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Incentives to Inflate Reported Cash from Operations Using Classification and Timing

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ABSTRACT: This study examines when firms inflate reported cash from operations in the statement of cash flows (CFO) and the mechanisms through which firms manage CFO. CFO management 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 four firm characteristics associated with incentives to inflate reported CFO: (1) financial distress, (2) a long-term credit rating near the investment/non-investment grade cutoff, (3) the existence of analyst cash flow forecasts, and (4) higher associations between stock returns and CFO. Results indicate that, even after controlling for the level of earnings, firms upward manage reported CFO when the incentives to do so are particularly high. Specifically, firms manage CFO by shifting items between the statement of cash flows categories both within and outside the boundaries of generally accepted accounting principles (GAAP), and by timing certain transactions such as delaying payments to suppliers or accelerating collections from customers.

Keywords: *classification shifting; real activities manipulation; cash flow reporting*.

Data Availability: *Data are available from public sources identified in the study.*

I. INTRODUCTION

Cash from operations (CFO) and earnings are complementary measures of firm performance. Recent studies document that a growing and economically significant proportion of firms' analysts and managers issue cash flow forecasts (DeFond and Hung

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2003; Wasley and Wu 2006; Call 2008). One potential explanation for this trend is that investors are paying more attention to CFO. Many financial accounting textbooks and investment advisors advocate comparing earnings to CFO, and consider a wide disparity a red flag on the basis that CFO is more "real" than earnings.[1,2] However, cases of cash flow misreporting have raised concerns that managers exercise discretion in financial reporting and in the timing of transactions to inflate reported CFO (hereafter, CFO management).[3] Despite these concerns, there is limited research about when, why, and how firms manage reported CFO.

This study examines the following questions: (1) What are the incentives to upward manage reported CFO? (2) What are the mechanisms through which firms manage reported CFO? In this study, CFO management is distinct from earnings management. Specifically, CFO management stems from incentives to inflate reported CFO and not earnings.[4] To the extent that investors focus solely on earnings, incremental CFO management would be pointless. However, depending on the firm characteristics, CFO and earnings have different implications for future earnings and, correspondingly, for investors. For example, executives rank earnings as the most important financial metric to external constituents in general, but consider CFO more important than earnings when the firm is near distress (Graham et al. 2005, 20).

Empirically, the multitude of transactions that simultaneously increase reported CFO and earnings poses a challenge in distinguishing 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 managers use *classification* and *timing* to inflate reported CFO. Classification refers to shifting items among 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.

I hypothesize that firms inflate reported CFO in response to incentives. I identify four firm characteristics that likely indicate reported CFO is particularly important to investors and, thus, managers have stronger incentives to inflate reported CFO. The firm characteristics are (1) financial distress, (2) a long-term credit rating near the investment/non-investment grade cutoff, (3) the existence of analyst cash flow forecasts, and (4) higher associations between stock returns and CFO.

To test the hypothesis that firms inflate reported CFO when the incentives to do so are high, I decompose CFO into expected and unexpected components by modeling expected CFO based on Dechow et al. (1998). The results show that unexpected CFO is increasing in incentives to inflate reported CFO. In terms of magnitude, a one standard deviation increase in one of the firm characteristics listed above increases unexpected CFO by up to 5 percent of total CFO, depending on the firm characteristic.

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[1] See articles by Fink (2000), Glassman (2002), Henry (2004), and Lauricella (2008), and books by Schilit (2002), Wild et al. (2004), Libby et al. (2008), and Dyckman et al. (2011).

[2] For example, "Wild et al. (2004) suggest that cash flows are often less subject to distortion than is net income . . . Certain users consider earnings of higher quality when the ratio of cash flows from operations divided by net income is greater" (Libby et al. 2008, 181).

[3] As an example, in 1999 Enron was $500 million short of the cash flow target that 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 that allowed Enron to generate cash from operations by selling Treasury bills bought with the proceeds of a loan.

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

Having documented that firms upward manage reported CFO in response to incentives, I then investigate *how* firms manage reported CFO. Using two specific settings in which earnings are held constant, I examine whether firms use classification to inflate reported CFO. First, using a sample of firms that restated CFO downward due to classification errors (restatement sample), I find that firms are more likely to restate CFO when managerial incentives to inflate reported CFO are stronger. The regression results suggest that depending on the firm characteristic, on average, a one standard deviation or one unit increase in the firm characteristic increases the odds of having a cash flow restatement by at least 37 percent. Second, I examine the classification of a specific item—the tax benefit of stock options—that the accounting standards did not require to appear in a particular section of the statement of cash flows prior to July 20, 2000. Thus, firms could choose to classify this item in the operating, investing, or financing section of the statement of cash flows.[5] This item is well suited for my research question because the tax benefit of stock options reduces taxes but does not affect income tax expense. Instead, this item is credited directly to stockholders' equity. The actual cash savings appears on the statement of cash flows. Subsequently, the Emerging Issues Task Force (EITF) Issue No. 00-15 requires firms to classify the tax benefit in the operating section, effective July 20, 2000. It is possible that some managers classify the tax benefit in the operating section based on their interpretation of the standards prior to the EITF guidance, and without any opportunistic intent. However, such tendencies are going to introduce measurement error that is likely to weaken the results in this study.

I provide some evidence that firms are more likely to classify the tax benefit in the operating section when incentives to manage CFO are stronger. Depending on the firm characteristic, a one standard deviation or one unit increase in the firm characteristic increases the odds of classifying the tax benefit in the operating section of the cash flow statement by at least 14 percent. Taken together, the results from the restatement sample and the tax benefit sample suggest that firms use classification to manage reported CFO.

Next, I investigate whether firms inflate reported CFO by timing certain transactions such as delaying payments to suppliers or accelerating collections from customers.[6] A deliberate effort to increase reported CFO at the end of the fiscal year would shorten the industry-adjusted cash conversion cycle in the last quarter of the fiscal year, and reverse it in the first quarter of the following year. Alternatively, if the shorter cycle persists into the first quarter of the following year, then this would indicate a general improvement in working capital management. The results show that incentives to inflate CFO are associated with a shorter cycle in the fourth quarter of the year that reverses in the next quarter. Further analysis 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 better able to "time" the transaction in a favorable way for the firm.

This study contributes to the literature on managers' incentives to take actions that do not change bottom-line earnings but can significantly affect the expectations of investors and other financial statement users through financial statement presentation (e.g., Bowen et al. 2002; McVay 2006; Barua et al. 2010; Fan et al. 2010; Robinson 2010). The results suggest that managers do not perceive all categories as equally important, and that they exercise discretion over where to report

[5] 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.

[6] 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 Ford Motor delayed payments on lease or loan incentives to Ford Credit, the company's financial arm, thereby boosting Ford Motor's annual cash flow by $1.4 billion a year (*Wall Street Journal* 2002).

an item when the classification system is vague (Mulford and Comiskey 2005; Nurnberg 2006; Ohlson and Aier 2009).[7] In their joint financial statement presentation project, the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) propose separate presentation of operating, investing, and financing activities, in not only the statement of cash flows, but also in the balance sheet and income statement. Although the classification categories can be useful to financial statement users in making decisions, the evidence that managers manipulate these classifications caution users against relying fully on the classification in forming their expectations.

Finally, this study complements the earnings management literature. The results cannot speak to the incidence of cash flow management versus earnings management. However, the evidence suggests that there are limitations to using CFO as a benchmark to identify earnings management. Contrary to the belief that CFO is "real," this study provides evidence that managers also exercise discretion in reporting CFO. If managers engage in both earnings and CFO management, then a small gap between earnings and CFO does not provide assurance that there is no earnings management. To the best of my knowledge, this is the first study to identify when and how managers inflate reported CFO.

The next section reviews relevant literature and develops the hypothesis. Section III presents the data, sample, and descriptive statistics; Section IV the test design and the results. Section V provides additional tests and results, and Section VI concludes.

II. PRIOR LITERATURE AND HYPOTHESIS DEVELOPMENT

Generally, earnings are superior to CFO as a summary measure of firm performance (Dechow 1994), but many market participants advocate the use of CFO to gauge the credibility of earnings, on the assumption that "Cash is king." Several studies note an increase in analyst and management cash flow forecasts over time.[8] One explanation for this trend is market participants' demand for cash flow information (Wasley and Wu 2006), especially after the series of corporate scandals in 2000–2001. Consistent with the view that comparing earnings to CFO is potentially useful in uncovering earnings management, recent studies suggest that analyst cash flow forecasts help to mitigate earnings management (DeFond and Hung 2003; Wasley and Wu 2006; DeFond and Hung 2007; McInnis and Collins 2011). However, anecdotes suggest that firms also manage reported CFO. Appendix A details 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 any 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.

