The Implications of Cash Flow Forecasts for Investors' Pricing and Managers' Reporting of Earnings

Andrew C. Call*
University of Washington

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Abstract: I examine the role of analysts' cash flow forecasts on both investors' pricing and managers' reporting of earnings. I find that when setting stock prices, investors place more (less) weight on the cash (accrual) component of earnings for firms with a cash flow forecast, and that this weighting is a function of firm-specific factors predicted to affect the usefulness of the underlying cash flow information. Additionally, even when cash flow information is expected to be particularly useful to investors, only in the presence of a cash flow forecast do investors increase the weight they place on the cash component of earnings. I also find that for firms with a cash flow forecast, the cash (accrual) component of earnings is more (less) predictive of future firm prospects, consistent with analysts successfully choosing firms for which to issue a cash flow forecast. Lastly, I document that managers are more likely to opportunistically boost operating cash flows if the firm has a cash flow forecast, suggesting that the nature of the capital market pressure affects the mechanism through which earnings are managed.

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1. Introduction

One of the primary inputs to firm value is earnings (Ohlson 1995). Earnings represents the most widely-used measure of firm performance, and is the sum of operating cash flows and accounting accruals. In this paper, I study the effect of analysts' cash flow forecasts on the weight investors place on the accrual and cash components of earnings when valuing firms. Specifically, I examine whether the mere presence of a cash flow forecast impacts investors' pricing decisions, and whether the impact of a cash flow forecast is independent of the effect of firm-specific factors that likely affect the usefulness of the underlying cash flow information. I also explore the impact of analysts' cash flow forecasts on managers' reporting of cash flow information.[1]

Financial analysts play an important role in collecting and disseminating information about the future prospects of the firms they follow. In recent years, analysts' forecasts of cash from operations have become increasingly common (from 4% of firms with an earnings forecast in 1993 to 54% in 2005). Cash flow forecasts provide an additional source of information about the cash component of earnings, and the presence of a cash flow forecast can be viewed by investors as a signal of the importance of the firm's underlying cash flow information. Consistent with this notion, I find that investors incorporate more (less) cash flow (accrual) information into stock prices for firms with a cash flow forecast. Additionally, investors decrease the weight they place on the accrual component of earnings immediately following analysts' initial cash flow forecast, suggesting that the presence of a cash flow forecast changes investors' perceptions of the relative importance of these two earnings components.

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[1] Throughout this paper, all references to "cash" or "cash flow information" refer to operating cash flows.

I also argue that firm-specific earnings and operating characteristics are relevant to the weight investors place on accrual and cash flow information. Consistent with prior research (Dechow 1994; DeFond and Hung 2003), I contend that in certain settings, cash flow information is more useful in assessing firm performance than in other settings. For example, I conjecture that cash flow information is more useful to investors when earnings are less informative (e.g., when earnings contain a large accrual component, when accounting method choices are heterogeneous relative to peer firms, and when earnings are volatile). I also contend that cash flow information is more useful to investors for firms with short trade cycles and when the firm relies on internally-generated cash flows (e.g., capital intensive firms and firms in financial distress). I examine whether investors place more (less) weight on the cash (accrual) component of earnings when assessing firm value for firms exhibiting these characteristics.

In assessing the usefulness of the underlying cash flow information, I perform factor analysis to combine these six cross-sectional variables (absolute value of accruals, earnings volatility, heterogeneity of accounting choice, trade cycle, capital intensity, and financial distress) into a parsimonious measure that captures the overall usefulness of the firm's operating cash flows. I refer to this composite measure as 'CFUSE' as it captures the usefulness of the underlying cash flow information. I find that investors incorporate more (less) cash flow (accrual) information into stock prices for firms with a high CFUSE score, consistent with the notion that investors assess the valuation relevance of accrual and cash flow information based on firm-specific earnings and operating characteristics. Moreover, I find that the usefulness of the underlying cash flow information (CFUSE) strengthens the effect of a cash flow forecast on investors' weighting of the earnings components.

Furthermore, the effect of a cash flow forecast on investors' pricing of earnings is incremental to the effect of the usefulness of the underlying cash flow information. This finding has important implications for the role of analysts in the capital markets. It is widely known that investors incorporate analysts' forecasted information into their valuation judgments (Skinner and Sloan 2002). However, this study further suggests that investors view analysts' decisions to issue cash flow forecasts as a credible signal of the relative valuation usefulness of the firm's accrual and cash components of earnings.

I also examine whether investors' differential weighting of the cash and accrual components of earnings is consistent with the ability of these earnings components to predict future cash flows. Given that stock prices reflect the present value of expected future cash flows, investors should put more (less) weight on the cash (accrual) component of earnings only when such information is more (less) useful in predicting future cash flows. I find that current cash flows are more useful in predicting future cash flows for firms with cash flow forecasts. I also find that current cash flows (accruals) are more (less) useful in predicting future cash flows for firms with a high CFUSE score. These results imply that investors are justified in increasing (decreasing) the weight they place on the cash (accrual) component of earnings in the presence of a cash flow forecast or when firm characteristics indicate the firm's cash flow information is relatively useful.

Finally, I examine the effect of cash flow forecasts on managers' financial reporting decisions. Relying on the framework outlined in Dechow et al. (1998) to model normal levels of operating cash flows, I find that firms with cash flow forecasts report abnormally high operating cash flows. To further investigate this issue, I find that among firms with a cash flow forecast, firms that meet or barely beat analysts' earnings forecasts are more likely to have abnormally

high cash from operations than are firms that either miss analysts' earnings forecasts or beat analysts' earnings forecasts by a wide margin. Furthermore, relative to other firms that meet or barely beat analysts' earnings forecasts, firms with a cash flow forecast that meet or barely beat analysts' earnings forecasts are more likely to do so with abnormally high operating cash flows. These findings are consistent with the notion that managers of firms with cash flow forecasts respond to heightened investor and analyst attention to cash flow information by artificially boosting cash from operations.

This paper adds to the accounting literature in several ways. First, I add to the literature that examines the role of financial analysts in the capital markets. Numerous studies have examined how investors incorporate analysts' forecasts into stock prices (Bartov et al. 2002; Skinner and Sloan 2002). These studies typically identify a sample of firms, all of which have an analyst forecast, and examine the impact of these forecasts on stock prices. I, however, examine a different aspect in which analyst behavior influences investors' use of accounting information. Rather than focusing on how investors use analysts' forecasts themselves, I examine the impact of analysts' decisions to issue a forecast on investors' pricing decisions and find that analysts' coverage decisions have valuation implications.

Second, I show that the cash (accrual) component of earnings is more (less) informative about future cash flows for firms with a cash flow forecast. This finding suggests that analysts are successfully able to identify firms with highly predictive cash flow information, and that they issue cash flow forecasts for these firms. Additionally, it suggests investors are successfully able to incorporate to a greater (lesser) degree accounting information that has more (less) association with future firm prospects.

Finally, I add to the earnings management literature by showing that analysts' decisions to issue cash flow forecasts affect managers' reporting of operating cash flows. I find that managers of firms with a cash flow forecast are more likely to artificially boost cash from operations, particularly to avoid reporting a negative earnings surprise. Given that the cash flow information of firms with a cash flow forecast is under increased scrutiny from investors and analysts, these results suggest that cash flow forecasts impose market pressures on managers, and that these pressures impact managers' decision to artificially boost operating cash flows. Additionally, this finding suggests that the nature of the capital market pressure can impact the mechanism through which earnings are managed.

The remainder of this paper is organized as follows. In Section 2, I develop and motivate the hypotheses. I describe the sample and define the variables of interest in Section 3. Section 4 reports the results related to the pricing of the earnings components and in Section 5 I present my findings related to managers' reporting of abnormal operating cash flows. Section 6 concludes.

2. Hypotheses Development

Prior research has examined both the relative and incremental information content of earnings (accrual) and cash flow information (Biddle et al. 1995; Dechow 1994; Bowen et al. 1987). While earnings are generally considered to be relatively more informative than operating cash flows, cash flow information contributes information incrementally useful to investors in valuing firms. However, the degree to which investors incorporate cash flow (accrual) information into stock prices is not likely to be a cross-sectional constant. I examine situations in which cash flow (accrual) information is expected to receive relatively more (less) weight by capital market participants in security valuation.

Specifically, I outline two factors that I predict will impact the degree to which investors incorporate cash flow and accrual information into stock prices. In Section 2.1, I examine the role that analysts' cash flow forecasts play in the degree to which investors incorporate the earnings components into prices. In Section 2.2, I outline earnings and operating characteristics that likely impact investors' use of the earnings components. I discuss the correlation between cash flow forecasts and these earnings and operating characteristics in Section 2.3. In Section 2.4, I outline in more detail my tests concerning the joint impact of cash flow forecasts and firm-specific characteristics on investor behavior. Finally, in Section 2.5, I discuss the effect of cash flow forecasts on managers' propensity to manage earnings by artificially inflating operating cash flows.

2.1 Cash flow forecasts as a signal

There are several reasons why investors might place more (less) weight on cash flow (accrual) information in the presence of a cash flow forecast. First, issuing a cash flow forecast requires additional effort on the part of the analyst, over and above the effort required to issue an earnings forecast. Given that analysts are among the most sophisticated participants in the capital markets, investors may view this additional effort and attention to operating cash flows as a credible signal of the usefulness and importance of the underlying cash flow information. Accordingly, I expect investors to increase (decrease) the weight they place on the cash (accrual) component of earnings when analysts issue a cash flow forecast.

Second, analysts' forecasts provide investors with a richer information set with which to evaluate firms. If investors have more information with which to estimate, evaluate, and forecast the cash component of earnings, it is natural that this component of earnings would receive relatively more weight in firm valuation. As a result, I make the following prediction:

H1: Investors place relatively more (less) weight on the cash (accrual) component of earnings when analysts issue a cash flow forecast.

2.2 Earnings and operating characteristics

2.2.1 Earnings characteristics

Magnitude of accruals

Accruals are one of the key outputs of the accounting process. Accrual-based earnings are generally superior to cash-based earnings because accruals smooth out the timing and matching problems inherent with cash flows (Dechow 1994). However, there are at least two drawbacks to accrual-based earnings. First, even in the absence of earnings management, accruals are estimated with error. These estimation errors add noise to earnings and garble the information that would otherwise be communicated by earnings (Dechow and Dichev 2002). The larger the accrual component of earnings, the greater the potential for estimation errors that distort the information in earnings. Second, accruals are subject to managerial manipulation. Because of capital market, compensation, and other contracting incentives, managers may distort accrual numbers in order to report a more favorable earnings figure (Teoh et al. 1998; Healy 1985; DeFond and Jiambalvo 1994). Such managerial intervention, however, results in further estimation errors that potentially mask the information otherwise inherent in earnings. As a result, investors have the incentive to decrease (increase) the weight they place on the accrual (cash) component of earnings when accruals are large in magnitude. Furthermore, large accruals result in a wide gap between reported earnings and reported operating cash flows. Such a gap likely gives investors pause and encourages them to interpret earnings with caution.

