Earnings Management and the Predictive Ability of Accruals with Respect to Future Cash Flows

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Abstract: There are two widely held views in the literature regarding management's motivations to manage earnings, and each has quite different implications for the resulting numbers' ability to predict future firm operating cash flows. One view is that earnings management is motivated by managers' attempt to sustain the overvaluation of the firm's stock price and to enhance managers' personal welfare by disguising the true underlying economic performance of the firm (opportunistic perspective). An alternative view is that managers manage earnings to reveal private value-relevant information about the future prospects of a firm (informational perspective). Using a sample of firms that have restated earnings, we show that originally reported (managed) earnings of firms classified as managing earnings for opportunistic reasons are less predictive of future cash flows relative to the restated (unmanaged) numbers. Conversely, we find that originally reported (managed) earnings of firms classified as managing earnings for informational reasons exhibit greater predictive ability with respect to future cash flows relative to restated (unmanaged) numbers. Returns analysis corroborates our classification of firms into opportunistic and informational subsamples and provides evidence that supports Jensen's (2005) conjecture that overvaluation leads to value-destroying opportunistic earnings management. To the best of our knowledge, this study is the first to show that managed earnings exhibit different predictive ability of future cash flows depending on the apparent motivation behind the earnings management.

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1. Introduction

There are two widely held views in the accounting literature regarding management's motivations to managing earnings, and each has quite different implications for the predictive usefulness of the resultant numbers (Healy and Whalen 1998; Beneish 2001). One view is that earnings management is undertaken to reveal managers' private information about the future prospects of a firm by providing earnings numbers that are better predictors of the firm's future cash flows (Holthausen and Leftwich 1983; Subramanyam 1996; Demski 1998; Degeorge, Patel and Zeckhauser 1999; Arya, Glover, and Sunder 2003; Altamuro, Beatty and Weber 2005; Louis and Robinson 2005; and Kanagaretnam, Lobo and Yang 2004). Going forward, we refer to this as the "informational perspective", or "IP" view of earnings management. Under this view, managers exploit the flexibility in GAAP to enhance the *relevance* and *reliability* of the reported information to improve its predictive usefulness and representational faithfulness.[1]

An alternative, and perhaps more dominant, view in the literature is that managers manage earnings to disguise the true underlying economic performance of the firm in an effort to sustain overvaluation of the firm's stock price and to enhance managers' welfare at the expense of investors (Jensen 2005; Teoh, Welch and Wong 1998a, 1998b; Dechow, Richardson, Tuna 2000; Beneish 2001; Nelson, Elliot, and Tarpley 2002; Hribar and Jenkins 2004, Revsine, Collins and Johnson 2005). Going forward, we refer to this as the "opportunistic perspective" or "OP" view of earnings management. Relevance and reliability, and hence, predictive usefulness and representational faithfulness, become secondary considerations when earnings are managed for opportunistic reasons.[2]

[1] Accounting Concepts No. 2 defines representational faithfulness as ". . .[the] correspondence or agreement between a measure or description and the phenomenon that it purports to represent (sometimes called validity) and 'predictive value' as the quality of information that helps users to increase the likelihood of correctly forecasting the outcome of past or present events" (FASB 1980, page 10).

[2] There is, however, a linkage between these two views: Sophisticated investors may be able to infer information from managers' opportunistic earnings management (Watts and Zimmerman 1986; Healy and Palepu 1993).

The contrast between IP and OP for earnings management and their diverging implications for the relation between current earnings and its components (cash flows and accruals) and future operating cash flows form the basic motivation for our research. Relying on prior research, we use capital-market-based incentives to meet-or-beat earnings targets as an indicator of OP earnings management. Moreover, we assume that when present, OP incentives generally dominate IP incentives. Thus, we posit that the presence of OP incentives will lower the predictive usefulness of earnings and its components in predicting future cash flows.

Consistent with this conjecture, we document that when OP incentives are dominant, managed earnings and its components are less predictive of firms' future operating cash flows than unmanaged earnings. Thus, OP-motivated earnings management sacrifices representational faithfulness and predictive usefulness. In contrast, we find that when earnings are managed for informational reasons (i.e., when OP incentives are not binding) managed earnings better reflect firms' future prospects than unmanaged earnings. Thus, our analysis provides evidence consistent with the hierarchy of factors affecting firms' accounting choices reported in a recent survey of financial executives conducted by Graham, Harvey and Rajgopal (2005).[3]

We test our predictions using a sample of firms that restated earnings. We focus on restatements because: (1) by their very nature, restatements provide clear evidence that earnings have been managed; and (2) we can determine the direction and magnitude of the amount of earnings management. As a result, we are able to avoid the measurement error that results when researchers rely on statistical models to distinguish between managed versus unmanaged (e.g., discretionary versus nondiscretionary) accounting numbers.

We partition our restatement sample into two subsets of firms based on the presence or absence of OP motives for earnings management and compare the predictive usefulness of

[3] Consistent with Graham et al. (2005), we operationalize OP using capital-market-based incentives. See section 2 for a complete description of how we operationalize OP.

managed (originally reported) earnings to unmanaged (restated) earnings across those two groups. We classify earnings management as opportunistic when earnings management is undertaken to meet-or-beat analyst earnings forecasts either in the current or in future periods.[4] That is, if the amount of earnings managed (originally reported minus restated earnings) allows the firm to meet-or-beat analysts' consensus earnings forecasts in the current or in the subsequent year, then we conclude that earnings are managed for opportunistic reasons and predict that the managed (originally reported) earnings and its components will be *less predictive* of one-period-ahead operating cash flows than the unmanaged (restated) earnings. Conversely, we classify earnings management to be motivated for informational reasons when meeting-or-beating analysts' earnings forecasts are unlikely to be the motive (e.g., either both or neither managed and unmanaged earnings meet-or-beat analyst earnings forecasts).

To test the relative predictive ability of managed (originally reported) and unmanaged (restated) numbers, we rely on a model developed by Barth, Cram, and Nelson (2001, hereafter BCN) who decompose earnings to test the relative usefulness of accrual and cash flow earnings components in predicting one-period-ahead operating cash flows. BCN provide a framework for testing whether earnings management influences the predictive ability of current accruals and cash flows with respect to next year's cash flows. Burgstahler and Dichev (1997) provide evidence that both cash flow from operations and changes in working capital accounts (accruals) are used to manage earnings. The BCN model incorporates both cash flow from operations and changes in working capital accounts to predict one-period-ahead operating cash flows.

Our results are consistent with our predictions. For firms predicted to engage in earnings management for opportunistic reasons, we find that the originally reported numbers are less predictive of future cash flows than the restated numbers. In contrast, for firms that are predicted

[4] Graham et al. (2005) indicate that meeting the "same quarter last year EPS is viewed slightly more important than meeting the analyst consensus forecast for the current quarter (85.1% versus 73.5%), Table 3, page 22. However, as is more fully explained in section 2, use of analyst earnings forecasts allows us to classify earnings shifting strategies across multiple years as opportunistic or informational perspective.

to engage in earnings management for informational reasons, we find the originally reported accruals have greater explanatory power than the restated accruals for predicting one-year-ahead operating cash flows.

We complement our tests of the "predictive value" of OP and IP managed earnings through a series of market return tests. We undertake this analysis to corroborate our classification of firms into OP versus IP categories, to gain insights into how opportunistic earnings management results from, and contributes to, overvaluation and to develop a better understanding of what contributes to the differential market reaction to earnings restatement announcements of OP and IP firms.

Motivated by Jensen's (2005) agency theory of overvalued equity hypothesis, we investigate the abnormal returns of the IP and OP subsamples for an extended period prior to and during the year that earnings are managed, at the time the restatement is announced, and for an extended period following the restatement announcement. Jensen posits that managers of firms that become overvalued have strong incentives to manage earnings opportunistically in an effort to sustain that overvaluation. Accordingly, we expect firms classified as managing earnings for opportunistic reasons (i.e., to meet-or-beat analysts' earnings forecasts) will exhibit greater evidence of overvaluation relative to the sample of firms classified as managing earnings for IP reasons. Consistent with this prediction, we find that the OP subsample experiences a cumulative abnormal return of roughly 35% starting the year prior to the first year that earnings are managed through the earnings announcement of the first misstatement year. In contrast, the IP subsample experiences a cumulative abnormal return of less than half this amount (16%) during this time frame.

Consistent with the IP subsample using earnings management to signal the future prospects of the firm, IP firms that manage earnings upward experience a positive abnormal return of roughly 6% over the first year that earnings are managed, while the IP firms that

manage earnings downward experience a negative abnormal return of roughly -4% during this period. The difference in returns of income-increasing and income-decreasing IP firms is statistically significant.[5]

Finally, we find that OP firms experience a significantly greater negative market reaction around the restatement announcement (-9.5%) compared to the IP firms (-4.7%), on average. Further, for the OP firms, we find a significant negative correlation between the market reaction that takes place around and following the restatement announcement and the abnormal returns that occur in the year prior to and during the year that earnings were first managed. Thus, firms with the greatest price run-up in the pre-restatement period experience the greatest market decline when the restatement is announced. This finding is consistent with the market correcting for overvaluation due to opportunistic earnings management. In contrast, these correlations are positive and insignificant for the IP subsample. Moreover, we find that over a one-year-period that begins with the restatement announcement, the OP subsample looses roughly two-thirds of the price appreciation that occurs in the pre-restatement period, while the price correction for the IP subsample during this time frame is negligible. To the best of our knowledge, we are the first to provide evidence that the price reaction that occurs at the restatement announcement and over an extended subsequent period is consistent with the market correcting for overvaluation related to opportunistic earnings management as posited by Jensen's (2005) agency cost of overvalued equity.

Overall, our findings are consistent with the conjecture that when OP incentives dominate managers' earnings management decisions (i.e., earnings are managed to meet-or-beat consensus analysts' earnings forecasts), the predictive usefulness of accruals is sacrificed. However, when the capital-market-based incentives are not binding, earnings management is influenced by other

[5] A similar test for the OP subsample is not performed because the incidence of income-decreasing earnings management is small, only 15 firms.

incentives, namely choosing accounting numbers that better reflect firms' future prospects (i.e., representational faithfulness and predictive usefulness). Thus, our evidence suggests that representational faithfulness and predictive usefulness are important factors in determining firms' accounting method choices, but that these objectives are often dominated by stronger incentives to manage earnings to serve opportunistic market-based incentives that surface when firms' equity becomes overvalued.

The rest of the paper proceeds as follows. Section 2 outlines the research design and develops the hypotheses. Section 3 describes the sample and provides descriptive statistics. Section 4 presents the results. Section 5 presents additional analysis of stock return behavior prior to the first year that earnings are managed, around the restatement announcements, and subsequent to the restatement announcement. Section 6 concludes.

2. Motivation and Research Design

2.1 Informational versus Opportunistic Motivation for Earnings Management

An important objective of financial reporting is to provide useful information to users of financial statements (e.g., investors, creditors, etc.) in predicting a firm's future cash flows (FASB 1978, paragraph 37). The FASB asserts that information about enterprise earnings and its components (accruals) provide a better basis for predicting future cash flows than do current operating cash flows (FASB 1978, paragraph 43). Accordingly, if managers' dominant motivation for managing earnings is an informational perspective, then we would expect the resultant managed numbers (i.e., cash flows and accruals) to be *more* predictive of future cash flows than the unmanaged numbers. This prediction is consistent with Dechow (1994) who explains managers' discretionary accounting choices as follows:

> *Management typically has some discretion over the recognition of accruals. This discretion can be used by management to signal their private information or to opportunistically manipulate earnings. Signaling is expected to improve the ability of earning to measure firm performance since management presumably*

has superior information about their firm's cash generating abilities. (Dechow (1994), p. 5).

However, if managers' primary motivation is determined by the opportunistic perspective, then we expect the resultant managed numbers will be less predictive of future cash flows than the unmanaged numbers. A recent survey by Graham et al. (2005) indicates that when asked "why your company tries to meet earnings benchmarks" over 80% of the financial executives surveyed agreed or strongly agreed that capital-market-based incentives and, to a lesser degree, incentives relating to managerial reputation (77.4%) were what determined their company's accounting choices. Interestingly, 74% of the financial executives surveyed agreed or strongly agreed that "meeting earnings benchmarks helps us convey our future growth prospects to investors." Yet, 80% of the CFOs surveyed indicted that they would engage in real transaction management by delaying research and development, advertising and maintenance spending and 55% acknowledged that they would sacrifice company value by delaying the start of positive net present value projects in order to achieve earnings targets. Clearly, such actions seem more consistent with OP earnings management than with managing earnings to convey private information about future growth prospects.

