

# **The Effects of Goodwill Accounting on Informativeness of Earnings: Evidence from Earnings Persistence and Earnings' Ability to Predict Future Cash Flows**

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*This paper examines the effect of SFAS No. 142 on the informativeness of earnings with two dimensions: (1) the ability of earnings to predict future operating cash flows and (2) earnings persistence. Contrary to the pervasive evidence of opportunistic reporting, we find evidence that the ability of earnings to predict future operating cash flows and earnings persistence has improved after the enactment of SFAS No. 142. In particular, this improvement is observed on firms with the highest level of discretionary accruals. Overall, the results of this paper contribute to the understanding of the effect of mandatory accounting changes on the properties of earnings and its interaction with managerial discretion.*

## **INTRODUCTION**

Since the Financial Accounting Standard Boards (FASB) issued the Statement of Financial Accounting Standards (SFAS) No.142, *Goodwill and Other Intangible Assets*, considerable ongoing debates have discussed the consequences of adopting SFAS No.142.<sup>1</sup> These debates are motivated by not only the economic magnitude of change in goodwill accounting on accounting earnings but also inherent subjectivity in application of fair value estimates in goodwill.<sup>2</sup> However, the related studies provide mixed evidence on the effects of adoption of SFAS No. 142. A stream of research finds that managers use discretion allowed under SFAS No.142 opportunistically, resulting in a decline in quality of goodwill accounting (e.g., Ramanna, 2008; Li and Sloan, 2011; Ramanna and Watts, 2011). Another stream of research supports the effectiveness of SFAS No. 142 by showing an improvement in the timeliness of goodwill impairment (Chen et al., 2008) or an enhancement in goodwill's ability to predict future cash flows (Lee, 2011). We extend prior literature by revisiting the effects of goodwill accounting on informativeness of earnings in terms of two important qualitative characteristics in financial reporting: reliability and relevance.

Our study adds new insights to and differs from prior literature in several aspects. First, we assess the efficacy of SFAS No.142 through joint examination of relevance and reliability. Following prior studies (e.g., Kim and Kross, 2005; Richardson et al., 2005; Bandyopadhyay et al., 2010), we conduct two sets of tests: 1) how goodwill accounting influences persistence of earnings for testing reliability issue of SFAS No.142, and 2) whether goodwill accounting affects earnings' ability to predict future cash flows for

testing relevance dimension. By considering two qualitative characteristics, our study can provide more comprehensive evidence on the efficacy of adopting SFAS No.142.

Our study further differs from prior studies in that it compares the pre- and the post-SFAS No.142 reporting regimes. Most prior studies, focusing on the goodwill impairment, investigate informativeness of goodwill impairment charges during the post-SFAS No. 142 period (e.g., Jarva, 2009; Li and Sloan, 2011; Ramanna and Watts, 2011; Li et al., 2011). To better evaluate the consequence of SFAS No.142, we conjecture that research should compare the pre-SFAS No. 142 regime (i.e., SFAS No. 121) to the post-SFAS No. 142 regime. While the pre and post settings may better capture the efficacy of SFAS No.142, it is likely to reflect other macro-effects across the pre and the post periods. In this study, we adopt two approaches to disentangle the economic effect from the reporting effect. First, we use sample firms with goodwill balance existing across the pre- and the post-SFAS No.142 periods and then compare it to a control sample without goodwill balance (i.e., firms unaffected by SFAS No.142). Second, we compare ‘actual reported earnings’ for firms with goodwill balance under the post-SFAS No.142 to ‘as-if earnings’ for firms with goodwill balance under the post-SFAS No.142 period. The as-if earnings are computed based on the pre-SFAS 142 goodwill accounting guideline.

Finally, we turn our focus to the managerial discretion in SFAS No. 142. Using the absolute value of discretionary accruals as a proxy for managerial discretion, we investigate whether managers use reporting discretion allowed by SFAS No.142 as a channel to communicate their assessment of goodwill to outsiders or as a vehicle of opportunistic reporting.

Contrary to Watt’s argument (2003a), our results indicate that the ability of earnings to predict the future operating cash flows and earnings persistence significantly improved post-SFAS No. 142 compared to the firms unaffected by the statement (hereafter, control group). To examine the impact of managers’ opportunistic discretionary reporting on the informativeness of earnings, we partition the firms affected by SFAS No. 142 (hereafter, treatment group) into two sub-groups: the potential manipulator sub-group (highest quintile) and the potential non-manipulator sub-group (lowest quintile), based on the rank of the absolute value of the cross-sectional of discretionary accruals in the pre-SFAS No. 142 period. Following previous studies (e.g., Subramanyam, 1996; DeFond and Subramanyam, 1998; and Bartov et al., 2001), we posit that discretionary accruals can be an indicator of firms with discretionary reporting behavior.

The results of the partitioning indicate that, for the potential manipulator sub-sample, the earnings’ ability to predict future operating cash flows significantly increases after the adoption of SFAS No. 142, while earnings’ ability to predict future cash flow and earnings persistence are not changed for the potential non-manipulator sub-group.

Our paper contributes to the current research in several ways. First, the results of this study provide corroborate evidence regarding the effectiveness of SFAS No. 142 by joint testing for relevance and reliability. Our findings support the FASB’s position that SFAS No. 142 was intended to report assets and earnings better reflecting the economic consequence of goodwill and other intangible assets and economic earnings.<sup>3</sup> Second, the paper may provide an interesting result for standard setters. Given the strong criticism related to the managerial discretion allowed by SFAS No. 142, the results suggest that an increase in managerial discretion is not used opportunistically compared to the pre-SFAS No. 142 regime. The remainder of the paper is organized as follows. In the next section, we summarize prior literature related to managerial discretion on financial reporting and develop hypotheses. Section 3 explains the research design to test the hypotheses. In section 4, we describe sample selection procedures and descriptive statistics. Section 5 summarizes the empirical results. In the final section, we offer concluding remarks.

## **BACKGROUND AND HYPOTHESES DEVELOPMENT**

### **Motivation**

In 2001, the FASB issued two accounting rules, SFAS No. 141, “Business Combinations” and SFAS No. 142, “Goodwill and Other Intangible Assets.” FASB Statements No.141 and No.142 require the

purchase method for all business combinations, eliminating the pooling-of-interests method, and they recognize the impairment loss of goodwill rather than record systematic amortization. The two accounting rules have substantially influenced financial statements. In particular, the FASB anticipates that the new goodwill accounting rule will enhance investors' ability to predict future operating cash flows or profitability.<sup>4</sup> This anticipation is based on the fact that SFAS No. 142 improves the guidelines for asset impairment write-down procedures compared to SFAS No.121, "Accounting for Impairment of Long-Lived Assets," and the belief that the new guidelines will lead firms to better reflect the underlying economic value of goodwill assets. Henning, Shaw, and Stock (2004) predict that the new features in SFAS No. 142, such as annual impairment tests and segment-based impairment tests, can mitigate the firm's discretion to defer an impairment charge.<sup>5</sup>

In addition to the specific guidelines for recognition of asset impairments, SFAS No. 142 enhances the quantity of disclosure related to goodwill assets on the basis of the reporting units' valuation. Gu and Lev (2005) present evidence that the detailed disclosure of intangible assets provide market participants with some information regarding a firm's projection about its future performance and cash flows and improve market participants' expectations related to forecasting future performance.

However, incessant criticisms regarding SFAS No. 142 point out the discretionary aspect of the statement. Anecdotal evidence strongly criticizes the intent of the new statement and the ambiguous features of the statement (Massoud and Raiborn, 2003, and Watts, 2003a 2003b; Ramanna, 2008; Ramanna and Watts, 2011). Specifically, the business press indicates that SFAS No. 142 is a political byproduct of issuing SFAS No. 141, eliminating the pooling-of-interests methods in business combination, rather than a direct attempt to improve the informativeness of goodwill reporting. In 2000, Abraham Briloff, professor emeritus of accounting at Baruch University in New York, gave the following remark regarding SFAS No.141 and SFAS No. 142: "The FASB has capitulated to the pragmatic world of the companies that want to provide the highest levels of earnings numbers they can generate."<sup>6</sup>

Watts (2003a) asserts that SFAS No. 142 is the result of lobbying by investment bankers. Furthermore, Watts (2003a) reproaches the FASB for adopting Statement No.142 because the impairment tests for goodwill accounting deviate from the concept of verifiability in that the managers' predicted future operating cash flows are unlikely to be verifiable; thus, the provision of SFAS No. 142 may impair the reliability of earnings information. He argues that a lack of verifiability results in earnings management arising from the opportunistic manager's discretion related to the timing of the recognition of the losses. He finally concludes that SFAS No. 142 can be a strong candidate to achieve the desired earnings targets, and thus issuing SFAS No. 142 is an error of judgment by the FASB. Open empirical questions include whether SFAS No. 142 enhances the informativeness of the reported earnings as the FASB anticipated or impairs the reliability of financial reporting as Watts argued.