[7] For example, SFAS No. 95 classifies interest as an operating cash flow, but classifies the receipt or repayment of the principal on a loan as a financing cash flow. Vent et al. (1995) and Nurnberg (2006) discuss how this requirement is subject to a variety of reasonable 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.

[8] DeFond and Hung (2003) report that for all annual earnings forecasts on I/B/E/S, only 1 percent include a cash flow forecast in 1993 and by 1999, 15 percent include a cash flow forecast. 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 study, Call (2008) documents that analyst cash flow forecasts have increased dramatically in the last decade, from 4 percent of firms with an earnings forecast in 1993 to 54 percent in 2005.

In addition to anecdotal evidence, prior research suggests that firms have incentives to manage reported CFO, even in the absence of an effect on bottom-line earnings. First, studies have documented that firms manage the presentation of items in the financial statements even when there is no change in bottom-line earnings. Engel et al. (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. Other studies find that managers inflate core earnings by opportunistically shifting expenses from core expenses to non-core expenses such as special items (McVay 2006; Fan et al. 2010), discontinued operations (Barua et al. 2010), and tax expense (Robinson 2010). Second, there is some evidence of capital market benefits associated with meeting or beating cash flow benchmarks, suggesting that firms have incentives to manage reported CFO. Call (2008) 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.

This study hypothesizes that firms inflate reported CFO in response to incentives. I identify four firm characteristics that likely indicate reported CFO is particularly important to investors and, thus, managers have stronger incentives to inflate reported CFO. The firm characteristics are (1) financial distress, (2) a long-term credit rating near the investment/non-investment grade cutoff, (3) the existence of analyst cash flow forecasts, and (4) higher associations between stock returns and CFO.

This study is related to, but distinct from, the literature investigating the use of real activities to manage earnings. Several studies show that managers engage in real activities manipulation to increase *earnings* (Dechow and Sloan 1991; Bushee 1998; Roychowdhury 2006). However, the effect of such activities on CFO is unclear. On one hand, reducing discretionary expenditures such as research and development costs has a *positive* effect on CFO after controlling for sales level. On the other hand, activities such as price discounts, channel stuffing, and overproduction have a *negative* effect on CFO after controlling for sales level. Considering both effects, Roychowdhury (2006) finds that, on average, firms that manage earnings upward using real activities have *lower* unexpected CFO, suggesting that the latter effect dominates. In contrast to the literature focusing on *earnings* management, I focus on incentives and methods to inflate CFO, holding earnings constant.

I next elaborate on why firms have incentives to inflate reported CFO when one or more of the firm characteristics are present. I then discuss how firms inflate reported CFO.

Firm Characteristics Associated with Incentives to Manage CFO

Financial Distress

Prior research provides mixed evidence on whether cash flow information is relevant for financially distressed firms. Casey and Bartczak (1985) find that cash flows do not provide incremental information in distinguishing between bankrupt and non-bankrupt firms, but a more recent study by Sharma (2001) finds that they do. Furthermore, while Gombola et al. (1987) and Gentry et al. (1985) find that cash flows are not significant in predicting firm failure, Previts et al. (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 more important to external constituents than earnings when the firm is near financial distress. The more recent results supporting the importance of cash flow information for distressed firms are consistent with cash flows being a traditional measure in evaluating credit and bankruptcy risks (Beaver 1966; Ohlson 1980; DeFond and Hung 2003). Thus, I expect managerial incentives to inflate reported CFO to be stronger when the firm is near 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 & 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 a key variable in their decision process.[9] Beaver et al. (2006) argue that the investment/non-investment grade boundary is a critical point in the distribution of ratings. Many contracts incorporate certified credit ratings, and a downgrade below investment grade has adverse 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 inflate reported CFO to avoid downgrades, particularly when they are at the lower bound of the investment grade category. Similarly, firms just below investment grade likely have incentives to inflate reported CFO in an attempt to obtain an investment grade rating. Therefore, I expect managerial incentives to inflate reported CFO to be stronger when the firm is near the investment/non-investment grade cutoff.

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.[10] Their results suggest that analysts are more likely to forecast cash flows when 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 and Brown et al. (2010) also show that the market rewards firms for exceeding cash flow expectations. Thus, firms with analyst cash flow forecasts are likely to have stronger incentives to inflate reported CFO than those without analyst cash flow forecasts.

Several studies in the earnings management literature use histograms to examine irregularities in earnings distributions (e.g., Burgstahler and Dichev 1997). These studies interpret a discontinuity in the frequency distribution around the threshold region as evidence of earnings management. Zhang (2008) documents a discontinuity from the left of zero to the right of zero in a distribution of cash flow surprise, suggesting that firms manage CFO to meet or beat cash flow benchmarks. Following this stream of literature, I argue that firms that just beat the analyst cash flow forecast are likely to have inflated their CFO to report cash flows marginally above the analyst forecast.

Association between Stock Returns and CFO

Earnings and CFO are two complementary summary measures of firm performance and, depending on the firm characteristics, they have different implications for future firm performance. Call (2008) finds that, after controlling for earnings, the ability of current CFO to predict future CFO is higher for firms that have analyst cash flow forecasts. Dechow and Ge (2006) document that, on average, earnings is more useful than CFO in predicting future earnings, but in firms with large negative accruals, CFO is more useful than earnings.

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[9] For example, 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.

[10] DeFond and Hung (2003) and McInnis and Collins (2011) indicate that analyst cash flow forecasts represent relatively sophisticated projections of cash flows from continuing operations. However, Givoly et al. (2009) find that analyst cash flow forecasts are of a considerable lower quality (i.e., less accurate and efficient) than their earnings forecasts, and appear to be a naïve extension of analysts' earnings forecasts. Nevertheless, they suggest that, regardless of the quality of the forecast, the mere presence of cash flow forecasts attracts investors' attention and can influence management reporting because these forecasts provide an additional financial measure to evaluate the firm's reported results.

For firms whose investors place more importance on CFO, CFO is another metric, in addition to earnings, that investors use to evaluate managers. I use the association between stock returns and CFO after controlling for the association between stock returns and earnings to directly identify the importance that investors place on CFO. I expect the incentives to inflate reported CFO to be increasing in this measure.

Mechanisms to Manage CFO

Because transactions that increase earnings and CFO simultaneously could stem from incentives to manage earnings and not CFO, it is necessary to investigate how firms manage CFO holding earnings constant. Limiting the examination of CFO management activities to those that increase CFO without affecting earnings understates the frequency of the behavior, but provides a clean setting to examine CFO management unconfounded by earnings management.

To illustrate how firms manage reported CFO using classification and timing, I begin with the familiar equation: EARNINGS = CASH FLOWS + ACCRUALS. Each component in the equation includes items in operating and non-operating (financing and investing) categories. Recall that classification refers to shifting items among the statement of cash flows categories, holding earnings and aggregate cash flows constant. The cash flow misclassification by Dynegy was severe enough 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.[11] In Section IV, I investigate whether firms manage reported CFO using classification by focusing on: (1) cash flow restatements due to classification errors, and (2) the classification of tax benefits from stock options exercised.

Timing refers to 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; managers can increase reported CFO at the end of the year by delaying payments to suppliers and accelerating collections from customers. Such actions are likely to strain customer and supplier relations, and profit margins are compromised if managers give discounts to customers for early payments or sacrifice discounts from suppliers to delay payments. Thus, unlike classification, timing involves real actions and reduces the chance of detection by the auditors or the SEC. I examine whether firms manage reported CFO using timing by looking at irregularities in cash conversion cycles, on which Section IV elaborates.

III. DATA AND DESCRIPTIVE STATISTICS

Data and Sample Selection

Table 1 outlines the sample selection. I start with all firms that have data available on Compustat from 1988 to 2008. The time period begins in 1988 because of the availability of cash from operations data from the statement of cash flows. For each year, I measure expected CFO

[11] 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 the firm allocates interest payments between operating and investing activities as it allocates interest cost between amounts expensed and amounts capitalized, then it will report $18,000 as an operating outflow and $9,000 as an investing outflow. Alternatively, the operating outflow could be as little as $17,000 or as much as $20,000, and the investing outflow could be as much as $10,000 or as little as $7,000. They further note that companies seem to favor the method that reports $17,000 of operating outflow, presumably to maximize reported CFO.