In a recent paper, Jensen (2005) conjectures that overvaluation of a firm's stock price provides yet another strong incentive for managers to opportunistically manage earnings to meet-or-beat analysts' earnings forecasts in an effort to sustain the firm's inflated stock price. Jensen (2005, p. 7) explains what happens as follows:

Because compensation is tied to budgets and targets, people are paid not for what they do but for what they do relative to some target. And this leads people to game the system by manipulating both the setting of the targets and how they meet their targets. These counterproductive target-based budget and compensation systems provide the fertile foundation for the damaging effects of the earnings management game with the capital markets. Corporate managers and the financial markets have been playing a game similar to the budgeting game. Just as managers' compensation suffers if they miss their internal targets, CEOs and CFOs know that capital markets will punish the entire firm if they miss analysts'

> *[earnings] forecasts by as much as a penny. And just as managers who meet or exceed their internal targets receive a bonus, the capital markets reward a firm with a premium for meeting or beating analysts' [earnings] expectations during the quarter. . . . Generally, the only way for managers to meet those expectations year in and year out is to cook their numbers to mask the inherent uncertainty in their business. And that cannot be done without sacrificing value.*

Collectively, the Graham et al. (2005) survey and Jensen's conjectures on the adverse incentives that result from overvalued equity suggest that when capital-market-based incentives to manage earnings to meet-or-beat analysts' forecasts are present, the resultant numbers' representational faithfulness and predictive usefulness are likely to be compromised. In the following section, we explain how we partition our sample to test the predictive ability implications of OP versus IP motivated earnings management.

2.2 Partitioning Restatement Data Based on Motivations for Earning Management

This section describes our classification of the restatement sample into opportunistic and informational perspective subsamples. We classify our restatement sample consisting of one-year and two-year restatements into opportunistic and informational perspective cases, assuming that accruals reverse in one-year or less.

We classify one-year restatements as opportunistic if the original (managed) earnings allowed the firm to meet-or-beat analyst earnings forecasts while the restated numbers would have resulted in the firm missing analyst earnings forecasts in either year *t* (the misstatement year) or year *t+1*. For example, if the earnings management is income-increasing, the observation is classified as opportunistic if

$$OI_{jt} \geq AF_{jt}^{t} \geq RI_{jt} \tag{1}$$

where for firm *j* and year *t*. AF_{jt}^{t} is the most recent analyst consensus earnings forecast for year *t* that was issued prior to the announcement of year *t* earnings. *OI* and *RI* are, respectively, the originally reported and the restated earnings.[6]

If the earnings management is income-decreasing, we classify it as opportunistic if the downwards earnings management did not result in the firm missing the current year's earnings target, but it did allow the firm to meet-or-beat the consensus analyst forecast for the subsequent year that would have otherwise not been achieved had earnings not been managed. Formally, we classify an income-decreasing earnings management as opportunistic if:

$$RI_{jt} \geq OI_{jt} \geq AF_{jt}^{t} \tag{2a}$$

and

$$Adj\_IBES\_Actual_{jt+1} \geq AF_{jt+1}^{t} \geq IBES\_Actual_{jt+1} \tag{2b}$$

where AF_{jt+1}^{t} is the most recent analyst consensus earnings forecast for year *t+1* that was issued prior to the announcement of year *t* earnings. $Adj\_IBES\_Actual_{jt+1}$ is the I/B/E/S actual earnings in year *t+1* adjusted for the impact of the earnings management in year *t* (i.e., the I/B/E/S actual earnings for year *t+1* plus RI_t minus OI_t). Using this adjustment we compute the earnings that would have been reported had the company not restated earnings in period t and the earnings management would have reversed. Finally, $IBES\_Actual_{jt+1}$ is the I/B/E/S actual earnings in year *t+1*.

[6] Since I/B/E/S reports both analysts' forecasted earnings and actual earnings *after* backing out discontinued operations, extraordinary charges, and other non-operating items, there is a potential difference between our measure of original and restated earnings and actual earnings reported by I/B/E/S. This difference is due to our measure of originally reported and restated earnings not adjusting for the same non-operating items (e.g. special items, non-operating income or expense, and interest income) that analysts adjusted for in forming the consensus I/B/E/S earnings forecast. Therefore, we adjust the originally reported earnings and restated earnings when classifying the firms into the OP and IP subsamples. Consider the following example. Firm A had originally reported earnings of \$0.49, restated earnings of \$0.45, I/B/E/S actual earnings were \$0.42, and I/B/E/S consensus forecast were \$0.40. Thus, firm A's OI is the originally reported earnings of \$0.49 adjusted for I/B/E/S, resulting in an OI of \$0.42. Firm A's RI is the restated earnings of \$0.45 adjusted for I/B/E/S, resulting in a RI of \$0.38. Therefore, Firm A beat the analyst forecast using OI (\$0.45 > \$0.40) while RI missed the analysts forecast (\$0.38 < \$0.40). Throughout the paper OI and RI are originally reported and restated earnings adjusted for transitory items that are excluded from I/B/E/S.

Condition (2a) states that the firm meets-or-beats the period *t* forecast despite the downward earnings management. Condition (2b) states that the income shifting due to earnings management from year *t* to year *t+1* allowed the firm to meet-or-beat the year *t+1* forecast (issued prior to the announcement of year *t* earnings) that it otherwise would have missed. Implicit in our classification is the assumption that the firms prefer to meet-or-beat analyst forecasts through accrual management rather than through guidance. Notice that absent additional information, there is no reason for analysts to lower their year *t+1* forecast following the release of year *t* earnings as the firm reported earnings in year *t* that exceeded the year *t* forecast despite earnings being managed downward in year *t*.

Sample observations that do not satisfy both (2a) and (2b) are classified as being managed for informational reasons, while sample observations that satisfy (2a) but not (2b) are classified as indeterminate. A similar logic is applied to multi-year restatements (see Appendix A for a detailed description of the classification algorithm).

Using these algorithms, we classify the 312 restatement firm-years that form our initial sample (described in more detail in section three) into the following categories: 206 opportunistic, 101 informational, and 5 indeterminate. The opportunistic sample is further partitioned into non-fraudulent (182) and fraudulent (24) opportunistic earnings management subsamples depending upon whether the restatement's press releases mentioned fraudulent activities.[7]

2.3 The Predictive Ability Implications of IP versus OP Managed Earnings

In this section we link the motive for earnings management (i.e., informational or opportunistic) to the association of managed and unmanaged earnings and its components with future cash flows. We assume that managers (insiders) have a more precise estimate of future

[7] Using Lexis-Nexis and 10kwizard.com, we conducted a key word search for "fraud," "fraudulent," or "fictitious" on all restatement firms' press releases and financial statements to identify a sample of companies that engaged in fraudulent activities.

cash flows than analysts (i.e., outsiders). This assumption is consistent with research by Hassell and Jennings (1986) who find that management forecasts are significantly more accurate than analyst forecasts. In other words, we assume analysts' earnings forecasts (*AF*) are less precise (noisier) forecasts of future operating cash flows (*CF*) than managements' earnings forecast (*MF*).

Under the opportunistic perspective, managers attempt to meet-or-beat analyst forecasts. Hence, they will report earnings equal to

$$OI_{jt}^{opportunistic} = MF_{jt} + \delta \tag{3}$$

where MF_{jt} is managements' forecast of future earnings and δ_{jt} is positive when earnings are managed to meet-or-beat this year's analyst earnings forecast and negative when earnings are managed to meet-or-beat earnings in a subsequent period (in this instance, δ_{jt} represents the "cookie-jar" reserves created). Under the informational perspective hypothesis, managers report earnings equal to

$$OI_{jt}^{informatonal} = MF_{jt} \tag{4}$$

Relation (3) and (4) are based on the rank ordering in Graham et al. (2005) survey that absent incentives to meet-or-beat, the accounting system will incorporate managers' unbiased assessments of future earnings prospects (e.g., receivables correspond to managements' unbiased view of future collections).

We test our hypotheses by estimating the relation between future operating cash flows and originally reported and restated earnings and their components. Hence, for each of the subsamples we estimate

$$CF_{jt+1} = a^{O} + b^{O} OI_{jt} + \varepsilon_{jt}^{O} \tag{5}$$

and

$$CF_{jt+1} = a^{R} + b^{R} RI_{jt} + \varepsilon_{jt}^{R} \tag{6}$$

where the superscript O and R represent originally reported and restated earnings.

Substituting (3) and (4) into (5) and (6), and assuming that absent opportunistic incentives, managements' forecasts are more precise than analysts' forecasts, that is

$$\sigma(\varepsilon^{O} \mid opportunisitc\ perspective) > \sigma(\varepsilon^{R} \mid opportunisitc\ perspective) \tag{7}$$

and

$$\sigma(\varepsilon^{O} \mid informational\ \ perspective) < \sigma(\varepsilon^{R} \mid informational\ \ perspective) \tag{8}$$

results in the following predictions across the opportunistic and informational perspective subsamples:

1. For the opportunistic subsample, the regression of future cash flows with the originally reported (i.e., managed) earnings and its components will have a lower R^2 than the regression using the restated (i.e., unmanaged) earnings.

2. For the informational perspective subsample, the regression of future cash flows with the originally reported (i.e., managed) earnings and its components will have a higher R^2 than the regression using the restated (i.e., unmanaged) earnings.

2.4 The Impact of Earning Management on the Association between Current Cash Flows and Accruals and Future Cash Flows

Our main objective is to compare the forecasting properties of managed and unmanaged accruals and cash flows for our opportunistic and informational subsamples. Utilizing a unique data set that allows us to analyze both originally reported and restated financial statements, we are able to compare the forecasting properties of accruals and cash flows under managed and unmanaged regimes.

To test the relative predictive ability of managed versus unmanaged earnings (accruals), we first substitute accruals and cash flows for earnings ($OI = OACC + OCF$ and $RI = RACC + RCF$, where $OACC$ and $RACC$ (OCF and RCF) represent originally reported and restated accruals (cash flows from operations)) into equations (5) and (6) resulting in equations (9) and (10).

$$CF_{jt+1} = a_0^{O} + b_1^{O} OCF_{jt} + b_2^{O} OACC_{jt} + \varepsilon_{jt}^{O} \tag{9}$$

$$CF_{jt+1} = a_0^R + b_1^R RCF_{jt} + b_2^R RACC_{jt} + \varepsilon_{jt}^R \quad (10)$$

Next, we implement the Barth, Cram, and Nelson (2001) framework for testing whether earnings management impacts the predictive ability of current accruals and cash flows with respect to next year's cash flows. Specifically, BCN show that aggregate earnings masks the different information contained in each accrual component and they provide compelling evidence that disaggregating accruals into five components (ΔAR, ΔINV, ΔAP, $DPAMT$, and $OTHER$—defined below) enhances the predictive ability of earnings with respect to future cash flows.[8] Consistent with BCN, we substitute the five components of accruals into equations (9) and (10) resulting in the following forecasting equation:

$$CF_{jt+1} = a_0^k + b_1^k CF_{jt}^k + b_2^k \Delta AR_{jt}^k + b_3^k \Delta INV_{jt}^k + b_4^k \Delta AP_{jt}^k + b_5^k DPAMT_{jt}^k + b_6^k OTHER_{jt}^k + \varepsilon_{jt}^k, \quad (11)$$

where subscript j and t denote firm and year and superscript k denotes original (O) or restated (R) data. CF_{jt+1} is next year's cash flow from operations. ΔAR^k is the change in accounts receivable, ΔINV^k is the change in inventory, ΔAP^k is the change in accounts payable, $DPAMT^k$ is depreciation and amortization expense, $OTHER^k$ is the aggregate of other accruals, (i.e. $OTHER^k = EARN^k - (CF^k + \Delta AR^k + \Delta INV^k - \Delta AP^k - DPAMT^k)$), and ε^k is the error term. $EARN^k$ is income before extraordinary items and discontinued operations. Consistent with Hribar and Collins (2002), we use the statement of cash flows approach to obtain ΔAR^k, ΔINV^k, ΔAP^k, $DPAMT^k$, and $OTHER^k$.

Our research goal is to determine whether alternative motivations for earnings management affect the predictive ability of original versus restated accruals with respect to future cash flows as measured by adjusted R^2. In particular, we estimate equation (11) using original and restated data for each subsample, and then conduct a Voung (1989) test to determine whether different motivations (e.g. opportunistic and informational perspective) for earnings

[8] BCN have separate accounts for amortization (AMRT) and depreciation (DEPR), we combine them into one summary account called DPAMT.

management enhance or detract from the predictive ability of accruals with respect to future cash flows.[9] Voung (1989) provides a likelihood ratio test for model selection. The test does not presume that either model is 'true'. Thus, it allows for a directional test to determine which set of accounting numbers (originally reported or restated) does a better job of explaining future operating cash flows.

3. Sample Selection and Descriptive Statistics

3.1 Sample Selection

Our sample of restatement firms is obtained from the report submitted by the General Accounting Office (GAO) to the Chairman of the United States Senate Committee on Banking, Housing, and Urban Affairs in October 2002 (GAO-38-138). The GAO sample identifies 919 restatements for 845 different firms from January 1, 1997 to June 30, 2002.[10] The sample features firms that have announced restatements due to accounting irregularities that resulted in the correction of previous material misstatements of financial results. Accounting irregularities occur when companies restate their financial reports because the auditor or regulators (SEC) deemed that they were not originally presented in accordance with GAAP. Accounting irregularities include aggressive accounting practices, misinterpretation of accounting rules, and intentional or unintentional misuse of facts, and fraud.

