take a deduction on its tax return for that year reflecting the difference between the exercise price and the market price of the option. The issue is where to classify this tax benefit on the cash flow statement. Some companies classified the tax benefit in the operating section of the cash flow statement while others included it as a financing activity.

I examine the cash flow statements for all Compustat firms that have CFO data for fiscal years ended Jan 1, 1994 to July 20, 2000. The time period begins in 1994 because this is the first year that SEC filings are more readily available on Edgarscan. Even so, many companies do not have filings available until 1996. The time period ends in July 20, 2000 because EITF 00-15 provides specific guidance on the classification of tax benefit effective after July 20, 2000. For each cash flow statement, I search for the line item associated with tax benefit from the exercise of employee stock options and identify whether this item is classified under the operating section or the financing section. I manually checked 3,956 cash flow statements to verify the accuracy of the data. The sample selection is outlined in Panel A of Table 5.[28] To test the relation between the incentives to manage CFO and classification of the cash inflow from the tax benefit, I estimate the coefficients in the following logistic regression model:

$$INOP_t = \beta_0 + \beta_1 FC_t + \varepsilon_t \tag{4}$$

---

[28] In the sample, 39% classified the tax benefits in the operating section of the cash flow statement.

where *INOP* is an indicator variable set to 1 if the tax benefit is classified in the operating section of the cash flow statement and 0 if it is classified in the financing section.[29] *FC* is as defined in Table 1. In Panel B of Table 5, the percentages in the row titled "Change in odds (%)" estimate the increase in the odds of a firm classifying the tax benefit cash inflow in the operating section in response to a one standard deviation increase in the firm characteristic if it is a continuous variable and a one unit increase in the firm characteristic if it is a binary or ranked variable. The results are broadly consistent with managers classifying the tax benefit cash inflow in the operating section rather than the financing section of the cash flow statement at times when the incentives to manage CFO are high. In particular, a one standard deviation increase in *DISTRESS* increases the odds of a firm classifying the cash inflow in the operating section by 20%, a one standard deviation decrease in *PERSISTENCE* increases the odds by 22%, and a one unit increase in *ACCSCORE* increases the odds by 3%. Similar to the results in Table 4, the statistically insignificant coefficient on *CFF* suggests that firms with analyst cash flow forecasts are not using classification to manage reported CFO. In Column (2), the statistical insignificance on *IGRADE* is probably due to a lack of power because only 9 out of the 177 firms have a rating that is near the investment/non-investment grade cutoff.

One concern with the classification of tax benefits test is that the choice to classify the tax benefit in a particular category may be sticky. To address this concern, I conduct additional analysis by limiting the sample to firm years when the firm made a switch from classifying the tax benefits from the financing section to the operating section of the cash flow statement and firm-years when the firm continued to classify the

---

[29] Results are similar when *SIZE* and *MB* are included in the model.

tax benefit in the financing section of the cash flow statement. In this alternative specification, the firm characteristics are measured in changes instead of levels. Results are similar to those reported in Panel B of Table 5. Specifically, the coefficient on *DISTRESS* is 0.157 (p-value = 0.07), the coefficient on *PERSISTENCE* is -4.098 (p-value = 0.10), and the coefficient on *ACCSCORE* is 0.336 (p-value = 0.06). Overall, the results presented in Tables 4 and 5 are consistent with firms using classification to manage reported CFO when the incentives to do so are high.

4.3 Timing tests

The third set of tests investigates whether managers use timing to manage CFO in response to incentives. In the fourth quarter, managers have a final opportunity to report a higher annual CFO number by delaying payments and accelerating collections; these actions do not influence reported earnings but reduce the days in the firm's fourth quarter cash conversion cycle. While a short cash conversion cycle in the fourth quarter could be viewed as a good business practice, an absence of such a practice year-round suggests that CFO management may be the cause for the reduction in the fourth quarter. Since these are working capital items, they are likely to reverse in the next quarter. Hence, a reversal in the first quarter of the following year, independent of industry-specific factors, is additional evidence of a deliberate effort to make reported CFO look better at the end of the fiscal year. I construct an empirical measure of CFO management as follows. For each firm, $\Delta CC_{t+1} = CC_{q1,t+1} - CC_{q4,t}$ where $CC_{qi,t}$ represents the cash conversion cycle in quarter i of year t. The calculation of CC is described in Table 1. The measure is industry-adjusted each year because there might be seasonal variation in the cash

conversion cycle for some structural reason.[30,31] To test whether firms use timing to manage CFO in response to incentives, I estimate the following regression:

$$\Delta CC_{t+1} = \alpha_0 + \alpha_1 FC_t + \alpha_2 SIZE_t + \mu_{t+1} \tag{5}$$

The model includes a control for firm size because large firms may manage cash differently from small firms because of differences in supplier networks, sources of financing, and liquidity needs.

The results in Panel A of Table 6 are generally consistent with firms shortening their cash conversion cycles in the last quarter in order to increase reported CFO. A one standard deviation increase in *DISTRESS* and *ACCSCORE* increases ΔCC by 1.53 and 1.30 days respectively, and a decrease in *PERSISTENCE* increases ΔCC by 0.81 days. ΔCC is 1.02 days greater for firms with a long-term credit rating near the investment/non-investment grade cutoff than other firms, and is 1.58 days greater for firms with analyst cash flow forecasts than those without. The magnitude of the number of days is small and suggests that firms delay payments or hasten collections by a day or two past the last day of the year so that they could increase annual reported CFO. Overall, the results suggest that firms with incentives to manage CFO do so by timing transactions at year-end.

One alternative interpretation for the results is that firms with the identified characteristics may be using trade credit as a form of financing. However, trade credit is considered to be relatively expensive and is a form of financing of last resort (Petersen and Rajan 1997; Cuñat 2006). In addition, even if trade credit is the only form of

---

[30] Every year, the industry mean ΔCC is computed using all firms available on the Compustat quarterly database. For each firm-year, the industry mean ΔCC for that year is subtracted from the firm's ΔCC. The industry adjustment is based on the classification in Fama and French (1997).

[31] The second term, days in inventory, could be lowered by not purchasing additional inventory and allowing the levels to fall. However, this could have a positive effect on earnings as well due to a decrease in COGS. To better abstract from the positive effect on earnings, a variant of ΔCC which excludes days in inventory (the second term) is used as an alternative measure. The results are similar.

financing available to the firm, given that the cash cycle measure is a change variable, this alternative interpretation suggests that the firm adopts trade credit as a form of financing in the fourth quarter but does not do so in the first quarter in the following year which seems unlikely for firms that do not have other forms of financing.

To further illustrate the use of timing to manage reported CFO, I compare the ability to use timing to manage CFO for December year-end firms and non-December year-end firms. Activities that boost the firm's CFO in a period could potentially decrease CFO for the other party to the transaction. For example, delaying payments to suppliers has a corresponding negative effect on the suppliers' cash flows. If the supplier firm has similar intent to manage CFO, the motivation to delay payments conflicts with the supplier's preference to accelerate collections. However, for the non-December year-end firms, it is likely that the fiscal year-end of their customers or suppliers does not match their own year-end, making them more amenable to "timing" the transaction in a favorable way for the firm. Based on this, I expect the association between incentives to manage CFO and timing to be stronger for firms with a non-December fiscal year-end.[32] To test the prediction, I estimate the coefficients in the following model:

$$\Delta CC_{t+1} = \alpha_0 + \alpha_1 FC_t * NDEC_t + \alpha_2 FC_t + \alpha_3 NDEC_t + \alpha_4 SIZE_t + \mu_{t+1} \tag{6}$$

where *NDEC*=1 if the firm has a non-December fiscal year-end and 0 if the firm has a December fiscal year-end. α_1 is predicted to be positive when *FC* is *DISTRESS*, *IGRADE*,

---

[32] Another way to capture the ability to manage CFO would be the market power the firm has relative to its suppliers and customers. However, evidence on the relation between market structure and competition and the use of trade credit is mixed. On one hand, studies have documented that the supplier provides more trade credit when it has stronger market power, in line with the idea that strong market power gives the supplier an informal mechanism to enforce the repayment of the credit contract through the threat of stopping the supply of the intermediate goods (McMillan and Woodruff, 1999; Cuñat, 2006). On the other hand, some papers (Fisman and Raturi 2004; Giannetti, Burkart, and Ellingsen 2008) document an opposite relationship, consistent with the idea that a customer obtains more trade credit if it generates a large percentage of the supplier's profit (i.e., the supplier's bargaining power is low).

ACCSCORE, and *CFF* and negative when *FC* is *PERSISTENCE*. The results in Table 6 Panel B support this prediction for three out of the five firm characteristics. Specifically, a one standard deviation increase in *DISTRESS* increases ΔCC by 2.09 days and a one standard deviation decrease in *PERSISTENCE* increases ΔCC by 0.24 days. The ΔCC for non-December year-end firms with analyst cash flow forecasts is 8.8 days greater than December year-end firms with analyst cash flow forecasts, and 10.1 days greater than non-December year-end firms without analyst cash flow forecast.

Chapter 5. Additional Tests and Results

5.1 Test on persistence of cash flows

The managed portion of CFO is likely to be non-recurring and, hence, more transitory than the unmanaged portion of CFO. For example, a firm that delays payments to its suppliers will have to pay them in the next period; and in a case like Dynegy, structuring a transaction to masquerade a loan as an operating cash inflow only boosts the reported CFO in one period. To test this, I estimate the coefficients in the following model:

$$CFO_{t+1} = \beta_0 + \beta_1 FC_t * UCFO_t + \beta_2 FC_t + \beta_3 UCFO_t + \beta_4 ECFO_t + \beta_5 ACC_t + \varepsilon_{t+1} \tag{7}$$

where *FC* represents the firm characteristics as defined in Panel B of Table 1, *UCFO* and *ECFO* are unexpected and expected cash flows, respectively, based on the model in chapter 4.1. *ACC* is operating accruals and is included in the model because it has been shown to predict future cash flows (Dechow et al. 1998).