TABLE 1
Sample Selection

	FIRM_CHARACTERISTIC				
	DISTRESS	***NON-IGRADE***	***CFO_FORECAST***	***MEET_BEAT_CFO***	***CFO_WEIGHT***
Compustat annual from 1988-2008 with (1) non-missing gvkey, total assets (*SIZE*), sales, and cash flows excluding regulated industries (SIC codes 4400 to 5000) and banks and financial institutions (SIC codes 6000 to 6500), and (2) 10 years of data in the estimation period (i.e. year *t*-10 to year *t*-1) to estimate *UCFO* in year *t*.	27,235	27,235	27,235	27,235	27,235
Less:					
Firm-years without control variables – *EARN*, *MB* and *ABACC*	2,845	2,845	2,845	2,845	2,845
Firm-years without data from Compustat quarterly to compute $\triangle CC$	6,942	6,942	6,942	6,942	6,942
Sub-total	17,448	17,448	17,448	17,448	17,448
Less firm-years without *FIRM_CHARACTERISTIC:*					
Missing data to compute *DISTRESS* based on Shumway (2001)	3,801				
Standard & Poor's long-term domestic issuer credit rating (SPLTICRM) is missing, not reported (NR) or not meaningful (NM)		11,973			
Missing analysts' earnings forecast on I/B/E/S			7,776		
Missing analysts' earnings and cash flow forecasts on I/B/E/S				14,818	
Missing data to compute *CFO_WEIGHT* based on a rolling regression of returns (from CRSP) on earnings and cash flows					3,601
Total number of firm-years in final sample	13,647	5,475	9,672	2,630	13,847

Variable Definitions (Compustat variable name in parentheses):

UCFO = actual CFO (oancf) minus predicted CFO. For every firm-year, I calculate predicted CFO using the parameter estimates from the firm-level estimation of the following model over the prior ten years: $CFO_t/TA_{t-1} = \lambda_0 + \lambda_1(1/TA_{t-1}) + \lambda_2(SALE_t/TA_{t-1}) + \lambda_2(\Delta SALE_t/TA_{t-1}) + \varepsilon_t$. The model is based on Dechow et al. (1998). See Table 3 for more details;

$\Delta CC = CC_{q1,t+1} - CC_{q4,t}$ where $CC_{i,t}$ represents the cash conversion cycle in quarter i of year t. I calculate *CC* as follows:

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

(continued on next page)

TABLE 1 (continued)

where *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, I adjust ΔCC to reflect deviations from the industry means in a given year. Every quarter, I compute the industry mean ΔCC using all firms available on the Compustat quarterly database. For each firm-quarter, I subtract the industry mean ΔCC for that year 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") in $t+1$. Shumway score $= e^{\alpha}/(1+e^{\alpha})$, where $\alpha = -13.303 - 1.982 \times NI + 3.593 \times TL - 0.467 \times SIZE - 1.809 \times RET + 5.791 \times SIGMA$, *NI* = net income (ni)/total assets (at), and *TL* = total liabilities (lt)/total assets (at). *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 cumulative monthly stock returns of the firm minus the value-weighted CRSP NYSE/AMEX index return. *SIGMA* is the standard deviation of the residual from a regression of each stock's monthly returns in year $t-1$ on the value-weighted BYSE/AMEX index return for the same year.

NON-IGRADE = indicator variable equaling 1 if the Standard & Poor's long-term domestic issuer credit rating (SPLTICRM) is BBB+, BBB, BBB−, BB+, BB, or BB−, and 0 otherwise;

CFO_FORECAST = indicator variable equaling 1 if the firm has at least one analyst cash flow forecast for the fiscal year, and 0 otherwise;

MEET_BEAT_CFO = indicator variable equaling 1 if the firm beats analyst cash flow forecast by zero or one cent, and 0 otherwise;

CFO_WEIGHT = weight on CFO given by λ_2 from the regression estimated for every firm-year over a rolling ten-year period: $RETURN_t = \lambda_0 + \lambda_1 EARN_t/TA_{t-1} + \lambda_2 CFO_t/\mathrm{TA}_{t-1} + \varepsilon_t$ where $RETURN_t$ = CRSP buy-and-hold stock return (including dividends) minus the CRSP value-weighted market index (including dividends) over the fiscal year, $EARN_t/TA_{t-1}$ = earnings scaled by the beginning-of-period total assets, and CFO_t/TA_{t-1} = cash flow from operations scaled by the beginning-of-period total assets;

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); and

ABACC = unexpected accruals based on Jones (1991).

using the parameter estimates from a firm-level estimation of the Dechow et al. (1998) model over the prior ten years. The ten-year estimation period means that the first year of in-sample testing begins in 1998. The ten-year estimation period also biases the sample toward mature, stable firms but a shorter time-series would introduce noise into the estimation. The analysis excludes firms in regulated industries (SIC codes 4400 to 5000) and banks and financial institutions (SIC codes 6000 to 6500) because the model for predicting expected CFO is not appropriate in these industries. I winsorize all financial variables at the extreme 1 percent.

Descriptive Statistics

Table 2, Panel A presents descriptive statistics for the variables used in the main analyses. As shown in Table 1, the sample sizes differ across 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 1.7 percent and 0.2 percent, respectively, consistent with the expectation that *DISTRESS* has a positively skewed distribution. In subsequent analyses, I take the natural logarithm of *DISTRESS* to normalize the positively skewed distribution. As discussed earlier, firms at the lower bound of the investment grade category (BBB+, BBB, and BBB−) have incentives to inflate reported CFO to avoid downgrades. Also, firms just below investment grade (BB+, BB, and BB−) likely have incentives to inflate reported CFO in an attempt to obtain an investment grade rating. Hence, *NON-IGRADE* is an indicator set to 1 if the firm has a BBB+, BBB, BBB−, BB+, BB, or BB− on its long-term credit rating, and set to 0 if the firm has other long-term credit ratings. About 20.7 percent of the sample firms are near this investment/non-investment grade cutoff. *CFO_FORECAST* is an indicator set to 1 if the firm has at least one analyst cash flow forecast and one EPS forecast, and 0 if the firm only has an EPS forecast. About 27.2 percent of the firms with at least one EPS forecast have at least one cash flow forecast. *MEET_BEAT_CFO* is an indicator set to 1 if the firm beats the analyst cash flow forecast by zero or one cent, and 0 otherwise. About 2.3 percent of the firms with at least one cash flow forecast beat the analyst cash flow forecast by zero or one cent.[12] I measure the incremental weight that investors place on CFO (*CFO_WEIGHT*) as the coefficient on CFO in a regression of contemporaneous stock returns on earnings and CFO. The regression is at a firm level over a ten-year rolling window. The mean *CFO_WEIGHT* is 1.029, and the coefficient on earnings has a mean of 1.643.[13] This suggests that investors place less weight on CFO compared to earnings on average.

Table 2, Panel A also presents the dependent variables and the control variables used in the main regressions. The dependent variables, on which Section IV elaborates, are measures of unexpected CFO (*UCFO*) and irregularities in cash conversion cycles (ΔCC). 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).

[12] Prior research argues that firms that beat the analysts' earnings forecast by zero or one cent likely manage their earnings (e.g., Bhojraj et al. 2009; Frankel et al. 2010). Following the earnings management literature, I expect firms that beat the analyst cash flow forecast by zero or one cent to be more likely to have managed CFO. However, little is known about beating analyst cash flow forecasts and it is unclear whether one cent is the "correct cutoff" to identify CFO management. Hence, I identify an alternative cutoff based on Degeorge et al. (1999) and calculate the bin width 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. The results are robust to the alternative bin width.

[13] The coefficients on *CFO_WEIGHT* are statistically not significant (and hence interpreted as zero) for some firms and negative for others. Because both CFO and earnings are included in the regression to estimate *CFO_WEIGHT*, a zero coefficient on CFO indicates that CFO does not add incremental information beyond earnings, and a negative coefficient indicates that the association between stock returns and accruals is stronger than the association between stock returns and CFO. This is in line with prior research documenting mixed evidence on the incremental information content of cash flows conditional on earnings and/or accruals (e.g., Rayburn 1986; Wilson 1987; Bernard and Stober 1989).