Focusing on restatement firms enables us to use each firm as its own control. That is, the restatement data provide measures of managed financial results (i.e., originally reported earnings and its components) and unmanaged financial results (i.e., restated earnings and its components)

[9] The Voung (1989) test is a likelihood ratio test to determine which of the two competing models (original or restated) explains more of the variation in the dependent variable (next period's cash flow from operations). Dechow (1994, p. 23-24, 37-40) contains a detailed discussion about the Voung test. We thank Hong Xie for programming assistance with regard to the Voung test.

[10] The GAO database excludes "restatements resulting from mergers and acquisition, discontinued operations, stock splits, issuance of stock dividends, currency-related issues, changes in business segment definitions, changes due to transfers of management, changes made for presentation purposes, general accounting changes under GAAP, litigation settlements, and arithmetic and general bookkeeping errors" (GAO, 2002).

for each restatement firm. Thus, restatement data allows us to measure earnings management activity.[11] For each firm-year we hand collected the following variables from both the originally reported and restatement financial statements: total assets, stockholders' equity, net sales, income before extraordinary items and discontinued operations, net income, change in accounts receivable, change in inventory, change in accounts payable, depreciation and amortization, cash flow from operations, cash flow from investing, and cash flow from financing activities.

Table 1, Panel A, details firms excluded due to various sample selection criteria to arrive at our final sample of 238 unique firms. The GAO sample consists of restatements for annual and quarterly data. We restrict our analysis to annual data only with complete original and restated data, which eliminates 536 firms. We exclude an additional 63 firms for insufficient analyst forecast, and/or stock price data. Finally, our classification scheme examines the impact the restatement has on earnings, so we exclude firms where the original and restated earnings are the same. Our complete restatement sample consists of 238 firms representing 312 restatement firm-years.[12]

Table 1, Panel B, identifies the restatement subsamples. The opportunistic sample consists of 168 firms (206 firm-years), while 65 firms (101 firm-years) are classified as informational. The remaining 5 firms are classified as indeterminant. Thus, 71% of our sample is classified as managing earnings for opportunistic reasons (i.e., to meet-or-beat analysts' forecasts), consistent with the Graham et al. (2005) survey.

The GAO report partitions the sample by the reason for the restatement. Each firm's restatement is classified into the following nine categories: revenue recognition; cost or expense; acquisitions and mergers; in-process research and development; reclassification; related-party transactions; restructuring; securities related; and other. Fraudulent activities are included within

[11] Restated financial results can presumably still reflect unacknowledged earnings management; nonetheless, we assume that restated amounts reflect strictly less earnings management than the amounts firms originally reported.
[12] Sample size is comparable to other studies that examine annual GAO data, such as Collins and Wan (2005) and Badertscher, Phillips, Pincus, and Rego (2007).

the 'other' category. Table 1, Panel C, shows the restatements classified by the reason for the restatement.

The GAO sample consists of 845 firms and 1,075 reasons for restatements, since some firms have multiple reasons for restating. Although companies restate their financials for a variety of reasons, revenue recognition was the reason for 36.9 percent of the restatements. Restatements due to revenue recognition generally include instances of recognizing revenue either sooner or later than would have been allowed under GAAP or recognizing questionable or fictitious revenue. For example, some of the companies identified as restating because of revenue recognition had prematurely recognized revenue. Cost or expense-related issues were the next most frequently identified reason, accounting for 15.7 percent of all the restatements we identified, which includes instances of improperly recognizing expenses, improperly capitalizing expenditures, or mistakes that led to misreported expenses.

The opportunistic sample contains 168 firms and 219 reasons for restatements. Revenue is the most frequently identified reason for restatements in the OP sample (45%) followed by expense recognition (27%) and "other" (13%). Such evidence is consistent with the opportunistic firms utilizing revenue and expense recognition techniques to meet-or-beat earnings targets. For the informational subsample, revenue and expense are also the most frequently identified reason with revenue only slightly higher than expense (27.5% versus 26.3%).

3.2 Descriptive Statistics for the OP and IP Samples

Table 2 presents summary statistics for each of the variables used in equation (11). All variables are deflated by the average book value of total assets. Table 2, Panel A, presents the originally reported and restated numbers for the opportunistic sample. Distributional statistics from Panel A suggest that the mean earnings scaled by average assets (*EARN*) from the originally reported data is -0.015 compared with -0.076 for the restated data. Consistent with the opportunistic sample being comprised predominantly of firms where earnings were managed

upward, the mean restated *ACC* is -0.066, which is more negative than the mean originally reported *ACC* of -0.011. In addition, the mean original Δ*AR* is -0.017 and restated Δ*AR* is 0.007 indicating that on average, these firms overstated accounts receivable. The difference between the original and restated Δ*INV* is -0.018 indicating that these firms also overstated inventory and understated cost of goods sold. Thus, these results indicate that, on average, opportunistic firms managed earnings upward by roughly 6.1% of average book value of total assets. In addition, results for the opportunistic sample show that the originally reported and restated values of *EARN*, *ACC*, Δ*AR*, Δ*INV*, Δ*AP*, *DPAMT*, and *OTHER* are all significantly different from each other at the 10% level or greater. Two major reasons for restatements in our opportunistic sample result from inappropriate revenue recognition and improper expense usage, which are potentially reflected in the Δ*AR*, Δ*INV*, Δ*AP*, and *OTHER* category. Overall, the results provide compelling evidence that opportunistic firms engage in aggressive earnings management behavior that results in overstatement of earnings.

Table 2, Panel B, reports the distributional statistics for the informational perspective sample. The mean originally reported *EARN* is -0.001 while the mean restated *EARN* is -0.025, and this difference is significant at the 10% level. In addition, originally reported *ACC* is -0.5% of total assets while restated *ACC* is -2.6% of total assets, significantly different at the 10% level. The mean difference of 0.025 for *OTHER*, which is significantly different at the 10% level, provides the largest difference between originally reported and restated numbers. All the other accrual components exhibit no significant difference between originally reported and restatement amounts. One reason why a limited number of the variables exhibit significant differences between the originally reported and restated amounts is because the informational perspective

sample is comprised of both income-decreasing and income-increasing earnings management firms.[13]

4. Results

Whether originally reported (managed) cash flows and accruals provide greater predictive ability of future cash flows relative to restated (unmanaged) cash flows and accruals conditional on whether earnings are managed for opportunistic or informational reasons is the major question addressed in this paper. In particular, the extent to which the predictive ability of accruals with respect to future cash flows is impacted by managers' motivation to manage earnings, either for opportunistic or informational reasons, is not known. Following Dechow, Kothari, and Watts (1998) and BCN (2001), we examine the association between current cash flows and accruals and next year's cash flows. We use a Voung test to determine if the originally reported or restated data provide statistically higher predictive ability with respect to future cash flows.[14] We apply this test to the various samples of firms partitioned according to our proxy for whether earnings management is motivated for opportunistic or informational reasons. Comparing the performance of original and restated data sets across samples allows us to draw inferences about whether a manager's motivation to manage earnings (opportunistic or informational) influences the predictive ability of accruals with respect to future cash flows.

4.1 Opportunistic Results

The view that managers manage earnings to disguise the true underlying economic performance of the firm is captured in the opportunistic sample. The implication of this opportunistic perspective is that the originally reported numbers should be less predictive of future cash flows than are the restated numbers. We test our prediction using the 206

[13] This is also true for the opportunistic sample, however the proportion of income-increasing earnings management firms is much higher for the OP sample (91%) relative to the IP sample (65%).

[14] Originally reported and restated data are set up as competing (non-nested) models to explain next period's cash flows from operations. Voung's test provides a direction regarding which of the two models (original or restated data) is closer to the "true data generating process".

observations from the opportunistic sample. To allow fraudulent and non-fraudulent opportunistic to have differential predictive abilities, we include intercept and slope dummy variables for observations that are classified as fraudulent. Specifically, we estimate:

$$\begin{aligned} CF_{jt+1} = {} & a_0^k + b_1^k CF_{jt}^k + b_2^k \Delta AR_{jt}^k + b_3^k \Delta INV_{jt}^k + b_4^k \Delta AP_{jt}^k + b_5^k DPAMT_{jt}^k + b_6^k OTHER_{jt}^k + D + D \times c_1^k CF_{jt}^k \\ & + D \times c_2^k \Delta AR_{jt}^k + D \times c_3^k \Delta INV_{jt}^k + D \times c_4^k \Delta AP_{jt}^k + D \times c_5^k DPAMT_{jt}^k + D \times c_6^k OTHER_{jt}^k + \varepsilon_{jt}^k \end{aligned} \quad (12)$$

where k equals O (originally reported) or R (restated) and D is set to 1 if a firm is deemed to have committed fraud, zero otherwise.[15]

The results for estimating equation (12) are reported in Panel A of Table 3 for the opportunistic sample. We begin by examining the b_n^k coefficients, which reflect the predictive usefulness of the cash and accrual components of earnings for the non-fraudulent opportunistic firms. Using the originally reported (managed) numbers results in statistically insignificant coefficients (and most of the coefficients having the incorrect sign) for *ΔAR*, *ΔINV*, *ΔAP*, and *OTHER* components of accruals. More importantly, the coefficients become statistically significant and in the predicted direction when we substitute the restated (unmanaged) numbers. In addition, the coefficient on the originally reported *CF* is larger in magnitude but has a smaller statistical significance than the coefficient on restated *CF* in predicting future cash flows. The sign and significance of each variable for the restated numbers are consistent with evidence presented by BCN. Finally, the adjusted regression R^2 for the entire sample of OP firms increases from 36% for the originally reported data to 49% for the restated data. The Voung test shows that the difference is statistically significant ($Z = -2.51$, $p < 0.01$).[16] Therefore, restated data better predict one-year-ahead cash flows than the originally reported (opportunistically managed) data

[15] See footnote 7 for how we identify fraudulent firms.

[16] A negative value for the Voung's Z-statistic indicates that the restated data has better predictive ability of future cash flows than the originally reported data. The test is directional in the sense that, if the Z-statistic is positive (negative) and significant, the test concludes that the originally reported (restated) data provides the best model fit.

for the OP sample.[17] In summary, this analysis suggests that when managers are opportunistically motivated to disguise the true economic performance of the firm through manipulation of accruals, the managed accruals are less predictive of future cash flows than are the restated (unmanaged) numbers.

Panel A of Table 3 also reports the incremental regression coefficients (c_n^k) for the fraudulent opportunistic sample. The sum of the $b_n^k + c_n^k$ coefficients capture the importance of the cash flow and accrual earnings components for fraudulent firms in predicting one-period-ahead operating cash flows. Except for the coefficient on *CF* and *DPAMT*, the coefficients for the originally reported accrual numbers are not statistically significant in explaining one-year-ahead operating cash flows. Moreover, the coefficients for the originally reported ΔAR, ΔINV, *DPAMT*, and *OTHER* accrual components have the opposite sign when compared to previous research by BCN (2001). In contrast to the results for the originally reported data, the coefficients for the restated data for the fraudulent OP firms are statistically significant and in the predicted direction. In summary, the results from Table 3 provide strong support for the claim that opportunistically managed (originally reported) earnings and its components are less predictive of one-period-ahead operating cash flows than the unmanaged (restated) earnings.

4.2 Informational Perspective Results

We classify earnings management as being motivated for informational reasons when meeting-or-beating analysts' earnings forecasts are unlikely to be the motive. We predict that the managed (originally reported) earnings and its components will be more predictive of one-period-ahead cash flows relative to unmanaged (restated) earnings using equation (11).

The results for the IP sample are reported in Panel B of Table 3. Comparing the regression results using the originally reported numbers to the restated numbers provides support for our

[17] We find similar results for the opportunistic and informational samples when we examine the predictive ability of two-year-ahead cash flows.

prediction. First, the regression coefficients for cash flows, *ΔAR*, *ΔINV*, and *OTHER* are positive while the regression coefficients for *ΔAP* are negative as predicted with the coefficients being more significant for the originally reported than the restated numbers. Second, the originally reported *CF* is smaller in magnitude but has a larger statistical significance than restated *CF* in predicting future cash flow. Third, and most importantly, the adjusted R^2 associated with the originally reported data is 47% for explaining cross-sectional variation in one-year-ahead cash flows, while the restated data explains only 40%. A Voung Z-statistic of 1.90 reveals that the originally reported data has statistically more explanatory power than the restated data with respect to future cash flows of IP firms. Collectively, this evidence suggests that the originally reported data dominate restated data in explaining one-year-ahead cash flows when earnings are managed for informational reasons.