Table 6 presents the results. As expected, the unexpected component of cash flows (β_3) is less persistent than the expected component of cash flows (β_4) in all regressions. Further, the results provide some evidence that the unexpected component of cash flows is less persistent for firms that manage CFO than other firms. Specifically, the coefficients on the interaction between *UCFO* and *FC* (β_1) are in the predicted direction and statistically significant for all firm characteristics except *PERSISTENCE*.

5.2 Histogram of forecast error for cash flow per share

The results from the earlier chapters provide some evidence that firms with analyst cash flow forecasts are more likely to manage CFO but they do not appear to do so using classification. I conjecture that timing might be a more effective tool than classification if firms are motivated to meet or beat analyst cash flow forecasts. In this regard, I focus on firms with analyst cash flow forecasts and investigate whether CFO is managed to meet or beat the analyst cash flow forecast by examining irregularity in the cash flow forecast error distribution. This approach is similar to several papers in the earnings management literature (e.g., Burgstahler and Dichev 1997) that use histograms to examine irregularity in earnings distribution. In particular, the focus is on the threshold region where a discontinuity in the density is predicted.

I group firm-years into intervals based on cash flow forecast error measured as the actual cash flow per share minus the mean analyst cash flow per share consensus forecast.[33] A prominent upward shift from the left of zero to the right of zero would be indicative of cash flow management to meet or beat the analyst cash flow forecast. Figure 2 is a histogram of analyst cash flow forecast errors for the range –2.00 to +2.00. Following Degeorge et al. (1999), the bin width is calculated based on *2(IQR)n^{-1/3}*, where *IQR* is the sample interquartile range of the variable and *n* is the number of available

---

[33] To address the potential heterogeneity that results from drawing observations from such a wide range of firms, the literature commonly normalizes EPS by deflators such as price per share or total assets per share to homogenize the distribution from which the observations are drawn. Degeorge, Patel and Zeckhauser (1999) argue that because EPS is measured (and reported and forecast) rounded closest to the penny, spurious patterns can arise in the distribution of such normalized EPS. Specifically, deflation can lead to a spurious buildup in the density at zero, a critical area of interest in this study. Following Degeorge et al. (1999), I checked the location (median) and dispersion (interquartile range) of cash flow per share forecast error across the different stock price centiles and excluded the extreme firms in the bottom and top deciles of stock price. Nevertheless, as a robustness check, I scaled the cash flow per share forecast error by beginning stock price, and the histogram shows a distinct discontinuity that is more prominent than that shown in Figure 2.

observations. Given my sample size and the dispersion of the variable, the formula implies a bin width of 0.04. The figure shows a distinct jump from the interval to the left of the dotted line (cash flow forecast error greater than or equals to -0.04 and less than 0) to the interval to the right of the dotted line (cash flow forecast error greater than or equals to 0 and less than 0.04). To test the statistical significance of the discontinuity, I compute the expected percentage of firm-years in any given interval of the distribution as the percentage of firm-years in the two immediately adjacent intervals. The test statistic for the interval i, $t(i)$, is the difference between the actual percentage of firm-years in interval i and the expected percentage of firm-years in the interval, divided by the estimated standard deviation of the difference. In figure 2, $t(50)$ is -1.65 and $t(51)$ is 8.31, indicating that operating cash flows are managed to meet or beat analyst cash flow forecast.[34]

5.3 Validity of unexpected cash from operations measure

The construct validity of unexpected CFO is, in part, dependent on how well the model captures the expected level of CFO – what the reported CFO would have been absent cash flow management. I validate the model using the restatement sample discussed in chapter 4.2.1. First, I test the difference between CFO as predicted by the Dechow et al. (1998) model and the restated CFO. The difference, scaled by average total assets, is 0.014 (t-statistic = 1.08), suggesting that the expected CFO as predicted by the model is, on average, an unbiased estimate of the actual CFO absent any classification error. Second, I test the difference between the predicted CFO and the originally reported

---

[34] To alleviate concerns that the discontinuity may be driven by firms that manage earnings, I exclude firms that just meet or beat the analyst EPS forecast by a penny and the cash flow per share forecast error histogram looks similar. Specifically, $t(50)$ is -1.80 and $t(51)$ is 7.80.

CFO. The difference, scaled by average total assets, is -0.019 (t-statistic = -1.97), suggesting that the model is able to, on average, identify an overstatement of CFO.

5.4 Joint determination of accruals and cash flows

To alleviate concerns that accruals and CFO are jointly determined, I employ an alternative model specification using two-stage least squares. The first-stage regression model is

$$OPACC_t = \lambda_0 + \lambda_1 SALE_t / TA_{t-1} + \lambda_2 ACCHG_t + \lambda_3 SIZE_t + \lambda_4 MB_t + \lambda_5 UCFO_t$$

$$+ \delta_t \qquad (8a)$$

where *OPACC* is operating accruals given by *EARN* minus *CFO* and *ACCHG* is the cumulative effect of company adjustments due to accounting changes on prior period earnings. Equation (8a) includes two variables that are uncorrelated with *UCFO* but correlated with *OPACC*. Recall that *UCFO* is the residual from the cash flows expectation model based on *SALE / TA_{t-1}* and Δ*SALE / TA_{t-1}*; hence, by construction, *SALE* is uncorrelated with *UCFO*. *ACCHG* reflects the effect of accounting changes and thus has an effect on accruals but not *CFO*. The adjusted R^2 from the first stage regression ranges from 11% to 18%. The second-stage regression model is

$$UCFO_t = \beta_0 + \beta_1 FC_t + \beta_2 EARN_t + \beta_3 SIZE_t + \beta_4 MB_t + \beta_5 Predicted\ OPACC_t$$

$$+ \varepsilon_t \qquad (8b)$$

where *Predicted OPACC* is the predicted values of *OPACC* from the first-stage regression. The inferences from the results are the same as those from Table 3.

5.5 Test on investors' pricing of earnings and cash from operations

In this paper, I identify five firm characteristics that are associated with stronger incentives to manage reported CFO on the basis that reported CFO is perceived by

managers to be of particular importance to investors for these firms. To test this, I investigate whether investors incorporate more CFO information into stock prices for firms that exhibit these five characteristics. Similar to Call (2007), I regress the twelve-month buy-and-hold stock returns for each firm beginning three months after fiscal year-end on earnings and CFO. The regression model is:

$$RET_t = \beta_0 + \beta_1\, EARN_t\, /P_{t-1} + \beta_2\, CFO_t\, /P_{t-1} + \beta_3\, BV_t\, /P_{t-1} + \varepsilon_t \qquad (9)$$

Given that earnings is the sum of accruals and CFO, the coefficient on CFO can be interpreted as the incremental weight investors place on the cash component of earnings. The results in Table 8 provide some support that the weight on CFO is increasing in the firm characteristics associated with incentives to manage reported CFO. For example, in Panel A, the coefficient on CFO is -0.0003 for firms in the lowest decile of financial distress (lowest probability of bankruptcy) and 0.007 for firms in the highest decile of financial distress (highest probability of bankruptcy).

5.6 Test on CFO management over time

Anecdotal evidence suggests that there might have been an increased importance of CFO to investors over time. First, as mentioned earlier in chapter 2, cash flow forecasts have increased dramatically over time. Second, in recent years, some companies appear to be using metrics from the cash flow statement, and not just the income statement, to measure annual performance and award bonuses (Leone, 2004).[35] To investigate if CFO management mirrors the increased importance of CFO over time, I spilt my sample into two time periods – 1990 to 1998 and 1999 to 2007. The time period

---

[35] For example, starting in January 2004, GE will use performance share units (PSUs) in calculating Immelt's equity compensation. Immelt will receive 250,000 PSUs with a potential value of $7.5 million. The PSUs will vest in five years if and only if CFO rises an average of 10 percent annually during that time.

from 1999 to 2007 includes the concerns over earnings quality post-Enron and the rise in cash flow forecasts. I run the following regression model:

$$UCFO_t = \beta_0 + \beta_1\, TIME{*}FC_t + \beta_2\, FC_t + \beta_3 TIME + \beta_4\, EARN_t + \beta_5\, SIZE_t + \beta_6\, MB_t$$

$$+ \beta_7 ACC_t + \varepsilon_t \tag{10}$$

where *TIME* is an indicator variable set to 1 for all years during the time period 1999 to 2007 and set to 0 for all years during the time period 1990 to 1998. The results are presented in Table 9. There is some evidence that incentives to manage CFO are stronger in the period 1999 to 2007 than in the period 1990 to 1998.

Chapter 6. Conclusion

This paper hypothesizes that firms manage reported CFO in response to incentives. Depending on the firm characteristic, CFO and earnings have different information content for future earnings and, correspondingly, for investors. I identify five firm characteristics that are associated with stronger incentives to manage reported CFO: (i) financial distress, (ii) a long-term credit rating near the investment/non-investment grade cutoff, (iii) less persistent earnings, (iv) a trend of diverging earnings and CFO, and (v) the existence of analyst cash flow forecasts.