Earnings volatility

Volatile earnings are generally perceived as being of low quality and diminished usefulness to investors (Chaney and Lewis 1995; Tucker and Zarowin 2006). Highly volatile

7

earnings are difficult to forecast, as they are less persistent and less predictable. As a result, investors' forecasts of earnings are less accurate when earnings are volatile.

In the presence of earnings volatility, investors are likely to rely on more predictable information sources when interpreting earnings in order to better assess firm value, more precisely evaluate current firm performance, and more accurately predict future firm performance. I posit that when earnings (accruals) are volatile, relative to the volatility of cash from operations, investors will assign more (less) weight the cash (accrual) component of earnings when valuing the firm.

Accounting choice heterogeneity

When assessing firm performance, capital market participants frequently assess not only the *level* of performance reported by the firm, but also the *relative* performance of the firm when compared to a set of peer firms (Christie and Zimmerman 1994). Peer-to-peer comparisons are helpful because they remove the effect of any industry-wide shocks on firm performance.

Peer comparisons are relatively common in the capital markets. For example, Standard & Poor's makes peer-to-peer comparisons when assigning credit ratings. Standard & Poor's states that it evaluates a "company's performance and position relative to…its peer group." They further explain that their process is "one of comparisons, so it is important to have a common frame of reference" (Standard & Poor's 2002). Peer firms are frequently defined as those firms within the same industry.

Part of the flexibility afforded by GAAP allows managers the ability to choose among various accounting methods. When managers report earnings reflecting the use of different accounting methods, it becomes more difficult for investors to compare earnings across firms. As a result, investors have the incentive to place greater emphasis on the cash component of

earnings, as the cash component of earnings is less affected by these accounting choices than is the accrual component of earnings.

2.2.2 Operating characteristics

Trade cycle

Dechow (1994) finds that operating cash flows is a relatively poor measure of firm performance for firms with long trade cycles. The intuition is that long trade cycles are consistent with lumpy cash flows, which impair the ability of cash from operations to accurately measure economic performance. Earnings, on the other hand, incorporate working capital accruals which help smooth the lumpiness and produce a more informative measure of performance. I therefore expect the weight investors place on the cash (accrual) component of earnings to decrease (increase) with the length of the firm's trade cycle.

Capital intensity

Capital intensive firms are those with a high degree of fixed assets in place. For these firms, maintaining and replacing these fixed assets is critical to remaining a profitable enterprise. However, considerable amounts of cash are required for routine maintenance and replacement of fixed assets. While capital intensive firms can turn to various sources for the necessary cash (operating, investing, financing), evidence of internally-generated cash flows (*operating* cash flows) is likely to be of interest to investors. This notion is consistent with Standard & Poor's increased emphasis on cash flow information when evaluating the credit worthiness of capital intensive firms (Standard & Poor's 2002). While external sources of cash can also serve as a short-term supply of cash for capital intensive firms, investors are likely to demand evidence that these firms are able to meet their cash flow obligations through internal sources. Accordingly,

the cash (accrual) component of earnings is more (less) relevant to firm value for capital-intensive firms.

Financial health

Firms in financial distress are under particular pressure to demonstrate solvency and the ability to continue as a going concern. For these firms, the ability to generate operating cash flows is of particular importance. Ohlson (1980) finds that internally-generated cash flows are significantly negative in the year prior to bankruptcy. Beaver (1966) reports similar results in the years preceding "failure." In general, firms that are unable to generate positive operating cash flows will not be able to continue as a going concern. For firms in financial distress, the ability to demonstrate positive operating cash flows is of principal importance.

Furthermore, financially-distressed firms are less able to generate cash flows from external sources. Not only is the cost of equity higher for financially-distressed firms, but also there are fewer sources of external capital. This difficulty in raising external capital further increases the reliance on internal sources of cash flows for financially-distressed firms. Therefore, for firms in financial distress, I expect investors to assign more (less) weight to the cash (accrual) component of earnings.

2.2.3 Factor analysis

I perform factor analysis to combine each of the above cross-sectional variables into one composite measure of the usefulness of cash from operations. Combining these variables into one summary variable is important for two reasons. First, in the empirical tests that follow, using a single, parsimonious measure to assess the usefulness of cash flow information simplifies the research agenda.

Second, while each of the above cross-sectional variables is expected to be related to the usefulness of cash flow information (for the reasons outlined above), they likely capture other aspects of the firm that are unrelated to the usefulness of cash flow information. For example, as discussed above, large accruals increase the likelihood of estimation errors being incorporated into earnings. The result is a relatively less (more) informative accrual (cash) component of earnings. However, a large accrual component is also consistent with accruals reducing the timing and matching problems inherent in cash flows, resulting in a superior measure of firm performance (Dechow 1994). While large accruals can, in one respect, impair the usefulness of earnings, they can, in another respect, enhance the usefulness of earnings.

As a result, I use factor analysis to capture the common component of each variable. While each variable likely reflects various aspects of the firm, the *common* portion of each variable is the portion that reflects the usefulness of cash flow information. Factor analysis captures this common portion. The resulting factor score, CFUSE, provides a more reliable measure of the usefulness of cash flow information than any one variable, and consequently, increases the power of the empirical tests that follow. This leads to my second hypothesis:

> **H2:** Investors place relatively more (less) weight on the cash (accrual) component of earnings when the underlying cash flow information is relatively useful.

2.3 Relation between the presence of a cash flow forecast and useful cash flow information

DeFond and Hung (2003) examine the determinants of cash flow forecasts, and argue that analysts respond to investor demand by issuing cash flow forecasts when such forecasts would be useful to investors. They identify a set of variables predicted to drive investor demand for cash flow information (some of the variables used above) and find that analysts are more likely to issue cash flow forecasts for firms exhibiting these characteristics.

I, however, show that the set of firms that have a cash flow forecast is not the same as the set of firms with useful cash flow information. Specifically, more than one-third of all firms with a cash flow forecast have a factor score that is lower than the median factor score. Furthermore, two-thirds of all firms with a factor score above the median do not have a cash flow forecast. These results suggest that the presence of a cash flow forecast does not fully capture the usefulness of cash flow information.

The fact that the presence of a cash flow forecast is not the same as a high factor score is not surprising for at least two reasons. First, if the firms with useful cash flow information were the same firms that had a cash flow forecast, it would imply that (a) analysts are perfectly able to identify investor demand for cash flow information, and (b) analysts are able to perfectly meet such demand. This is an unlikely proposition.

Second, analysts' decision to issue cash flow forecasts is not driven entirely by investors' demand for such information. Ertimur and Stubben (2006) model analysts' willingness to provide cash flow forecasts and find that the presence of a cash flow forecast is at least partially driven by analyst/brokerage characteristics. They find that analysts who issue inaccurate and/or frequent earnings forecasts are more likely to issue cash flow forecasts. They also find that analysts from large brokerages are more likely to issue cash flow forecasts, likely due to the additional external resources available to analysts at large brokerages (Clement 1999). These determinants of a cash flow forecast are independent of the valuation usefulness of the underlying cash flow information, and support the idea that some firms with (without) relatively useful cash flow information would not (would) have a cash flow forecast.

In summary, there are a large number of firms for which investors would demand cash flow forecasts that do not actually have a cash flow forecast. Similarly, some firms have a cash

flow forecast even though the underlying firm characteristics suggest investors do not demand one. I report evidence consistent with this notion in Section 4.

2.4 Cash flow forecasts and firm-specific characteristics – incremental and conditional analyses

In addition to individually examining the effect of cash flow forecasts and CFUSE on investors' pricing of the earnings components, I also examine how these two factors jointly determine investors' pricing behavior. That is, I examine whether cash flow forecasts have an effect on investors' pricing of earnings incremental to the effect of CFUSE, and vice versa. This analysis addresses the question of whether investors' pricing decisions are based on (a) analyst behavior, (b) the underlying cash flow information, or (c) both.

I also examine the interaction between these two phenomena. Specifically, I test whether the impact of a cash flow forecast on investors' pricing decisions is conditional upon the firm's underlying cash flow information. Similarly, I test whether the impact of the usefulness of the firm's underlying cash flow information (CFUSE) is conditional upon whether analysts have issued a cash flow forecast.

How investors jointly process (a) the usefulness of cash flow information and (b) the presence (or absence) of a cash flow forecast is ultimately an empirical question. As such, I do not make formal predictions concerning these tests.

2.5 Managers' reporting decisions

The notion that managers have incentives to manage earnings to reach certain targets has been widely established. Managers who fail to meet these targets can suffer negative consequences, including a drop in the firm's stock price (Bartov et al. 2002), lower compensation (Matsunaga and Park 2001), and potential termination.

When managers want to boost earnings to meet certain targets, they can do so either by manipulating accruals or by manipulating cash from operations. To boost accruals, managers can alter the assumptions used to calculate depreciation expense, change estimates of uncollectible accounts receivable, alter the income tax expense (Dhaliwal et al. 2004), or classify operating expenses as special items (McVay 2006). To boost cash from operations, managers can engage in real activities at year-end (e.g., reducing discretionary expenditures like R&D, advertising, and maintenance) to increase cash from operations (Roychowdhury 2006).[2] In addition, managers can alter the classification of cash flows on the statement of cash flows to report higher operating cash flows.

Dynegy Inc. provides a recent example of a firm opportunistically classifying cash inflows as operating cash flows on the statement of cash flows. In a series of complex transactions in 2001, Dynegy effectively borrowed $300 million from a special-purpose entity in which Dynegy had a controlling interest. This $300 million cash inflow should have been treated as a financing cash flow, but was improperly classified as an operating cash flow on Dynegy's 2001 financial statements. The result was a 58% increase in Dynegy's operating cash flows. Ultimately, after an SEC investigation, Dynegy was forced to restate its 2001 financial statements. Dynegy's CFO later acknowledged that the principal purpose of the scheme was to minimize the gap between reported net income and reported operating cash flows (SEC vs. Dynegy 2002).

I posit that managers are more likely to manage operating cash flows if analysts issue cash flow forecasts for the firm. If cash flow forecasts are associated with investors placing relatively more weight on the cash (accrual) component of earnings when setting stock prices

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[2] Real activities that boost operating cash flows include: (i) factoring accounts receivable, (ii) delaying payment to suppliers, and (iii) the investing in trading securities (which allow for the opportunistic sale of the trading securities, which are classified as operating cash flows).

(H1), these firms have added incentive to increase reported operating cash flows rather than to increase reported accruals. All else equal, a $1 increase in cash (accrual) earnings will have a larger (smaller) stock price impact for firms with a cash flow forecast than for firms without a cash flow forecast. Additionally, managing operating cash flows to meet earnings targets (e.g., analysts' earnings forecast) has the added benefit of simultaneously helping the firm meet its cash flow forecast. Accrual management, on the other hand, is associated with a relatively smaller stock price effect and does not alter the probability of meeting or beating the cash flow forecast. Therefore, I make the following prediction:

> **H3:** Managers of firms with a cash flow forecast are more likely to artificially increase operating cash flows than are managers of firms without a cash flow forecast.