5. Market Returns Analyses

In this section, we investigate the return behavior of our sample firms in the period prior to, and during, the first year that earnings are managed, around the time that the restatement is announced, and over an extended period following the restatement announcement. We undertake this investigation to provide corroborating evidence of the classification scheme we use to identify OP and IP firms and to provide additional insights into why managers engage in opportunistic earnings management.

5.1 Stock Price Analysis Centered on the First Year of Earnings Management

Figure 1 plots the stock price performance (market-adjusted abnormal returns) of the IP and OP subsamples for the period commencing approximately one-year prior to the first year of earnings management (period -240 to 0, where day 0 represents the start of the first year that earnings were managed), the first misstatement year (day 0 to day +250) and an extended period following the restatement year (+250 to +820). The latter period encompasses the restatement

announcement date that occurs at different points in calendar time across firms. (In a subsequent plot, we will reposition the return plot relative to the restatement announcement date in order to gain a better sense of the market reaction to the restatement announcements of IP and OP firms.)

The objective of Figure 1 is to document the abnormal return performance of our major subsamples that captures evidence of over-pricing starting one-year (240 trading days) before the start of the first year for which earnings are managed and the subsequent market correction that takes place once the restatement is announced. We elect to center the plots relative to the start of the first misstatement year because Jensen's (2005) agency theory of overvalued equity suggests that it is severe overvaluation that sets into motion a set of organizational forces that almost inevitably lead to destruction of part or all of the core value of the firm. According to Jensen, one of the value-damaging forces that is set into motion by overvaluation is opportunistic earnings management that managers engage in in an effort to sustain the firm's inflated stock price.

The return data displayed in Figure 1 substantiate many of the elements of Jensen's argument. First, consistent with findings in Efendi, Srivastava and Swanson (2006) and Baderstscher (2007), there is a clear and dramatic increase in the stock price of firms prior to the first year that they engage in non-GAAP earnings management as evidenced by the large positive average abnormal returns from days -240 to 0. The degree of overvaluation appears to be much greater for firms that we have classified as having managed earnings for opportunistic reasons (i.e., cases where managed earnings allowed the firm to meet-or-beat analysts' forecasts) than for information-based reasons. The average abnormal return over the year leading up to the first year when earnings are managed is roughly 25% for the OP sample compared to roughly 14% for the IP sample.

Even more striking is the continued upward trend in prices for the OP sample throughout, and somewhat beyond, the first year that earnings are managed. The average cumulative abnormal return for the OP sample increases by another 10%, to 35% by the earnings

announcement date for the first misstatement year (roughly day 300). This suggests that management was successful in sustaining and fueling further overvaluation by using non-GAAP earnings management to meet-or-beat analysts' earnings forecasts in the year that earnings were managed. In contrast, the prices of firms that are classified as having managed earnings for informational reasons remain relatively flat. The average cumulative abnormal return for the entire IP sample goes from approximately 14% at the start of the year that earnings are managed (i.e., first restated year) to roughly 16% at the approximate date of the earnings announcement for that year.

There is a distinctly different trend in the abnormal return behavior of the income-increasing IP sample versus the income-decreasing IP sample over the first year that earnings are managed. Moreover, the return differences exhibited by these two subsets of IP firms is entirely consistent with managers managing earnings to convey private information about the future prospects of these firms. From the first day of the year that earnings are managed to day 300, which is roughly the annual earnings announcement date for that year, the income-increasing IP firms exhibit an average cumulative abnormal return of 6.1%, consistent with managers managing earnings to convey positive information about the future prospects of these firms. In contrast, the income-decreasing IP firms exhibit a negative cumulative abnormal return of -3.9% over this same time frame. The difference in the cumulative abnormal returns for these two groups of firms is significant at the 0.03 level.

A second feature in Figure 1 that is consistent with Jensen's prediction that overvaluation of equity leads to value-destroying opportunistic earnings management is the dramatic decline in prices reflected in the average cumulative abnormal return of the OP sample over an extended period of time following the year that earnings are managed, which includes the majority of the restatement announcement dates. By day +820 (roughly two and one-half years after the first year that earning were managed), all of the price gain that occurred for the OP sample during the

year that earnings were managed has dissipated along with some of the increase in price that occurred prior to the first year that earnings were managed. In contrast to the return plot for the OP sample, the average cumulative abnormal returns for the IP samples are relatively stable over the period following the year that earnings are managed. Moreover, much of the return difference between the income-increasing and income-decreasing IP samples that originates in the year that earnings were first managed, which we hypothesize was done to convey information about the future prospects of the firm, persists. Collectively, these long-window return results corroborate our classification of restatement firms into OP and IP subsamples and support Jensen's conjecture that overvaluation leads managers to engage in value-destroying opportunistic earnings management.

5.2 Returns Analysis Around and Following the Restatement Announcements

In this section we investigate the abnormal returns of OP and IP firms for days relative to the date that the earnings restatement is first announced (day 0 in Figure 2 that follows), which typically occurs from 120 to 480 trading days after the annual earnings announcement date for the first year that firms engaged in non-GAAP earnings management.[18] Figure 2 displays the cumulative market-adjusted returns from 10 days before the restatement announcement to 60 days after the restatement announcement, and Table 4 tests for differences in return behavior across various subsets of firms. Consistent with prior research (Richardson, Tuna and Wu 2002; GAO 2002) the average abnormal return on days -2 to +2 relative to the first announcement of the restatement is -8.8% across the entire sample of restatement firms. However, restatements classified as opportunistic experience an abnormal return twice as large as those classified as informational (-9.5%, $p < 0.01$ versus -4.7%, $p < 0.01$) with the difference between these two groups being significant at 0.01 level ($t = -5.42$).

[18] The mean (median) elapsed time in trading days from the earnings announcement date of the last misstatement year to the restatement announcement for the OP and IP samples are 314 (247) and 275 (214), respectively.

To investigate whether the difference in the market response to OP versus IP restatements is related to the magnitude of the restatements, we estimate the following model:

$$AR_{jt} = a + bOP\_DUM + cREST\_AMT + dOP\_DUM * REST\_AMT + \varepsilon_{jt} \quad (13)$$

where *AR* represents the five day abnormal return (-2,+2) around the restatement announcement for firm j, *REST_AMT* is the restated net income minus the originally reported net income scaled by book value of assets reported at year end t-1, and *OP_DUM* is a dummy variable taking the value of one for restatements classified as OP, zero otherwise. The a ($a+b$) coefficient measures the average abnormal return around the restatement announcement for the IP (OP) firms that is unrelated to the magnitude of the restatement, while the c ($c+d$) coefficient measures the incremental market reaction per scaled dollar value of the restatement amount for the IP (OP) firms. The results found in Table 4, Panel B, indicate that the market reaction to the restatement announcements is significantly more negative for the OP sample relative to the IP sample after controlling for differences in the magnitude of the restatements across these two samples (b= -0.032, significant at p=0.021). Moreover, a positive coefficient on *OP_DUM*REST_AMT* indicates that the bigger the restatement, the more negative the market reaction.[19] The coefficient of 0.108 on *REST_AMT* is marginally significant at p=0.067 indicating that part of the market reaction at the restatement announcement is related to the magnitude of the restatement. The significantly positive coefficient of 0.413 on *OP_DUM*REST_AMT* indicates that there is a much greater negative market reaction per dollar of restatement amount for OP firms relative to the IP firms. This finding, coupled with the significant negative coefficient on *OP_DUM*, is consistent with the market correcting for the over-pricing of OP firms that was sustained through opportunistic earnings management, which allowed these firms to meet-or-beat analysts' earnings expectations.

[19] The *REST_AMT* is a negative number when the restated earnings number is smaller than the originally reported number, which is the case for the vast majority of OP firms. Thus, the interaction between *OP_DUM* and *REST_AMT* is a negative amount.

Further evidence of the market correcting for previous over-pricing of OP firms is provided in Table 5 that reports the correlations between the price run-up that occurred prior to and during the first year that earnings were managed and the market adjustment that occurred at the time of, and following, the restatement announcement.[20] As shown for the OP sample, we generally find significant negative Spearman and Pearson correlations between the price correction that takes place in the five days centered on the restatement announcement and the price run-up that occurs in the year prior to and during the year that earnings were first managed. We continue to find significant negative correlations for the OP firms when the return accumulation period is extended out to 180 days beyond the first restatement announcement date. Thus, OP firms with the greatest price run-up in the pre-restatement period experience the greatest market decline when the restatement is announced. In contrast, these correlations are uniformly positive and insignificant for the IP subsample. To the best of our knowledge, we are the first to provide evidence that part of the market reaction to restatement announcements is related to prior overvaluation consistent with Jensen's (2005) agency costs of overvalued equity hypothesis.

6. Summary and conclusions

In this paper we test the predictive ability implications of competing views of earnings management. In particular, we examine whether management's motivation for managing earnings affects the forecasting properties of accruals and cash flows with respect to future cash flows. There is little direct evidence in the prior literature on whether earnings management enhances or detracts from the predictive ability of accruals with respect to future cash flows. We examine two potential explanations for why managers manage earnings. First, managers

[20] The reason that we track the return performance for our sample firms for an extended period following the first restatement announcement is that the magnitude of the restatement along with other details of the restatement are frequently not made known to the public until some time after the initial restatement announcement. Our accumulation period that extends to 180 days after the restatement announcement encompasses virtually all of the subsequent news releases related to the restatements in our sample.

opportunistically manage earnings to disguise the true underlying economic performance of the firm by making the firm look more profitable or less risky than it actually is in an effort to sustain the overvaluation of the firm's stock price (opportunistic perspective). For the opportunistic perspective, we expect that restated numbers will be better predictors of future cash flows than the originally reported numbers. The results for our opportunistic sample support our hypothesis in that we find the originally reported (managed) accruals are *less* predictive of future operating cash flows than are the restated (unmanaged) accruals.

An alternative view in the literature is that managers manage earnings to reveal private information that better reflects the underlying economics and future prospects of the firm (informational perspective). For firms that are predicted to engage in earnings management for informational perspective reasons, we expect that originally reported numbers will be better predictors of future cash flows than the restated data. The results for the informational perspective sample support our hypothesis, in that the originally reported (managed) accruals are *more* predictive of future operating cash flows than are the restated (unmanaged) accruals.

We also conduct market returns analyses to provide corroborating evidence on the classification scheme that we use to identify firms where earnings management is undertaken predominantly for opportunistic versus informational reasons. Our market returns analyses provides evidence consistent with our classification scheme and with Jensen's (2005) agency theory of overvalued equity. Specifically, we find that firms classified as managing earnings for OP reasons exhibit significantly greater evidence of overvaluation in the year prior to the year that earnings are first managed and that this overvaluation is sustained and actually increases in the year of earnings management. In contrast, income-increasing and income-decreasing IP firms exhibit significantly different return patterns in the year that earnings are managed in directions that are consistent with management using earnings management to signal the future prospects of the firm. Analyses of returns at the time of the restatement announcement and over an extended

period following the announcement reveal a much more dramatic negative market reaction for OP sample relative to the IP sample. Moreover, for the OP sample we find the market reaction to the restatement announcement is significantly negatively correlated with the over-pricing that occurs prior to and during the year that earnings are managed. This evidence is consistent with the market correcting for previous overvaluation that, in part, was sustained by opportunistic earnings management.

In summary, this study is the first to show that managed earnings exhibit different predictive ability with respect to future cash flows depending on the apparent motivation behind the earnings management, and to link the predictive usefulness of managed earnings to overvaluation of firms' stock price. Our analysis focuses on firms that manage earnings using non-GAAP earnings management choices. A fruitful area for future research is to explore the relation between overvaluation, within-GAAP earnings management (both real transaction management and accrual management) and the predictive ability of the resultant earnings numbers.

Appendix A

Classification of Earnings Management as Either Opportunistic or Informational Perspective

One-Year Restatement Sample:

Panel A: Income-Increasing Earnings Management for Year t

$OI_t - RI_t > 0$		
	$OI_t < AF_t^t$	$OI_t \geq AF_t^t$
$RI_t < AF_t^t$	*IP*	*OP*
$RI_t > AF_t^t$	*NP*	*IP*

AF_t^t = *the most recent analyst consensus median analysts' earnings forecast for year t that was issued prior to the announcement of year t earnings*
OI_t = *the adjusted originally reported income before extraordinary items and discontinued operations for year t*
RI_t = *the adjusted restated net income before extraordinary items and discontinued operations for year t*
OP = *Opportunistic Perspective*
IP = *Informational perspective*
NP = *Not Possible*

Discussion for Panel A:

(1,1)[21] *Even though earning management increases reported net income, the originally reported (managed) earnings does not meet-or-beat the analyst forecast. Therefore, the purpose of the earnings management was not to meet-or-beat the forecast and we classify this case informational perspective.*

(2,1) *For income-increasing earnings management, $RI_t < OI_t$. Hence, the condition that $OI_t < AF_t^t$ and $OI_t < AF_t^t$ cannot hold simultaneously.*

(1,2) *This condition is the classic case of opportunistic earnings management: The firm was only able to meet-or-beat the earnings forecasts because of the income-increasing earnings management.*

(2,2) *The firm would have meet or beaten the forecast even if it had not engaged in income-increasing earnings management. Hence, the income management is informational perspective.*

[21] The first number represents the row and the second number represents the column in the respective tables.

