The Information Content and Timeliness of Fair Value Accounting: Goodwill Write-offs Before, During and After Implementation of SFAS 142

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Abstract

As U.S. accounting standard setters increasingly favor a fair value based regime, critics claim that the abandonment of a historical cost based system may produce unintended consequences, such as increased bias and manipulation in financial reports. In this paper, we present exploratory evidence on the tensions between relevance and reliability that are at the heart of the fair value debate. More specifically, we examine whether certain changes to fair value accounting embedded in Statement of Financial Accounting Standards No. 142: *Goodwill and Other Intangibles Assets* (SFAS 142) alters the information content and timeliness of goodwill write-offs. In general, we document a negative and significant stock market reaction to the announcement of goodwill write-offs, however the results are driven by large firms and single segment firms. Further, we find that the application of SFAS 142 does not change the information content of these write-offs. Additionally, we find that write-offs of goodwill and other intangible assets were recorded on a fairly timely basis before the adoption of SFAS 142, and remain so after its adoption. However, these results are driven by large firms. Finally, we find some evidence that managers appear to have acted strategically during the initial adoption period as they wrote off goodwill and other intangible assets that were not yet impaired as a cumulative effect of an accounting change to both insure against future operating losses and present a more conservative balance sheet.

1. Introduction

In recent years the Financial Accounting Standards Board (FASB) has passed many standards with the intent of shifting reported values on the balance sheet away from historical costs and towards fair values. A recent FASB Exposure Draft, *Fair Value Measurements*, proposes guidance on how to measure fair value for financial reporting purposes. This Exposure Draft lists 40 pronouncements that are within its scope, highlighting the fact that fair value accounting is indeed prominent in financial reporting.

Because of the increasing presence of fair value accounting in U.S. Generally Accepted Accounting Principles (GAAP), it is important for researchers, standard setters and investors to understand how fair value accounting is implemented by managers as well as how it is interpreted by users of financial statements. Although the FASB has demonstrated a preference for fair value, some observers question the wisdom of this approach. Watts [2003] stresses that the lack of verifiability of the inputs necessary to implement such a system potentially adds noise and bias over and above the more traditional historical cost estimates. We view the exploratory research of this paper as a timely contribution of empirical facts to the debate.

We study the impact of changes to fair value accounting on two separate fronts: the information content (short window stock return tests) and timeliness (long window stock return tests) of financial information. We focus our study of fair value accounting on the valuation of goodwill and other intangible assets. We choose this focus for two primary reasons. First, the standards regarding the write-down of goodwill and other intangible assets to fair values have been altered in recent years, most recently by Statement of Financial Accounting Standards No. 142: *Goodwill and Other Intangibles Assets* (SFAS 142), which changes both the impairment

trigger and internal segment allocation relating to goodwill and other intangible assets.[1] Thus the study of goodwill write-offs provides us with a rich testing environment regarding how changes to fair value accounting impact both the information content and timeliness of accounting information. Second, goodwill impairments have been found to be the largest types of long-lived asset write-offs (Francis, Hanna and Vincent [1996]), and therefore the study of these charges is important in its own right.

We analyze the information content and timeliness of goodwill write-offs before, during and after the adoption of SFAS 142. The pre-adoption period includes the years 1996-2001, the adoption period consists largely of the first two quarters of 2002, and the post-adoption period includes the last half of 2002 and the entire year 2003. We enforce a high materiality threshold for these charges, as sample firms took goodwill write-offs of at least 5% of prior period assets.

In addition to this temporal analysis, we conduct cross-sectional tests to determine if the association between returns and write-offs varies with two firm characteristics: size (log of prior period assets) and complexity (concentration of sales across segments). Our goal is to determine whether fair value accounting is interpreted differently across different financial reporting environments. We choose these fundamentals because prior research suggests that they are associated with a firm's information environment, in the case of size, as well as information asymmetry between managers and investors, in the case of complexity. In addition, these fundamentals are likely associated with the degree of difficulty managers might experience in implementing SFAS 142. We discuss these tensions more thoroughly in Section 4.

We find that the information content of write-offs, measured as the size adjusted stock return over a two day window beginning with the write-off day, is significant over the sample

[1] While our analyses include write-offs of both goodwill and other intangible assets, we hereafter refer to the sampling units as "goodwill" write-offs or charges, as the observations are generally goodwill impairments.

period. The mean (median) return across the entire sample is –2.9% (–2.3%). The information content of impairments is not affected by the SFAS 142 changes; the typical post-142 short window return is statistically equivalent to the pre-142 return. We also find that the information content of write-offs is weaker at the initial adoption of SFAS 142 (mean of –1.5%; median of –1.2%), hinting at either a strategic accrual decision, or the untimely writing-off of goodwill that was previously impaired. Our cross-sectional analyses reveal that firm-specific characteristics affect the information content of these write-offs: the information content of goodwill write-offs both pre- and post-SFAS 142 only exists for large firms, and for less complex firms.