3. Sample selection

3.1 Sample selection criteria

I begin by identifying all firms with one-year ahead annual earnings forecasts in the *I/B/E/S Detail History US Edition* database for the period 1993 to 2005. The proportion of these earnings forecasts that is accompanied by a cash flow forecast has been rapidly increasing over the past decade. In 1993, the first year *I/B/E/S* has any record of a cash flow forecast, 4% of the firms with an earnings forecast also had a cash flow forecast. By 2005, that figure had reached 54%. Table 1, Panel A provides more detail on the increasing prevalence of cash flow forecasts over the sample period.

I restrict my analysis to observations with a one-year ahead earnings forecast, provided the firm has sufficient Compustat and CRSP data with which to calculate the variables used in the empirical tests. Additionally, for tests of investors' pricing of the accrual and cash components of earnings, I restrict my attention to firm-years with non-negative earnings. Hayn

(1995) finds that for firms with negative earnings, the earnings response coefficient (ERC) and R^2 from a regression of returns on earnings are both close to zero. This finding is due to the fact that investors consider losses to be temporary, and therefore of limited valuation relevance. Similarly, Burgstahler and Dichev (1997) find that when firms near their adaptation option, investors rely on the firm's book value (rather than earnings) to value the firm. Barth et al. (1998) also find that the value relevance of book value (earnings) increases (decreases) as financial health decreases. Given that earnings are largely irrelevant to firm value for loss firms, I do not consider these firms in my tests that consider the pricing implications of cash flow forecasts (factor score) on the accrual and cash components of earnings. For firms where earnings are largely valuation irrelevant, I do not expect the presence of a cash flow forecast (factor score) to impact the pricing of the earnings components. Including these observations in the sample would reduce the power of my tests.

Table 1, Panel B outlines the frequency of cash flow forecasts in each year for firms with sufficient Compustat and CRSP data *and* with non-negative earnings. There are 8,238 firm-year observations with a cash flow forecast and sufficient Compustat and CRSP data. Eliminating loss firms reduces this sample to 6,373 firm-year observations across 13 years.

3.2 Variable definitions and descriptive statistics

Appendix A provides detailed definitions of each variable used in the empirical analyses that follow. Table 2 reports the descriptive statistics for these variables, as well as other variables of interest (total assets and market value of equity). To mitigate the effect of outliers, all continuous variables are winsorized at the 1% and 99% levels.

Table 2 reveals that firms with a cash flow forecast are larger than firms without a cash flow forecast, both in terms of total assets and market value. These firms also report earnings

that are slightly lower than firms without a cash flow forecast. Firms with cash flow forecasts

also report slightly lower (higher) accruals (operating cash flows). I investigate this difference in

more detail in Section 5.

Consistent with DeFond and Hung (2003), I find that firms with a cash flow forecast

display characteristics consistent with operating cash flows being relatively useful. These firms

exhibit accruals that are larger in absolute value, report more volatile earnings, are more likely to

use different accounting methods than their industry peers, are more capital intensive, and have

worse financial health. Furthermore, firms with a cash flow forecast have shorter trade cycles.

4. Empirical analyses

4.1 Factor analysis

The purpose of the factor analysis procedure is to (a) combine the six cross-sectional

determinants of the usefulness of cash flow information into one parsimonious variable, and (b)

extract the common portion of each of these variables. The resulting factor score presumably

incorporates the portion of each of these six variables that represents "usefulness of cash flow

information."[3]

Panel A of Table 3 reports the factor loadings of the six cross-sectional variables. The

highest loadings correspond with HEALTH, CAPINT, and ABSACC (loadings of 0.700, 0,657,

and 0.633, respectively). CYCLE and HETERO also load relatively strongly with factor

loadings of 0.410 and 0.248, respectively. The only variable that does not have a strong loading

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[3] An alternative method of capturing CFUSE would be to regress the cash flow forecast indicator variable on all of
the cross-sectional determinants of cash flow usefulness and use the predicted values that result from the model as
my CFUSE measure. Such a procedure, however, would yield a variable measuring the likelihood that analysts
issue a cash flow forecast for that particular firm-year, rather than a measure capturing the usefulness of the firm's
underlying cash flow data. For purposes of this study, I want a measure that captures the usefulness of the
underlying cash flow information. Such a measure should be independent of analysts' behavior and/or willingness
to issue a cash flow forecast. Factor analysis is well-suited for this purpose.

is VOL (0.092). Overall, the factor score accounts for 26% of the variance in these six cross-sectional variables.

Given that VOL has such a low correlation with the resulting factor score (CFUSE), I also report the factor loadings when VOL is excluded from the analysis. When only the remaining five variables are considered, the factor score accounts for 31% of the variance associated with these variables. In the tests that follow, I use the original factor score (including VOL), and refer to this score as 'CFUSE.'[4]

To validate the success of the factor analysis procedure, I first replicate the results in DeFond and Hung (2003). They find that cash flow forecasts are more common for firms with large accruals, volatile earnings, heterogeneous accounting choices relative to industry peers, capital-intensive firms, and firms in distress. I add trade cycle (CYCLE) to the model and run the following logistic regression:

$$F_{it} = \beta_0 + \beta_1 \, ACCRUALS_{it\text{-}1} + \beta_2 \, VOL_{it\text{-}1} + \beta_3 \, HETERO_{it\text{-}1} + \beta_4 \, CYCLE_{it\text{-}1} +$$
$$\beta_5 \, CAPINT_{it\text{-}1} + \beta_6 \, HEALTH_{it\text{-}1} + \beta_7 \, SIZE_{it\text{-}1} + \varepsilon_{it}. \qquad (1)$$

where F_{it} is an indicator variable equal to 1 if analysts issued a cash flow forecast for firm i in year t, and 0 otherwise, and all other variables are as defined in Appendix A. Table 3, Panel B reports the results from this regression. Consistent with DeFond and Hung (2003), I find that ACCRUALS, CYCLE, CAPINT, and HEALTH are significant determinants of a cash flow forecast. These variables explain 18.8% of the variation in the presence of a cash flow forecast.[5] When I replace the six cross-sectional determinants of a cash flow forecast with CFUSE, I find that this model explains 18.1% of the variation in the presence of a cash flow forecast. The fact that the explanatory power of the model is essentially the same when CFUSE is used in place of

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[4] All results are qualitatively unchanged when the five-variable factor score (excluding VOL) is used.
[5] In DeFond and Hung (2003), they report pseudo-R^2 values ranging from 12% and 25%, depending on the year.

the cross-sectional determinants suggests that the factor analysis procedure does a reasonable job of summarizing and extracting the relevant portion of these variables.[6]

In Table 3, Panel C, I report the descriptive statistics of CFUSE across firms with (without) a cash flow forecast. As expected, firms with a cash flow forecast have significantly higher factor loadings (CFUSE values) than do firms without a cash flow forecast (t-stat = 28.34).

Given that DeFond and Hung (2003) find that many of the cross-sectional variables that comprise the factor score are highly associated with the presence of a cash flow forecast, it is reasonable to question whether F and CFUSE are truly unique variables. In Table 3, Panel D, I examine the degree to which the presence of a cash flow forecast is associated with the factor score. To examine this issue, each year I rank firm-year observations by CFUSE, and classify firm-years as having a "low" ("high") factor score if its factor score is below (above) the median factor score for that year. Similarly, I identify firm-years that have ("yes") or do not have ("no") a cash flow forecast. This results in the 2x2 table displayed in Panel D of Table 3.

Of the 6,373 firm-years with a cash flow forecast, 38% of them are classified as having a "low" factor score. Additionally, of the firm-years classified as having a "high" factor score, only 33% of them have a cash flow forecast. Therefore, while F and CFUSE are certainly related, many firm-years with a cash flow forecast are not identified as having useful cash flow information. Similarly, many firm-years without a cash flow forecast are identified as having useful cash flow information.

These figures are consistent with the previous discussion in Section 2.3 of the small likelihood that the variables identified by DeFond and Hung (2003) fully explain analysts'

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[6] The inclusion of size accounts for substantial explanatory power in Equation 1. When size is excluded, the pseudo-R^2 of Equation 1 is 5.4%. When size is excluded and CFUSE is used in place of the six cross-sectional variables, the pseudo-R^2 is 3.2%.

decisions to issue a cash flow forecast. As previously discussed, brokerage and analyst

characteristics (which are independent of the usefulness of the underlying cash flow information)

partially determine whether a firm has a cash flow forecast (Ertimur and Stubben 2006).

Specifically, analysts employed by large brokerage firms are more likely to issue cash flow

forecasts simply because these analysts have more resources available to them. Consistent with

this notion, in untabulated results I find that cash flow forecasts for firms with a low CFUSE

score are more likely to be issued by analysts employed by large brokerage firms than are cash

flow forecasts for firms with a high CFUSE score. This is consistent with firms (particularly

firms without relatively useful cash flow information) receiving cash flow forecasts for reasons

other than their accounting and economic characteristics. More generally, these results motivate

an investigation into the effect of a cash flow forecast (F) and the effect of useful cash flow

information (CFUSE) on the pricing of the accrual and cash components of earnings.

4.2 The effect of a cash flow forecast on the pricing of earnings components

My first hypothesis predicts that investors place more (less) weight on the cash (accrual)

component of earnings for firms with a cash flow forecast. I test this hypothesis in two ways.

First, I estimate the following regression:[7]

$$RET_{it} = \beta_0 + \beta_1\ EARNINGS_{it} + \beta_2\ EARNINGS_{it}*F_{it} + \beta_3\ CFO_{it} +$$

$$\beta_4\ CFO_{it}*F_{it} + YEAR\_DUMMIES + \varepsilon_{it} \qquad (2)$$

where F_{it} is an indicator variable equal to 1 if analysts issued a cash flow forecast for firm *i* in

year *t*, and 0 otherwise, $EARNINGS_{it}$ is earnings before extraordinary items for firm *i* in year *t*,

and CFO_{it} is operating cash flows for firm *i* in year *t*. Given that earnings is the sum of accruals

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[7] Prior literature documents that earnings response coefficients are a function of firm characteristics (Collins and Kothari 1989; Easton and Zmijewski 1989). I do not control for these factors because I am testing for the differential market response to the accrual and cash components of earnings. As such, there is no reason to suspect the relative accrual and cash flow response coefficients vary with these firm characteristics.

and operating cash flows, the coefficient on EARNINGS (β_1) can be interpreted as the weight investors place on both the accrual and cash components of earnings, and the coefficient on CFO (β_3) can be interpreted as the incremental weight placed on the cash component of earnings. As a result, H1 predicts that β_2 will be negative and that β_4 will be positive, consistent with investors placing relatively less (more) weight on the accrual (cash) component of earnings for firms with a cash flow forecast.