Panel B: Income-Decreasing Earnings Management for Year t

$OI_t - RI_t < 0$		
	$OI_t < AF_t^t$	$OI_t \geq AF_t^t$
$RI_t < AF_t^t$	If $IBES\_Actual_{jt+1} > AF_{t+1}^t$ then IP	NP
	If $Adj\_IBES\_Actual_{jt+1} < AF_{t+1}^t$ then I	
	If $IBES\_Actual_{jt+1} < AF_{t+1}^t <$ $Adj\_IBES\_Actual_{jt+1}$ then OP	
$RI_t > AF_t^t$	IP	If $IBES\_Actual_{jt+1} < AF_{t+1}^t$ and $Adj\_IBES\_Actual_{jt+1} > AF_{t+1}^t$ then OP
		If $Adj\_IBES\_Actual_{jt+1} < AF_{t+1}^t$ then IP

AF_t^t = the most recent analyst consensus analysts' earnings forecast for year t that was issued prior to the announcement of year t earnings.
OI_t = the adjusted originally reported income before extraordinary items and discontinued operations for year t
RI_t = the adjusted restated net income before extraordinary items and discontinued operations for year t
$IBES\_Actual_{jt+1}$ = I/B/E/S actual earnings for year t+1.
$Adj\_IBES\_Actual_{jt+1}$ = the I/B/E/S actual earnings in year t+1 adjusted for the impact of the earnings management in year t
OP = Opportunistic Perspective
IP = Informational Perspective
NP = Not Possible
I = Indeterminate

Discussion for Panel B:

Because income-decreasing earnings management results in an income increase in subsequent periods, our classification into opportunistic and informational perspective earnings management depends on whether the reversal would have resulted in meeting-or-beating the forecast for the subsequent year (t+1). We denote the earnings management in year t as $OI_t - RI_t$.

(1,1) *An income-decreasing earnings management is opportunistic if it was intended to meet-or-beat the one-year-ahead forecast AF_{t+1}^t. Therefore, when neither the managed nor the restated income meets-or-beats the forecast in year t, we classify the management as opportunistic when the reversal of the income-decreasing management in year t+1 allows the firm to meet-or-beat the one-year-ahead forecast AF_{t+1}^t. We classify the forecast as informational perspective when the firm would meet-or-beat the one-year-ahead forecast absent the accrual reversal. Finally, the earnings management is* ***weakly*** *classified as indeterminate when the reversal was not sufficient to meet-or-beat the one-year-ahead forecast because management could have engaged in additional income-increasing earnings management in year t+1.*

(2,1) *Given a positive time preference, managers would prefer to meet-or-beet analysts forecast in year t rather than at a future date. Therefore we classify the earnings management as informational perspective when the income-decreasing earnings management resulted in missing an otherwise attainable forecast in period t.*

(1,2) *This condition cannot occur when earnings management is income-decreasing.*

(2,2) *We classify income-decreasing earnings management that still meets-or-beats the forecast in year t as opportunistic if the accrual reversal results in meeting-or-beating the one-year-ahead forecast that otherwise would have been missed. Otherwise, we classify this earnings management as informational perspective.*

Two-Year Restatement Sample:

Panel C: Income-Increasing Earnings Management in Year t and Year t+1

<table>
<tr><th colspan="5">$OI_t > RI_t$ and $OI_{t+1} > RI_{t+1}$</th></tr>
<tr><th></th><th>$OI_t < AF_t^t$ and
$OI_{t+1} < AF_{t+1}^t$</th><th>$OI_t < AF_t^t$ and
$OI_{t+1} \geq AF_{t+1}^t$</th><th>$OI_t \geq AF_t^t$ and
$OI_{t+1} < AF_{t+1}^t$</th><th>$OI_t \geq AF_t^t$ and
$OI_{t+1} \geq AF_{t+1}^t$</th></tr>
<tr><td rowspan="2">$RI_t < AF_t^t$ and
$RI_{t+1} < AF_{t+1}^t$</td><td>IP for t</td><td>IP for t</td><td>OP for t</td><td>OP for t</td></tr>
<tr><td>IP for t+1</td><td>IP for t+1</td><td>IP for t+1</td><td>OP for t+1</td></tr>
<tr><td rowspan="2">$RI_t < AF_t^t$ and
$RI_{t+1} \geq AF_{t+1}^t$</td><td rowspan="2">NP</td><td>IP for t</td><td rowspan="2">NP</td><td>OP for t</td></tr>
<tr><td>IP for t+1</td><td>IP for t+1</td></tr>
<tr><td rowspan="2">$RI_t \geq AF_t^t$ and
$RI_{t+1} < AF_{t+1}^t$</td><td rowspan="2">NP</td><td rowspan="2">NP</td><td>IP for t</td><td>IP for t</td></tr>
<tr><td>IP for t</td><td>OP for t</td></tr>
<tr><td rowspan="2">$RI_t \geq AF_t^t$ and
$RI_{t+1} \geq AF_{t+1}^t$</td><td rowspan="2">NP</td><td rowspan="2">NP</td><td rowspan="2">NP</td><td>IP for t</td></tr>
<tr><td>IP for t+1</td></tr>
</table>

Discussion for Panel C:

Note: The restatement for year t+1 consists of a reversal of the year t earnings management plus new earnings management in year t+1. As a result, the accrual management in year t and year t+1 will in general not offset, that is in general $OI_t - RI_t + OI_{t+1} - RI_{t+1} \neq 0$. $OI_t - RI_t > 0$ and $OI_{t+1} - RI_{t+1} > 0$ implies that the firm engaged in income-increasing earnings management in year t+1 that more than offset the reversal of accruals from year t

(1,1) We classify these cases of income-increasing earnings management as informational perspective because the resulting reported earnings did not meet-or-beat analysts' earnings forecasts in either year t or year t+1.

(2,1) For income-increasing earnings management, $OI_{t+1} > RI_{t+1}$. Therefore, $OI_{t+1} < AF_{t+1}^t$ and $RI_{t+1} > AF_{t+1}^t$ cannot hold simultaneously.

(3,1) For income-increasing earnings management, $OI_t > RI_t$. Therefore, $OI_t < AF_t^t$ and $RI_t > AF_t^t$ cannot hold simultaneously.

(4,1) The condition that $OI_t < AF_t^t$ and $RI_t > AF_t^t$ cannot hold simultaneously for income-increasing earnings management ($RI_t < OI_t$).

(1,2) We classify the earnings management in period t as informational perspective because the income-increasing earnings management in period t did not result in the firm being able to meet-or-beat the analyst earnings forecasts in either t or t+1.

(2,2) We classify the income-increasing earnings management in t as informational perspective because it did not allow the firm to meet-or-beat the forecast in period t. We also classify the income-increasing earnings management in period t+1 as informational perspective because the firm would have been able to meet-or-beat the forecast in period t+1 even absent the income-increasing management.

(3,2) For income-increasing earnings management, $OI_t > RI_t$. Therefore, $OI_t < AF_t^t$ and $RI_t > AF_t^t$ cannot hold simultaneously.

(4,2) For income-increasing earnings management, $OI_t > RI_t$. Therefore, $OI_t < AF_t^t$ and $RI_t > AF_t^t$ cannot hold simultaneously.

(1,3) We classify the income-increasing earnings management as opportunistic for period t because it allowed the firm to meet-or-beat a forecast that it otherwise would have missed. For period t+1, we classify the income-increasing earnings management as informational perspective because it did not result in the firm meeting-or-beating an analyst forecasts that it otherwise would have missed. (Notice that the income-increasing earnings management cannot help the firm to meet-or-beat the forecast in period t+2)

(2,3) *For income-increasing earnings management, $OI_{t+1} > RI_{t+1}$. Therefore, $OI_{t+1} < AF^{t}_{t+1}$ and $RI_{t+1} > AF^{t}_{t+1}$ cannot hold simultaneously.*

(3,3) *We classify the income-increasing management as informational perspective in t because the firm would have made the earnings forecast absent the earnings management. We classify the income-increasing management as opportunistic in t+1 because the firm missed the forecast despite the income-increasing earnings management in period t+1.*

(4,3) *For income-increasing earnings management, $OI_{t+1} > RI_{t+1}$. Therefore, $OI_{t+1} < AF^{t}_{t+1}$ and $RI_{t+1} > AF^{t}_{t+1}$ cannot hold simultaneously.*

(1,4) *This condition is the classic case of opportunistic earnings management: The firm engaged in income-increasing earnings management to meet-or-beat the forecast for year t and again in t+1 (that it otherwise would have missed). In fact, the earnings management in year t+1 was such that it compensated for the reversal of the year t earnings management.*

(2,4) *We classify the income-increasing management as opportunistic in t because the firm would have missed the earnings forecast absent the earnings management. We classify the income-increasing management as informational perspective in t+1 because the firm would have made the earnings forecast absent the earnings management.*

(3,4) *We classify the income-increasing management as informational perspective in t because the firm would have made the earnings forecast absent the earnings management. We classify the income-increasing management as opportunistic in t+1 because the firm would have missed the earnings forecast absent the earnings management.*

(4,4) *The firm would meet-or-beat the forecasts in years t and t+1 even if it had not engaged in income-increasing earnings management. Moreover, because of the accrual reversal, the earnings management cannot help the firm to meet-or-beet analysts' forecast for year t+2. Hence, the income management is informational perspective.*

Panel D: Income-Increasing Earnings Management in Year t and Income-Decreasing Earnings Management in Year t+1

$RI_t < OI_t$ and $RI_{t+1} > OI_{t+1}$				
	$OI_t < AF_t^t$ and $OI_{t+1} < AF_{t+1}^t$	$OI_t < AF_t^t$ and $OI_{t+1} \geq AF_{t+1}^t$	$OI_t \geq AF_t^t$ and $OI_{t+1} \geq AF_{t+1}^t$	$OI_t \geq AF_t^t$ and $OI_{t+1} < AF_{t+1}^t$
$RI_t < AF_t^t$ and $RI_{t+1} < AF_{t+1}^t$	*IP for t* *If* $IBES\_Actual_{jt+2} > AF_{t+2}^t$ *then IP for t+1* *If* $Adj\_IBES\_Actual_{jt+2} > AF_{t+2}^t > IBES\_Actual_{jt+2}$ *then OP for t+1* *else IN for t+1*	*NP*	*NP*	*OP for t* *If* $IBES\_Actual_{jt+2} > AF_{t+2}^t$ *then IP for t+1* *If* $Adj\_IBES\_Actual_{jt+2} > AF_{t+2}^t > IBES\_Actual_{jt+2}$ *then OP for t+1* *Else IN for t+1*
$RI_t < AF_t^t$ and $RI_{t+1} \geq AF_{t+1}^t$	*IP for t* *IP for t+1*	*IP for t* *If* $IBES\_Actual_{jt+2} > AF_{t+2}^t$ *then IP for t+1* *If* $Adj\_IBES\_Actual_{jt+2} > AF_{t+2}^t > IBES\_Actual_{jt+2}$ *then OP for t+1* *else IN for t+1*	*OP for t* *If* $IBES\_Actual_{jt+2} > AF_{t+2}^t$ *then IP for t+1* *If* $Adj\_IBES\_Actual_{jt+2} > AF_{t+2}^t > IBES\_Actual_{jt+2}$ *then OP for t+1* *Else IN for t+1*	*OP for t* *IP for t+1*
$RI_t \geq AF_t^t$ and $RI_{t+1} \geq AF_{t+1}^t$	*NP*	*NP*	*IP for t* *IP for t+1 if* $IBES\_Actual_{jt+2} > AF_{t+2}^t$ *If* $Adj\_IBES\_Actual_{jt+2} > AF_{t+2}^t > IBES\_Actual_{jt+2}$ *then OP for t+1* *else I for t+1*	*IP for t* *IP for t+1*
$RI_t \geq AF_t^t$ and $RI_{t+1} < AF_{t+1}^t$	*NP*	*NP*	*NP*	*IP for t* *If* $IBES\_Actual_{jt+2} > AF_{t+2}^t$ *then IP for t+1* *If* $Adj\_IBES\_Actual_{jt+2} > AF_{t+2}^t > IBES\_Actual_{jt+2}$ *then OP for t+1* *Else IN for t+1*

Discussion for Panel D:

Note: The accrual reversal of the income-increasing earnings management of year t will result in a reduction of year t+1 earnings. No new earnings management occurred in year t+1 when $OI_t - RI_t = -(OI_{t+1} - RI_{t+1})$. $OI_t - RI_t > -(OI_{t+1} - RI_{t+1})$ implies that either the accrual management did not fully reverse in year t+1 or there was additional income-increasing earnings management in year t+1. $OI_t - RI_t < -(OI_{t+1} - RI_{t+1})$ implies the presence of income-decreasing earnings management in year t+1 on top of the reversal of the accruals from year t.