### **The Impact of SFAS No. 142 on Earnings**

Under SFAS No. 142, goodwill and other intangible assets with unlimited lives are not amortized systematically, but are tested for impairment losses (at least annually). Since the FASB considers that the value of goodwill and other intangible assets with indefinite lives is not mechanically decreased over time, it anticipates that the revised goodwill accounting rule will enhance financial reporting by reflecting the underlying economics of those assets. Consequently, the FASB expects that accounting information on impaired goodwill and intangible accounting information will enable financial users to better understand and forecast a firm's future operating cash flows or profitability. Compared to prior asset write-off rules (i.e., SFAS No.121), there are two new aspects of the improvements in SFAS No. 142; one is the timely impairment test required at least annually using a two-step process, and the other feature is impairment tests based on reporting units rather than at the entire firm level.<sup>7</sup> Specifically, expanded disclosure regarding goodwill and other intangible assets based on the reporting unit can provide market participants with better information regarding the value of these assets.

While the above features in SFAS No. 142 presumably reduce managers' discretion with detailed and specified provisions (Henning, Shaw, and Stock 2004), anecdotal evidence (Watts, 2003a, 2003b) raises questions about whether the implementation of SFAS No. 142 requires inherently subjective estimates

and assumptions. First, managers can use their discretion, judgment, and interpretations for the allocation of assets, liabilities, and goodwill to each reporting unit. Watts (2003a) indicates that the value of reporting units is unverified and difficult to measure. Moreover, he argues that goodwill is an asset that influences the entire firm. If synergy is ignored, the simple allocation of goodwill to the reporting units may involve managerial discretion and the allocated goodwill is not economically meaningful.

The second issue is the fair value measurement of reporting units. According to SFAS No. 142, the FASB suggests the use of discounted cash flow methods or multiples, unless the quoted prices for the reporting units are available as an alternative source by which to evaluate the fair value of the reporting units.<sup>8</sup> Since significant discretion can be used in valuation methods, the lack of specific guidelines from the FASB results in the inclusion of substantial assumptions and estimations in measurement of the fair value of the reporting units. This ambiguity facilitates the managers' discretionary reporting behavior.

One possible effect of discretionary reporting is the delayed reporting of goodwill impairment losses. Prior guidelines under APB Opinion 17 required a systematic amortization for any purchased goodwill over a maximum period of 40 years. Under the pre-SFAS No. 142 regime, many companies adopted the 40-year maximum as the useful life in computing amortization to avoid negative effects on future periodic earnings (Huefner and Largay III, 2004). However, under the new statement, elimination of the previous goodwill amortization requirements will likely increase reported annual earnings by delaying recognition of losses. In the pre-SFAS No. 142 regime, Zucca and Campbell (1992) documented how managers use their discretion to decide the asset write-offs. More recently, Beatty and Weber (2006) calculate the expected goodwill write-off using Bear Stern's method of evaluating whether the book value of equity exceeds the market value of equity. They suggest that firms provide incentives (e.g., debt contracting, bonus, manager turnover, and exchange delisting) to delay goodwill impairment loss. In addition, managers can avoid goodwill impairment entirely by allocating it to a reporting unit in which the fair value of net assets greatly exceeds book value.

Another possible effect of SFAS No. 142 on financial statements is the excessive recognition of goodwill impairment losses. In 2002, AOL Time Warner reported a goodwill write-off amount of 54.0 billion dollars at one time; Chris Isidore notes, "The amount is roughly half the size of the annual U.S. federal budget deficit."<sup>9</sup> As indicated by the former SEC chairman Arthur Levitt (1998), this discretionary one-time charge, on the so-called "big bath," is one of the methods of "the Numbers Game." In addition, previous asset write-off studies provide evidence that the decision to write off assets is not driven by the decrease of the economic value of the asset but by the manager's reporting incentives (e.g., Francis et al., 1996; Riedl, 2004). Similar to the prior asset write-off cases, SFAS No. 142 leaves significant room for managerial discretion and continuously provides opportunities to use big bath reporting (Segal 2003). Beatty and Weber (2006) find evidence of the big bath under the SFAS No. 142 regime; that is, managers enjoy the one-time benefit of reporting the impairment losses "below-the-line (below operating item)."

In summary, SFAS No. 142 provides timely reporting of impairment losses and detailed disclosure regarding goodwill and other intangible assets but at the same time allows managers to use substantial reporting flexibility and their discretion to decide the timing and magnitude of recognized impairment losses.

### **Earnings' Ability to Predict Future Operating Cash Flows**

Previous studies related to asset write-offs present different views about the consequences of managerial discretion over reporting on the informativeness of the financial statements. Rees, Gill, and Gore (1996) argue that managers use their discretion to provide a valuable signal to investors. The authors assume that, if firms want to manipulate earnings through an asset write-off, firms may also use their discretion over operating accruals. Consistent with their predictions, the authors find that asset write-offs are accompanied by income decreasing operating accruals during the same period. Based on the findings that the operating accruals are not reversed in following years, they conclude that the write-off is not a result of opportunistic managerial behavior but a credible signal to the market regarding firm value.

Li et al. (forthcoming) show evidence that managerial discretion under SFAS No. 142 provides investors with private information about the firm's future operating cash flows. Lee (2010) views SFAS

No. 142 as a balance sheet approach and shows that the ability of goodwill balance to predict future cash flows has been improved across the pre- and the post-SFAS No. 142 periods. These studies are consistent with the “signaling perspective” about managerial discretion reporting behavior (e.g., Sankar and Subramanyam, 2001; Kirschenheiter and Melumad, 2002). Based on this view, the managers’ discretion in financial reporting may enhance the predictive ability of earnings if managers provide useful signals that capture their prediction about the firm’s future cash flows.

On the other hand, another stream of research (e.g., Strong and Meyer, 1987; Zucca and Cambell, 1992; Francis et al., 1996; Riedl, 2004; Beatty and Weber, 2006; Ramanna, 2008; Ramanna and Watts, 2009) argues that opportunistic reporting behavior reduces the informativeness of reported accounting numbers. Dye (2002) suggests that “classification manipulation,” including the delayed recognition of the transactions or economic events, reduces the ability of the earnings to predict the firm’s future cash flows.

Stocken and Verrecchia (2004) suggest that managerial discretion in financial reporting does not necessarily enhance the effectiveness of the financial reporting, even if the manager can use this discretion to provide private information. As it relates to SFAS No. 142, their study suggests that, if the manager’s effort regarding analyzing future cash flows of reporting units involves a certain reporting cost, the manager is more likely to provide an inaccurate goodwill report in order to reduce the cost and may reduce the informativeness of earnings.

This paper investigates the effect of the adoption of SFAS No. 142 on the relevance of accounting information, measured by the ability of earnings to predict future cash flows, as the FASB asserted. Because of the mixed evidence from previous studies, the first prediction is stated as a two-tailed hypothesis (in alternative form):

*H<sub>1</sub>: The ability of earnings to predict future operating cash flows under the post-SFAS No. 142 regime is different from that under the pre-SFAS No. 142 regime.*

### **Earnings Persistence and Reliability of Accounting Information**

Maximizing the usefulness of accounting information involves a trade-off between relevance and reliability. Accounting information may possess both characteristics to varying degrees. Several prior works of research have examined the relation between the usefulness of earnings and earnings persistence and find evidence that the usefulness of earnings is positively associated with earning persistence (Kormendi and Lipe, 1987; Easton and Zmijewski, 1989; Bandyopadhyay et al., 2010).