TABLE 2

Descriptive Statistics and Correlations among Variables Used in the Main Regressions

Panel A: Descriptive Statistics

Variable	n[a]	Mean	Std. Dev.	Median	25%	75%
Firm Characteristics						
DISTRESS[b]	13,647	0.017	0.060	0.002	0.001	0.006
NON-IGRADE	5,475	0.207	0.405	0.000	0.000	0.000
CFO_FORECAST	9,672	0.272	0.445	0.000	0.000	1.000
MEET_BEAT_CFO	2,630	0.023	0.151	0.000	0.000	0.000
CFO_WEIGHT	13,847	1.029	4.631	0.735	−1.329	3.138
Dependent Variables						
UCFO	13,847	0.000	0.105	−0.001	−0.046	0.045
Δ*CC*	13,847	−1.216	43.328	−4.369	−17.783	10.597
Control Variables						
EARN	13,847	0.026	0.119	0.046	0.005	0.085
SIZE	13,847	6.077	2.023	6.038	4.540	7.470
MB	13,847	2.814	3.195	2.024	1.242	3.349
ABACC	13,847	0.000	0.069	0.001	−0.032	0.032

Panel B: Pearson (Spearman) Correlation on the Upper (Lower) Diagonal[a,c]

	UCFO	Δ*CC*	*DISTRESS*	*NON-IGRADE*	*CFO_FORECAST*	*MEET_BEAT_CFO*	*CFO_WEIGHT*	*EARN*	*SIZE*	*MB*	*ABACC*
UCFO		0.010	−0.023	0.001	0.015	0.014	0.024	0.158	0.015	0.054	−0.220
Δ*CC*	0.001		0.001	−0.002	0.046	−0.001	0.002	0.026	0.033	0.008	0.007
DISTRESS	−0.026	−0.002		0.047	−0.229	−0.036	−0.037	−0.359	−0.409	−0.142	0.026
NON-IGRADE	0.007	0.002	0.072		−0.001	−0.030	−0.034	−0.021	−0.078	−0.060	−0.005
CFO_FORECAST	0.012	0.075	−0.265	−0.001			−0.008	0.106	0.475	0.072	−0.013
MEET_BEAT_CFO	0.007	0.004	−0.044	−0.030			−0.010	0.031	0.034	0.035	−0.008
CFO_WEIGHT	0.026	0.002	−0.051	−0.042	−0.010	−0.015		0.038	0.062	0.016	0.007
EARN	0.149	0.034	−0.399	−0.047	0.111	0.036	0.058		0.225	0.121	0.105
SIZE	0.024	0.054	−0.452	−0.078	0.476	0.032	0.066	0.171		0.137	−0.008
MB	0.063	0.017	−0.293	−0.077	0.166	0.038	0.028	0.417	0.247		0.011
ABACC	−0.257	0.010	0.022	−0.011	−0.007	−0.014	−0.002	0.078	−0.008	0.038	

[a] The sample sizes for the control variables are based on the *CFO_WEIGHT* sample, which is the largest sample.
[b] For ease of interpretation, *DISTRESS* values in Panel A are the values before taking the natural log.
[c] The correlations between *CFO_FORECAST* and *MEET_BEAT_CFO* are missing because the *MEET_BEAT_CFO* sample is conditional on firms that have at least one cash flow forecast (i.e., *CFO_FORECAST* = 1). Hence, there is no variation in *CFO_FORECAST* within the *MEET_BEAT_CFO* sample.

Table 2, Panel B reports the Pearson and Spearman correlations among the variables. Consistent with the hypotheses, *UCFO* is positively correlated with *NON-IGRADE*, *CFO_FORECAST*, *MEET_BEAT_CFO*, and *CFO_WEIGHT*, and negatively correlated with *DISTRESS*. One potential explanation for the negative univariate correlation is that more distressed firms are likely to have lower cash flows without controlling for earnings. However, given that the hypothesis is that *DISTRESS* is positively associated with *UCFO* after controlling for earnings, a regression is more appropriate for examining the relation between *UCFO* and *DISTRESS*. Last, the firm characteristics are not highly correlated, suggesting that while these characteristics are not mutually exclusive, each characteristic still captures a different aspect of managerial incentives.

IV. TEST DESIGN AND RESULTS

In this section, I discuss the research design and results for the three sets of tests in the main analysis. The objective is to first establish that managers inflate reported CFO in response to incentives, and then investigate how they manage CFO. Hence, I first test the hypothesis that firms inflate reported CFO in response to incentives, using a measure of unexpected CFO based on Dechow et al. (1998). I then investigate how firms manage CFO, specifically through classification (i.e., the second test) and timing (i.e., the third test). The second test uses focused samples to more cleanly isolate CFO management, thereby strengthening the study's internal validity, while the first and third tests use broader samples that demonstrate the generalizability of the inferences.

Test Using Unexpected Cash from Operations

Dechow et al. (1998) model a firm's cash-generating process at the firm-level and empirically estimate firm-specific parameters using firms with at least ten years of annual data. To derive expected CFO for each firm-year, I use a firm-level estimation of the model over the prior ten years:[14]

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

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. I use the parameter estimates from Equation (1) to generate expected CFO, and unexpected CFO is the difference between actual and expected CFO.

Table 3 reports the mean and median regression coefficients and adjusted R^2 for Equation (1). Consistent with the predictions based on Dechow et al. (1998), the mean and median parameter estimates on $SALE_t/TA_{t-1}$ and $\Delta SALE_t/TA_{t-1}$ are positive and negative, respectively, because earnings is a function of the level of sales and accruals is a function of the change in sales. The mean adjusted R^2 across firms is 38.57 percent, which is only somewhat lower than the mean adjusted R^2 of 45 percent reported by Roychowdhury (2006), who estimates the regression at the industry level every year.

To test the hypothesis, I estimate the following regression:

$$UCFO_t = \beta_0 + \beta_1 FIRM\_CHARACTERISTIC_t + \Sigma^5_{(i=2)}\beta_i CONTROLS_{it} + \varepsilon_t \quad (2)$$

where *FIRM_CHARACTERISTIC* is the firm characteristic associated with incentives to manage

[14] The firm-specific estimation assumes homogeneity of the firm's cash-generating process over time. If the sample consists primarily of mature firms, then there would be few extreme changes over time. The parameter estimates from time-series estimation would be relatively stable and the assumption is more likely to hold.

TABLE 3

Model Parameters for the Estimation of Unexpected Cash from Operations

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

Parameter	Mean	Median
Intercept	−0.06***	−0.04***
$1/TA_{t-1}$	−2.51***	−0.79***
$SALE_t/TA_{t-1}$	0.16***	0.11***
$\Delta SALE_t/TA_{t-1}$	−0.04***	−0.02***
Adj. R^2	38.57%	39.33%

*** Represents significance at the 1 percent level (two-tailed).
The table reports the mean and median parameter estimates and adjusted R^2 from firm-specific regressions based on Dechow et al. (1998) estimated over a rolling ten-year period.

Variable Definitions:
CFO_t = cash from operations (Compustat data item "oancf") for the period t;
TA_{t-1} = total assets (Compustat data item "at") at the end of period $t-1$; and
$SALE_t$ and $\Delta SALE_t$ = sales (Compustat data item "sale") and change in sales during period t.

CFO: *DISTRESS*, *NON-IGRADE*, *CFO_FORECAST*, *MEET_BEAT_CFO*, or *CFO_WEIGHT*. A positive β_1 supports the hypothesis that the characteristic is associated with upward managed CFO.

Following Roychowdhury (2006), the model includes *EARN*, *SIZE*, and *MB* as control variables (*CONTROLS*). To investigate the association between incentives to inflate CFO and unexpected CFO after controlling for the level of earnings, I include *EARN* as a control variable. *SIZE* controls for differences in the stability and predictability of the operations between large and small firms. I include *MB* to address the possibility that unexpected CFO values from the estimation model have measurement error correlated with firm performance and growth opportunities. Unexpected accruals (*ABACC*) controls for systematic variation in unexpected CFO stemming from managerial incentives to manage earnings using accruals.[15]

For the prediction that firms that just meet the analyst cash flow forecasts (*MEET_BEAT_CFO*) are more likely to have managed reported CFO, I include *MEET_BEAT_EARN* to identify firms that just meet analyst EPS forecast as an additional control variable because Givoly et al. (2009) argue that analyst cash flow forecasts are an extension of their earnings forecasts. Thus, just beating the EPS forecast is likely to lead to just beating cash flow forecast. In contrast, Roychowdhury (2006) finds that firms that just beat the earnings threshold have lower unexpected CFO.