In our timeliness analyses, we examine the association between goodwill write-offs and stock returns over two periods: the year leading up to the charge (year 0) and the previous year (year -1). We find that goodwill write-offs taken both before and after the adoption of SFAS 142 are fairly timely, in that they are negatively associated with stock returns in year 0. However, write-offs taken during the initial adoption period are significantly less associated with year 0 returns. In addition, these transition charges are *not* more strongly associated with year -1 returns vis-à-vis the write-offs in the surrounding periods. Thus, it does not appear as if managers are playing "catch-up" during the adoption period, but instead are acting strategically by writing-off goodwill that is not yet impaired to insure against future operating losses and present a more conservative balance sheet. We also find that the timeliness of goodwill charges is affected by size. Smaller firms' goodwill write-offs are not associated with year 0 returns. Further, we find no association between the timeliness of write-offs and firm complexity.

Our results suggest that the movement towards fair value accounting has neither improved the information content nor timeliness of goodwill write-offs, though firms did take advantage of the transition period to write-off non-impaired goodwill. Perhaps surprisingly, the

small and complex firms for which goodwill write-offs might be most informative to equity investors, tend to experience lower levels of association between returns and write-offs; this situation has not improved under SFAS 142. While this might support FASB initiatives to provide more guidance on fair value measurement techniques, it also supports Watts' [2003] arguments that such standards are simply unworkable.

The remainder of the paper proceeds as follows: Section 2 summarizes the change in rules regarding the accounting for goodwill impairments. Section 3 reviews the existing literature. Section 4 discusses our research questions. Section 5 discusses the sample. Section 6 presents our research design and results, and Section 7 concludes.

2. Institutional Setting

The FASB has passed various standards in recent years with the intent of shifting the valuation of certain balance sheet items away from historical costs and towards fair value. As noted in the introduction, a current FASB Exposure Draft that proposes guidance on fair value measures lists 40 affected pronouncements. Moreover, the current FASB project on revenue recognition proposes an "asset and liability" method to replace the traditional "realization and earnings" approach. This emphasis on using changes in assets and liabilities to determine revenues will likely rely on fair value measurement techniques.[2]

Many existing fair value standards relate to the valuation of long-lived assets. An example is Statement of Financial Accounting Standards No. 121: *Accounting for the Impairment of Long-Lived Assets and for Long-Lived Assets to be Disposed Of* (SFAS 121). SFAS 121 became effective in 1996, and stipulates that all tangible and intangible long-lived assets must be written-down to fair value whenever the book value exceeds the *undiscounted*

[2] See the FASB's update of this project at http://www.fasb.org/project/revenue_recognition.html.

cash flows (UDCF) of such assets. The unit of analysis when testing for impairment was defined as "the lowest level (of aggregated assets) for which there are identifiable cash flows that are largely independent of the cash flows of other groups of assets" (paragraph 8). The FASB noted that this grouping decision requires "considerable judgment" (paragraph 96) and that, in limited circumstances, the unit of analysis might appropriately be the entity level (paragraph 100).

More recently FASB issued SFAS 142, which superceded SFAS 121 and became effective in 2002. SFAS 142 provides details regarding how purchased goodwill and other intangibles are accounted for upon acquisition as well as how these assets are accounted for after they have been initially recognized on the balance sheet. One of the main reasons for the new Standard was that forced amortization (as mandated by APB 17) treated goodwill as a "wasting asset" whereas investors and managers often questioned the veracity of this assumption (see the *Summary* section of SFAS 142). Thus one of the Standard's most significant requirements was a prohibition of goodwill amortization. This brought into focus the importance of measuring impairments, and a change in this process was the second major innovation of the Standard.

Under SFAS 142, goodwill is assigned to a "reporting unit" of the firm. A reporting unit is an SFAS 131 defined operating segment, or a business component one level below the segment, provided that management regularly review the component's performance (SFAS 142, paragraph 30).[3] The FASB's presumption is that this refined assignment will provide a better mapping of goodwill to the operations that produce the underlying cash flows. SFAS 142 provides a two-step procedure regarding how goodwill impairment is determined. In the first step, the fair value of the reporting unit is estimated. If this amount is less than the unit's book value, then the second step is to determine the fair value of goodwill by subtracting estimates of

[3] SFAS 142 permits aggregation of components within a segment if they have "similar economic characteristics" (paragraph 30). A cursory review of our sample firms suggests that most simply treated operating segments as their reporting units.