Measurement error in accounting accruals may cause a potential error in the earnings measurement process and thereby may result in low correlation between current earnings and future earnings. Reliability is defined as “the quality of information that assures that information is reasonably free from error and bias and faithfully represents what it purports to represent” (SFAC No.2, Glossary of terms p. 10), which may provide a link between accrual reliability and earnings persistence. Since less reliable accruals may lead to lower earnings persistence, earnings persistence can be used as a proxy for reliability, as in prior studies (Richardson et al., 2005; Bandyopadhyay et al., 2010).

We investigate the effect of the adoption of SFAS No. 142 on reliability of earnings, measured by the effect of SFAS No.142 on earnings persistence. The second hypothesis is presented as a two-tailed hypothesis (in alternative form):

*H<sub>2</sub>: The earnings persistence under the post-SFAS No. 142 regime is different from that under the pre-SFAS No. 142 regime.*

## **RESEARCH DESIGN**

### **Effect of SFAS No. 142 on the Ability of Earnings to Predict Future Operating Cash Flows**

One of the primary concerns of this paper is to investigate the effect of the fair value estimated accounting earnings resulting from the adoption of SFAS No. 142 on the ability of earnings to predict future operating cash flows. In order to investigate this effect, first we empirically examine an association

between current earnings and future operating cash flows. Following Altamuro, Beatty, and Weber (2006) and Doyle, Lundholm, and Soliman (2003), we use the following estimated model comparing earnings' ability to predict future operating cash flows over the two different regimes. ,

$$FCF_{it+1} = \beta_0 + \beta_1 POST + \beta_2 X_{it} + \beta_3 POST * X_{it} + \beta_4 SIZE_{it} + \beta_5 GROWTH_{it} + \beta_6 CAP_{it} + \beta_7 X_{it} * SIZE_{it} + \beta_8 X_{it} * GROWTH_{it} + \beta_9 X_{it} * CAP_{it} + \beta_{10} LOSS_{it} + \varepsilon_{it} \quad (1)$$

where,

$FCF_{it+1}$  = Cash flows from operations (#308) at year t+1 deflated by total assets (#6) at the end of the fiscal year t;

$X_{it}$  = Earnings before extraordinary items (#18) deflated by total assets (#6) at the end of the fiscal year t;

$POST$  = Indicator variable equal to 1 if the firm year is in the post-SFAS No. 142 regime, 0 otherwise;

$SIZE$  = Natural logarithm of the market value of equity (#199\*#25) at the end of the fiscal year t;

$GROWTH$  = Change in sales (#12) deflated by total assets (#6);

$CAP$  = Average value of the sum of depreciation and interest deflated by the average value of sales;

$LOSS$  = Indicator variable equal 1 if firm i's net income is negative, 0 otherwise at year t..

In the above model, the coefficient of current earnings,  $\beta_1$ , represents the association between current earnings and future operating cash flows in the pre-SFAS No. 142 period. The coefficient of  $POST * X$  indicates the association between current earnings and future operating cash flows in the post regime. As the FASB argued, if the reported earnings after the statement are more informative, the estimated coefficient of  $POST * X_{it}$ ,  $\beta_3$ , will be positive and significantly different from zero. On the other hand,  $\beta_2 < 0$  suggests a decline in the association between current earnings and future operating cash flows in the post period. These interpretations of the regression coefficients are consistent with Altamuro et al. (2005). Furthermore, to control for effects other than the adoption of SFAS No. 142, we use a control group (i.e., firms unaffected by SFAS No. 142).

Unlike the study of Altamuro et al. (2005), the model in this paper includes several additional variables to control other factors affecting the future operating cash flows. Also, the following variables are used to control for the possible difference between the firms affected and firms unaffected by SFAS No. 142. Control variables include firm size (SIZE), expected growth (GROWTH), capital intensity (CAP), and loss indicator variable (LOSS). Baginski et al. (1999), Lev (1983), and Kim and Kross (2005) suggest that firm size is negatively related to volatility of earnings and cash flows. Doyle et al. (2003) argue that the prediction of future cash flow for growing firms is low due to increasing demand in working capital investments. We define SIZE as the natural logarithm of the market value of equity (#199 \* #25) at the end of the fiscal year; GROWTH is measured as the change in sales (#12) deflated by total assets (#6). The proxy for capital intensity, CAP, is estimated as the average value of the sum of depreciation and interest deflated by the average value of sales over the pre and post period. The loss indicator variable, LOSS, is given as 1 if firm i's net income is negative, otherwise 0 at year t.

Since SFAS No. 142 is applied in fiscal years beginning after December 15, 2001, we define the pre-SFAS No. 142 regime as including firms with fiscal years ending between December 1998 and May 2000 and the post-SFAS No. 142 regime as including firms with fiscal years ending between December 2002 and May 2004. The gap between the two regimes is excluded in order to diminish the effect of the transition period and possible early adoption.<sup>10</sup> The two regimes are pooled in a regression model using binary variables.

However, other concurrent events beyond the passage of SFAS No. 142 may affect the informativeness of earnings since the pre and post periods defined in this paper span other confounding events, such as corporate accounting scandals and the implementation of the Sarbanes-Oxley Act. Cohen et al. (2005) suggest that strong enforcement of regulation, including the Sarbanes-Oxley Act, and the

enhanced role of auditors after those corporate accounting scandals may reduce managers' opportunistic reporting behavior.

To isolate the effect of SFAS No. 142, we perform additional analysis by comparing as-if reporting with actual reporting in the post- SFAS No. 142 period. First, the proportion of goodwill to total intangible assets is calculated; then, total amortization costs are multiplied by the proportion to obtain the goodwill charges for pre-SFAS No. 142 periods. After dividing the goodwill charges by goodwill balances to get the ratio of goodwill charges to goodwill, a three-year average is computed for the pre-SFAS No. 142 period. Since the sample firms exist in both the pre- SFAS No. 142 and the post- SFAS No. 142 periods, the three-year average ratio can be applied to the goodwill balance for the post- SFAS No. 142 period.

$$FCF_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \beta_4 CAP_{it} + \beta_5 X_{it} * SIZE_{it} + \beta_6 X_{it} * GROWTH_{it} + \beta_7 X_{it} * CAP_{it} + \beta_8 LOSS_{it} + \varepsilon_{it} \quad (2)$$

Then, 'as-if' earnings are calculated and the Vuong test is performed as a comparison of two-nested models with a sample dependent variable.<sup>11</sup> As the differences from the Vuong test are exclusively from the effect of SFAS No. 142, the results will corroborate our first hypothesis.

### Effect of SFAS No. 142 on the Earnings Persistence

To investigate the effect of the new goodwill accounting from the adoption of SFAS No. 142 on earnings persistence, we examine an association between current earnings and future earnings. Similar to the equation (1), we use the following estimated model comparing earnings' ability to predict future earnings before and after SFAS No. 142 regimes.

$$FX_{it+1} = \beta_0 + \beta_1 POST + \beta_2 X_{it} + \beta_3 POST * X_{it} + \beta_4 SIZE_{it} + \beta_5 GROWTH_{it} + \beta_6 CAP_{it} + \beta_7 X_{it} * SIZE_{it} + \beta_8 X_{it} * GROWTH_{it} + \beta_9 X_{it} * CAP_{it} + \beta_{10} LOSS_{it} + \varepsilon_{it} \quad (3)$$

where,

$FX_{it+1}$  = Earnings before extraordinary items (#18) deflated by total assets (#6) at the end of the fiscal year t+1;

$X_{it}$  = Earnings before extraordinary items (#18) deflated by total assets (#6) at the end of the fiscal year t;

$POST$  = Indicator variable equal to 1 if the firm year is in the post-SFAS No. 142 regime, 0 otherwise;

$SIZE$  = Natural logarithm of the market value of equity (#199\*#25) at the end of the fiscal year t;

$GROWTH$  = Change in sales (#12) deflated by total assets (#6);

$CAP$  = Average value of the sum of depreciation and interest deflated by the average value of sales;

$LOSS$  = Indicator variable equal 1 if firm i's net income is negative, 0 otherwise at year t..