Estimating the regression model using panel data poses an econometric issue because the unexpected CFO for each observation is the residual from firm-specific regressions. Consequently, the residuals for a given firm can be correlated across years for that given firm. In addition, the residuals for a given year can be correlated across firms due to macroeconomic factors. Therefore, I adjust the OLS standard errors using two-way clustering based on Petersen (2009), and discussed in Cameron et al. (2011), and Gow et al. (2010).

The results in Table 4 support the hypothesis that firms upward manage reported CFO in response to incentives. The coefficient on *DISTRESS* is 0.003 ($p < 0.01$ based on one-tailed test).

[15] To identify multicollinearity, I use the Condition Index discussed by Belsley et al. (1980) and Velleman and Welsch (1981). None of the regressions have condition indices greater than 30. As a robustness check, I exclude *ABACC* from the regression because *ABACC* has the smallest eigenvalue in the multicollinearity diagnostics and both *ABACC* and *EARN* are controls for earnings management. The results are robust to excluding *ABACC*.

TABLE 4

Regressions of Unexpected Cash from Operations on Firm Characteristics Associated with Incentives to Upward Manage Reported Cash from Operations

$$UCFO_t = \beta_0 + \beta_1 FIRM\_CHARACTERISTIC_t + \beta_2 EARN_t + \beta_3 SIZE_t + \beta_4 MB_t + \beta_5 ABACC_t + \beta_6 MEET\_BEAT\_EARN_t + \varepsilon_t \quad (2)$$

	Predicted		Hypothesis	Control Variables						
FIRM_CHARACTERISTIC	Sign for β_1	Intercept β_0	Variable β_1	*EARN* β_2	*SIZE* β_3	*MB* β_4	*ABACC* β_5	*MEET_BEAT_EARN* β_6	n	Adj. R^2
DISTRESS	+	0.019***	0.003***	0.177***	−0.001	0.001***	−0.370***	—	13,647	8.54%
		(2.98)	(2.34)	(8.68)	(−1.35)	(3.33)	(−14.78)			
NON-IGRADE	+	−0.006	0.005**	0.143***	−0.000	−0.000	−0.291***	—	5,475	7.93%
		(−0.71)	(2.15)	(5.70)	(−0.53)	(−0.70)	(−7.57)			
CFO_FORECAST	+	0.018***	0.006***	0.192***	−0.004***	0.001***	−0.372***	—	9,672	11.27%
		(2.69)	(2.58)	(8.07)	(−3.22)	(2.56)	(−13.09)			
MEET_BEAT_CFO	+	0.019***	0.011**	0.167***	−0.003***	0.001*	−0.339***	−0.002*	2,630	10.83%
		(3.12)	(1.69)	(6.64)	(−3.51)	(1.69)	(−10.83)	(−1.65)		
CFO_WEIGHT	+	0.008	0.001**	0.124***	−0.002***	0.001*	−0.266***	—	13,847	6.51%
		(1.53)	(2.24)	(7.93)	(−3.41)	(1.73)	(−10.73)			

*, **, *** Represent significance at 10 percent, 5 percent, and 1 percent, respectively, based on two-tailed test for the intercept and the control variables, and one-tailed test for the hypothesis variable (β_1), which has a signed prediction.

The variable definitions are in Table 1. t-statistics are in parentheses and calculated based on two-way clustered standard errors, with firm, and year clusters. I winsorize all financial variables at the extreme 1 percent. *MEET_BEAT_EARN* is an indicator variable equaling 1 if the firm beats analyst EPS forecast by zero or one cent, and 0 otherwise.

This indicates that a one standard deviation (6.0 percent) increase from the mean (1.7 percent) probability of bankruptcy increases *UCFO* by about 0.005 (given by $(\ln(0.017 + 0.060) - \ln(0.017)) \times 0.003$). This increase in unexpected CFO translates to about 4 percent of reported CFO for the average firm in the sample.

The results in Table 4 also show that firms with a long-term credit rating near the investment grade/non-investment grade cutoff have higher unexpected CFO (about 4 percent of reported CFO). Firms with analyst cash flow forecasts, particularly firms that just meet or beat analyst cash flow forecasts by zero or one cent, have higher unexpected CFO. In terms of economic magnitudes, the difference in unexpected CFO between firms with analyst cash flow forecasts and those without is about 5 percent of reported CFO, and the difference is about 8 percent for firms that just beat or meet analyst cash flow forecasts. *UCFO* is increasing in *CFO_WEIGHT* (coefficient = 0.001), and a one standard deviation increase in *CFO_WEIGHT* increases unexpected CFO by about 1 percent of reported CFO for the average firm in the sample.

In all regressions in Table 4, the coefficient on *EARN* is positive as expected because *UCFO* is a component of *EARN*. The coefficient on *SIZE* is generally negative, suggesting that larger firms are less likely to upward manage CFO. The coefficient on *MB* is generally positive, indicating that firms with high market-to-book ratio, such as glamour stocks and high-growth firms, are more likely to upward manage CFO. The coefficient on *ABACC* is negative, consistent with Roychowdhury (2006) who documents a negative correlation between abnormal CFO and abnormal accruals based on cross-sectional regressions estimated for every industry and year. This is in line with prior studies documenting a negative correlation between CFO and accruals (e.g., Dechow and Dichev 2002). Last, consistent with Roychowdhury (2006), *MEET_BEAT_EARN* is negatively related to unexpected CFO (coefficient = −0.002, p = 0.10 (two-tailed test)).

The interpretations of the results in Table 4 come with some important caveats. First, the construct validity of the unexpected CFO measure depends 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 Section V using a sample of firms known to have managed CFO. Second, to the extent that abnormal accruals does not perfectly control for earnings management, the observed relation between unexpected CFO and the firm characteristics could be partly influenced by earnings management.[16] However, in addition to abnormal accruals, the regression also includes actual earnings that consist of managed earnings, further reducing the likelihood that earnings management is driving the observed relation.

Classification Tests

The second set of tests focuses on whether managers manipulate classifications to inflate reported CFO. In this set of tests, I explore whether firms with stronger incentives to inflate reported CFO do so by examining (1) cash flow restatements due to classification errors, and (2) cash flow classification of tax benefits from stock options exercised.

[16] To alleviate concerns that accruals and CFO are jointly determined, I employ an alternative model specification using two-stage least squares and the results are similar. The first-stage regression is $OPACC_t = \lambda_0 + \lambda_1 SALE_t/TA_{t-1} + \lambda_2 ACCHG_t + \lambda_3 SIZE_t + \lambda_4 MB_t + \lambda_5 UCFO_t + \delta_t$ 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. Recall that *UCFO* is the residual from the cash flows expectation model based on $SALE/TA_{t-1}$ and $\Delta SALE/TA_{t-1}$; 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 second-stage regression model is $UCFO_t = \beta_0 + \beta_1 FIRM\_CHARACTERISTIC_t + \beta_2 EARN_t + \beta_3 SIZE_t + \beta_4 MB_t + \beta_5 Predicted\ OPACC_t + \varepsilon_t$ where *Predicted OPACC* is the predicted values of *OPACC* from the first-stage regression.

Cash Flow Restatements

To identify firms that restated reported CFO in the statement of cash flows, I first identify restatements due to cash flow statement (SFAS No. 95) classification error as documented in Audit Analytics. The sample excludes cash flow restatements that are unrelated to CFO, cash flow restatements that are accompanied by earnings restatements, and upward restatements of CFO.[17] The result is a sample of firms that made classification errors that overstated CFO in their cash flow statements over the period 1999 to 2008 (restatement sample). Table 5, Panel A presents details of the sample selection, and Appendix B provides examples of cash flow restatements. The magnitude of the restatement is statistically significant at the 1 percent level, with a mean of $414 million and a median of $17 million.

I first match the firms in the restatement sample to a control group of firms based on industry and year because cash flow classification for some transactions is likely to be determined by industry norms. I then match the sample firm to control firms with total assets between 90 percent and 110 percent 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 match on firm size and market-to-book ratio because restating firms likely 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 flow restatement, I estimate the following logistic regression:

$$RESTATE_t = \beta_0 + \beta_1 FIRM\_CHARACTERISTIC_t + \varepsilon_t \quad (3)$$

where *RESTATE* is an indicator variable set to 1 if it is a restatement sample firm, and 0 if it is a control firm.[18]

Table 5, Panel B presents the results. Overall, there is evidence that firms are more likely to restate cash flows downward due to classification errors when the incentives to manage reported CFO are high. The percentages in the "Change in Odds (%)" column 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 variable. The results show that a one standard deviation increase in *DISTRESS* increases the odds that a firm restates CFO downward by 39 percent, and a one standard deviation increase in *CFO_WEIGHT* increases the odds by 42 percent. Firms with a long-term credit rating near the investment/non-investment grade are 2.49 times more likely than other firms to downward restate their CFO. The results also indicate that firms with cash flow forecasts are 1.37 times more likely than firms without cash flow forecasts to downward restate their CFO. The statistically insignificant coefficient on *MEET_BEAT_CFO* suggests that managers appear not to use classification shifting as a CFO management tool to meet analyst cash flow forecasts. One possible explanation is that cash flow restatements are typically of a large magnitude and managers do not need such a large amount to meet or beat the analyst cash flow forecast.