Unlike the manipulation of accruals, firms cannot manage reported CFO with biased estimates but must resort to the shifting of items between the statement of cash flows categories (*classification*) and adjusting working capital (*timing*). Using an array of tests, I document that firms manage reported CFO using classification and timing when the incentives to do so are particularly high. Overall, the evidence is convincing: (i) Using a model of expected cash flows based on Dechow et al. (1998), I find that unexpected CFO is increasing in incentives to manage reported CFO; (ii) cash flow restatements due to classification errors are more likely at times when the incentives to manage reported CFO are stronger; (iii) firms that have stronger incentives to manage reported CFO are more likely to classify a cash inflow as an operating cash flow than a financing cash flow when there is ambiguity in the classification of the cash inflow; (iv) the length of the industry-adjusted cash conversion cycle in the fourth quarter is

decreasing in the incentives to manage reported CFO and this improvement reverses in the first quarter of the following year, suggesting that the shorter cash cycle in the fourth quarter is the result of a deliberate attempt to make cash flows look better at the end of the year; (v) the timing results are generally stronger for non-December year-end firms; (vi) there is some evidence that the unexpected component of cash flows is less persistent for firms that are suspected to have managed reported CFO than non-suspects.

This paper raises several avenues for future research. First, future research can examine the effect of CFO-based metric in compensation contracts on CFO management. Executive compensation is usually tied to a measure of firm value such as earnings, and several papers (e.g., Healy 1985; Balsam 1998) have examined managerial incentives to maximize compensation by managing earnings. Companies such as General Electric, IBM, and Corn Products International are using CFO-based metrics in addition to earnings-based metrics as a move to produce more accurate performance indicators and a reaction to the post-Enron governance concerns (Leone 2004). The increasing use of CFO-based metrics has been examined by Nwaeze, Yang, and Yin (2006) who document that the relative weight on CFO in determining executive compensation is enhanced when CFO is crucial to the firm's activities. The effect of the relative weights of earnings and CFO in compensation contracts on incentives to manage earnings and CFO is left for future research.

Second, it would be interesting to further examine CFO management by looking at managers' incentives to deflate or smooth cash flows. There is evidence both debt holders and share holders value less volatile cash flows. Debt holders are generally concerned about the firm's ability to make periodic cash payments and thus prefer less

volatile cash flows. Rountree, Weston and Allayannis (2008) find that investors value firms with smooth cash flows at a premium relative to firms with more volatile cash flows. Furthermore, Minton and Schrand (1999) find that cash flow volatility is associated both with lower investment and with higher cost of assessing external capital. Future research might examine if incentives to smooth CFO are associated with capital structure, sources of financing, and growth opportunities, as well as investigate how CFO smoothing interacts with earnings smoothing.

Third, the classification issue documented in this paper is part of a larger phenomenon of presentation of items on the cash flow statement. One particular inconsistency that has been noted by the SEC is the reporting of cash from discontinued operations. Some companies report the cash flows from discontinued operations as part of cash flows from continuing operations while others report the two separately. Even within companies that report the two separately, some disclose the cash flows from discontinued operations from each of the three categories while others report it as a single line item. Furthermore, there are firms that are inconsistent in their presentation from one period to another. Future research might investigate the determinants and consequences of presenting cash from discontinued operations in different ways.

Last, future research can examine the interaction between earnings management and CFO management. Are the firms that manage CFO the same ones that manage earnings? Given that some transactions do not necessarily affect both earnings and CFO at the same time or in the same direction, it would be interesting to examine when firms engage in one form of management versus the other. Furthermore, focusing on

transactions that increase one metric and decrease the other will help understand the trade-offs that are made in CFO management and earnings management.

APPENDICES

APPENDIX 1
Anecdotal evidence of cash flow misreporting

In April 2001, Dynegy Inc. entered into a contract to purchase natural gas from an unconsolidated special purpose entity, ABG Gas Supply LLC.[36] The key terms of the contract were as follow:

i.   For the first 9 months, Dynegy will purchase gas at below market rates from ABG and sell the gas at the market rate. The first 9 months ends with Dynegy's 2001 reporting year.
ii. For the next 51 months, Dynegy will purchase gas at above market rates from ABG and sell the gas at the market rate.

Effect on the financial statements for the fiscal year 2001:

i.   Net income was unaffected.
     Dynegy earned a profit from selling the gas at market price while purchasing it at below market price. However, the contract was carried at fair value under mark-to-market rules and both gains and losses from mark-to-market adjustments were included in reported net income. In other words, the entire contract netted to no gain or loss; hence, any gain recognized early must have been offset by accompanying losses on the contract's remaining terms.

ii. Reported cash from operations increased by $300 million.
     The gain was backed by cash flow while the losses were non-cash (a result of mark-to-market), resulting in an increase in operating cash flows but no change in net income.

On April 3, 2002, a *Wall Street Journal* article exposed the transactions, based on leaked documents. Subsequently, the SEC required Dynegy to restate its cash flow statement by reclassifying the $300 million from the operating section of the cash flow statement to the financing section. ABG had financed its losses with a $300 million loan from Citigroup; hence, the SEC deemed that Dynegy effectively borrowed $300 million from Citigroup and used ABG as a conduit to handle loan proceeds and repayment.[37]

---

[36] This example is based on Mulford and Comiskey (2005).
[37] The Dynegy case illustrates that the SEC was sufficiently concerned about cash flow classification to enforce a reclassification.

APPENDIX 2
Examples of cash flow restatements

Cause: Classification of cash flows from loans held for sale versus loans held for investment

From GM

GM has also restated its statements of cash flows to correct for the erroneous classification of cash flows from certain mortgage transactions within our financing and insurance operations. Certain mortgage loan originations and purchases were not appropriately classified as either operating cash flows or investing cash flows consistent with the original designation as loans held for sale or loans held for investment. In addition, proceeds from sales and repayments related to certain mortgage loans, which initially were classified as mortgage loans held for investment and subsequently transferred to mortgage loans held for sale, were reported as operating cash flows instead of investing cash flows in our consolidated statements of cash flows.

Cause: Classification of cash flows from available-for-sale securities versus trading securities

From Americredit

... restatement of its consolidated statements of cash flows for the years ended June 30, 2005, 2004, and 2003… The related accounting guidance specifies, and the SEC comments clarified, that cash flows from retained interests accounted for as available for sale securities should be classified as investing cash inflows.

The reclassifications on the consolidated statements of cash flows do not result in a change to total cash and cash equivalents and there were no changes to the consolidated balance sheets and the consolidated statements of income.

Cause: Treatment of expense as investing cash outflow instead of operating cash outflow

From Hastings Entertainment

… the presentation of the Statement of Cash Flows was not in accordance with SFAS 95, Statement of Cash Flows. Accordingly, the Company restated its presentation of purchases of rental assets not associated with new store openings to reclassify these purchases in the operating section of the Company's Statement of Cash Flows, which is a change from our historical presentation of inclusion of such purchases in the investing section. Purchases and sales of rental assets placed as initial stock in new stores, if material, will be presented in the investing section of the Statement of Cash Flows. The net impact of this reclassification decreased cash flows provided by operating activities and decreased cash flows used in investing activities by $35.1 million, $31.4 million, and $37.7 million for the fiscal years ended January 31, 2005, 2004, and 2003, respectively. In addition, we have reclassified $1.9 million and $1.6 million on the Consolidated Balance Sheets for January 31, 2005 and 2004, respectively, for rental assets that have been converted to previously viewed tapes for sale, from 'Property and equipment' to 'Merchandise inventories.' The transfer to 'Merchandise Inventories' is now recorded at the time of conversion, which is the first date the product is available for sale.

APPENDIX 2 (CONTINUED)
Examples of cash flow restatements

Cause: Effect of exchange rate changes on cash

From Newmont Mining

The Statements of Consolidated Cash Flows for the years ended December 31, 2003 and 2002 have been restated. The Company has determined that it had incorrectly classified the impact of foreign currency exchange rate changes among *Net cash provided by operating activities* and *Effect of exchange rate changes on cash* in the Statements of Consolidated Cash Flows and, therefore, a restatement is required to classify the impact of foreign currency exchange rate changes to the proper line items.

Cause: Classification of cash flows relating to floor plan financing

From Eplus

...restated our Consolidated Balance Sheet as of March 31, 2005 and our Consolidated Statements of Cash Flows for the years ended March 31, 2005 and 2004 for the following reasons:

We use floor planning agreements for dealer financing of products purchased from distributors and resold to end-users. Historically, we classified the cash flows from our floor plan financing agreements in operating activities in our Consolidated Statements of Cash Flows…. We have now determined that when an unaffiliated finance company remits payments to our suppliers on our behalf, we should show this transaction as a financing cash inflow and an operating cash outflow. In addition, when we repay the financing company, we should present this transaction as a financing cash outflow.

Also, payments made by our lessees directly to third-party, non-recourse lenders were previously reported on our Consolidated Statements of Cash Flows as repayments of non-recourse debt in the financing section and a decrease in our investment in leases and leased equipment—net in the operating section. As these payments were not received or disbursed by us, management determined that these amounts should not be shown as cash used in financing activities and cash provided by operating activities on our Consolidated Statements of Cash Flows. Rather, these payments are now disclosed as a non-cash financing activity on our Consolidated Statements of Cash Flows.

Cause: Classification of interest

From TDS

TDS is filing this amendment to restate the Consolidated Financial Statements as of and for the nine months ended September 30, 2004 for the presentation of accreted interest paid on the redemption of U.S. Cellular's Liquid Yield Option Notes ("LYONs"). The restatement reclassifies the $68.1 million accreted interest portion of the LYONs that were redeemed in July 2004 from a reduction in "cash flows from financing activities" to a reduction in "cash flows from operating activities" on the Consolidated Statements of Cash Flows…. The restatement of the Consolidated Statements of Cash Flows had no impact on revenues, expenses, net income, earnings per share, or any Balance Sheet items.