(1,1) *The firm did meet-or-beat analysts' forecast in year t despite the income-increasing earnings management and this earnings management did not help it to meet-or-beat in t+1 (in fact the reversal resulted in lower reported earnings). Hence we classify the earnings management as informational perspective in year t. For period t+1, the earnings management is income-decreasing. We classify it as informational perspective if the firm would have been able to meet-or-beat AF^t_{t+2} even absent the accrual reversal. We classify it as opportunistic in t+1 if this leads to the firm being able meet-or-beat analysts' forecast in period t+2. If it did not, we classify the earnings management as* **weakly** *indeterminate, because the firm could have engaged in some additional income-increasing earnings management in period t+2 that would have been sufficient to meet-or-beat the forecast for t+2.*

(2,1) *We classify the earnings management in both t and t+1 as informational perspective as it did not allow the firm to meet-or-beat the forecasts in either year (and in fact the firm may have been able to meet-or-beat in t+1 had it not been involved in income-decreasing earnings management.*

(3,1) *The condition that $OI_{t+1} < AF^t_{t+1}$ and $RI_{t+1} > AF^t_{t+1}$ cannot hold simultaneously when $RI_{t+1} < OI_{t+1}$.*

(4,1) *The condition that $OI_t < AF^t_t$ and $RI_t > AF^t_t$ cannot hold simultaneously when $RI_t < OI_t$.*

(1,2) *The condition that $OI_t < AF^t_t$ and $RI_t < AF^t_t$ cannot hold simultaneously for income-increasing earnings management ($OI_t > RI_t$).*

(2,2) *The firm does not meet-or-beat the forecasts in years t even though it managed earnings upwards. Moreover, the reversal decreases earnings in t+1 so it cannot help the firm to meet-or-beat the forecast in t+1. Hence we classify the earning management in t as not opportunistic. The income-decreasing earnings management is classified as informational perspective if the firm would have been able to meet-or-beat forecasts in t+2. The earnings-decreasing income management in year t+1 is classified as opportunistic if it helps the firm to meet-or-beat the forecast for t+2. Otherwise, we classify this as indeterminate, because it may have helped the firm to meet-or-beat the forecast in t+2 with additional earnings management in t+2 which did not occur because of the restatement.*

(3,2) *This combination is not possible: $OI_t < AF^t_t$ and $RI_t > AF^t_t$ cannot hold simultaneously.*

(4,2) *This combination is not possible: $OI_t < AF^t_t$ and $RI_t > AF^t_t$ cannot hold simultaneously.*

(1,3) *This combination is not possible: $OI_{t+1} > AF^t_{t+1}$ and $RI_{t+1} < AF_{t+1}$ cannot hold simultaneously.*

(2,3) *The income-increasing earnings management allowed the firm to meet-or-beat the forecast in t, hence we classify it as opportunistic. The income-decreasing earnings management in t+1 is classified as informational perspective if the firm would have been able to meet-or-beat forecasts even absent the reversal in t+2. It is classified as opportunistic if the accrual reversal allowed the firm to meet-or-beat the forecast in t+2 that it otherwise would have missed. Finally, it is classified as indeterminate because the firm may have been able to meet-or-beat the forecast in t+2 with additional earnings management.*

(3,3) *The income-increasing earnings management in period t is classified as informational perspective because the firm would have been able to meet-or-beat forecasts absent that management. It is also classified as informational perspective for t+1 if the firm would have been able to meet-or-beat the forecast for*

t+2 absent the accrual reversal. It is classified as opportunistic if the accrual reversal allowed the firm to meet-or-beat the forecast for t+2. Otherwise, it is classified as indeterminate for t+1.

(4,3) *This combination is not possible.*

(1,4) *The firm was able to meet-or-beat the forecast thanks to the income-increasing earnings – hence we classify it as opportunistic for t. We classify the income-decreasing earnings management as informational perspective if the firm would have been able to meet-or-beat the forecast for t+2 even absent the accrual reversal. We classify it as opportunistic if the accrual reversal allowed the firm to meet-or-beat a forecast in t+2 that it otherwise would have missed. Finally, we classify the earnings management for t+1 as indeterminate if the reversal per se was not sufficient to allow the firm to meet-or-beat the forecast for t+2.*

(2,4) *The income-increasing earnings management allowed the firm to meet-or-beat* AF_t^t *hence we classify it as opportunistic. The income-decreasing earnings management for t+1 made the firm miss* AF_{t+2}^t *– hence we classify it as informational perspective.*

(3,4) *The income-increasing earnings management was not necessary to meet-or-beat* AF_t^t *hence we classify it as informational perspective. The income-decreasing earning management in t+1 resulted in missing* AF_{t+1} *that the firm would have otherwise met – hence we classify it as informational perspective.*

(4,4) *The income-increasing earnings management was not necessary to meet-or-beat* AF_t^t *hence we classify it as informational perspective. We classify the income-decreasing earnings management as informational perspective if the firm would have been able to meet-or-beat the forecast for t+2 even absent the accrual reversal. We classify it as opportunistic if the accrual reversal allowed the firm to meet-or-beat a forecast in t+2 that it otherwise would have missed. Finally, we classify the earnings management for t+1 as indeterminate if the reversal per se was not sufficient to allow the firm to meet-or-beat the forecast for t+2.*

Panel E: Income-Decreasing Earnings Management in Year t and Year t+1

$RI_t > OI_t$ and $RI_{t+1} > OI_{t+1}$				
	$OI_t < AF_t^t$ *and* $OI_{t+1} < AF_{t+1}^t$	$OI_t < AF_t^t$ *and* $OI_{t+1} \geq AF_{t+1}^t$	$OI_t \geq AF_t^t$ *and* $OI_{t+1} \geq AF_{t+1}^t$	$OI_t \geq AF_t^t$ *and* $OI_{t+1} < AF_{t+1}^t$
$RI_t < AF_t^t$ *and* $RI_{t+1} < AF_{t+1}^t$	*IP for t* *If* $IBES\_Actual_{jt+2} > AF_{t+2}^t$ *then IP for t+1* *If* $Adj\_IBES\_Actual_{jt+2} > AF_{t+2}^t > IBES\_Actual_{jt+2}$ *then OP for t+1* *else IN for t+1*	*NP*	*NP*	*NP*
$RI_t < AF_t^t$ *and* $RI_{t+1} \geq AF_{t+1}^t$	*IP for t*	*OP for t if OP for t+1* *else IP for t*	*NP*	*NP*
	IP for t+1	*If* $IBES\_Actual_{jt+2} > AF_{t+2}^t$ *then IP for t+1* *If* $Adj\_IBES\_Actual_{jt+2} > AF_{t+2}^t > IBES\_Actual_{jt+2}$ *then OP for t+1* *else IP for t+1*		
$RI_t \geq AF_t^t$ *and* $RI_{t+1} \geq AF_{t+1}^t$	*IP for t*	*IP for t*	*OP for t if OP for t+1* *else IP for t*	*IP for t*
	IP for t+1	*If* $IBES\_Actual_{jt+2} > AF_{t+2}^t$ *then IP for t+1* *If* $Adj\_IBES\_Actual_{jt+2} > AF_{t+2}^t > IBES\_Actual_{jt+2}$ *then OP for t+1* *else IN for t+1*	*If* $IBES\_Actual_{jt+2} > AF_{t+2}^t$ *then IP for t+1* *If* $Adj\_IBES\_Actual_{jt+2} > AF_{t+2}^t > IBES\_Actual_{jt+2}$ *then OP for t+1* *else IN for t+1*	*IP for t+1*
$RI_t \geq AF_t^t$ *and* $RI_{t+1} < AF_{t+1}^t$	*IP for t* *If* $IBES\_Actual_{jt+2} > AF_{t+2}^t$ *then IP for t+1* *If* $Adj\_IBES\_Actual_{jt+2} > AF_{t+2}^t > IBES\_Actual_{jt+2}$ *then OP for t+1* *else IN for t+1*	*NP*	*NP*	*IP for t* *If* $IBES\_Actual_{jt+2} > AF_{t+2}^t$ *then IP for t+1* *If* $Adj\_IBES\_Actual_{jt+2} > AF_{t+2}^t > IBES\_Actual_{jt+2}$ *then OP for t+1* *else IN for t+1*

(1,1) *The income-decreasing earnings management did not result in the firm being able to meet-or-beat AF_{t+1}, hence it is classified as informational perspective for t. For period t+1, the earnings management is income-decreasing. We classify it as informational perspective if the firm would have been able to meet-or-beat AF_{t+2}^{t} even absent the accrual reversal. We classify it as opportunistic in t+1 if this leads to the firm being able meet-or-beat analysts' forecast in period t+2. If it did not, we classify the earnings management as* ***weakly*** *indeterminate, because the firm could have engaged in some additional income-increasing earnings management in period t+2 that would have been sufficient to meet-or-beat the forecast for t+2.*

(2,1) *The firm would have been able to meet-or-beat AF_{t+1} absent the earnings decreasing earnings management in t and in t+1. Hence we classify it as informational perspective for both t and t+1.*

(3,1) *The income-decreasing earnings management caused the firm to miss both AF_{t}^{t} and AF_{t+1}^{t} that it otherwise would have met. Hence we classify it as informational perspective for both t and t+1.*

(4,1) *The firm missed AF_{t}^{t} due to the income-decreasing earnings management – hence we classify it as informational perspective for t. For period t+1, the earnings management is income -decreasing. We classify it as informational perspective if the firm would have been able to meet-or-beat AF_{t+2} even absent the accrual reversal. We classify it as opportunistic in t+1 if this leads to the firm being able meet-or-beat analysts' forecast in period t+2. If it did not, we classify the earnings management as* ***weakly*** *indeterminate, because the firm could have engaged in some additional income-increasing earnings management in period t+2 that would have been sufficient to meet-or-beat the forecast for t+2.*

(1,2) *This combination is not possible.*

(2,2) *The income-decreasing earnings management was not necessary to meet-or-beat AF_{t+1}^{t}, hence we classify it as informational perspective for t if it is informational perspective in t+1. However, if it is opportunistic in t+1, then the income-decreasing earnings management is opportunistic in t because it allows the firm to shift income from t+1 to t+2 and still meet-or-beat in t+1. For period t+1, the earnings management is income-decreasing. We classify it as informational perspective if the firm would have been able to meet-or-beat AF_{t+2}^{t} even absent the accrual reversal. We classify it as opportunistic in t+1 if this leads to the firm being able meet-or-beat analysts' forecast in period t+2. If it did not, we classify the earnings management as* ***weakly*** *indeterminate, because the firm could have engaged in some additional income-increasing earnings management in period t+2 that would have been sufficient to meet-or-beat the forecast for t+2.*

(3,2) *The income-decreasing earnings management was not necessary to meet-or-beat AF_{t+1}^{t}, hence we classify it as informational perspective for t. For period t+1, the earnings management is income-decreasing. We classify it as informational perspective if the firm would have been able to meet-or-beat AF_{t+2} even absent the accrual reversal. We classify it as opportunistic in t+1 if this leads to the firm being able meet-or-beat analysts' forecast in period t+2. If it did not, we classify the earnings management as* ***weakly*** *indeterminate, because the firm could have engaged in some additional income-increasing earnings management in period t+2 that would have been sufficient to meet-or-beat the forecast for t+2.*

(4,2) *This combination is not possible.*

(1,3) *This combination is not possible.*

(2,3) *This combination is not possible.*

(3,3) *The income-decreasing earnings management was not necessary to meet-or-beat AF_{t+1}^{t}, hence we classify it as informational perspective for t if it is informational perspective in t+1. However, if it is opportunistic in t+1, then the income-decreasing earnings management is opportunistic in t because it allows the firm to shift income from t+1 to t+2 and still meet-or-beat in t+1. For period t+1, the earnings management is income-decreasing. We classify it as informational perspective if the firm would have been able to meet-or-beat AF_{t+2} even absent the accrual reversal. We classify it as opportunistic in t+1 if this leads to the firm being able meet-or-beat analysts' forecast in period t+2. If it did not, we classify the earnings management as* ***weakly*** *indeterminate,*

because the firm could have engaged in some additional income-increasing earnings management in period t+2 that would have been sufficient to meet-or-beat the forecast for t+2.