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

[17] I repeat the analysis on firms whose restatements increase CFO. The coefficient on *FIRM_CHARACTERISTIC* is insignificant in all regressions. This combined with the results in Table 5, Panel B suggest that the firm characteristics identified are likely associated with incentives to inflate reported CFO.

[18] Richardson et al. (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.

TABLE 5

Tests of Managing Reported Cash from Operations Using Classification Evidence from Restatement Firms

Panel A: Sample Selection for Cash Flow Restatements

Selection	No. of Firm-Years
Firms that state cash flow statement (SFAS No. 95) classification error as the reason for restatement as documented in Audit Analytics[a]	990
Less:	
(a) Firms that do not have a match on Compustat based on CIK code	203
(b) Cash flow restatements that affect earnings	124
(c) Cash flow restatements that do not affect total reported cash from operations (e.g., classification errors in the investing and financing sections, misclassification within line items in the operating section)	98
(d) Insufficient information (e.g., to determine if the cash flow restatement affects earnings, whether cash from operations is affected)	25
(e) Restated cash from operations is higher than originally reported cash from operations	126
Final Total	414

[a] The sample includes 990 firm-years based on 792 restatements due to cash flow statement (SFAS No. 95) classification error as identified in Audit Analytics.
I merge the final sample of 414 with the other data sources for the test results in Panel B. The sample size varies depending on the data requirements for each firm characteristic.

Panel B: Logistic Regressions of Cash Flow Restatement on Firm Characteristics Associated with Incentives to Upward Manage Reported Cash from Operations

$$RESTATE_t = \beta_0 + \beta_1 FIRM\_CHARACTERISTIC_t + \varepsilon_t \qquad (3)$$

FIRM_CHARACTERISTIC	Predicted Sign for β_1	Intercept β_0	Hypothesis Variable β_1	Change in Odds (%)	n	Pseudo R^2
DISTRESS	+	1.231**	0.197***	39[b]	274	3.39%
		(2.41)	(2.50)			

(continued on next page)

TABLE 5 (continued)

FIRM_CHARACTERISTIC	Predicted Sign for β_1	Intercept β_0	Hypothesis Variable β_1	Change in Odds (%)	n	Pseudo R^2
NON-IGRADE	+	−0.217	0.910**	149[c]	98	4.79%
		(−0.93)	(1.85)			
CFO_FORECAST	+	−0.094	0.312**	37[c]	356	0.70%
		(−0.92)	(1.65)			
MEET_BEAT_CFO	+	0.000	−0.000	0[c]	168	0.05%
		(0.00)	(−0.00)			
CFO_WEIGHT	+	−0.092	0.078**	42[b]	120	3.70%
		(−0.48)	(1.86)			

, * Represent significance at 5 percent and 1 percent, respectively, based on two-tailed test for the intercept and one-tailed test for the hypothesis variable (β_1), which has a signed prediction.

[b] Increase in the odds of a firm having a cash flow restatement in response to a one standard deviation increase in the firm characteristic.

[c] Increase in the odds of a firm having a cash flow restatement in response to a one unit increase in the firm characteristic.

Each sample includes firms that downward restated the cash from operations in the statement of cash flows and an equal number of matched control firms. I first match the firms in the restatement sample to a control group of firms based on industry and year. I then match the sample firm to control firms with total assets between 90 percent and 110 percent 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* equals 1 if the firm restated its reported CFO, and 0 otherwise. 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.

compensation expense, Internal Revenue Service (IRS) rules did not allow companies to take a deduction on their tax returns when they grant options. However, when the employees subsequently exercise the options, the company can 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 tax benefit of stock options reduced taxes but did not affect income tax expense because the item was directly credited to stockholders' equity.[19] 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 January 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 July 20, 2000 because EITF 00-15 provides specific guidance on the classification of tax benefit effective 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. Table 6, Panel A outlines the sample selection.[20]

To test the relation between the incentives to manage CFO and classification of the tax benefit cash flow, I estimate the coefficients in the following logistic regression model:

$$INOP_t = \beta_0 + \beta_1 FIRM\_CHARACTERISTIC_t + \varepsilon_t \quad (4)$$

where *INOP* is an indicator variable set to 1 if the tax benefit is in the operating section of the cash flow statement, and 0 if it is in the financing section.[21]

In Panel B of Table 6, the percentages in "Change in Odds (%)" column estimate the increase in the odds of a firm classifying the tax benefit cash flow 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 variable. The results provide some evidence that managers classify the tax benefit cash inflow in the operating section rather than the financing section of the cash flow statement when the incentives to upward 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 14 percent, and a one standard deviation increase in *CFO_WEIGHT* increases the odds by 28 percent. The results also indicate that firms with analyst cash flow forecasts are 2.47 times more likely than firms without analyst cash flow forecasts to classify the tax benefit in the operating section of the cash flow statement. The coefficients on *NON-IGRADE* and *MEET_BEAT_CFO* are statistically insignificant. The statistical insignificance of *MEET_BEAT_CFO* is probably due to a lack of power because the sample consists of only 55 observations. Overall, the results in Tables 5 and 6 provide evidence that firms use classification to manage reported CFO when the incentives to do so are high.

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[19] See Hanlon and Shevlin (2002) for a detailed discussion of the accounting for tax benefits of stock options exercised.

[20] Of the sample firms, 39 percent classify the tax benefits from stock options exercised in the operating section of the cash flow statement and the remaining 61 percent classify the tax benefits in the financing section.

[21] Results are similar when the model includes *SIZE* and *MB*. Furthermore, the choice to classify the tax benefit in a specific category is likely sticky. Hence, I conduct additional analysis by comparing the firm characteristics (*FIRM_CHARACTERISTIC*) in the year the firm switched to classifying tax benefit in the operating section (year *t*) to the *FIRM_CHARACTERISTIC* in the prior year when the firm was classifying the tax benefit in the financing section (year $t-1$). The evidence is consistent with the results reported in Panel B of Table 6. Specifically, compared to year $t-1$, the means for *DISTRESS* and *CFO_WEIGHT* are higher by 0.507 ($p < 0.01$ based on one-tailed test) and 1.51 ($p < 0.01$ based on one-tailed test) respectively.

TABLE 6

Tests of Managing Reported Cash from Operations Using Classification Evidence from Classification of Tax Benefits from Stock Options

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") on Compustat	60,772
Less:	
(a) Firm-years that do not have 10K, 10K405, or 10KSB available on Edgarscan[a]	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	42,798
Final Total	1,861

[a] The main reason for the unavailability on Edgarscan is the low availability of filings for the years 1994 and 1995. Out of the 16,063 firm-year observations, 14,778 (92 percent of the 16,063 observations) are observations in the years 1994 and 1995. Other reasons include firms that are foreign issuers and firms that have missing filings.

I merge the final sample of 1,861 with the other data sources for the test results shown in Panel B. The sample size varies depending on the data requirements for each firm characteristic.

(continued on next page)

TABLE 6 (continued)

Panel B: Logistic Regressions of Classification of Tax Benefit from Stock Options Exercised on Firm Characteristics Associated with Incentives to Upward Manage Reported Cash from Operations

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

FIRM_CHARACTERISTIC	Predicted Sign for β_1	Intercept β_0	Hypothesis Variable β_1	Change in Odds (%)	n	Pseudo R^2
DISTRESS	+	−0.106	0.063**	14[b]	1,502	0.57%
		(−0.55)	(2.01)			
NON-IGRADE	+	−0.714***	−0.385	−32[c]	248	0.47%
		(−3.33)	(−0.72)			
CFO_FORECAST	+	−0.464***	0.905**	147[c]	1,165	0.53%
		(−4.39)	(1.78)			
MEET_BEAT_CFO	+	0.357	0.337	40[c]	55	0.68%
		(0.59)	(0.32)			
CFO_WEIGHT	+	−0.475***	0.037**	28[b]	405	1.7%
		(−3.06)	(1.76)			

, * Represent significance at 5 percent and 1 percent, respectively, based on two-tailed test for the intercept and one-tailed test for the hypothesis variable (β_1), which has a signed prediction.