APPENDIX 2 (CONTINUED)
Examples of cash flow restatements

Cause: Securitization transaction

From Pier 1

In the fourth quarter of fiscal 2006, the Company reevaluated its classification within the consolidated statements of cash flows of cash received from its retained interest in the securitized proprietary credit card receivables. Based on this reevaluation, management determined that the classification related to the line item "Beneficial interest in securitized receivables" netted within the investing section of the consolidated statements of cash flows was not in compliance with U.S. generally accepted accounting principles. The Company had not appropriately reflected the exchange of its proprietary credit card receivables for its retained interest in the securitized receivables as a non-monetary transaction. As a result, both cash provided by operating activities and cash used in investing activities were overstated in the consolidated statements of cash flows in each of the two years ended February 26, 2005. Accordingly, the Company has restated the fiscal 2005 and fiscal 2004 statements of cash flows.

FIGURES

FIGURE 1
Illustration of how reported cash from operations can be managed
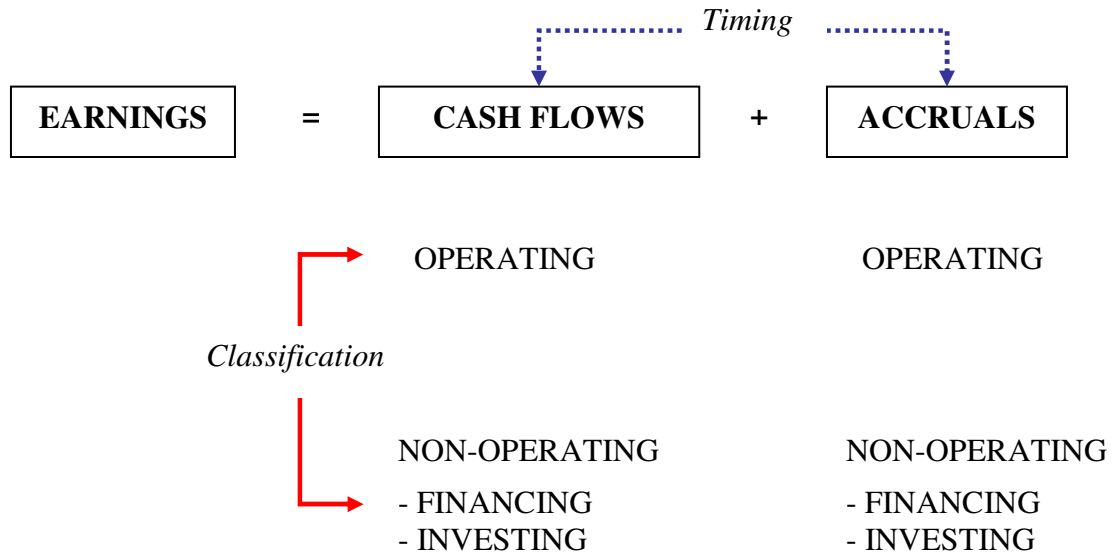
The chart above illustrates how reported operating cash flows can be managed with no change in earnings:

i. *Classification* refers to the shifting of items between the statement of cash flows categories, namely operating, investing and financing, holding earnings and aggregate cash flows constant. To increase reported operating cash flows, firms can classify cash inflows (outflows) from the non-operating (operating) section to the operating (non-operating) section of the cash flow statement.

ii. *Timing* refers to the adjustment of working capital to alter reported CFO, holding earnings constant. To increase reported operating cash flows using timing, firms can delay payments to suppliers and hasten collections from customers.

FIGURE 2
Distribution of cash flow per share forecast error

Percentage of firm-years by cash flow per share (CPS) forecast error intervals. 30,199 firm-years over the period 1988 to 2007 are classified into CPS forecast error intervals over the range -2.00 to 2.00 where CPS forecast error is defined as actual CPS minus the most recent analyst consensus forecast (mean) before the announcement date. The bin width is calculated based on $2(IQR)n^{-1/3}$, where IQR is the sample interquartile range of the variable and n is the number of available observations. Given the sample size and the dispersion of variables, the formula implies a bin width of 0.04. Hence, the interval immediately to the right of the dotted line (bin 51) includes firm-years with CPS forecast error greater than or equal to zero and less than 0.04. To test the statistical significance of the discontinuity, I compute the expected percentage of firm-years in any given interval of the distribution as the percentage of firm-years in the two immediately adjacent intervals. The test statistic for the interval i, $t(i)$, is the difference between the actual percentage of firm-years in interval i and the expected percentage of firm-years in the interval, divided by the estimated standard deviation of the difference. The t-statistic at the spike, $t(51)$, is 8.31.
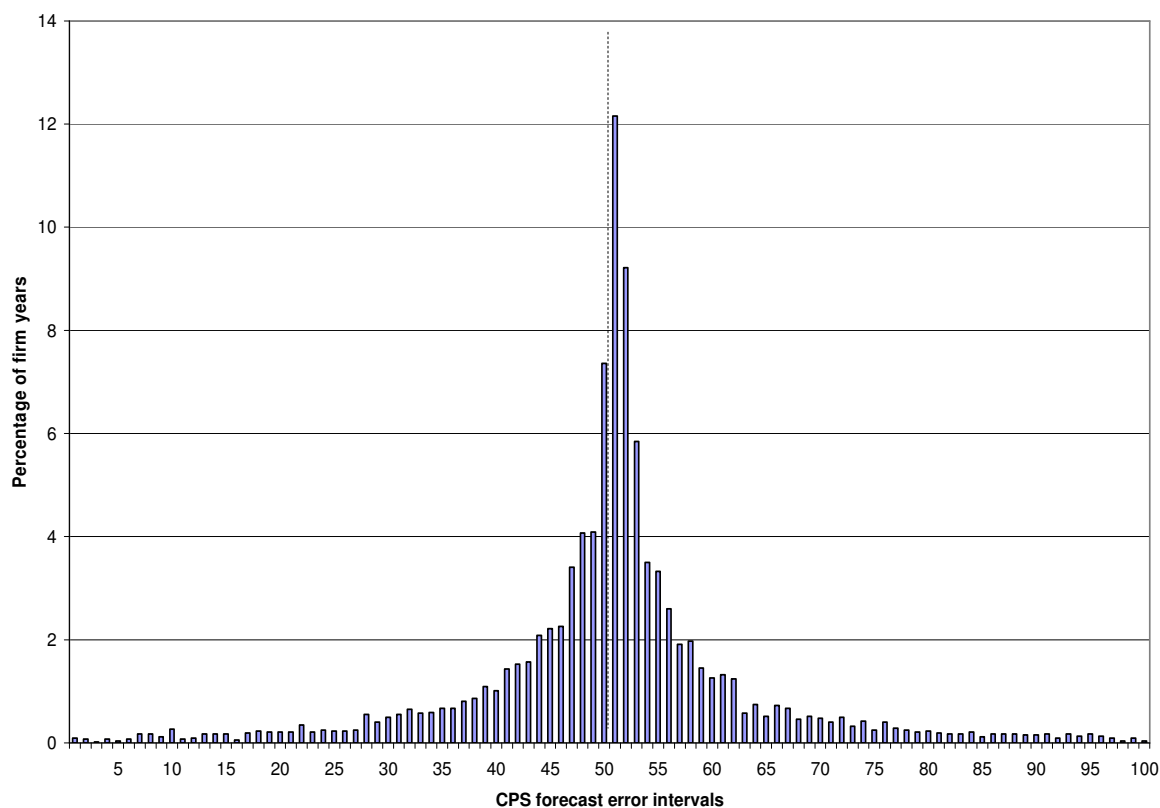
TABLES

TABLE 1
Descriptive statistics and correlations among variables used in the main regressions

Panel A: Descriptive statistics

Variable	N[a]	Mean	Std dev	Median	25%	75%
<u>Firm Characteristics (*FC*)</u>						
DISTRESS[b]	44,974	0.021	0.088	0.002	0.001	0.007
IGRADE	12,903	0.102	0.303	0.000	0.000	0.000
PERSISTENCE	23,385	0.367	0.346	0.387	0.129	0.611
ACCSCORE	29,797	9.000	4.733	9.000	5.000	12.000
CFF	30,199	0.240	0.427	0.000	0.000	0.000
<u>Dependent Variables</u>						
UCFO	44,974	0.001	0.070	0.001	-0.029	0.032
ΔCC	44,974	-1.315	43.434	-3.409	-17.891	10.170
<u>Control Variables</u>						
EARN	44,974	0.014	0.136	0.040	0.000	0.078
SIZE	44,974	5.586	1.980	5.449	4.087	6.946
MB	44,974	2.539	2.979	1.830	1.129	3.061
ABACC	44,974	0.000	0.076	0.000	-0.033	0.033

Panel B: Pearson (Spearman) correlation on the upper (lower) diagonal[a]

	UCFO	*ΔCC*	*DIST-RESS*	*IGRADE*	*PERSIS-TENCE*	*ACC-SCORE*	*CFF*	*EARN*	*SIZE*	*MB*	*ABACC*
UCFO		0.005	-0.010	0.006	-0.004	0.054	0.011	0.150	-0.006	0.031	-0.261
ΔCC	0.005		-0.004	0.006	-0.019	0.023	0.015	0.027	0.018	0.010	0.017
DISTRESS	-0.012	-0.004		-0.061	-0.119	0.152	-0.132	-0.389	-0.433	-0.200	-0.033
IGRADE	0.011	0.023	-0.045		-0.016	-0.010	0.095	0.041	0.106	-0.007	-0.003
PERSIS-TENCE	-0.011	-0.032	-0.127	-0.012		-0.047	-0.043	0.019	0.070	0.030	-0.011
ACC-SCORE	0.057	0.001	0.181	-0.003	-0.049		-0.177	-0.138	-0.208	-0.088	-0.029
CFF	0.010	0.050	-0.150	0.095	-0.042	-0.172		0.023	0.454	0.054	0.005
EARN	0.153	0.017	-0.481	0.013	0.076	-0.197	-0.006		0.203	0.075	0.141
SIZE	-0.009	0.035	-0.462	0.108	0.074	-0.209	0.448	0.136		0.047	0.005
MB	0.047	0.002	-0.370	0.009	0.031	-0.152	0.110	0.380	0.144		0.010
ABACC	-0.284	0.018	-0.049	-0.009	-0.010	-0.037	0.015	0.106	0.011	0.037	

TABLE 1 (CONTINUED)
Descriptive statistics and correlations among variables used in the main regressions

Notes to Table 1:

Variable definitions (Compustat data items in parentheses):

UCFO Deviations from the predicted values of CFO based on Dechow et al. (1998). See Table 2 for the details.