(4,3) *This combination is not possible.*

(1,4) *This combination is not possible.*

(2,4) *This combination is not possible.*

(3,4) *The income-decreasing earnings management was not necessary to meet-or-beat* AF_{t+1}^{t}*, hence we classify it as informational perspective for t. For period t+1, the earnings management is income-decreasing. We classify it as informational perspective if the firm would have been able to meet-or-beat* AF_{t+2}^{t} *even absent the accrual reversal. We classify it as opportunistic in t+1 if this leads to the firm being able meet-or-beat analysts' forecast in period t+2. If it did not, we classify the earnings management as* ***weakly*** *indeterminate, because the firm could have engaged in some additional income-increasing earnings management in period t+2 that would have been sufficient to meet-or-beat the forecast for t+2.*

(4,4) *The income-decreasing earnings management was not necessary to meet-or-beat* AF_{t+1}^{t}*, hence we classify it as informational perspective for t. For period t+1, the earnings management is income-decreasing. We classify it as informational perspective if the firm would have been able to meet-or-beat* AF_{t+2} *even absent the accrual reversal. We classify it as opportunistic in t+1 if this leads to the firm being able meet-or-beat analysts' forecast in period t+2. If it did not, we classify the earnings management as* ***weakly*** *indeterminate, because the firm could have engaged in some additional income-increasing earnings management in period t+2 that would have been sufficient to meet-or-beat the forecast for t+2.*

Panel F: Income-Decreasing Earnings Management in Year t and Income-Increasing Earnings Management in Year t+1

$RI_t > OI_t$ and $RI_{t+1} < OI_{t+1}$				
	$OI_t < AF_t^t$ and $OI_{t+1} < AF_{t+1}^t$	$OI_t < AF_t^t$ and $OI_{t+1} \geq AF_{t+1}^t$	$OI_t \geq AF_t^t$ and $OI_{t+1} \geq AF_{t+1}^t$	$OI_t \geq AF_t^t$ and $OI_{t+1} < AF_{t+1}^t$
$RI_t < AF_t^t$ and $RI_{t+1} < AF_{t+1}^t$	*IP for t* *IP for t+1*	*OP for t* *OP for t+1*	*NP*	*NP*
$RI_t < AF_t^t$ And $RI_{t+1} \geq AF_{t+1}^t$	*NP*	*IP for t* *IP for t+1*	*NP*	*NP*
$RI_t \geq AF_t^t$ And $RI_{t+1} \geq AF_{t+1}^t$	*NP*	*IP for t* *IP for t+1*	*IP for t* *IP for t+1*	*NP*
$RI_t \geq AF_t^t$ and $RI_{t+1} < AF_{t+1}^t$	*IP for t* *IP for t+1*	*IP for t* *OP for t+1*	*OP for t* *OP for t+1*	*IP for t* *IP for t+1*

(1,1) The income-decreasing earnings management did not result in the firm being able to meet-or-beat either AF_t^t or AF_{t+1}^t – hence we classify it as informational perspective. The income-increasing earnings management in t+1 did not result in the firm being able to meet-or-beat AF_{t+1} and the accrual reversal could not have helped in t+2 – hence we classify it also as informational perspective in t+1.

(2,1) This combination is not possible.

(3,1) This combination is not possible.

(4,1) The income-decreasing earnings management caused the firm to miss AF_t^t – hence we classify it as informational perspective for period t. The income-increasing earnings management in t+1 did not result in the firm being able to meet-or-beat AF_{t+1} and the accrual reversal could not have helped in t+2 – hence we classify it also as informational perspective in t+1.

(1,2) The accrual reversal resulting from the income-decreasing earnings management in period t and the income-increasing earnings management in period t+1 resulted in the firm being able to meet-or-beat AF_{t+1}^t – hence we classify it as opportunistic for t and t+1.

(2,2) The accrual reversal resulting from the income-decreasing earnings management in period t and the income-increasing earnings management in period t+1 were not necessary for the firm being able to meet-or-beat AF_{t+1}^t and the accrual reversal resulting form the income-increasing earnings management could not have helped the firm to meet-or-beat AF_{t+2} – hence we classify it as informational perspective for t and t+1.

(3,2) *The income-decreasing earnings management in t caused the firm to miss* AF_t^t *– hence we classify it as informational perspective. The income-increasing earnings management in period t+1 was not necessary for the firm being able to meet-or-beat* AF_{t+1} *and the accrual reversal resulting form the income-increasing earnings management could not have helped the firm to meet-or-beat* AF_{t+2} *– hence we classify it as informational perspective for t and t+1.*

(4,2) *The income-decreasing earnings management in t caused the firm to miss* AF_t^t *– hence we classify it as informational perspective. The income-increasing earnings management allowed the firm to meet-or-beat* AF_{t+1}^t *– hence we classify it as opportunistic.*

(1,3) *This combination is not possible.*

(2,3) *This combination is not possible.*

(3,3) *The accrual reversal resulting from the income-decreasing earnings management in t was not necessary for the firm to meet-or-beat* AF_{t+1} *– hence we classify it as informational perspective. The income-increasing earnings management in period t+1 was not necessary for the firm being able to meet-or-beat* AF_{t+1}^t *and the accrual reversal resulting form the income-increasing earnings management could not have helped the firm to meet-or-beat* AF_{t+2} *– hence we classify it as informational perspective for t and t+1.*

(4,3) *The accrual reversal resulting from the income-decreasing earnings management in t together with the income-increasing earnings management in period t+1 allowed the firm to meet-or-beat* AF_{t+1}^t *– hence we classify it as opportunistic for t and t+1.*

(1,4) *This combination is not possible.*

(2,4) *This combination is not possible.*

(3,4) *This combination is not possible.*

(4,4) *The accrual reversal resulting from the income-decreasing earnings management in t and the income-increasing earnings management in t+1 were not sufficient for the firm to meet-or-beat* AF_{t+1}^t *–hence we classify it as informational perspective for t and t+1.*

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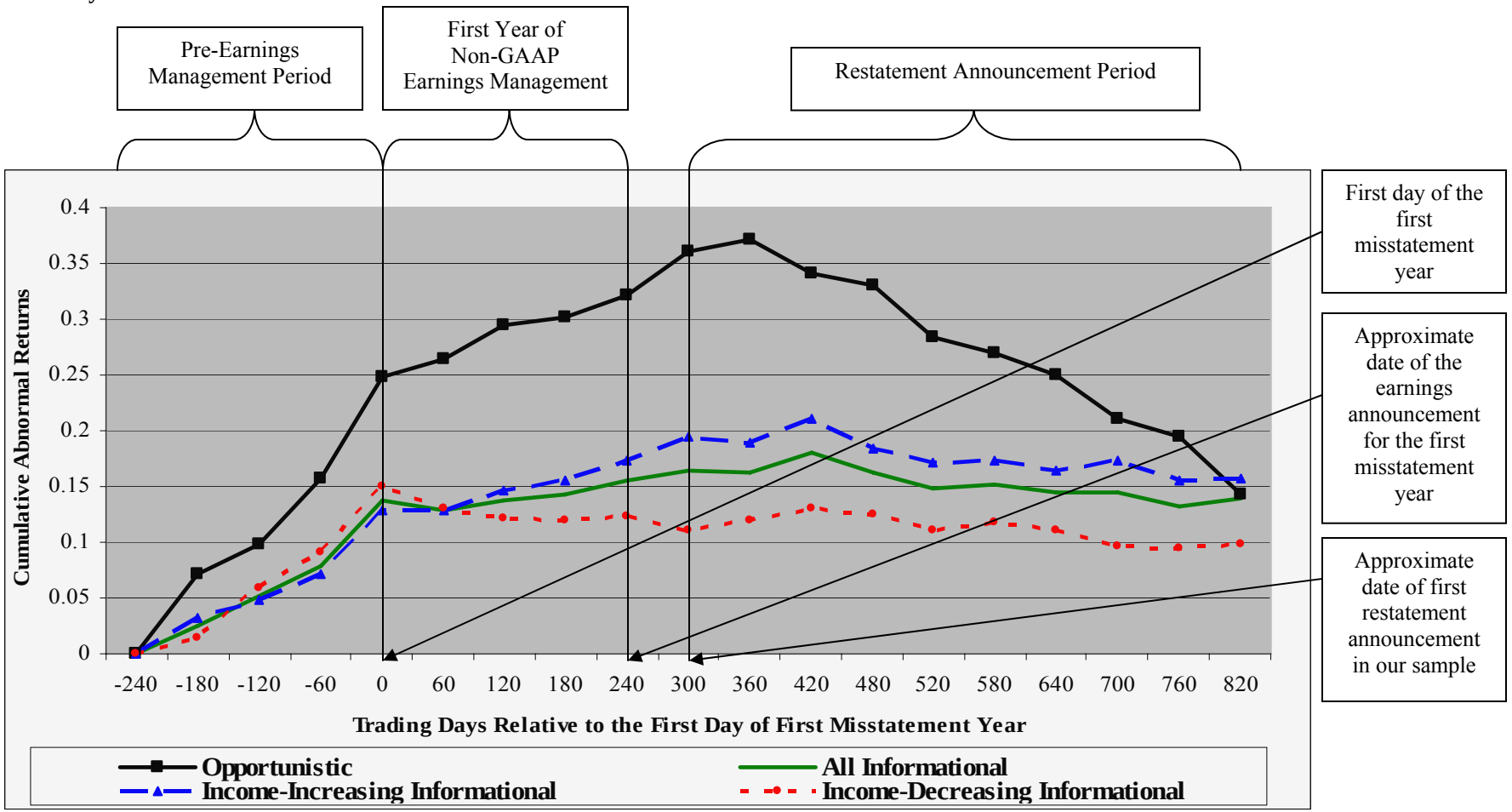
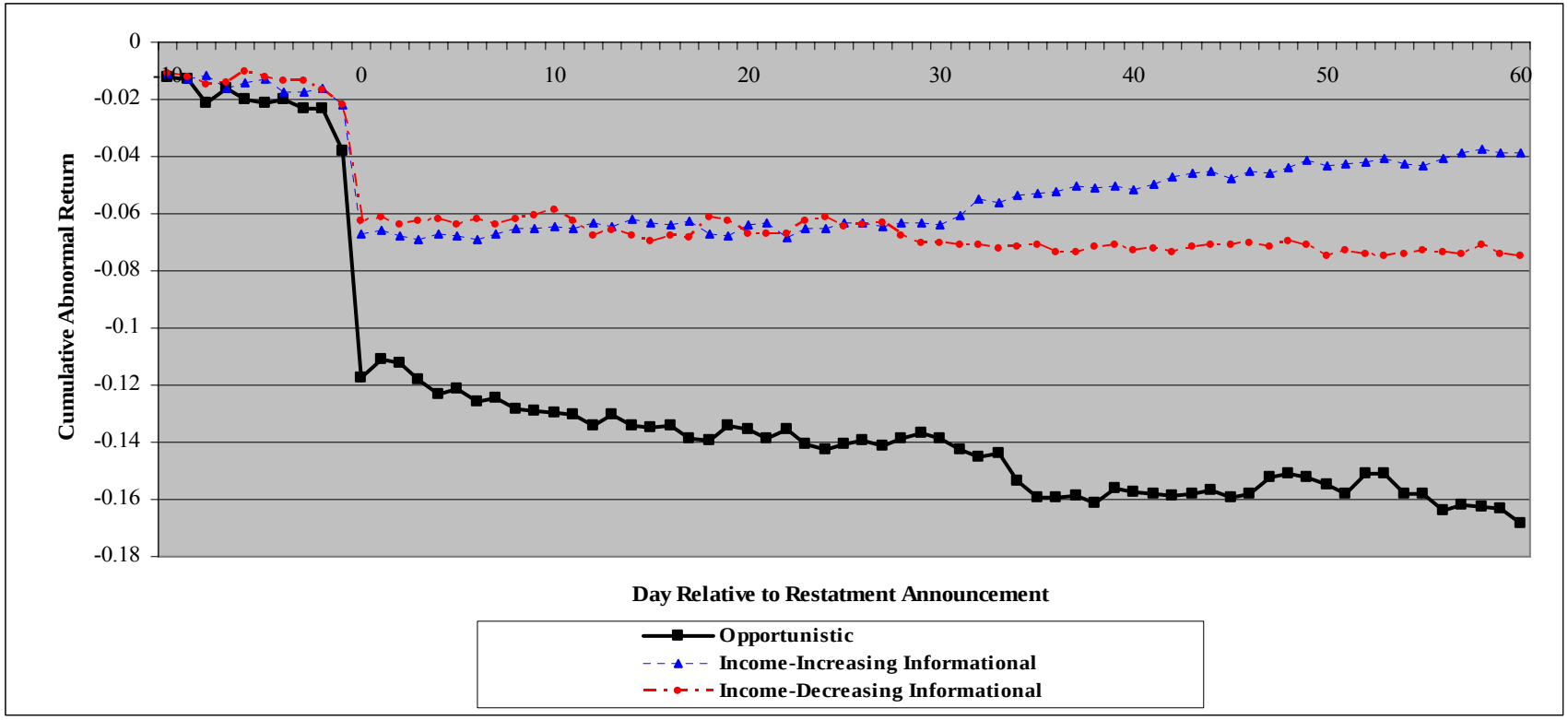
Figure 1
Market-adjusted abnormal returns for the 240 trading days before the first day of the first misstatement year and 820 trading days after the first day of the first misstatement year.