[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 standard deviation increase in the firm characteristic.

[c] 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.

Each sample includes firms that reported tax benefits from stock options exercised as a line item in the statement of cash flows for fiscal years ended January 1, 1994 to July 20, 2000. I examine all the cash flow statements for all Compustat firms that have CFO data (Compustat data item "oancf") over this time period to determine whether firms classify the tax benefit from stock options exercised in the operating section or the financing section. The time period begins in 1994 because this is the first year for which 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. I use C++ program to extract the data. Panel A of Table 5 outlines the sample selection. *INOP* equals 1 if the tax benefit from stock options exercised is in the operating section of the cash flow statement, and 0 if it is in the financing section. The variable definitions are in Table 1. Z-statistics are in parentheses and presented using Huber/White robust standard errors with firm-level clustering.

An alternative interpretation of the results in Table 6 is that managers who choose the operating classification do so based on their interpretation of the standards, independent of incentives to inflate reported CFO. Because the literature lacks evidence on the manager's choice to classify tax benefits in the operating versus the financing category, I do not attempt to model the choice. If the firm characteristics associated with incentives to inflate reported CFO are *not* positively and systematically correlated with the manager's choice to classify tax benefits in the operating section based on their interpretation of the standards, then the concern with regard to the alternative interpretation is somewhat mitigated. Furthermore, if managers choose the operating classification without any opportunistic intent, such tendencies are going to introduce measurement error that is likely to weaken the results in this study.

Timing Tests

The third set of tests investigates whether managers use timing to manage CFO in response to incentives. To measure "timing," I use cash conversion cycle, which measures how long it takes the firm to collect cash on accounts receivable after the firm pays cash for its inventory. In the fourth quarter, managers have a final opportunity to report a higher annual CFO by delaying payments and accelerating collections; these actions do not influence reported earnings, but they 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 spurs 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 boost CFO 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 notes to Table 1 describe the calculation of CC. To adjust for seasonal variation in the cash conversion cycle, for each firm-quarter, I subtract the industry mean ΔCC from the firm's ΔCC. I compute the industry mean ΔCC for each quarter by using all firms available on Compustat quarterly.[22] To test whether firms use timing to manage CFO in response to incentives, I estimate the following regression:

$$\Delta CC_{t+1} = \alpha_0 + \alpha_1 FIRM\_CHARACTERISTIC_t + \alpha_2 SIZE_t + \mu_{t+1}. \quad (5)$$

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

The results in Table 7, Panel A 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 *CFO_WEIGHT* increases ΔCC by 0.618 and 0.190 days, respectively.[23] ΔCC is 2.678 days greater for firms with a long-term credit rating near the investment/non-investment grade cutoff. For the sample of firms with analyst earnings forecasts, ΔCC is 3.033 days greater for firms with analyst cash flow forecasts than those without, and for the sample of firms with both analyst earnings and cash flow forecasts, ΔCC is 5.122 days greater for firms that beat the analyst cash flow forecast by zero or one cent. Overall, the results suggest that firms with incentives

[22] Managers can lower days in inventory by not purchasing additional inventory, leading to a decrease in COGS and increase in earnings. To abstract away from this, an alternative measure uses a variant of ΔCC that excludes days in inventory. The results are similar.

[23] The increase in ΔCC are $\ln(0.017 + 0.060) - \ln(0.017)) \times 0.409 = 0.618$ (0.017 and 0.060 are *DISTRESS* mean and standard deviation, respectively, from Table 2, Panel A), and $4.631 \times 0.041 = 0.190$.

TABLE 7

Tests of 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 Upward Manage Reported CFO

$$\Delta CC_{t+1} = \alpha_0 + \alpha_1 FIRM\_CHARACTERISTIC_t + \alpha_2 SIZE_t + \mu_{t+1} \qquad (5)$$

FIRM_CHARACTERISTIC	Predicted Sign for α_1	Intercept α_0	Hypothesis Variable α_1	Control Variable α_2	n	Adj. R^2
DISTRESS	+	−2.866	0.409**	0.672**	13,647	1.6%
		(−1.34)	(1.76)	(2.26)		
NON-IGRADE	+	−7.426	2.678**	0.757	5,475	1.9%
		(−1.34)	(2.17)	(1.22)		
CFO_FORECAST	+	−0.755	3.033***	−0.321	9,672	1.7%
		(−0.28)	(2.80)	(−0.82)		
MEET_BEAT_CFO	+	−8.490***	5.122**	1.419***	2,630	1.5%
		(−5.37)	(1.73)	(3.23)		
CFO_WEIGHT	+	−4.665***	0.041**	0.527**	13,847	1.6%
		(−2.67)	(1.73)	(2.03)		

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 Upward Manage Reported Cash from Operations for December Year-End Firms versus Non-December Year-End Firms

$$\Delta CC_{t+1} = \alpha_0 + \alpha_1 FIRM\_CHARACTERISTIC_t \times NDEC_t + \alpha_2 FIRM\_CHARACTERISTIC_t + \alpha_3 NDEC_t + \alpha_4 SIZE_t + \mu_{t+1} \qquad (6)$$

				Control Variables			
FIRM_CHARACTERISTICS	Predicted Sign for α_1	Intercept α_0	Hypothesis Variable α_1	*FC* α_2	*NDEC* α_3	*SIZE* α_4	Adj. R^2
DISTRESS	+	−5.390**	0.561**	0.377*	6.367**	0.863***	1.6%
		(−2.43)	(1.66)	(1.85)	(2.00)	(2.79)	

(continued on next page)

TABLE 7 (continued)

FIRM_CHARACTERISTICS	Predicted Sign for α_1	Intercept α_0	Hypothesis Variable α_1	Control Variables *FC* α_2	Control Variables *NDEC* α_3	Control Variables *SIZE* α_4	Adj. R^2
NON-IGRADE	+	−7.125	8.903**	−0.305	−1.354	0.769**	1.6%
		(−1.24)	(2.10)	(−0.16)	(−0.70)	(2.01)	
CFO_FORECAST	+	−5.270***	−2.006	4.846***	2.619*	−0.293	1.1%
		(−2.58)	(−0.76)	(2.58)	(1.81)	(−0.75)	
MEET_BEAT_CFO	+	−7.241***	−3.908	6.347*	−3.019	1.382***	1.7%
		(−4.95)	(−0.48)	(1.78)	(−1.37)	(3.15)	
CFO_WEIGHT	+	−5.729***	0.132***	0.029	1.842	0.579**	1.8%
		(−2.90)	(2.52)	(1.22)	(1.44)	(2.18)	

*, **, *** Represent significance at 10 percent, 5 percent, and 1 percent, respectively, based on two-tailed test for the intercept and control variable, and one-tailed test for the hypothesis variable (β_1) which has a signed prediction.
The variable definitions are in Table 1. *NDEC* equals 1 if the firm is a non-December year-end firm, and 0 otherwise. t-statistics are in parentheses and calculated based on two-way clustered standard errors, with firm and year clusters. I winsorize all financial variables at the extreme 1 percent.

to upward manage CFO delay payments or hasten collections by a few days so that they could increase reported CFO at year-end.[24]

To further illustrate managers' use of timing to manage reported CFO, I compare the ability to use timing to manage CFO for December year-end firms versus non-December year-end firms. Activities that boost the firm's CFO in a period could decrease CFO for the other party to the transaction. For example, delaying payments to suppliers reduces suppliers' cash flows. If the supplier also wishes to manage CFO, then delaying payments will conflict with the supplier's preference to accelerate collections. However, for non-December year-end firms, it is less likely that the fiscal year-end of their customers or suppliers 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.[25]

To test the prediction, I estimate the coefficients in the following model:

$$\begin{aligned}\Delta CC_{t+1} = {} & \alpha_0 + \alpha_1 FIRM\_CHARACTERISTIC_t \times NDEC_t \\ & + \alpha_2 FIRM\_CHARACTERISTIC_t + \alpha_3 NDEC_t + \alpha_4 SIZE_t + \mu_{t+1} \end{aligned} \quad (6)$$

where $NDEC = 1$ if the firm has a non-December fiscal year-end, and 0 if the firm has a December fiscal year-end. I expect α_1 to be positive. The results in Table 7, Panel B provide some support for this prediction. For example, a one standard deviation increase in *DISTRESS* and *CFO_WEIGHT* increases ΔCC by 0.847 days and 0.611 days more for non-December year-end firms than for December year-end firms, respectively.[26] The ΔCC for non-December year-end firms at the investment/non-investment grade cutoff is 8.903 days greater than December year-end firms at the investment/non-investment grade cutoff.