ΔCC $CC_{q1,t+1} - CC_{q4,t}$ where $CC_{i,t}$ represents the cash conversion cycle in quarter *i* of year *t*. *CC* is calculated as follows:

$$\left(\frac{(AR_q + AR_{q-1})/2}{Sales_q/90}\right) + \left(\frac{(Inv_q + Inv_{q-1})/2}{COGS_q/90}\right) - \left(\frac{(AP_q + AP_{q-1})/2}{Purchases_q/90}\right)$$

AR is accounts receivable (rectq), *Inv* is inventory (invtq), *AP* is accounts payable (apq), *COGS* is cost of goods sold (cogsq), and *Purchases* = $Inv_q + COGS_q - Inv_{q-1}$. To control for industry-specific factors that could affect quarterly changes in the cash conversion cycle, adjustment is made to *ΔCC* to reflect deviations from the industry means in a given year. Every year, the industry mean *ΔCC* is computed using all firms available on the Compustat quarterly database. For each firm-year, the industry mean *ΔCC* for that year is subtracted from the firm's *ΔCC*. The industry classification is based on Fama and French (1997).

DISTRESS Natural logarithm of the probability of bankruptcy measure based on Shumway (2001) (hereafter "Shumway score").

Shumway score = $\dfrac{e^\alpha}{1+e^\alpha}$, where

α = -13.303 − 1.982*NI + 3.593*TL − 0.467*SIZE − 1.809*RET + 5.791*SIGMA. NI is defined as net income (ni) / total assets (at). TL is defined as total liabilities (lt) / total assets. SIZE is the natural logarithm of the firm's size in terms of market capitalization (prcc_f*csho) relative to the total size of the NYSE and AMEX market. RET is the firm's past market-adjusted return measured as the return of the firm minus the value-weighted CRSP NYSE/AMEX index return. Returns are calculated by cumulating monthly stock returns. Sigma is calculated by regressing each stock's monthly returns in year t-1 on the value-weighted NYSE/AMEX index return for the same year. Sigma is the standard deviation of the residual of this regression.

IGRADE An indicator variable set to 1 if the Standard and Poor's long-term domestic issuer credit rating (SPLTICRM) is BBB-, BBB, or BBB+ and set to 0 otherwise.

PERSISTENCE The coefficient on $EARN_{t-1}$ in a firm specific regression of $EARN_t$ on $EARN_{t-1}$ over a 10-year rolling window.

ACCSCORE A score that adds up the level of operating accruals' (OPACC) decile rank and the ΔOPACC decile rank. For each year t, firms are sorted into OPACC level deciles and ΔOPACC deciles based on the sum of the level of operating accruals and the change in OPACC over a 5-year rolling window. *OPACC* is calculated as follows: Compustat data items "ib" minus "oancf" all scaled by "at."

CFF An indicator variable set to 1 if the firm has at least one analyst cash flow forecast for the fiscal year and set to 0 otherwise.

EARN Income before extraordinary item (ib) divided by total assets (at).

SIZE Natural logarithm of total assets (at).

MB Market value of equity (prcc_f*csho) divided by book value of equity (ceq).

ABACC Unexpected accruals based on Jones (1991).

[a]The sample sizes for the control variables are based on the *DISTRESS* sample, which is the largest sample. The correlations reported in Panel B are also based on the *DISTRESS* sample.
[b]For ease of interpretation, *DISTRESS* values in Panel A are the values before taking the natural log. The variable is interpreted as the probability of bankruptcy.

TABLE 2
Model parameters for the estimation of unexpected cash from operations

$$CFO_t / TA_{t-1} = \lambda_0 + \lambda_1(1 / TA_{t-1}) + \lambda_2(SALE_t / TA_{t-1}) + \lambda_2(\Delta SALE_t / TA_{t-1}) + \varepsilon_t \qquad (1)$$

Parameter	Mean	Median
Intercept	-0.03***	-0.03***
$1 / TA_{t-1}$	1.54	-0.95***
$SALE_t / TA_{t-1}$	0.13***	0.10***
$\Delta SALE_t / TA_{t-1}$	-0.03***	-0.02***
Adj R^2	38.16%	38.84%

Notes to Table 2:
The table reports the mean and median parameter estimates and adjusted R^2 from firm-specific regressions based on Dechow et al. (1998). Only firms with at least 10 years of data are included in the sample. CFO_t is the cash from operations (Compustat data item "oancf") for the period t, TA_{t-1} is the total assets (Compustat data item "at") at the end of period t-1, $SALE_t$ and $\Delta SALE_t$ are the sales (Compustat data item "sale") and change in sales during period t.   *** represents significance at the 1% level (2-tailed).

TABLE 3
Regressions of unexpected cash from operations on firm characteristics associated with incentives to manage reported cash from operations

$$UCFO_t = \beta_0 + \beta_1 FC_t + \beta_2 EARN_t + \beta_3 SIZE_t + \beta_4 MB_t + \beta_5 ABACC_t + \varepsilon_t \tag{2}$$

Variable	Dependent variable: $UCFO_t$				
	Column (1)	Column (2)	Column (3)	Column (4)	Column (5)
Intercept	0.014***	-0.005***	-0.001	-0.008***	0.004**
	(5.93)	(-3.02)	(-0.29)	(-2.89)	(2.47)
DISTRESS	**0.002***				
	(4.61)				
IGRADE		**0.001**			
		(1.99)			
PERSISTENCE			**-0.002**		
			(-1.72)		
ACCSCORE				**0.001***	
				(8.23)	
CFF					**0.004***
					(3.59)
EARN	0.116***	0.039***	0.127***	0.106***	0.118***
	(13.59)	(4.70)	(16.50)	(12.24)	(12.98)
SIZE	-0.0009***	-0.0002	-0.001***	-0.001***	-0.001***
	(-5.64)	(-0.83)	(-5.09)	(-7.42)	(-5.83)
MB	0.0007***	0.0004**	0.0003	0.001**	0.0003**
	(4.02)	(2.45)	(1.52)	(2.10)	(2.21)
ABACC	-0.269***	-0.055***	-0.272***	-0.238***	-0.314***
	(-26.94)	(-2.42)	(-20.09)	(-20.90)	(-22.00)
N	44,974	12,903	23,385	29,797	30,199
Adj R^2	11.03%	3.11%	12.11%	10.25%	10.25%

Notes to Table 3:

All variables are defined as per Table 1. *FC* is *DISTRESS, IGRADE, PERSISTENCE, ACCSCORE,* and *CFF* in columns (1) to (5). t-statistics are in parentheses. Standard errors are adjusted using two-way clustering based upon firm and year as devised by Cameron, Gelbach, and Miller (2006). .To mitigate any undue influence from outliers, all financial variables are winsorized at the extreme 1%. *, **, and *** represent significance at 10%, 5%, and 1% respectively (1-tailed if coefficient predicted, 2-tailed otherwise).

TABLE 4
Tests on managing reported cash from operations using classification: Evidence from restatement firms

Panel A: Sample of firms that restated reported cash from operations by cause of restatement

Cause of restatement	*No. of restatements*
Classification of cash flows from loans held for sale versus loans held for investment	13
Classification of cash flows from available-for-sale securities versus trading securities	9
Treatment of expense as investing cash outflow instead of operating cash outflow	9
Effect of exchange rate changes on cash	6
Classification of cash flows relating to floor plan financing	3
Classification of interest	2
Securitization transactions	2
Others (Errors and miscalculations, discontinued operations, etc.)	4
Total number of restatements	**48**

Notes to Table 4 Panel A:
The sample consists of 48 firms that restated the cash from operations number downwards in the statement of cash flows. To collect the sample of firms that restated CFO, I search for the words "classify and cash flow" and "restate and cash flow" in the headline and lead paragraph in Factiva. Cash flow restatements not relating to the operating section or accompanied by earnings restatements are excluded from the sample.

TABLE 4 (CONTINUED)
Tests on managing reported cash from operations using classification: Evidence from restatement firms

Panel B: Logistic regressions of cash flow restatement on firm characteristics associated with incentives to manage reported cash from operations

$$RESTATE_t = \beta_0 + \beta_1 FC_t + \varepsilon_t \tag{3}$$

Variable	Dependent variable: $RESTATE_t$				
	Column (1)	Column (2)	Column (3)	Column (4)	Column (5)
Intercept	2.830**	-0.310	0.910	-0.881	0.133
	(2.51)	(-0.78)	(1.56)	(1.44)	(0.45)
DISTRESS	**0.395***				
	(2.37)				
IGRADE		**1.696****			
		(1.92)			
PERSISTENCE			**-2.049****		
			(-1.97)		
ACCSCORE				**0.146****	
				(1.91)	
CFF					**-0.239**
					(-0.54)
Change in Odds (%)	48[a]	140[b]	-66[a]	16[b]	-21[b]
N	76	64	48	62	82
Pseudo R^2	10.30%	11.41%	12.45%	9.21%	0.47%

Notes to Table 4 Panel B:
Each sample consists of firms that restated the cash from operations number in the statement of cash flows as outlined in Table 4 Panel A that met all the data requirements and an equal number of matched control firms. The firms in the restatement sample are first matched to a control group of firms based on industry and year. The sample firm is then matched to a control firm of a size that is between 90% and 110% of that of the sample firm. From this subset of firms, I pair each sample firm to the control firm that has the closest market-to-book ratio. *RESTATE* is set to 1 if the firm restated its reported CFO number and set to 0 otherwise. All other variables are defined as per Table 1. *FC* is *DISTRESS, IGRADE, PERSISTENCE, ACCSCORE,* and *CFF* in columns (1) to (5). Z-statistics are in parentheses and presented using Huber/White robust standard errors with firm-level clustering to adjust standard errors for multiple restatements by the same firm. *, **, and *** represent significance at 10%, 5%, and 1%, respectively (1-tailed if coefficient predicted, 2-tailed otherwise).
[a]Increase in the odds of a firm having a cash flow restatement in response to a one standard deviation increase in the firm characteristic.
[b]Increase in the odds of a firm having a cash flow restatement in response to a one unit increase in the firm characteristic.