In the model, the coefficient of current earnings,  $\beta_1$ , represents the level of earnings persistence in the pre-SFAS No. 142 period, and the coefficient of  $POST * X$ ,  $\beta_3$ , indicates the level of earnings persistence in the post regime. If the reported earnings after SFAS No. 142 are more persistent, the estimated coefficient of  $POST * X_{it}$ ,  $\beta_3$ , will be positive and significantly different from zero. On the other hand,  $\beta_2 < 0$  suggests a decline in earnings persistence in the post period. To control for effects other than the adoption of SFAS No. 142, we control other factors affecting earnings persistence, as in equation (1). We also perform additional analysis by comparing as-if reporting with actual reporting in the post-SFAS No. 142 period. Similar to the test for the association between current earnings and future operating cash flows, Vuong test is performed.

## SAMPLE AND DESCRIPTIVE STATISTICS

### Sample Selection

The sample selection procedure is summarized in Table 1. Initially, 39,550 firm-year observations from 8,010 firms listed with positive goodwill balances are obtained from the Compustat Industrial Annual File from 1995 to 2006. From this initial sample, 3,651 firm-year observations from 775 firms in the utilities industry (SIC code: 4900-4999) and financial institutions (SIC code 6000-6999) are deleted. Subsequently, 3,229 firm-year observations with a negative book value of equity are excluded, and 7,701 firm-year observations with those missing future operating cash flows or those missing future earnings are also deleted. Since the paper focuses on the effect of SFAS No. 142 on the ability of earnings to predict future operating cash flows over the pre- and post-SFAS No. 142 periods, 10,402 firm-year observations belonging to the non-testing periods are excluded. In order to compare the pre- and post-SFAS No. 142 regimes, 4,297 firms not having variables over the entire sample period are deleted. Finally, 671 firms and 4,206 firm-year-observations are used to test the hypotheses.

**TABLE 1**  
**SAMPLE SELECTION**

<b>Description</b>	<b>Number of Firms</b>	<b>Number of Firm-Years</b>
Firms listed with positive goodwill balance on Compustat from 1995 to 2006	8,010	39,550
Less:		
Utilities and financial institutions (SIC code: 4900-4999 and 6000-6999)	775	3,651
Negative book value	414	3,229
Missing future cash flows	1,130	7,701
Non-testing periods (Testing Periods-pre-SFAS 142 (1996-1998) and Post-SFAS 142 (2002-2004))	723	10,402
Firms not existed at both the pre- and the post-SFAS 142 periods	<u>4,297</u>	<u>10,541</u>
Total	<u>671</u>	<u>4,026</u>

To control for several possible other events (e.g., Sarbanes Oxley Act of 2002 and changes in macroeconomic factors including interest rates and business cycles) that occurred around the time of adoption of SFAS No. 142, we retrieved firms unaffected by SFAS No. 142 (control group). After applying the sample selection criteria, 3,816 firm-year observations were selected as the control group. Because of the limitation in the number of firms unaffected by SFAS No. 142, these firms are not matched with the treatment group (firms affected by SFAS No. 142) by industry or firm size. As a result, the control group may not fully control for macroeconomic effects separate from the adoption of SFAS No. 142. Due to this possible limitation in the control group, we include several control variables in the regression model.

### Descriptive Statistics

Table 2 presents descriptive statistics for both the treatment and control groups over the pre- and the post-SFAS No. 142 periods. In general, the treatment and control groups differ in firm size, earnings, cash flows from firm' operations, and other control variables included in the regression model. Specifically, the mean differences between the treatment group and the control group suggest that the treatment group consists of much larger, high-growth firms that report higher levels of earnings. These differences confirm the necessity of control variables incorporating any difference in firm characteristics.



Panel A and Panel B in Table 3 show the correlations among key variables of the treatment and control groups, respectively. Pearson's correlation is shown above the diagonal and the Spearman correlation is shown below the diagonal. Consistent with previous studies, we find that the current level of earnings ( $X$ ) is positively and significantly correlated with future operating cash flows (FCF) and future earnings (FX) for the treatment and the control group. Under the assumption that persistent earnings is positively associated with the future operating cash flows, the negative correlation between future operating cash flows (FCF) and capital intensity (CAP) and the positive correlation between future operating cash flows (FCF) and firm size (SIZE) is consistent with the findings of Lev (1983) and Baginski et al. (1999).

**TABLE 2**  
**DESCRIPTIVE STATISTICS**

**Panel A: Firms affected (unaffected) by SFAS No.142**

Variable	Samples affected by SFAS No.142 (N = 4,026)					Samples unaffected by SFAS No.142 (N = 3,816)					Difference in means
	Mean	Median	Std. Dev.	25%	75%	Mean	Median	Std. Dev.	25%	75%	
FCF	0.098	0.106	0.152	0.048	0.167	-0.048	0.056	0.476	-0.074	0.163	0.146 ***
$X$	0.038	0.054	0.120	0.019	0.094	-0.095	0.020	0.393	-0.113	0.084	0.133 ***
FX	0.047	0.061	0.147	0.021	0.110	-0.036	0.001	0.165	-0.003	0.001	0.083 ***
SIZE	6.442	6.382	2.079	4.989	7.801	4.299	4.068	2.207	2.751	5.644	2.143 ***
GROWTH	0.145	0.093	0.387	0.078	0.243	0.084	0.036	0.345	-0.029	0.176	0.061 ***
CAP	0.053	0.041	0.051	0.026	0.064	0.241	0.018	1.051	0.021	0.124	-0.188 ***

**Panel B: Firms affected by SFAS No.142**

	Samples affected by SFAS No.142										Difference in means
	Pre-SFAS No.142					Post-SFAS No.142					
	Mean	Median	Std. Dev.	25%	75%	Mean	Median	Std. Dev.	25%	75%	
FCF	0.096	0.111	0.174	0.045	0.178	0.101	0.102	0.126	0.052	0.154	-0.005
$X$	0.040	0.060	0.135	0.026	0.102	0.036	0.048	0.104	0.014	0.085	0.004
FX	0.048	0.067	0.165	0.024	0.118	0.046	0.055	0.126	0.019	0.099	0.002
SIZE	6.165	6.053	2.054	4.709	7.477	6.718	6.656	2.069	5.290	8.021	-0.553 ***
GROWTH	0.193	0.122	0.462	0.017	0.309	0.097	0.078	0.285	0.001	0.191	0.096 ***
CAP	0.054	0.043	0.049	0.028	0.064	0.053	0.040	0.052	0.024	0.064	0.001

**Panel C: Firms unaffected by SFAS No.142**

	Samples unaffected by SFAS No.142										Difference in means
	Pre-SFAS No.142					Post-SFAS No.142					
	Mean	Median	Std. Dev.	25%	75%	Mean	Median	Std. Dev.	25%	75%	
FCF	-0.083	0.048	0.527	-0.086	0.152	-0.013	0.063	0.416	-0.061	0.173	-0.070 ***
$X$	-0.108	0.024	0.431	-0.115	0.089	-0.083	0.016	0.352	-0.109	0.080	-0.025 *
FX	-0.044	0.001	0.184	-0.004	0.002	-0.028	0.000	0.143	-0.002	0.001	-0.016 ***
SIZE	4.121	3.816	2.122	2.668	5.381	4.477	4.347	2.275	2.876	5.908	-0.356 ***
GROWTH	0.099	0.425	0.394	-0.030	0.192	0.068	0.316	0.288	-0.028	0.162	0.031 ***
CAP	0.221	0.047	0.989	0.020	0.119	0.261	0.050	1.110	0.022	0.127	-0.040

Notes:

\*, \*\*, and \*\*\* indicate two-tailed significance at the 10%, 5%, and 1% levels.

Variables in the above table are defined as follows;

$FCF_{it+1}$  = firm  $i$ 's one-year ahead cash flow from operations (#308) at year  $t$ ;

$X_{it}$  = firm  $i$ 's earnings before extraordinary item (#18) deflated by lagged total assets (#6) at year  $t$ ;

$FX_{it+1}$  = firm  $i$ 's one-year ahead earnings before extraordinary item (#18) deflated by lagged total assets

$SIZE_{it}$  = natural log of firm  $i$ 's total assets (#6) at year  $t$ ;

$GROWTH_{it}$  = firm  $i$ 's growth computed as change in sales (#12) deflated by lagged total assets (#6) at year  $t$ ;

$CAP_{it}$  = firm  $i$ 's capital intensity computed as sum of depreciation(#125) and amortization (#65) deflated by sales (#12) at year  $t$ .