I report the results from estimating Equation 2 in Panel A of Table 4. As a baseline, I first estimate Equation 2 without the interacted terms as Model 1 in Table 4. Consistent with prior research, the earnings response coefficient (ERC) is between 2 and 3 (2.42). The coefficient on operating cash flows is 0.20. This implies that on average, each dollar of earnings (accruals plus cash) is associated with a $2.42 stock price reaction, and that each dollar of cash earnings is *incrementally* associated with a $0.20 stock price reaction.

I test H1 by estimating Equation 2 (Table 4, Model 2). Consistent with H1, I find that investors place relatively less weight on the accrual component of earnings and relatively more weight on the cash component of earnings for firms with a cash flow forecast. This finding implies that investors behave as if cash (accrual) earnings are more (less) relevant to firm value for firms with a cash flow forecast. In fact, the accrual component of earnings of firms without a cash flow forecast receives approximately 75% more weight than the accrual component of earnings of firms with a cash flow forecast. Additionally, the weight on the cash component of earnings more than doubles for firms with a cash flow forecast. These results are consistent with DeFond and Hung (2003, Table 5, Panel B).

However, the results from estimating Equation 2 alone are not sufficient to conclude that the cash flow forecast itself is the cause of the increased (decreased) weight associated with the

cash (accrual) components of earnings. While it is possible that these results are consistent with

H1, it is also possible that investors are responding to the firms' accounting and economic

characteristics that drove analysts to issue the cash flow forecast (rather than responding to the

cash flow forecast itself).

Accordingly, to more completely test H1, I examine whether the weights investors place

on the cash and accrual components of earnings change after the initiation of cash flow coverage.

For each firm, I identify the first year in which cash flow forecasts appear on *I/B/E/S*, and label

this year the "initial" year. The three years before this initial year are labeled the "pre" period,

while the initial year and the two years following the initial year are the "post" period. I require

that each firm has at least one valid observation in both the "pre" and "post" periods to be

included in the analysis. Choosing three-year windows allows investors enough time to

incorporate the presence of a cash flow forecast into their valuation judgments, while limiting the

possibility of a fundamental shift in the firm's environment that caused analysts to begin issuing

cash flow forecasts and investors to alter the weight they assign to the earnings components. I

therefore estimate the following regression:

$$RET_{it} = \beta_0 + \beta_1\, EARNINGS_{it} + \beta_2\, EARNINGS_{it}*POST_{it} + \beta_3\, CFO_{it} +$$

$$\beta_4\, CFO_{it}*POST_{it} + YEAR\_DUMMIES + \varepsilon_{it} \qquad\qquad (3)$$

where $POST_{it}$ is a dummy variable equal to one if the observation is in the "post" period, and

zero otherwise. H1 predicts that β_2 will be negative and that β_4 will be positive. The results of

estimating this equation are reported as Model 3 in Panel A of Table 4.

Consistent with H1, I find that investors place less weight on the accrual component of

earnings after analysts begin issuing cash flow forecasts. I do not find that the cash component

of earnings is associated with more weight following the initiation of cash flow coverage. In

general, these results provide support the notion that the presence of a cash flow forecast impacts the relative weight investors assign to the cash and accrual components of earnings.[8]

4.3 The effect of useful cash flow information on the pricing of the earnings components

My second hypothesis predicts that investors place more (less) weight on the cash (accrual) components of earnings when the underlying cash flow information is relatively useful. To test this hypothesis, I estimate the following regression:

$$RET_{it} = \beta_0 + \beta_1\, EARNINGS_{it} + \beta_2\, EARNINGS_{it}*CFUSE_{it} + \beta_3\, CFO_{it} +$$

$$\beta_4\, CFO_{it}*CFUSE_{it} + YEAR\_DUMMIES + \varepsilon_{it} \qquad (4)$$

where $CFUSE_{it}$ is the factor score (representing the usefulness of cash flow information) for firm i in year t, and all other variables are as defined previously. H2 predicts investors place more (less) weight on the cash (accrual) component of earnings when the factor score is relatively high. In particular, I predict that β_2 (β_4) will be negative (positive).

The results of testing H2 are reported in Panel A of Table 4 as Model 4. Consistent with H2, I find that investors place relatively less weight on the accrual component of earnings for firms with relatively useful cash flow information ($\beta_2 = -0.76$). I find a slight differential in the weighting of the cash component of earnings for firms with a high factor score ($\beta_4 = 0.03$), but this difference is only marginally statistically and economically significant.

As discussed previously, one concern is whether F and CFUSE are truly unique variables. To provide further evidence on this issue, I run Equation 4 separately for firms with and without a cash flow forecast. If CFUSE is nothing more than a substitute for F, I would not expect it to successfully load among firms without a cash flow forecast. In untabulated results, I find that

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[8] One alternative explanation for this result is that there is an economy-wide shift in the weight investors assign to the cash and accrual components of earnings, potentially because of the Enron and WorldCom scandals. As a result, I also run Equation 2 separately for firms that received their first cash flow forecast before (after) January 1, 2002. The results from estimating the model over both sub-periods yields qualitatively similar results.

among firms without a cash flow forecast, CFUSE performs well in identifying firms for which

investors assign a differential weighting to the earnings components. In fact, the results across

both sub-samples (firms with a cash flow forecast and firms without a cash flow forecast) are

qualitatively similar, with the magnitude of the differential weighting actually stronger for firms

without a cash flow forecast. These results substantiate the success of CFUSE in capturing

factors affecting the usefulness of the underlying cash flow information. Additionally, this result

further suggests that F and CFUSE are indeed unique variables.

4.4 Cash flow forecasts and cash flow usefulness – Incremental and conditional analyses

Incremental analysis

The results reported in section 4.2 offer support for the notion that that the presence of a

cash flow forecast affects the weight investors assign to the cash and accrual components of

earnings (H1). Additionally, I find support in section 4.3 for the idea that the usefulness of the

underlying cash flow information is associated with increased (decreased) weight on the cash

(accrual) components of earnings (H2). The question remains, however, as to whether these two

results are incremental to each other. I examine whether the impact of a cash flow forecast on

investors' pricing of earnings is incremental to the impact of the underlying cash flow

information, and vice versa. To empirically address this issue, I estimate the following

regression:

$$RET_{it} = \beta_0 + \beta_1\ EARNINGS_{it} + \beta_2\ EARNINGS_{it}*F_{it} + \beta_3\ EARNINGS_{it}*CFUSE_{it} +$$

$$\beta_4\ CFO_{it} + \beta_5\ CFO_{it}*F_{it} + \beta_6\ CFO_{it}*CFUSE_{it} + YEAR\_DUMMIES + \varepsilon_{it}. \quad (5)$$

The results of estimating this equation are reported as Model 5 in Panel B of Table 4. These

results indicate that both the presence of a cash flow forecast itself *and* the usefulness of the

underlying cash flow information affect the weight investors place on the cash and accrual

components of earnings. These findings further show that when analysts, a group of relatively

sophisticated investors, decide to issue a cash flow forecast, investors view this as a signal of the

relative importance of the firm's cash flow information. In addition, investors appear to assess

the usefulness of the firm's underlying cash flow information and impound it into stock prices

accordingly.

Conditional analyses

In Equation 6, below, I augment Equation 2 by adding CFUSE as an additional

interaction term. In this model, I test whether investors' reaction to cash flow forecasts is

conditional on whether the firm's underlying cash flow information is relatively useful.

Specifically, I estimate the following regression:

$$RET_{it} = \beta_0 + \beta_1\ EARNINGS_{it} + \beta_2\ EARNINGS_{it}*F_{it} +\ \beta_3\ EARNINGS_{it}*F_{it}*CFUSE_{it} +$$

$$\beta_4\ CFO_{it} + \beta_5\ CFO_{it}*F_{it} + \beta_6\ CFO_{it}*F_{it}*CFUSE_{it} + YEAR\_DUMMIES + \varepsilon_{it}. \qquad (6)$$

The results of estimating this model are reported as Model 6 in Panel B of Table 4. The results

indicate that investors place even less weight on the accrual component of earnings for firms

with both a cash flow forecast *and* a high factor loading (β_3 = -0.22). Furthermore, β_2 remains

significantly negative, consistent with the notion that cash flow forecasts cause investors to

decrease the weight they place on the accrual component of earnings, even if the underlying cash

flow information is not ex ante useful.

In Equation 7, below, I augment Equation 3 by adding F as an additional interaction term.

In this model, I test whether investors' response to useful cash flow information is conditional on

whether analysts have issued a cash flow forecast for the firm. Specifically, I estimate the

following regression:

$$RET_{it} = \beta_0 + \beta_1 \text{ EARNINGS}_{it} + \beta_2 \text{ EARNINGS}_{it} {}^*CFUSE_{it} +$$

$$\beta_3 \text{ EARNINGS}_{it} {}^*F_{it} {}^*CFUSE_{it} + \beta_4 CFO_{it} + \beta_5 CFO_{it} {}^*CFUSE_{it} +$$

$$\beta_6 CFO_{it} {}^*F_{it} {}^*CFUSE_{it} {}^* + YEAR\_DUMMIES + \varepsilon_{it}. \tag{7}$$

The results of estimating this model are reported as Model 7 in Panel B of Table 4. The results indicate that the presence of a cash flow forecast does not further reduce the weight investors place on the accrual component of earnings. However, the findings with respect to the cash component of earnings are more interesting. While CFUSE does not, on average, increase the weight investors place on the cash component of earnings for firms without a cash flow forecast ($\beta_5 = -0.03$), it is only in the presence of a cash flow forecast that investors are cued to increase the weight they place on the cash component of earnings ($\beta_6 = 0.09$). This speaks to the role analysts play in how investors interpret and incorporate accounting information into stock prices. It takes analysts issuing a cash flow forecast for investors to increase the weighting of cash flow information, even when the underlying cash flow information is deemed relevant for valuation purposes.

4.5 The predictive ability of the accrual and cash components of earnings

In Section 4.2, I found that cash flow forecasts are associated with an increase (decrease) in the relative weight investors place on the cash (accrual) components of earnings. Further, in Section 4.3, I found that high CFUSE scores are also associated with an increase (decrease) in the relative weight investors place on the cash (accrual) components of earnings. Given that stock prices reflect the present value of expected future cash flows, investors should put more (less) weight on the cash (accrual) components of earnings only when such information is more (less) useful in predicting future cash flows. In this section, I examine whether the increased

(decreased) weight investors place on the cash (accrual) components of earnings is consistent with this notion.

To test this proposition, I estimate the following regressions:

$$CFO_{it+n} = \beta_0 + \beta_1\ EARNINGS_{it} + \beta_2\ CFO_{it} + \varepsilon_{it} \tag{8A}$$

$$CFO_{it+n} = \beta_0 + \beta_1\ EARNINGS_{it} + \beta_2\ EARNINGS_{it}*F_{it} + \beta_3\ CFO_{it} + \beta_4\ CFO_{it}*F_{it} + \varepsilon_{it} \tag{8B}$$

$$CFO_{it+n} = \beta_0 + \beta_1\ EARNINGS_{it} + \beta_2\ EARNINGS_{it}*D\_CFUSE_{it} + \beta_3\ CFO_{it} +$$

$$\beta_4\ CFO_{it}*D\_CFUSE_{it} + \varepsilon_{it} \tag{8C}$$

where CFO_{it+n} is cash from operations for firm i in year $t+n$, with n ranging from 1 to 3 years, and F_{it} is an indicator variable equal to 1 (0) for firms with (without) a cash flow forecast, and D_CFUSE_{it} is an indicator variable equal to 1 (0) if firm i has a CFUSE score in the highest quintile in year t. Table 5 reports the results from estimating these regressions. Equation 8A is the baseline model without any interacted terms. Equations 8B (8C) assess whether firms with a cash flow forecast (high CFUSE score) exhibit accruals (cash flows) that are less (more) predictive of future cash flows.