TABLE 5
Tests on managing reported cash from operations using classification: Evidence from tax benefits from stock options exercised

Panel A: Sample selection for test of classification of tax benefits from stock options exercised

Selection	No. of firm- years
Total number of firm-years between 1/1/1994 and 7/20/2000 that have CFO (data item "oancf") and total assets (data item "at") available on Compustat	60,772
Less:	
(a) Firms that do not have 10K, 10K405 or 10KSB available on Edgarscan[*]	16,063
(b) Firms that incorporate the statement of cash flows with reference to another filing (e.g., 8-K)	453
(c) Firms that do not have cash flow statement formats that are captured by the program (e.g., corrupted files, single column cash flow statements, non-text files)	741
(d) Complete absence of cash flow statement	50
Add:	
(b) and (c) – manually collect cash flow statement	1,194
Less:	
Firms without tax benefit of stock options exercised as a separate line item and firms that expensed stock options	43,041
Final Total	**1,618**

Notes to Table 5 Panel A:
[*]92% of the firms do not have 10K, 10K405, or 10KSB available on Edgarscan due to the low availability of filings for the years 1994 and 1995. Other reasons include firms that are foreign issuers and firms that have missing filings.
The final sample of 1,618 is merged with the other data sources for the test results shown in Table 5 Panel B. The sample size varies depending on the data requirements for each firm characteristic.

TABLE 5 (CONTINUED)
Tests on managing reported cash from operations using classification: Evidence from tax benefits from stock options exercised

Panel B: Logistic regressions of classification of tax benefit from stock option exercised on firm characteristics associated with incentives to manage reported cash from operations

$$INOP_t = \beta_0 + \beta_1 FC_t + \varepsilon_t \qquad (4)$$

Variable	Dependent variable: $INOP_t$				
	Column (1)	Column (2)	Column (3)	Column (4)	Column (5)
Intercept	0.367	-0.366	0.057	-0.740***	-0.349***
	(1.38)	(-1.52)	(0.24)	(-2.74)	(-3.25)
DISTRESS	**0.092***				
	(2.38)				
IGRADE		**-0.328**			
		(-0.43)			
PERSISTENCE			**-0.699****		
			(-1.71)		
ACCSCORE				**0.062****	
				(2.35)	
CFF					**-0.014**
					(-0.04)
Change in Odds (%)	20[a]	-18[b]	-22[a]	3[b]	-1[b]
N	1,247	177	427	851	1,107
Pseudo R^2	1.07 %	0.16%	2.04%	2.67%	0.00%

Notes to Table 5 Panel B:

Each sample consists of firms that reported tax benefits from stock options exercised as a line item in the statement of cash flows for fiscal years ended Jan 1, 1994 to July 20, 2000. To identify whether the tax benefit from stock options exercised is classified under the operating section or the investing section of the cash flow statement, the cash flow statements for all Compustat firms that have CFO data (Compustat data item "oancf") over the time period were examined. The time period begins in 1994 because this is the first year where SEC filings are more readily available on Edgarscan. Even so, many companies do not have filings available until 1996. The time period ends on July 20, 2000, because EITF 00-15 provided specific guidance on the classification of tax benefit, effective after July 20, 2000. C++ program was used to help with the extraction of the data. Details of the sample selection are outlined in Panel A of Table 5. *INOP* is set to 1 if the tax benefit from stock options exercised is classified in the operating section of the cash flow statement and 0 if it is classified in the financing section of the cash flow statement. All other variables are defined as per Table 1. *FC* is *DISTRESS, IGRADE, PERSISTENCE, ACCSCORE,* and *CFF* in columns (1) to (5). Z-statistics are in parentheses and presented using Huber/White robust standard errors with firm-level clustering. *, **, and *** represent significance at 10%, 5%, and 1% respectively (1-tailed if coefficient predicted, 2-tailed otherwise).

[a]Increase in the odds of a firm classifying the tax benefit in the operating section of the cash flow statement in response to a one standard deviation increase in the firm characteristic.

[b]Increase in the odds of a firm classifying the tax benefit in the operating section of the cash flow statement in response to a one unit increase in the firm characteristic.

.

TABLE 6
Tests on managing reported cash from operations using timing

Panel A: Regressions of change in industry-adjusted cash conversion cycle from the fourth quarter in year t to the first quarter in year t+1 on firm characteristics associated with incentives to manage reported CFO

$$\Delta CC_{t+1} = \alpha_0 + \alpha_1 FC_t + \alpha_2 SIZE_t + \mu_{t+1} \tag{5}$$

Variable	Dependent variable: ΔCC_{t+1}				
	Column (1)	Column (2)	Column (3)	Column (5)	Column (6)
Intercept	-1.335	-1.354	-1.995**	-5.43***	-2.104**
	(-0.93)	(-1.31)	(-2.44)	(-5.52)	(-2.42)
DISTRESS	**0.366****				
	(1.86)				
IGRADE		**1.024****			
		(1.86)			
PERSISTENCE			**-2.337*****		
			(-3.16)		
ACCSCORE				**0.274*****	
				(4.96)	
CFF					**1.581*****
					(2.62)
SIZE	0.892***	0.359***	0.391***	0.428***	0.100
	(4.06)	(2.74)	(3.11)	(3.42)	(0.67)
N	44,974	12,903	23,385	29,797	30,199
Adj R^2	1.3%	1.7%	1.7%	1.1%	1.5%

Notes to Table 6 Panel A:
All variables are defined as per Table 1. *FC* is *DISTRESS, IGRADE, PERSISTENCE, ACCSCORE,* and *CFF* in columns (1) to (5). t-statistics are in parentheses. Standard errors are adjusted using two-way clustering based upon firm and year as devised by Cameron, Gelbach, and Miller (2006). To mitigate any undue influence from outliers, all financial variables are winsorized at the extreme 1%. *, **, and *** represent significance at 10%, 5%, and 1%, respectively (1-tailed if coefficient predicted, 2-tailed otherwise).
.

TABLE 6 (CONTINUED)
Tests on managing reported cash from operations using timing

Panel B: Regressions comparing the relation between change in industry-adjusted cash conversion cycle from the fourth quarter in year t to the first quarter in year t+1 and incentives to manage reported cash from operations for December year-end firms to that for non-December year end firms

$$\Delta CC_{t+1} = \alpha_0 + \alpha_1 FC_t * NDEC_t + \alpha_2 FC_t + \alpha_3 NDEC_t + \alpha_4 SIZE_t + \mu_{t+1} \tag{6}$$

FC_t	α_0	α_1	α_2	α_3	α_4	Adj R^2
DISTRESS	1.364	**0.500*** **	0.450	-0.033	0.584***	1.1%
	(0.72)	**(2.71)**	(1.54)	(-1.16)	(5.12)	
IGRADE	-4.586***	**-0.079**	1.888*	-0.035	0.626***	1.8%
	(-2.98)	**(-0.30)**	1.66	(-0.43)	(3.64)	
PERSISTENCE	-2.518**	**-0.695*** **	-4.110**	0.019	0.461***	1.6%
	(-2.03)	**(-3.41)**	(-1.98)	(0.17)	(3.62)	
ACCSCORE	-6.225***	**0.024**	0.261***	1.330	0.490***	1.2%
	(-5.67)	**(0.21)**	(3.74)	(1.15)	(3.86)	
CFF	-3.421***	**6.685*** **	3.394***	2.129***	0.116	1.2%
	(-3.63)	**(5.31)**	(4.76)	(3.81)	(0.77)	

Notes to Table 6 Panel B:
NDEC is set to 1 if the firm is a non-December year-end firm and set to 0 otherwise. All other variables are defined as per Table 1. *FC* is *DISTRESS, IGRADE, PERSISTENCE, ACCSCORE,* and *CFF* in columns (1) to (5). t-statistics are in parentheses. Standard errors are adjusted using two-way clustering based upon firm and year as devised by Cameron, Gelbach, and Miller (2006). To mitigate any undue influence from outliers, all financial variables are winsorized at the extreme 1%. *, **, and *** represent significance at 10%, 5%, and 1%, respectively (1-tailed if coefficient predicted, 2-tailed otherwise).