All continuous variables are winsorized at the top or bottom 0.5% level.

**TABLE 3**  
**CORRELATION MATRIX**

**Panel A: Firms Affected by SFAS No.142 (N= 4,026)**

<u>Variable</u>	<u>FCF</u>	<u>X</u>	<u>FX</u>	<u>SIZE</u>	<u>GROWTH</u>	<u>CAP</u>
<i>FCF</i>		0.667 <0.0001	0.545 <0.0001	0.074 <0.0001	0.375 <0.0001	0.009 0.531
<i>X</i>	0.573 <0.0001		0.821 <0.0001	0.116 <0.0001	0.456 <0.0001	-0.167 <0.0001
<i>FX</i>	0.598 <0.0001	0.743 <0.0001		0.089 <0.0001	0.242 <0.0001	-0.135 0.001
<i>SIZE</i>	0.087 <0.0001	0.040 0.011	0.037 0.018		0.067 <0.0001	-0.084 <0.0001
<i>GROWTH</i>	0.325 <0.0001	0.437 <0.0001	0.366 <0.0001	0.100 <0.0001		-0.148 <0.0001
<i>CAP</i>	0.097 <0.0001	-0.180 <0.0001	-0.169 <0.0001	-0.140 <0.0001	-0.248 <0.0001	

**Panel B: Firms Unaffected by SFAS No.142 (N= 3,816)**

<u>Variable</u>	<u>FCF</u>	<u>X</u>	<u>FX</u>	<u>SIZE</u>	<u>GROWTH</u>	<u>CAP</u>
<i>FCF</i>		0.768 <0.0001	0.704 <0.0001	0.201 <0.0001	0.344 <0.0001	-0.151 <0.0001
<i>X</i>	0.656 <0.0001		0.750 <0.0001	0.258 <0.0001	0.436 <0.0001	-0.221 <0.0001
<i>FX</i>	0.654 <0.0001	0.651 <0.0001		0.183 <0.0001	0.372 <0.0001	-0.055 0.001
<i>SIZE</i>	0.334 <0.0001	0.304 <0.0001	0.081 <0.0001		0.113 <0.0001	-0.060 <0.0001
<i>GROWTH</i>	0.329 <0.0001	0.483 <0.0001	0.329 <0.0001	0.153 <0.0001		-0.082 <0.0001
<i>CAP</i>	-0.006 0.707	-0.268 <0.0001	-0.202 <0.0001	0.098 <0.0001	-0.179 <0.0001	

Note:

Pearson correlation is shown above diagonal and Spearman correlation is shown below diagonal.

Variables in the above table are defined in Table 2.

All continuous variables are winsorized at the top or bottom 0.5% level.

Table 4 summarizes an industry classification of the treatment group and the control group. In panel A, the firms affected by SFAS No. 142 consist of 30 different industry categories with more than 1% of total sample observations. Among these firms, those in the industries of chemicals and biotech, computer software and data services, electronic equipment, medical and scientific instruments, electronic and gas service, and business services commonly report goodwill balances. This result is consistent with the prior evidence that high-tech industries are more likely to report goodwill through active merger and acquisition activities (Riedl, 2004; Gu and Lev, 2005). Panel B describes the industry classification of the firms unaffected by SFAS No. 142. Compared to firms affected by SFAS No. 142, the control group is drawn from a smaller number of industries (20 industry categories) with more than 1% of total observations. In summary, although specific industries are more highly represented, observations in both the treatment and the control groups are well distributed over different industries.

**TABLE 4**  
**INDUSTRY CLASSIFICATION OF FIRMS AFFECTED (UNAFFECTED) BY SFAS NO. 142**

**Panel A: Firms Affected by SFAS No.142**

SIC	Industry Name	Number of Firm-Years	Percentage (%)
13	Oil and gas extraction	84	2.09
15	Construction	48	1.19
20	Food	120	2.98
23	Apparel	48	1.19
25	Furniture and Fixtures	54	1.34
26	Paper and allied products	84	2.09
27	Printing and Publishing	108	2.68
28	Chemical, biotech and drug	234	5.81
30	Rubber and plastic product	60	1.49
32	Stone, Clay and Glass	42	1.04
33	Primary Metal	96	2.38
34	Fabricated Metal	114	2.83
35	Computer software and data services	276	6.86
36	Electronic equipment	294	7.30
37	Transportation equipment	192	4.77
38	Medical and scientific instruments	312	7.75
39	Misc Manufacturing Industries	42	1.04
42	Motor Freight Transpiration	60	1.49
48	Communication	84	2.09
50	Wholesale - durable goods	186	4.62
51	Wholesale - nondurable goods	78	1.94
54	Food stores	48	1.19
58	Eating and drinking place	84	2.09
59	Misc Retail	78	1.94
73	Business service	384	9.54
79	Recreation service	60	1.49
80	Health service	156	3.87
87	Management service	84	2.09
Others	Other 25 industries	<u>516</u>	<u>12.82</u>
Total		<u>4,026</u>	<u>100.00</u>

## Panel B: Firms Unaffected by SFAS No.142

SIC	Industry Name	Number of Firm-Years	Percentage (%)
10	Metal mining	252	6.60
13	Oil and gas extraction	366	9.59
20	Food	114	2.99
28	Chemical, biotech and drug	588	15.41
33	Rubber	108	2.83
35	Computer equipment	234	6.13
36	Electronic equipment	366	9.59
37	Transportation equipment	90	2.36
38	Medical and Optical goods	348	9.12
45	Transportation by Air	48	1.26
48	Communication	48	1.26
50	Wholesale - durable goods	60	1.57
53	General merchandise stores	42	1.10
56	Apparel and Accessory stores	96	2.52
58	Eating and drinking place	72	1.89
59	Misc Retail	48	1.26
73	Business service	150	3.93
79	Recreation service	48	1.26
87	Management service	42	1.10
Others	Other 31 industries	<u>696</u>	<u>18.24</u>
Total		<u>3816</u>	<u>100.00</u>

## EMPIRICAL RESULTS

### The Association between Current Earnings and Future Operating Cash Flows

Table 5 reports evidence of the first hypothesis investigating whether the ability of earnings to predict future operating cash flows has changed since the FASB adopted SFAS NO. 142. In Table 5 and subsequent tables, all of the reported t-statistics are computed using White's (1980) heteroscedasticity-consistent standard error. To mitigate the effect of the extreme observations on regression analysis, each continuous variable is winsorized at the top and bottom 0.5% of its distribution.<sup>12</sup>

Regression results in Panel A of Table 5 indicate that the overall earnings' ability to predict the future operating cash flows increased significantly after the adoption of SFAS No. 142, compared with the firms unaffected by SFAS No. 142.<sup>13</sup> While the coefficient of POST\*X in the treatment group is positive and White (1980) t-test indicates the significance of the coefficient (at a 5% level), the coefficient of POST\*X for the control group is insignificant. This finding suggests that the ability of earnings to predict future operating cash flows has improved after the enactment of SFAS No. 142.

Panel B of Table 5 shows regression results of the as-if reporting model and the actual reporting model in the post-SFAS No. 142 period. For both the actual reporting model and the as-if reporting model, the coefficients of X, CAP, X\*CAP, and X\*GROWTH are statistically significant, but adjusted R-square for the actual reporting model is much higher than that for the as-if reporting model. When comparing the two models, Vuong's Z-statistics show that those two models are significantly different in predicting future operating cash flows, which corroborates the results of the previous table, Panel A of Table 5.

Using an indicator of earnings management, we also partition the sample observations into sub-groups with a potentially different effect on earnings informativeness after the adoption of SFAS No. 142. In order to identify likely manipulators, we use as a proxy for the likelihood of earnings management the level of the absolute value of discretionary accruals in the pre-SFAS No. 142 regime.<sup>14</sup> Following DeFond

and Subramanyam (1998), the modified cross-sectional Jones model is used to compute discretionary accruals. As SFAS No. 142 may affect managerial discretion, we exclude goodwill charges from calculation of discretionary accruals.