Consistent with prior research (Barth et al. 2001), I find that operating cash flows are relatively more predictive of future cash flows (one, two, and three-years ahead) than are current earnings (accruals) (Model 8A). More importantly, I find that the cash component of earnings is relatively more predictive of one-year ahead, two-year ahead, and three-year ahead cash flows for firms with a cash flow forecast (Model 8B). I also find that the accrual component of earnings is less predictive of three-year ahead cash flows for firms with cash flow forecasts. With Model 8C, I find that the current cash flows are more predictive of one-year ahead, two-year ahead, and three-year ahead cash flows for firms with a high CFUSE score, and that the

accrual component of earnings is less predictive of one-year ahead and two-year ahead cash

flows for firms with a high CFUSE score.

Overall, these results strongly support the notion that investors are justified in increasing

(decreasing) the weight they place on the cash (accrual) component of earnings in the presence

of a cash flow forecast and when a firm's underlying cash flow information is useful. This

finding also suggests that analysts successfully identify firms with more predictive operating

cash flows, and issue cash flow forecasts for these firms.

5. Cash flow forecasts and managers' reporting of cash flow information

In this section, I explore the effect of cash flow forecasts on managers' reporting of cash

flow information. H3 predicts that managers of firms with a cash flow forecast are more likely

to report abnormal operating cash flows than are firms without a cash flow forecast. First, I

discuss my measure of abnormal operating cash flows. I follow with the empirical results.

5.1 Modeling abnormal operating cash flows

I base my measure of normal operating cash flows on the model proposed by Dechow et

al. (1998). They present a model that expresses operating cash flows as a function of sales and

change in sales in the current period.[9] Specifically, they model operating cash flows as:

$$CFO_{it} = Earnings_{it} - Accruals_{it} = \pi Sales_{it} - \delta(Sales_{it} - Sales_{it-1}).$$

As a result, I run the following regression to estimate normal operating cash flows:

$$CFO_{it}/TA_{it-1} = \alpha_0 + \alpha_1(1/TA_{it-1}) + \beta_1(Sales_{it}/TA_{it-1}) + \beta_2(\Delta Sales_{it}/TA_{it-1}) + \varepsilon_{it} \qquad (9)$$

where CFO_{it} is cash from operations for firm i in year t, TA_{it-1} is total assets for firm i in year t-1,

and $Sales_{it}$ is total sales revenue for firm i in year t. I estimate this model for each year and

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[9] See Appendix B for a more detailed description of this model.

industry grouping.[10] For each firm-year, abnormal cash from operations (ABN_CFO) is the

difference between reported cash from operations and the predicted value of cash from

operations that results from the estimation of Equation 9. This method of estimating abnormal

operating cash flows is consistent with the methodology employed by Roychowdhury (2006).[11]

In Table 6, I report the mean coefficients across industry-years from estimating Equation

9. The coefficients are consistent with the predictions made by Dechow et al. (1998). The

coefficient on $Sales_{it}/TA_{it-1}$ is significantly positive, consistent with operating cash flows being

an increasing function of current sales revenue. The mean coefficient on $\Delta Sales_{it}/TA_{it-1}$ is

marginally different from zero.

5.2 Abnormal operating cash flows

My purpose is to assess the degree to which firms with cash flow forecasts report

abnormally high operating cash flows. H3 predicts that because of the increased emphasis

investors and analysts place on operating cash flows, firms with a cash flow forecast will report

abnormally high operating cash flows.

To test this hypothesis, I first evaluate the mean level of ABN_CFO for firms with a cash

flow forecast relative to firms without a cash flow forecast. Table 7, Panel A reveals that firms

with a cash flow forecast report mean (median) abnormal operating cash flows of 5.4% (4.1%) of

total assets. Given that the mean (median) level of operating cash flows for firms with a cash

flow forecast is 10.4% (10.2%) of total assets (untabulated), this is an economically large level of

abnormal cash flows. Firms without a cash flow forecast, on the other hand, report mean

(median) abnormal operating cash flows of -1.4% (1.8%) of total assets. The difference between

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[10] I use the two-digit SIC code to identify industries. A minimum of 10 observations in each industry-year grouping
is required.
[11] Note that because this model is estimated separately for each industry, it controls for any determinants of normal
operating cash flows that are clustered by industry.

both the mean and median levels of ABN_CFO between firms with and without a cash flow forecast is both statistically and economically significant. This result provides initial support for my hypothesis that firms with cash flow forecasts report artificially high operating cash flows.

One alternative explanation for the difference in ABN_CFO reported in Panel A of Table 7 is that analysts are able to identify firms with abnormally large operating cash flows and choose to issue cash flow forecasts for these firms. In such a scenario, abnormal levels of operating cash flows would not be consistent with managers boosting operating cash flows because of the cash flow forecast, but rather would imply that firms have a cash flow forecast because of their abnormally high cash from operations.

To investigate this possibility, I perform two tests. First, I compare the abnormal operating cash flows for the three years before the initial cash flow forecast to the abnormal operating cash flows for the year of the initial cash flow forecast and the following two years.[12] I find that after the initiation of cash flow forecasts, firms report significantly higher abnormal operating cash flows (untabulated). On average, abnormal cash flows are 1.2% of total assets higher after analysts issue the first cash flow forecast.

Second, I isolate all firms with a cash flow forecast, and examine whether the level of abnormal cash flows varies as a function of the degree to which firms meet or beat analysts' earnings expectations.[13] If managers of firms with a cash flow forecast are managing cash flows for opportunistic reasons, I would expect to find firms that meet or barely beat analysts' earnings forecasts to have higher abnormal cash flows than firms in other regions of the meet/beat distribution.

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[12] I again impose the constraint that to be included in this analysis, a firm must have at least one valid observation before a cash flow forecast was issued and at least one valid observation in the three years beginning with the first year a cash flow forecast was issued.

[13] As a proxy for analysts' earnings expectations, I use the last earnings forecast issued prior to the firm's earnings announcement.

I divide all firms with a cash flow forecast into four groups, based on the difference between reported EPS and analysts' expectation of EPS. MISS corresponds to all firm-years with reported EPS below forecasted EPS. SMALL corresponds to all firm-years with forecast errors between $0.00 and $0.02, inclusive. MEDIUM corresponds to all firm-years with forecast errors between $0.02 and $0.04, and LARGE corresponds to all firm-years with forecast errors larger than $0.04. Panel B of Table 7 reveals that the mean (median) values of abnormal operating cash flows vary as one would expect if managers are managing operating cash flows for opportunistic reasons (to meet/beat analysts' earnings forecasts). Abnormal operating cash flow values are highest for firms in the SMALL group (7.3% of total assets), with lower values of ABN_CFO as the earnings forecast error diverges from zero.

I find that the mean (median) values of abnormal operating cash flows are significantly different across all groups, as expected, with one exception. The mean abnormal operating cash flow for firms in the SMALL group is not significantly higher than it is for firms in the MEDIUM group. The median values across these two groups, are, however, statistically different (p=0.033). Additionally, I find abnormal cash flow values for the SMALL group are significantly higher than the abnormal cash flow values for a group comprised of both MEDIUM and LARGE firms. This finding supports the notion that firms with a cash flow forecast report artificially high to meet or beat analysts' earnings forecasts. In addition, given that the abnormal cash flow values of firms in the SMALL group are higher than those of firms in either the MEDIUM or LARGE groups, this result does not appear to be driven by performance.

Interestingly, this pattern of abnormal operating cash flows around the earnings forecast error is not apparent when evaluated relative to the cash flow forecast error. Firms that beat the cash flow forecast by a wide margin report higher abnormal cash flows than do firms that meet

or barely beat the cash flow forecast (untabulated). This result suggests that the cash flow forecast is not a key target even for firms with a cash flow forecast and that analysts' *earnings* forecasts remain the primary benchmark. This finding is consistent with recent survey evidence suggesting that executives rank earnings as the most important performance metric reported to outsiders (Graham et al. 2005).

Lastly, I investigate whether the propensity to meet/beat analysts' forecasts with abnormally high operating cash flows is greater for firms with a cash flow forecast. To do this, I isolate all firms (with and without a cash flow forecast) in the SMALL group, and compare ABN_CFO values between firms with and without a cash flow forecast. These results are reported in Panel C of Table 7. I find that while firms in the SMALL group that do not have a cash flow forecast also appear to employ abnormal operating cash flows to meet analysts' earnings forecasts (mean = 0.053), firms in the SMALL group that have a cash flow forecast report relatively higher abnormal operating cash flows (mean = 0.073). This result supports H3 and suggests that firms with a cash flow forecast are more likely to opportunistically boost abnormal cash flows to meat/beat analysts' earnings forecasts.

This finding complements the findings of McInnis and Collins (2006). They report that firms with a cash flow forecast are less likely to use discretionary accruals to meet/beat analysts' earnings expectations. They argue that because both an earnings forecast and a cash flow forecast result in an implicit accrual forecast, firms with a cash flow forecast have more transparent accruals and will be less likely to manage accruals. They find results supporting their prediction. Consistent with their finding, I find that firms with a cash flow forecast are more likely to use abnormal cash flows to meet earnings targets. The results of this paper suggest,

however, that capital market pressures (a higher (lower) weight on the cash (accrual) component of earnings) are a potential source of this behavior.

6. Conclusion

I examine the effect of cash flow forecasts on investors' pricing and managers' reporting of the cash and accrual components of earnings. Analysts' cash flow forecasts are becoming an increasingly common fixture in the current information environment. This paper adds to our understanding of the impact of these forecasts on both investors' pricing behavior and managers' reporting decisions.

I find that the cash (accrual) component of earnings is more (less) associated with contemporaneous stock returns for firms with a cash flow forecast, and that this relation is even stronger for firms with relatively useful cash flow information. Additionally, I find that investors place relatively less weight on the accrual component of earnings immediately following analysts' initial cash flow forecast. Overall, the mere presence of a cash flow forecast affects investors' pricing of earnings, and this effect is incremental to the effect of the usefulness of the underlying cash flow information. These findings add to the literature on the role of analysts in investors' use of accounting information, and imply that even analysts' decisions to issue cash flow forecasts have valuation implications.

Furthermore, for firms with a cash flow forecast, the cash (accrual) components of earnings is more (less) predictive of future firm prospects. This implies that (a) when valuing firms with a cash flow forecast, investors are justified in assigning more (less) weight to the cash (accrual) components of earnings, and (b) analysts successfully identify firms with more predictive cash flow information and issue cash flow forecasts for these firms. Firms deemed to

have useful cash flow information also report cash flows information that is more predictive of future cash flows.