the fair value of all other net assets from the initial aggregate estimate. If this residual is less than the book value of goodwill, the difference is written off as an impairment. Thus two major differences between SFAS 142 and SFAS 121 are the more refined assignment of goodwill to a reporting unit, and the fair value trigger used to determine when an impairment exists.[4]

Figure 1 summarizes the accounting for impairments under the two regimes. For simplicity, we make two assumptions in our initial comparison of the methods. First, the "reporting unit" of SFAS 142 is equivalent to the "identifiable cash flow" grouping of SFAS 121. We denote this unit as *i*. Second, we assume that firms use a discounted cash flow (DCF) technique to estimate fair values, since there are unlikely to be actively quoted market prices for the unique collection of assets that make up most firms' reporting units. Given these assumptions, the major difference between the two methods for recording impairments is the length of time, L, between t_1 when DCF falls below book value, and t_2 when UDCF falls below book value. Of course, if our first assumption is violated and aggregation under the two systems is not equivalent, then the period L may actually lengthen. This would occur if a decline in the expected cash flows of one unit is offset by an increase in the cash flows of a separate unit. If these two units were aggregated under SFAS 121, a very real possibility given that FASB permitted analysis at the entity level, then the impairment would be further delayed in time.

3. Literature Review

Past research has tested the information content of long-lived asset write-offs by examining the short window abnormal returns surrounding the write-off announcement. This

[4] In addition to the prohibition of goodwill amortization and the change in impairment rules, SFAS 142 also provided much more explicit guidance on what type of specific intangibles ought to be recognized apart from goodwill. While it was common for firms to lump most of the purchase premium for an acquisition in goodwill, the new Standard mandates a finer partition of acquired intangibles into specific assets. If these other intangibles have finite lives, then their cost is amortized over such life.

research finds that these returns are negative (Strong and Meyer [1987], Francis et al. [1996] and Bunsis [1997]). However, frequently this negative return is not significant (Strong and Meyer [1987] and Bunsis [1997]).

In addition to examining the association between stock returns and write-offs, another line of literature questions whether managers act opportunistically in recording charges, as part of either a "big bath" or "smoothing" reporting strategy. Rees, Gill and Gore [1996] find that asset write-downs are generally recognized in years when pre-write-down earnings are low relative to industry averages. They also find significant negative accruals in the year in which the write-off is recognized, and such accruals do not tend to reverse in future years. Thus the authors conclude that write-offs do not imply opportunistic management behavior, but rather capture a response to changes in the firm's economic environment.

Riedl [2004] studies the change in the relationship between economic factors and reporting incentives as determinants of long-lived asset write-offs as a result of SFAS 121. He finds that the post-SFAS 121 write-offs have *lower* associations with economic factors relative to write-offs reported pre-SFAS 121. He concludes that mangers act more opportunistically regarding long-lived asset write-offs after SFAS 121.

Concurrent research that studies SFAS 142 include Chen, Kohlbeck and Warfield [2004] and Segal [2004]. Chen et al. focus on the effects of SFAS 142 adoption and post-adoption behavior by comparing the association between past returns and both transition and post-adoption impairment charges. They conclude that the impairments are associated with stock returns in the current year as well as in previous years. Hence while some of the information in the charge is timely, a substantial amount is not.

Unlike Chen et al., our paper is more focused on the *change* in reporting behavior engendered by SFAS 142 relative to the *pre-adoption* period as a benchmark. In this regard, our research design is similar to Segal who compares pre-142 to post-142 data. His focus is largely on the change in the determinants of the charges, though he also analyzes changes in the information content of write-offs.[5] Segal's tests reveal no significant change in the short window stock market reaction to the charges.

We combine aspects of both of these papers, including the long window returns associations of Chen et al. and the short window analysis of Segal. This provides a more complete picture of how goodwill write-offs provide the market with new information, as well as incorporate past economic income (stock returns) into accounting earnings. Unlike the other studies, we examine cross-sectional differences in these associations to better assess the firm characteristics that affect these relations. Finally, we have the advantage of time in that we use results from 2003, which provide a larger sample and a clearer picture of post-adoption behavior as we move further away from the transition. Our paper adds to both the asset write-off literatures as well as the literature examining the impact of fair value accounting by questioning how fair value accounting affects both the information content and timeliness of goodwill impairments, and how these associations vary in the cross section.