**TABLE 5**  
**Results of Multivariate Regression for Testing H1**

$$FCFO_{it} = \beta_0 + \beta_1 POST + \beta_2 X_{it} + \beta_3 POST * X_{it} + \beta_4 SIZE_{it} + \beta_5 GROWTH_{it} + \beta_6 CAP_{it} + \beta_7 X_{it} * SIZE_{it} + \beta_8 X_{it} * GROWTH_{it} + \beta_9 X_{it} * CAP_{it} + \beta_{10} LOSS_{it} + e_{it} \quad (1)$$

$$FCFO_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \beta_4 CAP_{it} + \beta_5 X_{it} * SIZE_{it} + \beta_6 X_{it} * GROWTH_{it} + \beta_7 X_{it} * CAP_{it} + \beta_8 LOSS_{it} + e_{it} \quad (2)$$

**Panel A: Firms Affected by SFAS No.142 vs. Firms Unaffected by SFAS No.142**

	Firms Affected by SFAS No.142	Firms Unaffected by SFAS No.142
<i>Intercept</i>	0.038 (4.66) ***	0.008 (0.04)
<i>POST</i>	0.004 (2.09) **	0.041 (3.85) ***
<i>X</i>	0.694 (11.12) ***	0.775 (17.62) ***
<b><i>POST*X</i></b>	<b>0.071</b> <b>(1.97) **</b>	<b>0.011</b> <b>(0.25)</b>
<i>SIZE</i>	-0.001 (-1.01)	0.003 (1.03)
<i>GROWTH</i>	0.046 (4.53) ***	0.006 (0.24)
<i>CAP</i>	0.407 (7.00) ***	0.003 (0.49)
<i>X*SIZE</i>	0.013 (1.82) *	0.017 (1.66) *
<i>X*GROWTH</i>	-0.140 (-2.51) **	-0.262 (-5.65) ***
<i>X*CAP</i>	1.315 (4.74) ***	0.003 (0.20)
<i>LOSS</i>	0.036 (5.16) ***	-0.002 (-0.19)
Adj.R <sup>2</sup>	0.4385	0.6061
n	4,026	3,816

Comparing mean difference of POST\*NI of Firms affected vs. Firms unaffected: t-statistics 9.75\*\*\*

Firms are divided into five groups based on the rank of the level of the absolute value of discretionary accruals.<sup>15</sup> The level of discretionary accruals can capture managerial reporting discretion pertaining to choice of accruals; then, the association between discretionary accruals and future cash flows can lead to

interpret managerial discretion as informative or opportunistic reporting incentives. The firms belonging to the highest quintile group are regarded as more likely manipulators, and the firms in the lowest quintile group are classified as non-manipulators. We anticipate that this partitioning will lead to a more pronounced effect of SFAS No. 142 on informativeness of earnings.

**TABLE 5 (continued)**

	Actual Reporting	As-if Reporting
	Under Post- SFAS 142	Under Pre-SFAS No. 142
<i>Intercept</i>	0.051 (7.18) ***	0.071 (8.39) ***
<i>X</i>	0.756 (11.23) ***	0.332 (4.15) ***
<i>SIZE</i>	-0.001 (-0.14)	-0.001 (-0.20)
<i>GROWTH</i>	0.008 (0.91)	0.128 (13.52) ***
<i>CAP</i>	0.231 (6.65) ***	0.199 (4.69) ***
<i>X*SIZE</i>	0.013 (1.13)	0.039 (2.67) ***
<i>X*GROWTH</i>	0.225 (-3.38) ***	-0.423 (-5.35) ***
<i>X*CAP</i>	0.744 (2.97) ***	-1.476 (-6.55) ***
<i>LOSS</i>	0.023 (3.40) ***	-0.008 (-1.02)
<i>n</i>	2,013	2,013
Adj.R <sup>2</sup>	0.5308	0.3019
Comparing Actual Reporting and As-if Reporting using Model (2): Vuong's Z-statistics		10.68***

Note:

\*, \*\*, and \*\*\* indicate two-tailed significance at the 10%, 5%, and 1% levels.

t-statistics are reported in parenthesis, using White (1980)'s heteroscedasticity-consistent standard errors.

*POST* = indicator variable equal 1 if firm i's reporting period belongs to the post-SFAS No.142 regimes, 0 otherwise;

*LOSS<sub>it</sub>* = indicator variable equal 1 if firm i's net income is negative, 0 otherwise at year t;

*n* = number of observations.

All other variables in the above table are defined in Table 2.

All continuous variables are winsorized at the top or bottom 0.5% level.

Table 6 presents the results of the partitioned groups based on the level of average discretionary accruals. The earnings' ability to predict future operating cash flows of the potential manipulator group is

improved after adoption of SFAS No. 142. The coefficient of earnings for the potential non-manipulator group is negative but insignificant, indicating that earnings' ability to predict future operating cash flows is not improved after the adoption of SFAS No. 142.

**TABLE 6**  
**Regression Analysis of Effect of Managerial Reporting Discretion**  
**Induced by SFAS No.142 on Earnings' Ability to Predict Future Cash Flows**

$$FCFO_{it} = \beta_0 + \beta_1 POST + \beta_2 X_{it} + \beta_3 POST * X_{it} + \beta_4 SIZE_{it} + \beta_5 GROWTH_{it} + \beta_6 CAP_{it} + \beta_7 X_{it} * SIZE_{it} + \beta_8 X_{it} * GROWTH_{it} + \beta_9 X_{it} * CAP_{it} + \beta_{10} LOSS_{it} + e_{it} \quad (1)$$

	Highest Quintile <u> DISACC (n = 2,205)</u>	Lowest Quintile <u> DISACC (n = 2,204)</u>
<i>Intercept</i>	-0.4319 (-2.68) ***	0.0285 (2.93) ***
<i>POST</i>	0.0352 (3.12) ***	0.01211 (2.13) **
<i>X</i>	0.30664 (2.91) ***	0.57429 (4.35) ***
<b><i>POST*X</i></b>	<b>0.28922</b> <b>(3.45) ***</b>	<b>-0.011</b> <b>(-0.13)</b>
<i>SIZE</i>	0.0169 (6.71) ***	0.0021 (1.47)
<i>GROWTH</i>	0.0101 (0.54)	0.01348 (1.00)
<i>CAP</i>	0.23378 (2.53) **	0.2682 (7.76) ***
<i>X*SIZE</i>	-0.1379 (-0.78)	0.03338 (1.69) *
<i>X*GROWTH</i>	0.0274 (0.50)	-0.0174 (-0.17)
<i>X*CAP</i>	0.3155 (1.66) *	0.8436 (5.86) ***
<i>LOSS</i>	-0.0125 (-0.60)	0.0046 (0.64)
Adj.R <sup>2</sup>	0.3080	0.3965

Comparing POST\*X\_HIGH and POST\*X\_LOW using Model (1): t-statistics 2.50\*\*

Note:

\*, \*\*, and \*\*\* indicate two-tailed significance at the 10%, 5%, and 1% levels.

t-statistics are reported in parenthesis, using White (1980)'s heteroscedasticity-consistent standard errors.

We partition the firms affected by SFAS No.142 into five groups based on the absolute value of discretionary accruals. The discretionary accruals are computed cross sectionally using modified version of Jones (1981) model. To mitigate the effect of SFAS No.142 on estimation of discretionary accruals, total accruals is measured by net income before goodwill charges (i.e, amortization expense under the pre pre- periods and loss on impairment of goodwill under the post-periods) subtracting cash flows.

*POST\*X\_HIGH* = coefficient of interaction term between *POST* and *X* for firms partitioned high level of absolute value of discretionary accruals;

*POST\*X\_LOW* = coefficient of interaction term between *POST* and *X* for firms partitioned low level of absolute value of discretionary accruals;

All other variables in the above table are defined in Table 2.

All continuous variables are winsorized at the top or bottom 0.5% level.