58

TABLE 7

Regressions of future cash from operations on the expected and unexpected components of current cash from operations and incentives to manage cash from operations

$$CFO_{t+1} = \beta_0 + \beta_1 FC_t * UCFO_t + \beta_2 FC_t + \beta_3 UCFO_t + \beta_4 ECFO_t + \beta_5 ACC_t + \varepsilon_{t+1} \qquad (7)$$

FC_t	β_0	β_1	β_2	β_3	β_4	β_5	Adj R^2
DISTRESS	0.042***	**-0.058*****	-0.003***	0.240***	0.417***	0.115***	48.04%
	(9.15)	**(-10.61)**	(-5.85)	(12.74)	(11.84)	(10.54)	
IGRADE	0.042***	**-1.190*****	0.009***	0.387***	0.557***	0.144***	37.72%
	(14.27)	**(-5.15)**	(4.58)	(13.35)	(20.60)	(11.95)	
PERSISTENCE	0.028***	**-0.024**	0.005**	0.200***	0.731***	0.109***	43.43%
	(7.93)	**(-0.41)**	(2.45)	(5.24)	(17.93)	(6.81)	
ACCSCORE	0.060***	**-0.016*****	-0.003***	0.373***	0.632***	0.116***	46.70%
	(11.10)	**(-5.84)**	(-6.91)	(11.33)	(20.96)	(9.65)	
CFF	0.031***	**-0.018****	0.008***	0.212***	0.703***	0.070***	49.34%
	(14.81)	**(-1.74)**	(4.81)	(8.40)	(34.93)	(5.04)	

Notes to Table 7:
CFO is cash from operations (Compustat data item "oancf") and *ACC* is operating accruals (Compustat data item "ib" minus data item "oancf"), scaled by average total assets (Compustat data item "at"). All other variables are defined as per Table 1. t-statistics are in parentheses. Standard errors are adjusted using two-way clustering based upon firm and year as devised by Cameron, Gelbach, and Miller (2006). .To mitigate any undue influence from outliers, all financial variables are winsorized at the extreme 1%. *, **, and *** represent significance at 10%, 5%, and 1% respectively (1-tailed if coefficient predicted, 2-tailed otherwise).
.

TABLE 8

Regressions of returns on earnings, cash from operations, and book value of equity across groups and deciles sorted on incentives to manage cash from operations

$$RET_t = \beta_0 + \beta_1 EARN_t/P_{t-1} + \beta_2 CFO_t/P_{t-1} + \beta_3 BV_t/P_{t-1} + \varepsilon_t \tag{9}$$

Panel A: OLS regressions of returns on earnings, cash from operations and book value of equity across financial distress deciles

DISTRESS	β_0		β_1		β_2		β_3	
	Coefficient	t-stat	Coefficient	t-stat	**Coefficient**	**t-stat**	Coefficient	t-stat
1 (lowest)	0.125	18.12	0.008	12.33	**-0.0003**	**-0.45**	0.001	4.06
2	0.120	19.48	0.005	10.09	**-0.0004**	**-0.81**	-0.0001	-1.25
3	0.136	22.09	0.005	8.91	**0.0000**	**-0.08**	0.0000	-0.63
4	0.134	21.01	0.007	10.76	**-0.0001**	**-0.21**	0.0002	1.11
5	0.085	11.55	0.004	6.55	**0.0008**	**-1.44**	-0.0004	-2.81
6	0.127	16.94	0.010	13.47	**0.0000**	**-0.05**	0.001	6.39
7	0.134	15.99	0.010	15.07	**0.002**	**2.07**	0.002	9.35
8	0.128	13.96	0.008	11.17	**0.003**	**3.22**	0.003	10.46
9	0.153	14.36	0.008	11.35	**0.003**	**3.25**	0.005	16.14
10 (highest)	0.249	18.68	0.003	5.37	**0.007**	**9.16**	0.001	4.06

Panel B: OLS regressions of returns on earnings, cash from operations and book value of equity for firms at the investment/non-investment grade cutoff and firms that are not at the cutoff

IGRADE	β_0		β_1		β_2		β_3	
	Coefficient	t-stat	Coefficient	t-stat	**Coefficient**	**t-stat**	Coefficient	t-stat
1	0.113	11.44	0.005	9.15	**0.002**	**2.75**	-0.0003	-2.41
0	0.126	27.00	0.003	14.66	**0.001**	**5.24**	-0.0001	-2.33

Panel C: OLS regressions of returns on earnings, cash from operations and book value of equity across PERSISTENCE deciles

PERSIST-ENCE	β_0		β_1		β_2		β_3	
	Coefficient	t-stat	Coefficient	t-stat	**Coefficient**	**t-stat**	Coefficient	t-stat
1 (lowest)	0.149	14.99	0.001	1.68	**0.001**	**2.14**	-0.0002	-1.20
2	0.165	14.53	0.004	4.01	**0.001**	**1.13**	-0.0003	-1.20
3	0.188	16.79	0.004	3.41	**0.001**	**0.89**	-0.0004	-1.55
4	0.153	15.36	0.003	4.15	**0.001**	**1.90**	-0.0003	-1.42
5	0.172	15.35	0.004	4.17	**-0.0000**	**-0.04**	-0.0000	-0.10
6	0.156	15.33	0.004	4.06	**-0.0001**	**-0.18**	-0.0000	-0.09
7	0.147	14.07	0.002	1.52	**-0.0006**	**-0.65**	0.0004	1.73
8	0.161	14.88	0.001	1.17	**-0.001**	**-1.66**	0.0008	3.44
9	0.174	13.96	0.003	4.07	**-0.001**	**-1.95**	0.0005	2.15
10 (highest)	0.054	5.31	0.004	9.08	**-0.0000**	**-0.01**	0.0000	0.41

TABLE 8 (CONTINUED)
Regressions of returns on earnings, cash from operations, and book value of equity across groups and deciles sorted on incentives to manage cash from operations

Panel D: OLS regressions of returns on earnings, cash from operations and book value of equity across earnings ACCSCORE deciles

ACC-SCORE	β_0		β_1		β_2		β_3	
	Coefficient	t-stat	Coefficient	t-stat	**Coefficient**	**t-stat**	Coefficient	t-stat
1 (lowest)	0.111	6.78	0.011	5.18	**-0.003**	**-1.44**	0.002	4.47
2	0.186	10.40	0.006	3.48	**-0.0003**	**-0.18**	0.0003	0.93
3	0.168	12.72	0.007	5.68	**-0.002**	**-1.21**	0.0002	0.81
4	0.181	11.22	0.0002	0.17	**0.002**	**1.92**	-0.0002	-0.66
5	0.197	12.02	0.004	2.86	**0.0001**	**0.10**	0.0000	0.23
6	0.197	17.19	0.003	3.01	**0.002**	**2.62**	-0.0002	-0.82
7	0.197	14.56	0.002	2.09	**0.001**	**1.29**	-0.0005	-1.68
8	0.213	18.10	0.002	2.33	**0.003**	**2.97**	-0.001	-4.03
9	0.171	10.33	0.005	2.91	**0.004**	**3.23**	0.0000	0.23
10 (highest)	0.214	14.10	0.003	2.50	**0.003**	**2.85**	-0.001	-3.64

Panel E: OLS regressions of returns on earnings, cash from operations and book value of equity for firms with and without analyst cash flow forecasts

CFF	β_0		β_1		β_2		β_3	
	Coefficient	t-stat	Coefficient	t-stat	**Coefficient**	**t-stat**	Coefficient	t-stat
1	0.157	27.83	0.002	8.33	**0.0005**	**1.94**	-0.0000	-0.59
0	0.152	39.73	0.005	12.69	**0.0005**	**1.23**	0.0005	4.38

Notes to Table 8:
Variable definitions
RET_t = Raw buy-hold returns, including dividends and other distributions, calculated by compounding monthly returns over the fiscal year.
$EARN_t /P_{t-1}$ = Income before extraordinary item (ib) in year t divided by price (prccf) in year t-1
CFO_t /P_{t-1} = Cash from operations (oancf) in year t divided by price (prccf) in year t-1
BV_t /P_{t-1} = Book value of common equity (ceq) in year t divided by price (prccf) in year t-1
All other variables are as defined in Table 1.

TABLE 9
Regressions examining incentives to manage cash from operations over time

$$UCFO_t = \beta_0 + \beta_1 TIME{*}FC_t + \beta_2 FC_t + \beta_3 TIME + \beta_4 EARN_t + \beta_5 SIZE_t + \beta_6 MB_t + \beta_7 ACC_t + \varepsilon_t \quad (10)$$

FC_t	β_0	β_1	β_2	β_3	β_4	β_5	β_6	β_7	Adj R^2
DISTRESS	0.011	**0.002**	0.0009	0.008	0.118	-0.001	0.0007	-0.271	11.27%
	(2.95)	**(3.88)**	(2.49)	(1.70)	(14.40)	(-5.84)	(3.56)	(-26.20)	
IGRADE	-0.0004	**0.004**	0.003	0.001	0.039	-0.0003	0.0004	-0.052	2.97%
	(-0.18)	**(2.45)**	(2.32)	(0.92)	(4.85)	(-1.01)	(2.18)	(-2.30)	
PERSISTENCE	0.002	**-0.004**	-0.004	0.004	0.129	-0.001	0.0003	-0.271	11.94%
	(1.09)	**(-1.89)**	(-2.45)	(2.89)	(18.21)	(-5.76)	(1.27)	(-19.30)	
ACCSCORE	-0.005	**0.0004**	0.0009	0.002	0.108	-0.001	0.0005	-0.237	10.38%
	(-4.31)	**(2.28)**	(3.97)	(0.86)	(13.52)	(-10.28)	(2.15)	(-20.89)	
CFF	0.006	**0.003**	0.002	0.004	0.118	-0.001	0.0003	-0.316	13.70%
	(2.64)	**(1.73)**	(1.53)	(1.85)	(13.93)	(-6.58)	(2.03)	(-21.58)	

Notes to Table 9:
TIME is an indicator variable set to 1 for all years during the time period 1999 to 2007 and set to 0 for all years during the time period 1990 to 1998. All other variables are defined as per Table 1. t-statistics are in parentheses. Standard errors are adjusted using two-way clustering based upon firm and year as devised by Cameron, Gelbach and Miller (2007). .To mitigate any undue influence from outliers, all financial variables are trimmed at the extreme 1%.