One limitation of the analyses in Tables 5 to 7 is the low explanatory power of the models. However, given the lack of evidence in the literature on when and how firms manage reported CFO, this evidence nonetheless increases our understanding of managerial incentives to inflate CFO, particularly when combined with the other evidence in Tables 4 and 8.

V. ADDITIONAL TESTS AND RESULTS

Validity of Unexpected Cash from Operations Measure

Test of 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

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

[25] 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 et al. 2011) 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).

[26] The increase in ΔCC are $(\ln(0.017 + 0.060) - \ln(0.017)) \times 0.561 = 0.847$ and $4.631 \times 0.132 = 0.611$.

pay them in the next period; 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 that the unexpected component of CFO is less persistent for firms that manage CFO, I estimate the coefficients in the following model:

$$CFO_{t+1} = \beta_0 + \beta_1 FIRM\_CHARACTERISTIC_t \times UCFO_t + \beta_2 FIRM\_CHARACTERISTIC_t + \beta_3 UCFO_t + \beta_4 ECFO_t + \beta_5 ACC_t + \varepsilon_{t+1} \quad (7)$$

where *UCFO* and *ECFO* are unexpected and expected cash flows, respectively, based on the model in Section IV. The model includes *ACC* because accruals provide incremental information beyond current cash flows in predicting future cash flows (Dechow et al. 1998).

Table 8 presents the results. Consistent with the prediction that unexpected CFO is less persistent for firms that have incentives to upward manage CFO, the coefficients on the interaction between *UCFO* and *FIRM_CHARACTERISTIC* (β_1) are negative and statistically significant in all five regressions.

Test of Validity of Unexpected Cash from Operations Using Restatement Sample

The construct validity of unexpected CFO depends, in part, 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 Section IV. 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 0.002 ($p > 0.50$ based on two-tailed test), 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 CFO. The difference, scaled by average total assets, is −0.020 ($p < 0.01$ based on two-tailed test), suggesting that the model is able to, on average, identify an overstatement of CFO.

Alternative Measures

Unexpected Cash from Operations

I present two alternative ways of measuring unexpected CFO. First, my implementation of the Dechow et al. (1998) model follows their theoretical model of the firm's cash-generating process at a firm level. As a robustness check, I implement a cross-sectional variation of the Dechow et al. (1998) model. For each industry-year, the residual from the regression for each firm is the firm's CFO deviation from industry expected CFO. Unexpected CFO in year *t* is the difference between the firm's deviation from the industry in year *t* and the firm's average deviation from the industry over the last five years (i.e., year *t*–1 to *t*–5). Second, I measure unexpected CFO based on the model in Barth et al. (2001). These two alternative measures of unexpected CFO do not affect the tenor of the results.

Incentives to Inflate Reported Cash from Operations

As highlighted in Section III, the firm characteristics are not mutually exclusive. I create a composite incentive score (*ISCORE*). *ISCORE* is a five-point scoring system for which I assign one point for each of the following: (1) *DISTRESS* is above the median, (2) *NON-IGRADE* = 1, (3) *CFO_FORECAST* = 1, (4) *MEET_BEAT_CFO* = 1, and (5) *CFO_WEIGHT* is above the median. Untabulated results indicate that firms with higher *ISCORE* have higher unexpected CFO (coefficient = 0.005, p = 0.02 (one-tailed test)).

TABLE 8

Regressions of Future Cash from Operations on the Expected and Unexpected Components of Current Cash from Operations and Incentives to Manage Cash from Operations

$$CFO_{t+1} = \beta_0 + \beta_1 FIRM\_CHARACTERISTIC_t \times UCFO_t + \beta_2 FIRM\_CHARACTERISTIC_t + \beta_3 UCFO_t + \beta_4 ECFO_t + \beta_5 ACC_t + \varepsilon_{t+1} \quad (7)$$

				Control Variables				
FIRM_CHARACTERISTIC	Predicted Sign for β_1	Intercept β_0	Hypothesis Variable β_1	*FC* β_2	*UCFO* β_3	*ECFO* β_4	*ACC* β_5	Adj. R^2
DISTRESS	–	−0.031***	−0.040***	−0.011***	0.331***	0.396***	0.163***	47.36%
		(−4.92)	(−6.25)	(−12.92)	(8.38)	(13.52)	(8.28)	
NON-IGRADE	–	0.031***	−0.069**	−0.005	0.561***	0.773***	0.149***	45.74%
		(7.43)	(−1.79)	(−0.85)	(23.30)	(26.58)	(5.23)	
CFO_FORECAST	–	0.032***	−0.037**	0.021***	0.568***	0.649***	0.187***	41.01%
		(7.51)	(−1.87)	(8.11)	(19.28)	(22.43)	(4.34)	
MEET_BEAT_CFO	–	0.035***	−0.310***	−0.008	0.591***	0.781***	0.172***	49.17%
		(10.70)	(−2.43)	(−0.81)	(17.12)	(29.08)	(6.10)	
CFO_WEIGHT	–	0.028***	−0.002***	0.000	0.463***	0.782***	0.199***	46.98%
		(6.68)	(−3.02)	(0.60)	(11.65)	(18.52)	(6.14)	

, * Represent significance at 5 percent and 1 percent, respectively, based on two-tailed test for the intercept and control variables, and one-tailed test for the hypothesis variable (β_1), which has a signed prediction. *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"). The variable definitions are in Table 1. t-statistics are in parentheses and calculated based on two-way clustered standard errors, with firm and year clusters. I winsorize all financial variables at the extreme 1 percent.

Performance-Matched Accruals

Instead of measuring abnormal accruals based on Jones (1991), I also use performance-matched accruals based on Kothari et al. (2005). The results are robust to this alternative.

Adjustment for Seasonality in Cash Conversion Cycle

My measure of timing controls for seasonality by adjusting the firm's change in cash conversion cycle using the mean industry change in cash conversion cycle for that same quarter. However, if I replace the industry mean with the firm's lagged four-quarter change in cash conversion cycle, the tenor of the results is unaffected.

VI. CONCLUSION

This study hypothesizes that firms manage reported CFO in response to incentives. I identify four firm characteristics that are associated with stronger incentives to inflate reported CFO: (1) financial distress, (2) a long-term credit rating near the investment/non-investment grade cutoff, (3) the existence of analyst cash flow forecasts, and (4) higher associations between stock returns and CFO.

Unlike the manipulation of accruals, firms cannot manage reported CFO with biased estimates, but rather 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 inflate CFO using classification and timing when the incentives to do so are particularly high. Overall, the evidence is convincing:

(1) using a model of expected cash flows based on Dechow et al. (1998), I find that unexpected CFO is increasing in incentives to inflate reported CFO;
(2) cash flow restatements due to classification errors are more likely at times when the incentives to inflate reported CFO are stronger;
(3) firms that have stronger incentives to inflate reported CFO are more likely to classify a cash inflow as an operating cash flow than a financing cash flow when managers have discretion over the classification of the cash flow;
(4) the difference in the length of the industry-adjusted cash conversion cycle in the first quarter of the current year compared to fourth quarter of the prior year is increasing in the incentives to inflate reported CFO, suggesting that the shorter cash cycle in the fourth quarter is the result of a deliberate attempt to boost cash flows at the end of the year because the improvement reverses in the first quarter of the following year;
(5) the timing results are generally stronger for non-December year-end firms because 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; and
(6) unexpected CFO is less persistent for firms with incentives to upward manage reported CFO than for other firms.

Future research can examine whether including CFO-based metrics in executive compensation contracts influences manager's behavior. Nwaeze et al. (2006) document the increasing use of CFO-based metrics, and companies such as General Electric and IBM are reacting to the post-Enron governance concerns by using CFO-based metrics to complement earnings-based metrics (Leone 2004). Future research can extend the literature on compensation and earnings management (e.g., Healy 1985; Balsam 1998) by examining the relation between the use of CFO-based metrics in contracts and CFO management.

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APPENDIX A
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.[27] The key terms of the contract were as follows:

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.[28]

APPENDIX B
EXAMPLES OF CASH FLOW RESTATEMENTS

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.

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

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: 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.