The mean differences between the potential manipulator and the potential non-manipulator are significantly different and positive. The results suggest that the effect of the adoption of SFAS No. 142 is pronounced for the potential manipulator by improving the earnings' ability to predict future operating cash flows compared to the potential non-manipulator and control group. These findings support the signaling perspective, which asserts that a manager can provide private information about the firm using managerial discretion and thus improve the informativeness of financial reporting (e.g., Healy and Palepu, 1993; Kasznik, 2001; Sankar and Subramanyam, 2002).

#### **Analysis of the Effect of Adoption of SFAS No. 142 on Earnings Persistence**

Table 7 presents the results of the model testing the effect of SFAS No. 142 on earnings persistence. Regression results in Panel A of Table 7 show that the coefficients of POST\*X in both the treatment group and control group are positive and statistically significant. However, when comparing the coefficients of POST\*X for firms affected by SFAS No. 142 with the coefficients for firms unaffected by the new statement, the mean difference is significantly different and positive, indicating that earnings are more persistent for the firms affected by the new goodwill accounting standards than the unaffected firms.<sup>16</sup> This finding suggests that earnings persistence has also improved after the enactment of SFAS NO. 142.

Panel B of Table 7 exhibits regression results of the model testing the effect of SFAS No. 142 on earnings persistence for the as-if reporting model and the actual reporting model in the post-SFAS No. 142 period. Adjusted R-square for the actual reporting model is much higher than that for the as-if reporting model, and Vuong's Z-statistics supports the results of Panel A of Table 7. Considering the link between earnings persistence and the reliability of earnings, the results may be interpreted as improved reliability of earnings in the post-SFAS No. 142 regime.

Table 8 shows the results of the partitioned groups based on the level of average discretionary accruals. The results indicate that the earnings persistence of the potential manipulator group is slightly improved after adoption of SFAS No. 142, but the earnings persistence did not significantly improve in the potential non-manipulator group.

In summary, unlike the argument of Watts (2003a), the quality of earnings is not generally dampened after adoption of SFAS No. 142. Furthermore, the empirical results suggest that the improvement of earnings persistence after adoption of SFAS No. 142 is rather prominent.



**TABLE 7**  
**The Effects of SFAS No. 142 on the Earnings' Ability to Predict Future Earnings**

$$FX_{it+1} = \beta_0 + \beta_1 POST + \beta_2 X_{it} + \beta_3 POST * X_{it} + \beta_4 SIZE_{it} + \beta_5 GROWTH_{it} + \beta_6 CAP_{it} + \beta_7 X_{it} * SIZE_{it} + \beta_8 X_{it} * GROWTH_{it} + \beta_9 X_{it} * CAP_{it} + \beta_{10} LOSS_{it} + e_{it} \quad (3)$$

**Panel A: Firms Affected by SFAS No.142 vs. Firms Unaffected by SFAS No.142**

	Firms Affected by SFAS No.142	Firms Unaffected by SFAS No.142
<i>Intercept</i>	0.004 (0.66)	-0.047 (-3.17) ***
<i>POST</i>	-0.026 (-7.70) **	-0.002 (-0.82)
<i>X</i>	0.564 (13.64) ***	0.512 (9.14) ***
<b><i>POST*X</i></b>	<b>0.373</b> <b>(8.57) ***</b>	<b>0.141</b> <b>(6.07) ***</b>
<i>SIZE</i>	0.009 (2.99) ***	0.003 (3.16) ***
<i>GROWTH</i>	0.046 (7.15) ***	0.021 (2.94) ***
<i>CAP</i>	-0.014 (-0.47)	0.005 (1.79) *
<i>X*SIZE</i>	0.093 (5.24) ***	-0.019 (-3.13) ***
<i>X*GROWTH</i>	-0.051 (-1.71) *	-0.249 (-12.26) ***
<i>X*CAP</i>	-0.298 (-1.51)	-0.007 (-1.51)
<i>LOSS</i>	0.034 (5.17) ***	0.029 (6.56) ***
Adj.R <sup>2</sup>	0.6658	0.6775
n	4,026	3,816

Comparing mean difference of POST\*X of Firms affected vs. Firms unaffected: t-statistics 4.49\*\*\*

**TABLE 7 (continued)**

$$FX_{it+1} = \beta_0 + \beta_1 X_{it} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \beta_4 CAP_{it} + \beta_5 X_{it} * SIZE_{it} + \beta_6 X_{it} * GROWTH_{it} + \beta_7 X_{it} * CAP_{it} + \beta_8 LOSS_{it} + e_{it} \quad (4)$$

**Panel B: Actual Reporting vs. As-if Reporting**

	Actual Reporting Under Post- SFAS 142	As-if Reporting Under Pre-SFAS No. 142
<i>Intercept</i>	-0.027 (-2.73) ***	-0.040 (-3.12) ***
<i>X</i>	0.948 (18.70) ***	0.709 (10.04) ***
<i>SIZE</i>	0.012 (2.13) **	0.028 (4.00) ***
<i>GROWTH</i>	0.400 (4.78) ***	0.128 (17.70) ***
<i>CAP</i>	0.044 (1.29)	-0.028 (-0.63)
<i>X*SIZE</i>	-0.018 (-0.73)	-0.016 (-0.48)
<i>X*GROWTH</i>	0.400 (6.16) ***	-0.387 (-4.55) ***
<i>X*CAP</i>	1.462 (6.43) ***	-1.272 (-4.40) ***
<i>LOSS</i>	0.035 (5.18) ***	0.022 (2.38) **
<i>n</i>	2,013	2,013
Adj.R <sup>2</sup>	0.6498	0.4058
Comparing Actual Reporting and As-if Reporting using Model (2): Vuong's Z-statistics		8.21 ***

Note:

\*, \*\*, and \*\*\* indicate two-tailed significance at the 10%, 5%, and 1% levels.

t-statistics are reported in parenthesis, using White (1980)'s heteroscedasticity-consistent standard errors.

*POST* = indicator variable equal 1 if firm i's reporting period belongs to the post-SFAS No.142 regimes, 0 otherwise;

*LOSS<sub>it</sub>* = indicator variable equal 1 if firm i's net income is negative, 0 otherwise at year t;

*n* = number of observations.

All other variables in the above table are defined in Table 2.

All continuous variables are winsorized at the top or bottom 0.5% level.

**TABLE 8**  
**Regression Analysis of Effect of Managerial Reporting Discretion**  
**Induced by SFAS No.142 on the Earnings' Ability to Predict Earnings**

$$FX_{it+1} = \beta_0 + \beta_1 POST + \beta_2 X_{it} + \beta_3 POST * X_{it} + \beta_4 SIZE_{it} + \beta_5 GROWTH_{it} + \beta_6 CAP_{it} + \beta_7 X_{it} * SIZE_{it} + \beta_8 X_{it} * GROWTH_{it} + \beta_9 X_{it} * CAP_{it} + \beta_{10} LOSS_{it} + e_{it} \quad (3)$$

	Highest Quintile <u> DISACC (n = 2,205)</u>	Lowest Quintile <u> DISACC (n = 2,204)</u>
<i>Intercept</i>	-0.012 (-0.81)	-0.016 (-1.50)
<i>POST</i>	0.008 (0.77)	0.009 (1.40)
<i>X</i>	0.771 (5.40) ***	0.762 (3.94) ***
<b><i>POST*X</i></b>	<b>0.221</b> <b>(1.74) *</b>	<b>0.057</b> <b>(0.51)</b>
<i>SIZE</i>	0.011 (1.43) ***	0.014 (2.73) ***
<i>GROWTH</i>	-0.012 (-0.62)	0.004 (0.32)
<i>CAP</i>	0.032 (0.42)	-0.029 (-0.86)
<i>X*SIZE</i>	-0.102 (-1.24)	0.003 (0.03)
<i>X*GROWTH</i>	0.091 (1.26)	0.033 (0.34)
<i>X*CAP</i>	0.197 (0.96)	0.505 (2.66) ***
<i>LOSS</i>	0.029 (1.04)	0.062 (0.51)
Adj.R <sup>2</sup>	0.4819	0.4652

Comparing POST\*X\_HIGH and POST\*X\_LOW using Model (1): t-statistics      0.93

Note:

\*, \*\*, and \*\*\* indicate two-tailed significance at the 10%, 5%, and 1% levels.

t-statistics are reported in parenthesis, using White (1980)'s heteroscedasticity-consistent standard errors.