Lastly, I find that managers of firms with a cash flow forecast are more likely to artificially boost reported cash flows than are managers of firms without a cash flow forecast. While a considerable body of research has analyzed earnings management through the manipulation of accruals, I document a setting where the management of operating cash flows is likely to be a concern. In doing so, I further highlight the impact of capital market pressures on managers' propensity to artificially boost earnings. These results suggest that the nature of the capital market pressure can impact the mechanism through which earnings are managed.

This paper has important implications for the role of analysts in the capital markets. I document that while investors alter their assessments of accounting information based upon analysts' decisions to issue a cash flow forecast, managers also react by artificially boosting reported operating cash flows. Future studies can focus on other performance metrics (e.g., sales revenue) and the valuation and reporting implications of analysts' revenue forecasts. Such an inquiry would indicate whether the results reported in this paper are unique to cash flow information or whether these findings are generalizable to all accounting metrics forecasted by analysts. Additionally, future work can investigate the contracting (e.g., compensation) implications of having a cash flow forecast, and whether contracts reflect an increased focus on performance measures that are forecast by analysts.

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ABSACC: |Income before extraordinary items minus cash from operations|, scaled by total assets. This variable is calculated as of year t.

VOL: The coefficient of variation of earnings measured over year t and the previous 4 years scaled by the coefficient of variation of operating cash flows measured over the same period. This variable is calculated as (|standard deviation of earnings / mean of earnings|) / (|standard deviation of operating cash flows / mean of operating cash flows|).

HETERO: An index ranging from 0 to 1 that captures the similarity of a firm's accounting choices in year t relative to other firms in the same industry. In each year, I examine five accounting choices, and for each accounting choice, assign the firm a value of one if its chosen method differs from the most frequently chosen method in its industry group, and zero otherwise. The five accounting choices are: (1) inventory valuation, (2) investment tax credit, (3) depreciation, (4) successful-efforts vs. full-cost for companies with extraction activities, and (5) purchase vs. pooling. The five scores are summed and divided by the number of accounting choices in the industry (which for some industries is less than five). Higher (lower) index values are consistent with heterogeneous (homogeneous) accounting choices. This calculation is consistent with DeFond and Hung (2003).

CYCLE: The trade cycle of the firm, calculated as (Dechow 1994):

$$\frac{(AR_t + AR_{t-1})/2}{\text{Sales}/360} + \frac{(INV_t + INV_{t-1})/2}{\text{COGS}/360} - \frac{(AP_t + AP_{t-1})/2}{\text{Purchases}/360}$$

where AR is accounts receivable (Compustat annual #2), INV is inventory (Compustat annual #3), AP is accounts payable (Compustat annual #70), Sales is total sales revenue (Compustat annual #12), COGS is cost of goods sold (Compustat annual #41), and Purchases is calculated as $INV_t - INV_{t-1} + COGS$. In the empirical tests that follow, I multiply the CYCLE by negative one, such that higher values are consistent with cash flow information being a more useful performance metric. This variable is calculated as of year t.

CAPINT: The ratio of gross property, plant, and equipment (Compustat annual #7) divided by sales revenue (Compustat annual #12). This variable is calculated as of year t.

HEALTH: I estimate Altman's Z-score in year *t* as a proxy for financial health. Consistent with Altman (1968), the Z score equals 1.2*(Net working capital / Total assets) + 1.4*(Retained earnings / Total assets) + 3.3*(Earnings before interest and taxes / Total assets) + 0.6*(Market value of equity / Book value of liabilities) + 1.0*(Sales / Total assets). Lower Altman's Z-scores indicate poorer financial health. In the empirical tests that follow, I multiply the Altman's Z-scores by negative one, such that higher values are consistent with cash flow information being a more useful performance metric.

F: An indicator variable equal to 1 if the firm has a cash flow forecast in year *t*, and 0 otherwise.

CFUSE: The factor score in year *t* from a factor analysis performed on the following six variables: ACCRUALS, VOL, HETERO, CYCLE, CAPINT, and HEALTH.

CFO: Cash from operations (Compustat annual #308) in year *t*, scaled by beginning-of-period price (Compustat #199).

EARNINGS: Income before extraordinary items (Compustat annual #18) in year *t*, scaled by beginning-of-period-price (Compustat #199).

RET: 12-month CRSP buy-and-hold stock returns for beginning 3 months after fiscal-year end.

Appendix B
Modeling "normal" operating cash flows

I use the model outlined in Dechow et al. (1998) to derive estimates of normal cash from operations for each firm-year. In their model, they relate a firm's operating cash flows to its earnings and accruals. In doing so, they make the following simplifying assumptions about the accounting process: (i) sales follow a random walk, (ii) there are no fixed costs, (iii) the proportion of sales that remains uncollected at the end of the period is constant, (iv) target inventories is a constant proportion of next period's sales, and (v) a constant proportion of the firm's purchases remain unpaid at the end of the period.

They begin by expressing earnings as a percentage of total sales.

$$E_t = \pi S_t,$$

where π is the net profit margin. Consequently, total expenses vary with sales and are $(1-\pi)S_t$.

Accounts receivable is as constant fraction, α, of current sales.

$$AR_t = \alpha S_t.$$

Inventory consists of a target level and a deviation from that target. Target inventory is a constant fraction, γ_1, of next period's cost of sales. Since sales are assumed to follow a random walk, target inventory is $\gamma_1(1-\pi)S_t$, where $\gamma_1>0$. If the firm is able to successfully change inventory levels in response to changes in sales, inventory will increase by $\gamma_1(1-\pi)\Delta S_t$, where $\Delta S_t = S_t - S_{t-1} = \varepsilon_t$. However, as actual sales in period t differ from expected sales levels, inventory will not always be at the target level. This deviation from target inventory can be expressed as $\gamma_2\gamma_1(1-\pi)(\varepsilon_t)$, where γ_2 is a constant that captures the speed with which a firm adjusts its inventory to its target level. As a result, actual inventory levels at the end of the period are expressed as follows:

$$INV_t = \gamma_1(1 - \pi)S_t - \gamma_2\gamma_1(1 - \pi)\varepsilon_t.$$

Accounts payable are a constant fraction, β, of the period's purchases, where purchases are (cost of goods sold + ending inventory – beginning inventory). Purchases can be expressed as:

$$P_t = (1 - \pi)S_t + \gamma_1(1 - \pi)\varepsilon_t - \gamma_2\gamma_1(1 - \pi)\Delta\varepsilon_t.$$

The first term represents the purchases necessary for the current period sales. The second term consists of the purchases necessary to adjust inventory for the change in target inventory due to changes in sales, and the third term represents the deviation from target inventory. As a result, accounts payable is

$$AP_t = \beta P_t = \beta[(1 - \pi)S_t + \gamma_1(1 - \pi)\varepsilon_t - \gamma_1\gamma_2(1 - \pi)\Delta\varepsilon_t].$$

Appendix B (cont.)
Modeling "normal" operating cash flows

If working capital is defined as (accounts receivable + inventory − accounts payable), the change in working capital (accruals) for period t, A_t, is:

$$A_t = [\alpha + (1 - \pi)\gamma_1 - \beta(1 - \pi)]\varepsilon_t + \gamma_1(1 - \pi)[\beta + \gamma_2(1 - \beta)]\Delta\varepsilon_t + \beta\gamma_1\gamma_2(1 - \pi)\Delta\varepsilon_t.$$

Dechow et al. (1998) simplify this expression by noting that the second and third terms are close to zero and likely to be negligible in practice. The remaining term represents the firm's accruals and is the firm's operating cash cycle, $[\alpha + (1 - \pi)\gamma_1 - \beta(1 - \pi)]$, multiplied by the sales shock for the period, ε_t. If the operating cash cycle is denoted by δ, earnings can be expressed as

$$E_t = CFO_t + \delta\varepsilon_t.$$

It then follows that cash from operating is

$$CFO_t = E_t - A_t = \pi S_t - \delta\varepsilon_t = \pi S_t - \delta(S_t - S_{t-1}).$$

This equation expresses operating cash flows as a function of current period sales (S_t) and the change in sales from the prior period ($S_t - S_{t-1}$). This is the equation I use to estimate "normal" cash from operations.

Table 1
Sample Description

Panel A: Number (%) of firms with a cash flow forecast – all firms

Year	# With Earnings and Cash Flow Forecast	# With Only an Earnings Forecast	% With Earnings and Cash Flow Forecast
1993	194	4,648	4.0%
1994	453	4,974	8.4%
1995	633	5,329	10.6%
1996	860	5,881	12.8%
1997	946	6,344	13.0%
1998	1,061	6,234	14.5%
1999	1,583	5,417	22.6%
2000	1,725	4,845	26.3%
2001	1,055	4,417	19.3%
2002	1,727	3,490	33.1%
2003	2,505	2,711	48.0%
2004	2,972	2,772	51.7%
2005	3,309	2,725	54.8%
All Years	19,023	59,787	24.1%

Panel B: Number (%) of firms with a cash flow forecast – firms used in empirical tests

Year	# With Earnings and Cash Flow Forecast	# With Only an Earnings Forecast	% With Earnings and Cash Flow Forecast
1993	24	1,416	1.7%
1994	115	1,549	6.9%
1995	86	1,693	4.8%
1996	152	1,746	8.0%
1997	166	1,825	8.3%
1998	137	1,874	6.8%
1999	416	1,630	20.3%
2000	556	1,355	29.1%
2001	321	1,235	20.6%
2002	705	1,035	40.5%
2003	1,115	812	57.9%
2004	1,329	875	60.3%
2005	1,251	726	63.3%
All Years	6,373	17,771	26.4%

Table 2
Descriptive Statistics

Univariate statistics for firms with and without a cash flow forecast

	Mean		Median		Tests of Differences		
	With Cash Flow Forecast (n=6,373)	Without Cash Flow Forecast (n=17,771)	With Cash Flow Forecast (n=6,373)	Without Cash Flow Forecast (n=17,771)	Pred. Sign	t-stat[a]	z-stat[b]
ASSETS	7,965.28	1,881.24	2,050.67	317.01	?	25.88***	67.58***
MVE	9,713.71	2,525.73	2,302.78	378.73	?	21.69***	66.61***
EARNINGS	0.067	0.071	0.056	0.061	?	-4.57***	-8.79***
ACCRUALS	-0.073	-0.046	-0.047	-0.031	?	-14.70***	-21.32***
CFO	0.141	0.118	0.106	0.093	?	10.70***	14.53***
RET	0.119	0.102	0.086	0.046	?	2.76***	7.60***
Earnings and Firm Characteristics							
ABSACC	0.083	0.082	0.052	0.048	+	0.49	5.29***
VOL	1.497	1.148	0.909	0.648	+	4.33***	19.15***
HETERO	0.187	0.160	0.250	0.250	+	11.24***	9.24***
CYCLE	106.64	121.49	90.82	108.94	-	-14.02***	-16.81***
CAPINT	1.175	0.609	0.614	0.363	+	32.19***	35.99***
HEALTH	4.555	5.920	3.214	4.122	-	-18.47***	-23.65***

Notes to Table 2:

*, **, ***: significant at 10%, 5%, 1%, two-sided p-values. I report (1-p) values for coefficients that assume a sign opposite to the one predicted.