References

References

Backer, M., and M. Gosman. 1980. The use of financial ratios in credit downgrade decisions. *Financial Management* 9: 53-56.

Balsam, S. 1998. Discretionary accounting choices and CEO compensation. *Contemporary Accounting Research* 15 (3): 229-252.

Barth, M., D. Cram, and K. Nelson. 2001. Accruals and the prediction of future cash flows. *The Accounting Review* 76: 27-58.

Beaver, W. 1966. Financial ratios as predictors of failure. *Journal of Accounting Research* 4: 71-111.

Beaver, W., Shakespeare, C. and Soliman, M. 2006. Differential properties in the ratings of certified versus non-certified bond-rating agencies. *Journal of Accounting and Economics* 42: 303-334.

Bowen, R., A. Davis, and S. Rajgopal. 2002. Determinants of revenue-reporting practices for Internet firms. *Contemporary Accounting Research* 19: 523-562.

Brown, L., and A.S. Pinello. 2008. Why do firms meet or beat analysts' cash flow forecasts but miss their earnings forecasts? Working paper, Georgia State University.

Burgstahler, D., and I. Dichev. 1997. Earnings management to avoid earnings decreases and losses. *Journal of Accounting and Economics* 24: 99-126.

Burns, N., and S. Kedia. 2006. The impact of performance-based compensation on misreporting. *Journal of Financial Economics* 79: 35-67.

Bushee, B. 1998. The influence of institutional investors on myopic R&D investment behavior. *The Accounting Review* 73: 305-333.

Call, A. 2007. The implications of cash flow forecasts for investors' pricing and managers' reporting of earnings. Working Paper, University of Georgia.

Cameron, A., J. Gelbach, and D. Miller. 2006. Robust inference with multi-way clustering. NBER Working Paper No. T0327.

Casey, C., and N. Bartczak. 1985. Using operating cash flow data to predict financial distress: Some extensions. *Journal of Accounting Research* 23: 384-401.

Collins, D., and S.P. Kothari. 1989. An analysis of intertemporal and cross-sectional determinants of earnings response coefficients. *Journal of Accounting and Economics* 11: 143-181.

Cuñat, V. 2006. Trade credit: Suppliers and debt collectors as insurance providers. *Review of Financial Studies* 20: 491-527.

Dechow, P., and I. Dichev. 2002. The quality of accruals and earnings: The role of accrual estimation errors. *The Accounting Review* 77: 35-69.

Dechow, P., S.P. Kothari, and R. Watts. 1998. The relation between earnings and cash flows. *Journal of Accounting and Economics* 25: 133-168.

Dechow, P., and R. Sloan. 1991. Executive incentives and the horizon problem: An empirical investigation. *Journal of Accounting and Economics* 14: 51-89.

DeFond, M., and M. Hung. 2003. An empirical analysis of analysts' cash flow forecasts. *Journal of Accounting and Economics* 35: 73-100.

DeFond, M., and M. Hung. 2007. Investor protection and analysts' cash flow forecasts around the world. *Review of Accounting Studies* 12: 377-419.

Degeorge, F., J. Patel, and R. Zeckhauser. 1999. Earnings management to exceed thresholds. *The Journal of Business* 72: 1-33.

Easton, P., and M. Zmijewski. 1989. Cross-sectional variation in the stock market response to accounting earnings announcement. *Journal of Accounting and Economics* 11: 117-141.

Engel, E., M. Erickson, and E. Maydew. 1999. Debt-equity hybrid securities. *Journal of Accounting Research* 37: 249-274.

Fama, E., and K. French. 1997. Industry costs of equity. *Journal of Financial Economics* 43: 153-193.

Fink, R. 2003. Mind the gap. *CFO magazine* (November).

Fisman, R., and M. Raturi. 2004. Does competition encourage credit provision? Evidence from African trade credit relationships. *Review of Economics and Statistics* 86: 345-352.

Francis, J., R. LaFond, P. Olsson, and K. Schipper. 2004. Cost of equity and earnings attributes. *The Accounting Review 79*: 967-1010.

Gentry, J., P. Newbold, and D. Whitford. 1985. Classifying bankrupt firms with funds flow components. *Journal of Accounting Research* 23: 146-161.

Giannetti, M., M. Burkart, and T. Ellingsen. 2008. What you sell is what you lend? Explaining trade credit contracts. *Review of Financial Studies*. Forthcoming.

Givoly, D., C. Hayn, and R. Lehavy. 2008. The quality of analysts' cash flow forecasts. Working paper. Pennsylvania State University.

Glassman, J. 2002. World of investing: Even amateurs can detect problems by counting the cash. *International Herald Tribune* (February).

Gombola, M., M. Haskins, J. Ketz, and D. Williams. 1987. Cash flow in bankruptcy prediction. *Financial Management* 16: 55-65.

Graham, J., C. Harvey, and S. Rajgopal. 2005. The economic implications of corporate financial reporting. *Journal of Accounting and Economics* 40: 3-73.

Healy, P. 1985. The effect of bonus schemes on accounting decisions. *Journal of Accounting and Economics*, 7, 1985: 85-107.

Henry, D. 2004. Fuzzy numbers. *Business Week* (October).

Jones, J. 1991. Earnings management during import relief investigations. *Journal of Accounting Research* 29: 193-228.

Leone, M. 2004. Compensation and cash flow. *CFO* (January).

Lauricella, T. 2008. Cash flow reigns once again. *The Wall Street Journal* (May).

McInnis, J., and D. Collins. 2007. Do cash flow forecasts deter earnings management? Working paper. University of Iowa.

McLean, B. 2001. Is Enron overpriced? *Fortune* (March).

McMillan, J., and C. Woodruff. 1999. Interfirm relationships and informal credit in Vietnam. *The Quarterly Journal of Economics* 114: 1285-1320.

McVay, S. 2006. Earnings management using classification shifting: An examination of core earnings and special items. *The Accounting Review* 81: 501-531.

Minton, B., and C. Schrand. 1999. The impact of cash flow volatility on discretionary investment and the costs of debt and equity financing. *Journal of Financial Economics* 54: 423-460.

Mulford, C., and Comiskey, E. 2005. Creative cash flow reporting: Uncovering sustainable financial performance. John Wiley & Sons Inc. U.S.A.

Nurnberg, H., and Largay, J. 1998. Interest payment in the cash flow statement. *Accounting Horizons*: 12: 407-418.

Nurnberg, H. 2006. Perspectives on the cash flow statement under FASB Statement No. 95. Working paper. Baruch College.

Nwaeze, T., S. Yang, and Q. Yin. 2006. Accounting information and CEO compensation: The role of cash flow from operations in the presence of earnings. *Contemporary Accounting Research* 23: 227-265.

O'glove, T. 1987. Quality of earnings. The Free Press. U.S.A.

Ohlson, J. 1980. Financial ratios and the probabilistic prediction of bankruptcy. *Journal of Accounting Research* 18: 109-131.

Ohlson, J. and J. Aier. 2007. On the analysis of firms' cash flows. Working paper. Arizona State University.

Penman, S., and X. Zhang. 2002. Accounting conservatism, the quality of earnings, and stock returns. *The Accounting Review* 77: 237-264.

Pervits, G., R. Bricker, T. Robinson, and S. Young. 1994. A content analysis of sell-side financial analyst company reports. *Accounting Horizons* 8: 55-70.

Petersen, M., and R. Rajan. 1997. Trade credit: Theory and evidence. *Review of Financial Studies* 10: 661-691.

Petersen, M. 2009. Estimating standard errors in finance panel data sets: Comparing approaches. *Review of Financial Studies* 22: 435-480.

Reason, T. 2006. Securitization: Cash flow on tap. *CFO* (June).

Richardson, S., R. Sloan, M. Soliman, and I. Tuna**.** 2005. Accrual reliability, earnings persistence and stock prices. *The Accounting Review* 39: 437-485.

Richardson, S., I. Tuna, and M. Wu. 2002. Predicting earnings management: The case of earnings restatements. Working paper.

Robinson, D. 2006. How execs manipulate financial statements. *Knight Ridder Tribune Business News* (May).

Robinson, L. 2007. Costly income statement classification management. Working paper. Tuck School of Business at Dartmouth.

Rountree, B., J. Weston, and G. Allayannis. 2008. Do investors value smooth performance? *Journal of Financial Economics.* Forthcoming.

Roychowdhury, S. 2006. Earnings management through real activities manipulation. *Journal of Accounting and Economics* 42: 335-370.

Sharma, D. 2001. The role of cash flow information in predicting corporate failure: The state of the literature. *Managerial Finance* 27: 3-28.

Shumway, T. 2001. Forecasting bankruptcy more accurately: A simple hazard model. *Journal of Business* 74: 101-124.

Standard and Poor's. 2008. Corporate ratings criteria.

Subramanyam, K.R., and J. Wild. 1996. Going concern status, earnings persistence and informativeness of earnings. *Contemporary Accounting Research* 13: 251-273.

Vent, G., Cowling, J., and Sevalstad, S. 1995. Cash flow comparability: Accounting for long-term debt under SFAS 95. *Accounting Horizons* 9: 88-96.

Wasley, C., and J.Wu. 2006. Why do managers voluntarily issue cash flow forecasts? *Journal of Accounting Research* 44: 389-429.

Zhang, W. 2007. The effects of meeting or beating analysts' cash flow forecasts on market reaction and analysts' forecast revisions. Working paper. University of Texas Dallas.

Zhang, W. 2008. Real activity manipulation to meet analyst cash flow forecasts. Working paper. University of Texas Dallas.