The market-adjusted returns are accumulated beginning the first day of the first fiscal year before the first misstatement year. Day zero is the first day of the first misstatement year. If firm A's first misstated year was fiscal year beginning 1/1/2000 and ending 12/31/2000, then day zero is 1/1/2000. The CAR's from day 0 to day 300 for the income-increasing informative and income-decreasing informative are significantly different from each other (one-tailed p-value is .001).

Figure 2

Market-Adjusted Cumulative Returns for the Opportunistic and Informational Perspective Firms from day -10 to day + 60 relative to the Restatement Announcement



Day 0 is the restatement announcement date, which is the day of the first public disclosure regarding the restatement.

Table 1
Description of Sample Size, Consecutive Years of Restatement, and Industry Classification, 1995-2001

Panel A: Description of Final Sample for Restated Data

GAO (2002) Restatement Firms	845
Less:	
Exclusion of quarterly restatements or insufficient restatement data	(536)
Exclusion of firms for insufficient analyst forecast data or stock price data	(63)
Exclusion of firms where original and restated earnings are the same	(6)
Restatement Sample – Firms	**238**
Restatement Sample – Firm –Years	**312**

Panel B: Restatement Sample Composition

Earnings Management Type	**Firms**	**Percent of Firms**	**Firm -Years**
Opportunistic	168	70.6%	206
Informational	65	27.3%	101
Indeterminant	5	2.1%	5
Total	**238**	**100%**	**312**

Panel C: Distribution of Restatement Reasons

Reason for Restatement	**GAO Report**	**%**	**Opportunistic**	**%**	**Informational**	**%**
Revenue	388	36.09%	99	45.21%	22	27.50%
Expense	208	15.70%	59	26.94%	21	26.25%
Mergers and Acquisitions	64	5.93%	11	5.02%	6	7.50%
In-Process Research and Development	36	3.57%	4	1.83%	0	0.00%
Reclassification	48	5.27%	10	4.57%	6	7.50%
Related Third Party	31	3.01%	1	0.46%	3	3.75%
Restructuring	124	8.94%	8	3.65%	6	7.50%
Securities	65	5.36%	5	2.28%	4	5.00%
Other	111	14.21%	28	12.79%	12	15.00%
Total Firm Irregularities	1075		219	100%	80	100%
Total Firms	845		168		65	

Table 2
Descriptive Statistics for Opportunistic and Informational Perspective Samples

Panel A: Distributional Statistics for the Opportunistic Perspective Sample

	Original			*Restated*			*Difference*	
Variable	**Mean**	**Median**	**Std. Dev**	**Mean**	**Median**	**Std. Dev**	**Mean**	**Median**
EARN	-0.015	0.003	0.123	-0.076	-0.052	0.133	0.061***	0.055***
CF	-0.005	0.011	0.076	-0.010	-0.003	0.108	0.006	0.014
ACC	-0.011	-0.009	0.138	-0.066	-0.050	0.121	0.055***	0.041**
ΔAR	-0.017	-0.007	0.062	0.007	0.010	0.064	-0.024***	-0.017**
ΔINV	-0.007	-0.001	0.082	0.011	0.004	0.088	-0.018**	-0.005
ΔAP	-0.007	0.006	0.086	0.007	0.006	0.089	-0.014*	-0.000
DPAMT	0.040	0.034	0.054	0.057	0.043	0.050	-0.017**	-0.009*
OTHER	0.045	0.055	0.160	-0.022	0.012	0.140	0.067***	0.043**
Obs.		206			206			

Panel B: Distributional Statistics for the Informational Perspective Sample

	Original			*Restated*			*Difference*	
Variable	**Mean**	**Median**	**Std. Dev**	**Mean**	**Median**	**Std. Dev**	**Mean**	**Median**
EARN	-0.001	0.018	0.092	-0.025	0.001	0.101	0.024**	0.016
CF	0.023	0.036	0.080	0.021	0.028	0.083	0.002	0.008
ACC	-0.005	-0.032	0.083	-0.026	-0.043	0.087	0.021**	0.010*
ΔAR	-0.010	-0.001	0.042	-0.006	0.001	0.053	-0.004	-0.002
ΔINV	-0.012	-0.004	0.044	-0.005	0.000	0.033	-0.007	-0.004
ΔAP	0.018	0.006	0.045	0.019	0.002	0.039	-0.001	0.004
DPAMT	0.051	0.043	0.038	0.040	0.035	0.037	0.011	0.008
OTHER	0.013	0.011	0.111	-0.012	-0.010	0.047	0.025**	0.021**
Obs.		101			101			

*, **, *** Original and restated data are significantly different at the 10%, 5%, and 1% level; Statistical difference between median values are obtained by conducting a Wilcoxon's rank-sum test. EARN equals income before extraordinary items and discontinued operations: CF equals net cash flow from operating activities; ACC equals total operating accruals, calculated as EARN minus CF; ΔAR equals change in accounts receivable per the statement of cash flows; ΔINV equals change in inventory per the statement of cash flows; ΔAP equals change in accounts payable per the statement of cash flows; DPAMT equals depreciation and amortization expense per the statement of cash flows; OTHER equals net of all other accruals, calculated as EARN - (CF + ΔAR + ΔINV - ΔAP - DPAMT - OTHER). All variables are deflated by the average book value of total assets. For our calculation of average book value of total assets, we use the restated amount as they represent the "unmanaged" amount. CF and accrual components come directly off of the statement of cash flows. Therefore, a positive sign on ΔAR and ΔINV indicates a decrease in AR and INV, while a positive sign on ΔAP indicates an increase in AP.

Table 3
Summary Statistics from Regression of Future Cash Flow on Current Cash Flow and Components of Accruals for Opportunistic and Informational Perspective Samples

Panel A: Opportunistic Sample

$$CF_{jt+1} = a_0^k + b_1^k CF_{jt} + b_2 \Delta AR_{jt}^k + b_3^k \Delta INV_{jt}^k + b_4^k \Delta AP_{jt}^k + b_5^k DPAMT_{jt}^k + b_6^k OTHER_{jt}^k$$
$$+ D + D \times c_1^k CF_{jt}^k + D \times c_2^k \Delta AR_{jt}^k + D \times c_3^k \Delta INV_{jt}^k + D \times c_4^k \Delta AP_{jt}^k + D \times c_5^k DPAMT_{jt}^k + D \times c_6^k OTHER_{jt}^k + \varepsilon_{jt}^k$$

		Original		**Restated**	
Variable	Predicted Sign	Coefficient	t-stat	Coefficient	t-stat
Intercept	?	0.09	1.11	0.04	1.21
$CF_{i,t}$	+	0.84	9.44	0.73	15.79
$\Delta AR_{i,t}$	+	-0.24	-1.01	0.58	4.25
$\Delta INV_{i,t}$	+	-0.25	-0.57	0.31	1.84
$\Delta AP_{i,t}$	-	-0.27	-1.34	-0.63	-2.12
$DPAMT_{i,t}$	+	0.09	1.07	0.16	2.74
$OTHER_{i,t}$	?	-0.10	-0.21	0.43	3.04
D		-0.03	-0.83	-0.02	-0.52
$D*CF_{i,t}$		-0.19	-2.18	-0.14	-3.57
$D*\Delta AR_{i,t}$		0.07	0.75	0.22	2.18
$D*\Delta INV_{i,t}$		-0.23	-1.71	-0.07	-1.45
$D*\Delta AP_{i,t}$		0.11	0.88	0.25	1.71
$D*DPAMT_{i,t}$		-0.31	-1.89	0.01	0.79
$D*OTHER_{i,t}$		0.03	0.94	0.07	2.33
Adjusted R^2		0.36		0.49	
Obs.		206		206	
Voung's Z-Statistic		Z-stat = -2.51 (one-tail p-value = < 0.01)			

For the fraudulent only firms, the coefficients $(b_n^k + c_n^k)$ for the regression of future cash flow on current cash flow and components of accruals using originally reported and restated data are as follows:

		Original		**Restated**	
Variable	Predicted Sign	Coefficient	t-stat	Coefficient	t-stat
$CF_{i,t}$	+	0.65	7.85	0.59	16.81
$\Delta AR_{i,t}$	+	-0.17	-1.14	0.80	2.06
$\Delta INV_{i,t}$	+	-0.02	-0.51	0.24	1.91
$\Delta AP_{i,t}$	-	-0.16	-0.48	-0.38	-1.34
$DPAMT_{i,t}$	+	-0.22	1.83	0.17	1.54
$OTHER_{i,t}$	?	-0.07	-1.24	0.50	2.04

Table 3 (continued)

Panel B: Informational Perspective Sample

$$CF_{jt+1} = a_0^k + b_1^k CF_{jt} + b_2 \Delta AR_{jt}^k + b_3^k \Delta INV_{jt}^k + b_4^k \Delta AP_{jt}^k + b_5^k DPAMT_{jt}^k + b_6^k OTHER_{jt}^k + \varepsilon_{jt}^k$$

		Original		**Restated**	
Variable	Predicted Sign	Coefficient	t-stat	Coefficient	t-stat
Intercept	?	0.04	0.22	-0.08	-0.30
$CF_{i,t}$	+	0.81	13.13	0.77	7.88
$\Delta AR_{i,t}$	+	0.69	3.12	0.36	1.22
$\Delta INV_{i,t}$	+	0.41	1.87	-0.32	-1.13
$\Delta AP_{i,t}$	-	-0.13	-2.92	-0.23	-1.32
$DPAMT_{i,t}$	+	-0.88	-1.64	0.28	0.95
$OTHER_{i,t}$	?	0.61	3.26	-0.11	-0.13
Adjusted R^2		0.47		0.40	
Obs.		101		101	
Voung's Z-Statistic		Z-stat = 1.90 (one-tail p-value =0.03)			

See Table 2 for variable definitions. D is equal to one if the firm was deemed to have engaged in fraudulent earnings management. Since we have multiple observations coming from the same firm, the coefficients and t-stats are adjusted to control for heteroscedasticity and correlation within a cluster (by firm and year). The standard errors are called Rogers standard errors (See Petersen (2005)).

Table 4
Market Returns Analyses

Panel A: Short Window Returns Following the Restatement Announcements

Earnings Management Classification	Obs.	CAR (-2,2)	
All Firms	233	-0.088***	
Opportunistic Perspective	168	-0.095***	t = -5.42
Informational Perspective	65	-0.047***	
Opportunistic Perspective			
Non-Fraudulent Opportunistic	152	-0.093***	t = -0.71
Fraudulent Opportunistic	16	-0.101***	
Informational Perspective			
Income-Increasing	43	-0.050***	t = -0.83
Income-Decreasing	22	-0.042***	

Panel B: Regression Results for All Restatements where the Dependent Variable is the Five Day Window (-2,2) Around the Restatement Announcement.

$$AR_{jt} = a + bOP\_DUM + cREST\_AMT + dOP\_DUM * REST\_AMT + \varepsilon_{jt} \quad (13)$$

Variables		Predicted Sign	Coefficient	t-stat
Intercept		-	-0.041	2.51
OP_DUM		-	-0.032	2.04
REST_AMT		+	0.108	1.50
OP_DUM*REST_AMT		+	0.413	2.11
# of misstatement years		-	-0.013	0.30
R^2	11.2%			
Obs.	233			

OP_DUM is equal to one if the firm engaged in opportunistic earnings management and zero otherwise; REST_AMT is equal to restated income (RI) less originally reported income (OI) scaled by book value of assets reported at year end prior to restatement announcement; # of misstatement years is equal to the number of annual misstatement years; REST_AMT plus OP_DUM*REST_AMT is significantly different from zero (p-value 0.01).

*, **, *** significantly different from zero at the 10%, 5% and 1% level, respectively.

Table 5
Correlation between the Pre-Restatement Announcement Price Run-Up and the Post-Restatement Announcement Price Correction for the Opportunistic and Informational Perspective.

Opportunistic					
	Pearson	Spearman		Pearson	Spearman
	(-2,2)	(-2,2)		(-2,180)	(-2,180)
(-240,300)	-0.073	-0.088		-0.131	-0.144
	(0.094)	(0.065)		(0.036)	(0.029)
(0,300)	-0.046	-0.062		-0.091	-0.098
	(0.178)	(0.124)		(0.071)	(0.079)

Informational					
	Pearson	Spearman		Pearson	Spearman
	(-2,2)	(-2,2)		(-2,180)	(-2,180)
(-240,300)	0.025	0.017		0.026	0.015
	(0.643)	(0.698)		(0.403)	(0.521)
(0,300)	0.037	-0.013		0.011	0.018
	(0.493)	(0.574)		(0.694)	(0.576)

(-240,300) is 240 trading days before and 300 trading days after the first misstatement year, where day zero is the first day of the first misstatement year; (0,300) is 300 days after the first misstatement year, where day zero is the first day of the first misstatement year; (-2,2) is two days before and two days after the restatement announcement date, where day zero is the restatement announcement date and (-2,180) is two days before and 180 days after the restatement announcement date, where day zero is the restatement announcement date. There is no overlap between the (-240,300) or (0,300) and (-2,2) or (-2,180) trading day intervals.