[a] p-values are associated with t-statistics. When tests indicate inequality of variances at the 10% level, I report t-statistics that assume unequal variances. Otherwise, I report t-statistics that assume equal variances.
[b] p-values are associated with Wilcoxon z-statistics.

Table 2 (cont.)
Descriptive Statistics

Notes to Table 2 (cont.):

Definition of variables:

ASSETS = total assets (Compustat #6) in year t.

MVE = market capitalization in year t, defined as stock price times the number of shares outstanding (Compustat #199 * Compustat #25).

EARNINGS = net income before extraordinary items (Compustat #18) in year t, scaled by beginning-of-period price (Compustat #199).

ACCRUALS = total accruals in year t, calculated as net income before extraordinary items (Compustat #18) minus cash from operations (Compustat #308), scaled by beginning-of-period price (Compustat #199).

CFO = cash from operations (Compustat #308) in year t, scaled by beginning-of-period price (Compustat #199).

RET = the twelve-month buy-and-hold stock return beginning three months after fiscal year end.

ABSACC = the absolute value of total accruals in year t, measured as |income before extra-ordinary items minus cash from operations|, scaled by total assets.

VOL = the volatility of earnings in year t, measured as (|standard deviation of earnings / mean of earnings|) / (|standard deviation of operating cash flows / mean of operating cash flows|), measured over year t and the previous 4 years.

HETERO = an index ranging from 0 to 1 that captures the similarity of a firm's accounting choices in year t relative to other firms in the same industry. For each of the following five accounting choices, I assign the firm a value of one if its chosen method differs from the most frequently chosen method in its industry group, and zero otherwise. The five accounting choices are: (1) inventory valuation, (2) investment tax credit, (3) depreciation, (4) successful-efforts vs. full-cost for companies with extraction activities, and (5) purchase vs. pooling. The five scores are summed and divided by the number of accounting choices in the industry (which for some industries is less than five). Higher (lower) index values are consistent with heterogeneous (homogeneous) accounting choices.

CYCLE = trade cycle of the firm, calculated as (Dechow 1994):

$$\frac{(AR_t + AR_{t-1})/2}{Sales/360} + \frac{(INV_t + INV_{t-1})/2}{COGS/360} - \frac{(AP_t + AP_{t-1})/2}{Purchases/360}$$

where AR is accounts receivable (Compustat annual #2), INV is inventory (Compustat annual #3), AP is accounts payable (Compustat annual #70), Sales is total sales revenue (Compustat annual #12), COGS is cost of goods sold (Compustat annual #41), and Purchases is calculated as $INV_t - INV_{t-1} + COGS$.

CAPINT = the ratio of gross property, plant, and equipment (Compustat #7) divided by sales revenue (Compustat #12) in year t.

HEALTH = Altman's Z-score as a proxy for financial health. Consistent with Altman (1968), the Z-score in year t equals 1.2*(Net working capital / Total assets) + 1.4*(Retained earnings / Total assets) + 3.3*(Earnings before interest and taxes / Total assets) + 0.6*(Market value of equity / Book value of liabilities) + 1.0*(Sales / Total assets). Lower Altman's Z-scores indicate poorer financial health.

Table 3
Factor Analysis for Determinants of the Usefulness of Operating Cash Flow Information

Panel A: Factor loadings using principal components analysis

Variable	Factor Loadings (1)	Factor Loadings (2)
ABSACC	0.633	0.637
VOL	0.092	n/a
HETERO	0.248	0.246
CYCLE	0.410	0.410
CAPINT	0.657	0.656
HEALTH	0.700	0.702
% of Variation Explained	26.0%	31.1%
Eigenvalue	1.560	1.557

Panel B: Determinants of a cash flow forecast – DeFond and Hung (2003) replication

Models:

$$F_{it} = \beta_0 + \beta_1\, ABSACC_{it-1} + \beta_2\, VOL_{it-1} + \beta_3\, HETERO_{it-1} + \beta_4\, CYCLE_{it-1} + \beta_5\, CAPINT_{it-1} +$$
$$B_6\, HEALTH_{it-1} + \beta_7\, MVE_{it-1} + \varepsilon_{it} \quad\quad (1A)$$
$$F_{it} = \beta_0 + \beta_1\, CFUSE_{it-1} + \beta_2\, MVE_{it-1} + \varepsilon_{it} \quad\quad (1B)$$

Model		Intercept	ABSACC	VOL	HETERO	CYCLE	CAPINT	HEALTH	CFUSE	MVE	Pseudo.-R^2
1A	Coeff.	-4.951	2.186	0.002	-0.277	-0.002	0.374	-0.015	-	0.578	18.8%
	p-val.	<.001	<.001***	0.334	0.991	<.001***	<.001***	<.001***		<.001	
2B	Coeff.	-4.765	-	-	-	-	-	-	0.506	0.572	18.1%
	p-val.	<.001							<.001***	<.001	

Panel C: Univariate statistics for the factor score (CFUSE)

	Mean	Median	Std. Dev.	t-stat[a]	z-stat[b]
With Cash Flow Forecast	0.320	0.160	1.086	28.34***	28.56***
Without Cash Flow Forecast	-0.115	-0.171	0.941		

Panel D: Relation between cash flow forecast and factor score (CFUSE)

		Cash Flow Forecast		
		No	**Yes**	**TOTAL**
Factor Score	**Low**	9,649	2,420	12,069
(CFUSE)	**High**	8,122	3,953	12,075
	TOTAL	17,771	6,373	24,144

Notes to Table 3:

*, **, ***: significant at 10%, 5%, 1%, two-sided p-values. I report (1-p) values for coefficients that assume a sign opposite to the one predicted.

[a] p-value is associated with the t-statistic.
[b] p-value is associated with Wilcoxon z-statistics.

Definition of Variables:

MVE = market capitalization in year t, defined as stock price times the number of shares outstanding (Compustat annual #199 * Compustat annual #25).

ABSACC = the absolute value of total accruals in year t, measured as |income before extra-ordinary items minus cash from operations|, scaled by total assets.

VOL = the volatility of earnings in year t, measured as (|standard deviation of earnings / mean of earnings|) / (|standard deviation of operating cash flows / mean of operating cash flows|), measured over year t and the previous 4 years.

HETERO = an index ranging from 0 to 1 that captures the similarity of a firm's accounting choices in year t relative to other firms in the same industry. For each of the following five accounting choices, I assign the firm a value of one if its chosen method differs from the most frequently chosen method in its industry group, and zero otherwise. The five accounting choices are: (1) inventory valuation, (2) investment tax credit, (3) depreciation, (4) successful-efforts vs. full-cost for companies with extraction activities, and (5) purchase vs. pooling. The five scores are summed and divided by the number of accounting choices in the industry (which for some industries is less than five). Higher (lower) index values are consistent with heterogeneous (homogeneous) accounting choices.

CYCLE = trade cycle of the firm, calculated as (Dechow 1994):
$$\frac{(AR_t + AR_{t-1})/2}{Sales/360} + \frac{(INV_t + INV_{t-1})/2}{COGS/360} - \frac{(AP_t + AP_{t-1})/2}{Purchases/360}$$
where AR is accounts receivable (Compustat annual #2), INV is inventory (Compustat annual #3), AP is accounts payable (Compustat annual #70), Sales is total sales revenue (Compustat annual #12), COGS is cost of goods sold (Compustat annual #41), and Purchases is calculated as $INV_t - INV_{t-1} + COGS$.

CAPINT = the ratio of gross property, plant, and equipment (Compustat #7) divided by sales revenue (Compustat #12) in year t.

HEALTH = Altman's Z-score as a proxy for financial health. Consistent with Altman (1968), the Z-score in year t equals 1.2*(Net working capital / Total assets) + 1.4*(Retained earnings / Total assets) + 3.3*(Earnings before interest and taxes / Total assets) + 0.6*(Market value of equity / Book value of liabilities) + 1.0*(Sales / Total assets). Lower Altman's Z-scores indicate poorer financial health.

Table 4
Multivariate Regressions

Panel A: The effect of a cash flow forecast and CFUSE on the pricing of the earnings
components – Primary analyses

Models:

$RET_{it} = \beta_0 + \beta_1 \, EARNINGS_{it} + \beta_2 \, CFO_{it} + YEAR\_DUMMIES + \varepsilon_{it}$ (1)

$RET_{it} = \beta_0 + \beta_1 \, EARNINGS_{it} + \beta_2 \, EARNINGS_{it}*F_{it} + \beta_3 \, CFO_{it} + \beta_4 \, CFO_{it}*F_{it} +$
$\qquad YEAR\_DUMMIES + \varepsilon_{it}$ (2)

$RET_{it} = \beta_0 + \beta_1 \, EARNINGS_{it} + \beta_2 \, EARNINGS_{it}*POST_{it} + \beta_3 \, CFO_{it} + \beta_4 \, CFO_{it}*POST_{it} +$
$\qquad YEAR\_DUMMIES + \varepsilon_{it}$ (3)

$RET_{it} = \beta_0 + \beta_1 \, EARNINGS_{it} + \beta_2 \, EARNINGS_{it}*CFUSE_{it} + \beta_3 \, CFO_{it} + \beta_4 \, CFO_{it}*CFUSE_{it} +$
$\qquad YEAR\_DUMMIES + \varepsilon_{it}$ (4)

Independent variables	Pred. Sign	Model 1	Model 2	Model 3	Model 4
INTERCEPT	?	-0.06 -5.45***	-0.04 -3.59***	-0.04 -2.80***	-0.10 -9.93***
EARNINGS	+	**2.42 43.86***	**2.67 44.44***	**2.15 22.64***	**2.99 45.40***
EARNINGS*F	-		**-1.16 -9.84***		
EARNINGS*POST	-			**-0.60 -4.46***	
EARNINGS*CFUSE	-				**-0.76 -18.87***
CFO	+	**0.20 9.47***	**0.18 7.84***	**-0.26 7.00***	**0.35 9.53***
CFO*F	+		**0.20 3.84***		
CFO*POST	+			0.01 0.23	
CFO*CFUSE	+				**0.03 1.67*
Adj. R^2		17.8%	18.2%	21.5%	19.7%
N		24,144	24,144	9,221	24,144

47

Table 4 (cont.)
Multivariate Regressions

Panel B: The effect of a cash flow forecast and CFUSE on the pricing of the earnings components – Incremental and conditional analyses