We partition the firms affected by SFAS No.142 into five groups based on the absolute value of discretionary accruals. The discretionary accruals are computed cross sectionally using modified version of Jones (1981) model. To mitigate the effect of SFAS No.142 on estimation of discretionary accruals, total accruals is measured by net income before goodwill charges (i.e, amortization expense under the pre- periods and loss on impairment of goodwill under the post-periods) subtracting cash flows.

*POST\*X\_HIGH* = coefficient of interaction term between *POST* and *X* for firms partitioned high level of absolute value of discretionary accruals;

*POST\*X\_LOW* = coefficient of interaction term between *POST* and *X* for firms partitioned low level of absolute value of discretionary accruals;

All other variables in the above table are defined in Table 2.

All continuous variables are winsorized at the top or bottom 0.5% level.

## CONCLUSION

The adoption of SFAS No. 142 is one of the most controversial mandatory accounting changes. The FASB expects that this new rule can enhance financial reporting by reflecting the underlying economics of assets and thus improve market participants' ability to predict future operating cash flows and earnings persistence. However, critics of this statement strongly argue that SFAS No. 142 allows managers to use substantial discretion, which may result in a decrease in the informativeness of earnings. Also, Watts

(2003a) argues that the FASB's decision regarding goodwill accounting requires estimation of unverified future cash flows, suggesting that this rule may impair earnings' quality. To distinguish between the opposing perspectives regarding SFAS No. 142, we examine whether the adoption of SFAS No. 142 affects the association between reported accounting earnings and economic earnings.

Overall, we find evidence that the adoption of SFAS No. 142 improves the informativeness of earnings in terms of predicting future operating cash flow and earnings persistence. The analysis of comparison of the as-if reporting model and the actual reporting model in the post- SFAS No. 142 period also support the evidence. Furthermore, the analysis of sub groups (i.e., potential manipulators versus potential non-manipulators partitioned based on the level of average absolute value of discretionary accruals in the pre period) shows more evidence. Earnings' ability to predict future operating cash flows for the potential manipulator group is significantly improved as compared to the pre-SFAS No. 142 period. On the other hand, the potential non-manipulator group shows no change in informativeness of reported earnings. These findings support the signaling perspective, which asserts that a manager can provide private information about the firm using managerial discretion and thus improve the informativeness of financial reporting. We also find evidence that the adoption of SFAS No. 142 improves reliability of earnings in terms of current earnings reflecting future earnings more persistently.

This paper has several limitations. First, the effect of concurrent events other than the passage of SFAS No. 142 on reported earnings is not perfectly controlled. Even with a control group, the different characteristics between the treatment and the control group may not guarantee that we fully isolate the distinct effect of the adoption of SFAS No. 142. Second, the partitioning based on the proxy for reporting discretion may include measurement errors. As a result, the partitioning based on a discretionary accruals model may lead to inaccurate conclusions. Therefore, the results of this paper regarding the distinct effect of the adoption of SFAS No. 142 on the informativeness of earnings should be interpreted cautiously. Nonetheless, the empirical findings of this paper are of interest to standard setters. By providing evidence on the effect of the role of managerial discretion on earnings' ability to predict future operating cash flows and earnings persistence, the paper provides useful insights to accounting researchers, regulators or standard setters, and market participants.

## END NOTES

1. This study refers to Pre-Codification accounting standards to be better comparable with prior studies. Under the new FASB codification, SFAS No. 142 corresponds to FASB ASC 350.
2. According to the study of Huefner and Largay (2004), the net income effects of adoption of SFAS No.142 for the 100 public companies with the largest goodwill balances are to be \$20 billion to \$25 billion, and the negative impact in net income through recognition of goodwill impairment is about \$135 billion during the adoption year.
3. In SFAS No.142, the FASB anticipates the benefits reflected in this statement as follows: "The changes included in this statement will improve financial reporting because the financial statements of entities that acquire goodwill and other intangible assets will better reflect the underlying economics of those assets. As a result, financial statement users will be better able to understand the investments made in those assets and the subsequent performance of those investments. The enhanced disclosures about goodwill and intangible assets subsequent to their acquisition also will provide users with a better understanding of the expectations about and changes in those assets over time, thereby improving their ability to assess future profitability and cash flows." For more detailed information, see the summary of SFAS No.142. <<http://www.fasb.org/st/summary/stsum142.shtml>>
4. SFAS 141 and 142 supposedly provide more accurate identification and valuation of purchased goodwill and purchased intangibles. These "identifiable intangibles" have either unlimited lives and are subject to impairment testing under SFAS 144 (which supersedes SFAS 121) or have limited lives and are subject to amortization. This paper focuses only on the treatment of goodwill under SFAS No.142 due to the magnitude of goodwill in intangible assets with unlimited useful lives. Thus, the effect of the adoption of SFAS No.142 on the informativeness of earnings is limited to the role of goodwill accounting.
5. Although SFAS No.142 allows managers to use their discretion, the signaling hypothesis supports that the view that FASB's new statement may improve the informativeness of earnings reported following SFAS No.142 (see Rees et al. [1996], and Sankar and Subramanyam [2001]).
6. See "FASB Backs Down on Goodwill-Accounting Rules," by Jonathan Weil in the December 7, 2000, issue of The Wall Street Journal.
7. The impairment tests for other intangible assets with indefinite lives are performed through comparison of the fair value of intangible assets with the carrying value of those assets. See Paragraph 17 of SFAS No.142 "Goodwill and Other Intangible Assets" FASB (2001).

8. See Paragraph 23~25 of SFAS No.142 “Goodwill and Other Intangible Assets” FASB (2001b).
9. See “AOL loses \$44.9 billion” by Chris Isidore on January 30, 2003, in CNN/Money.
10. The FASB allows early adoption of SFAS No. 142. Firms with a fiscal period beginning after March 15, 2001, may apply the impairment tests for goodwill and other intangible assets. Also, in order to use future cash flows from operations in the model, testing of pre- and post-SFAS No. 142 periods define them as the fiscal year end at December 1998 through May 2000, and December 2002 through May 2004, respectively.
11. As in Dechow (1994), Vuong’s Z-statistics are obtained by regressing  $m_i$  on unity, and  $m_i$  is calculated as follows:

$$m_i = \frac{1}{2} \log \left[ \frac{RSS_C}{RSS_E} \right] + \frac{n}{2} \left[ \frac{(e_{C_i})^2}{RSS_C} - \frac{(e_{E_i})^2}{RSS_E} \right]$$

12. For sensitivity test, we use a different deflator for all regression analyses. However, the replacement of deflator from average total assets to total sales does not significantly influence the results.

13. In addition to examining the relation between earnings ( $X_t$ ) and the following year’s operating cash flows ( $CF_{t+1}$ ), we also investigate earnings’ ability to predict the operating cash flows in two years ( $CF_{t+2}$ ). The results are basically consistent with the results in Table 5.

14. Following DeFond and Subramanyam (1998), we compute discretionary accruals using the modified Jones model for each two-digit SIC and for each year in the pre-SFAS No.142 period. Firms affected by SFAS No.142 are ranked based on the average level of discretionary accruals in the pre period and divided into three groups. The detailed procedure for calculation of discretionary accruals is as follows: 1) estimation of the cross-sectional coefficient of the following model:

$$TA_{it} / Asset_{it-1} = \alpha_0 \frac{1}{Asset_{it-1}} + \alpha_1 (\Delta Sales_{it} - \Delta AR_{it}) / Asset_{it-1} + \alpha_2 \frac{PPE_{it}}{Asset_{it-1}} + e$$

and 2) using estimated coefficients, the non-discretionary accrual is computed and then discretionary accruals are measured by the difference between total accruals and non-discretionary accruals.

15. We also divided firms into groups of two, three, and seven based on the rank of the level of the absolute value of discretionary accruals, and the results are not significantly different.

16. As a robust test, we also examine earnings’ ability to predict the earnings in two years ( $FX_{t+2}$ ), and the results are basically consistent with the results shown in Table 7.

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