Models:

$$RET_{it} = \beta_0 + \beta_1\,EARNINGS_{it} + \beta_2\,EARNINGS_{it}*F_{it} + \beta_3\,EARNINGS_{it}*CFUSE_{it} + \beta_4\,CFO_{it} + \beta_5\,CFO_{it}*F_{it} + \beta_6\,CFO_{it}*CFUSE_{it} + YEAR\_DUMMIES + \varepsilon_{it} \quad (5)$$

$$RET_{it} = \beta_0 + \beta_1\,EARNINGS_{it} + \beta_2\,EARNINGS_{it}*F_{it} + \beta_3\,EARNINGS_{it}*F_{it}*CFUSE_{it} + \beta_4\,CFO_{it} + \beta_5\,CFO_{it}*F_{it} + \beta_6\,CFO_{it}*F_{it}*CFUSE_{it} + YEAR\_DUMMIES + \varepsilon_{it} \quad (6)$$

$$RET_{it} = \beta_0 + \beta_1\,EARNINGS_{it} + \beta_2\,EARNINGS_{it}*CFUSE_{it} + \beta_3\,EARNINGS_{it}*F_{it}*CFUSE_{it}* + \beta_4\,CFO_{it} + \beta_5\,CFO_{it}*CFUSE_{it} + \beta_6\,CFO_{it}*F_{it}*CFUSE_{it} + YEAR\_DUMMIES + \varepsilon_{it} \quad (7)$$

Independent variables	Pred. Sign	Model 5	Model 6	Model 7
INTERCEPT	?	-0.10	-0.05	-0.11
		-9.03***	-4.29***	-10.42***
EARNINGS	+	**3.13**	**2.70**	**2.95**
		45.98*	44.43***	44.61***
EARNINGS*F	?	**-0.97**	**-1.01**	
		-8.14*	-6.23***	
EARNINGS*CFUSE	?	**-0.71**		**-0.80**
		-17.26*		-17.57***
EARNINGS*F*CFUSE	?		**-0.22**	0.08
			-2.58*	1.09
CFO	+	**0.34**	**0.18**	**0.41**
		9.19*	7.98***	10.84***
CFO*F	?	**0.36**	**0.23**	
		6.79*	2.54**	
CFO*CFUSE	?	0.00		-0.03
		0.00		-1.26
CFO*F*CFUSE	?		0.02	**0.09**
			0.53	**3.80***
Adj. R^2		19.9%	18.2%	19.9%
N		24,144	24,144	24,144

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Table 4 (cont.)
Multivariate Regressions

Notes to Table 4:

Coefficients (top) and t-statistics (bottom) are reported.
*, **, ***: significant at 10%, 5%, 1%, two-sided p-values. I report (1-p) values for coefficients that assume a sign opposite to the one predicted

Definition of Variables:

RET = the twelve-month buy-and-hold stock return for firm i beginning three months after fiscal year end.

EARNINGS = net income before extraordinary items (Compustat #18) for firm i in year t, scaled by beginning-of-period price (Compustat #199).

CFO = cash from operations (Compustat #308) for firm i in year t, scaled by beginning-of-period price (Compustat #199).

F = an indicator variable equal to 1 if an analyst has issued a forecast of operating cash flows for firm i in year t, and 0 otherwise.

POST = an indicator variable equal to 1 for the first year and the two years following analysts' initial cash flow forecast for the firm, and 0 otherwise.

CFUSE = a measure of the informativeness of operating cash flow information, measured as the factor score for firm i in year t, where the factor score is based on the following variables: ABSACC, VOL, HETERO, CYCLE, CAPINT, and HEALTH.

Table 5
The Predictive Ability of Accrual and Cash Components of Earnings

Models:

$CFO_{it+n} = \beta_0 + \beta_1\ EARNINGS_{it} + \beta_2\ CFO_{it} + \varepsilon_{it+n}$ (8A)

$CFO_{it+n} = \beta_0 + \beta_1\ EARNINGS_{it} + \beta_2\ EARNINGS_{it}\ {}^*F_{it} + \beta_3\ CFO_{it} + \beta_4\ CFO_{it}\ {}^*F_{it} + \varepsilon_{it+n}$ (8B)

$CFO_{it+n} = \beta_0 + \beta_1\ EARNINGS_{it} + \beta_2\ EARNINGS_{it}\ {}^*D\_CFUSE_{it} + \beta_3\ CFO_{it} + \beta_4\ CFO_{it}\ {}^*D\_CFUSE_{it} + \varepsilon_{it+n}$ (8C)

Independent Variables	Pred. Sign	Dependent Variable								
		CFO_{it+1}			CFO_{it+2}			CFO_{it+3}		
		Model 8A	Model 8B	Model 8C	Model 8A	Model 8B	Model 8C	Model 8A	Model 8B	Model 8C
EARN	+	**0.21** **20.64*****	**0.22** **19.93*****	**0.24** **20.65*****	**0.13** **11.11*****	**0.14** **11.04*****	**0.17** **12.27*****	**0.13** **8.91*****	**0.15** **9.99*****	**0.15** **9.18*****
EARN*F	-		0.00 0.09			0.00 0.12			**-0.14** **-3.12*****	
EARN*D_CFUSE	-			**-0.04** **-1.33***			**-0.14** **-4.23*****			-0.01 -0.36
CFO	+	**0.50** **72.95*****	**0.69** **73.30*****	**0.47** **57.92*****	**0.44** **55.88*****	**0.42** **50.49*****	**0.42** **44.04*****	**0.39** **42.19*****	**0.37** **37.86*****	**0.38** **34.11*****
CFO*F	+		**0.11** **7.07*****			**0.09** **4.30*****			**0.17** **6.42*****	
CFO*D_CFUSE	+			**0.07** **5.24*****			**0.08** **5.26*****			**0.05** **2.66*****
Adj. R^2		32.1%	32.7%	32.2%	22.9%	23.2%	23.0%	16.9%	17.3%	17.0%
N			20,622			17,327			14,610	

Table 5 (cont.)
The Predictive Ability of Accrual and Cash Components of Earnings

Notes to Table 5:

Coefficients (top) and t-statistics (bottom) are reported.
*, **, ***: significant at 10%, 5%, 1%, two-sided p-values.

<u>Definition of Variables:</u>
RET   = the twelve-month buy-and-hold stock return for firm i beginning three months after fiscal year end.
EARNINGS   = net income before extraordinary items (Compustat #18) for firm i in year t, scaled by beginning-of-period price (Compustat #199).
CFO   = cash from operations (Compustat #308) for firm i in year t, scaled by beginning-of-period price (Compustat #199).
F   = an indicator equal to 1 if an analyst has issued a forecast of operating cash flows for firm i in year t, and 0 otherwise.
D_CFUSE   = a dummy variable equal to one if firm i's CFUSE (cash flow usefulness) score is in the highest quintile in year t, and 0 otherwise.

Table 6
Modeling Abnormal Operating Cash Flows

Model:

$$CFO_{it}/TA_{it-1} = \alpha_0 + \beta_0(1/TA_{it-1}) + \beta_1 SALES_{it} + \beta_2 \Delta SALES_{it} + \varepsilon_{it} \qquad (9)$$

Variable		Mean	Median
Intercept	Coeff.	-0.004	0.023
	t-stat.	(-0.75)	(3.34)***
1/TA	Coeff.	-1.066	-0.600
	t-stat.	(-14.46)***	(-6.48)***
SALES	Coeff.	0.074	0.045
	t-stat.	(12.63)***	(6.12)***
ΔSALES	Coeff.	-0.019	0.006
	t-stat.	(-1.83)*	(0.45)
Adj. R^2		37.9%	32.1%

Notes to Table 6:

Coefficients (top) and t-statistics (bottom) are reported.
*, **, ***: significant at 10%, 5%, 1%, two-sided p-values.

Equation 9 is estimated for every industry (2-digit SIC code) every year. There are 894 separate industry-years from 1993-2005. I report the mean (median) coefficients across all industry-years. I use the standard error of the mean (median) to calculate t-statistics. I also report the mean (median) adjusted-R^2 across all industry-years.

Definition of Variables:
CFO = cash from operations (Compustat #308) for firm *i* in year *t*, scaled by beginning-of-period price (Compustat #199).
TA = total assets for firm *i* in year *t*-1.
SALES = total sales revenue (Compustat annual #12) for firm *i* in year *t*.
ΔSALES = the change in total sales revenue from year *t*-1 to year *t* for firm *i*.

Table 7
Abnormal Operating Cash Flows

Panel A: Abnormal operating cash flows – firms with (without) a cash flow forecast

Group	N	Mean	Median	Std. Dev.	t-stat[a]	z-stat[b]
With Cash Flow Forecast	9,874	0.054	0.041	0.182	30.71***	21.28***
Without Cash Flow Forecast	73,020	-0.014	0.018	0.335		

Panel B: Abnormal operating cash flows across the meet/beat distribution– firms with a cash flow forecast

Group	N[c]	Mean	Median	Std. Dev.
MISS	3,446	0.036	0.027	0.189
SMALL	2,940	0.073	0.061	0.176
MEDIUM	1,018	0.066	0.049	0.194
LARGE	2,280	0.053	0.037	0.166

Comparison	t-stat[a]	z-stat[b]
MISS vs. SMALL	8.06***	12.46***
SMALL vs. MEDIUM	-0.98	-1.84**
MEDIUM vs. LARGE	-1.79**	-3.46***
SMALL vs. (MEDIUM + LARGE)	-3.46***	-6.30***

Panel C: Abnormal operating cash flows – firms with (without) a cash flow forecast – SMALL only

Group	N	Mean	Median	Std. Dev.	t-stat[a]	z-stat[b]
With Cash Flow Forecast	2,940	0.073	0.061	0.176	4.61***	2.01**
Without Cash Flow Forecast	10,109	0.053	0.058	0.265		

Table 7 (cont.)
Abnormal Operating Cash Flows

Notes to Table 7:

*, **, ***: significant at 10%, 5%, 1%, two-sided p-values. I report (1-p) values for coefficients that assume a sign opposite to the one predicted.

[a] p-value is associated with the t-statistic.
[b] p-value is associated with Wilcoxon z-statistics.
[c] The number of observations in Panel B is slightly less than the number of observations in Panel A because for some firms, there is not enough data to calculate the earnings forecast error.

Definition of Variables:

ABN_CFO	= abnormal operating cash flows for firm i in year t, calculated as the difference between reported operating cash flows (Compustat #308) and an estimate of normal operating cash flows. Normal operating cash flows are estimated as the predicted value of operating cash flows that results from estimating the following regression: $CFO_{it}/TA_{it-1} = \alpha_0 + \alpha_1(1/TA_{it-1}) + \beta_1(Sales_{it}/TA_{it-1}) + \beta_2(\Delta Sales_{it}/TA_{it-1}) + \varepsilon_{it}$. This regression is estimated for each industry-year group from 1993-2005 that has a minimum of 10 observations.
MISS	= firm-years that reported earnings below analysts' forecast of earnings.
SMALL	= firm-years with an earnings forecast error between $0.00 and $0.02, inclusive.
MEDIUM	= firm-years with an earnings forecast error larger than $0.02 and no larger than $0.04.
LARGE	= firm-years with an earnings forecast error larger than $0.04.