4. Research Questions

Due to the shift from an *undiscounted* cash flow impairment trigger under SFAS 121 to a *discounted* cash flow impairment trigger under SFAS 142, goodwill write-offs have the potential

[5] Analyzing the change in the determinants of accounting accruals as standards change is also useful in assessing how discretion is used by managers when making accounting decisions. However, it is extremely difficult to separate economic factors from managerial incentives, as they are rarely distinct. Thus our paper focuses on the actual use of this information in the stock market, and how this changes around the implementation of the new rule.

to provide more timely information in the post-SFAS 142 period. As noted in SFAS 142 Appendix B (paragraph 88), the undiscounted cash flows associated with goodwill might continue many years beyond all earnings from traditional assets. Nominally, these cash flows might make the reporting unit appear more valuable in impairment tests vis-à-vis a setting where present value is taken into account. In addition, the assignment of goodwill to more specific reporting units might make the write-offs more informative. Goodwill now pertains to a particular unit's cash flows, removing management's ability to simply assign the asset to the overall firm where imperfectly correlated cash flows across segments might offset each other, precluding the recognition of an impairment. These are the issues we highlight in Figure 1.

The FASB obviously had these improvements in mind when it passed the Standard, and their logic is compelling. However, such rules per se are not as relevant as management's actual implementation of them, and that is where critics take aim. Watts [2003] takes issue with the assumptions needed to calculate fair values as well as the ability of even the most neutral accountant to assign intangibles to reporting units.

At first glance, it might seem that SFAS 142 is viewed positively by proponents of conservatism in financial reporting, as impairment accruals are asymmetric: write-downs are required, but write-ups prohibited. This seems consistent with Ball's [2001] arguments that an "economically efficient system of public financial reporting" utilizes an accounting model with a "timely incorporation of economic losses." Yet as Watts points out, although conservatism requires a "higher degree of verification to recognize good news as gains than to recognize bad news as losses" (Basu [1997]), the information used to support bad news recognition must still be verifiable. According to Watts, the amount of discretion allowed managers in determining SFAS 142 impairments undercuts even the relaxed verifiability requirement for losses.

Watts also notes the difficulty a neutral practitioner would have with assigning intangible assets to reporting units. This "joint cost/benefit problem" arises since intangibles are frequently the result of *synergies* between distinct operating units, and precisely identifying the source of the synergy is non-trivial. As Porter [1996, p. 72] puts it: "The competitive value of individual activities cannot be separated from the whole." Since there are no theories of optimal allocation of such synergies, any attempt to mandate this with the reporting unit concept is "arbitrary and meaningless" (Watts [2003], p. 218).

Our a priori view on this debate is agnostic, hence we conduct our empirical analyses as an exploratory study with the purpose of informing the debate. We explore whether the change in fair value accounting, as captured by the changes in the write-down trigger and reporting unit allocation, alters the information content of goodwill write-offs. We capture the information content of goodwill write-offs by comparing the two-day abnormal return surrounding impairment announcements, and we estimate how this market reaction changes when moving from the pre-142 to post-142 regime.[6]

While a short window analysis is the most explicit test of how much information an event actually provides to the market, we also examine the association between long window returns (over the previous two years) and the write-offs. This is a test of the timeliness with which accounting reports include public information that has been incorporated into share prices. The asymmetric nature of U.S. GAAP emphasizes a conservative approach that recognizes economic losses in net income in a more timely manner than economic gains. This aspect of the system

[6] This is, admittedly, a narrow perspective for studying the informativeness of fair value accounting information, as it focuses solely on equity investors setting share prices while ignoring the other uses of financial statements such as in debt and compensation contracts (Holthausen and Watts [2001]). However, it is difficult to observe the effects of SFAS 142 in these settings in such a short time period (i.e., contracts are inherently static, and will only evolve over a longer time period). In addition, the primary claimants of intangible assets are more likely to be equity investors. Debt contracts tend to focus on tangible assets (Watts [2003]) and compensation contracts will often shield managers from such non-recurring charges (Dechow, Huson and Sloan [1994]). Thus we do not view this focus on stock returns to infer the usefulness of accounting information as a severe limitation of this study.

can be viewed as a disciplinary mechanism that holds managers accountable for investment decisions (Ball [2001]). Thus we believe it is useful to assess how the timeliness of goodwill write-offs changes post-142, again keeping in mind that timeliness may actually decline if the implementation is manipulated by executives, or the Standard proves too difficult to apply.

SFAS 142 required firms to conduct an initial impairment test of their existing goodwill, to be completed by the second quarter following adoption. Ideally, these charges were to reflect a "catch up" by firms for unrecorded impairments. However, a transition charge might also be used to "clear the decks" of all existing goodwill, since it is recorded as a cumulative effect of an accounting change. This approach would allow management to avoid reporting any future impairments in operating income, and was specifically advocated in some practitioner journals (Ketz [2002]). If managers adopt this strategy, then not only will the information content of the charges attenuate, but they will have less of an association with past returns. Beatty and Weber [2005] provide evidence that the transition charges were indeed used strategically by some firms. Therefore, we analyze the information content and timeliness of transition charges, and how they differ from non-transition impairments.

In supplemental cross-sectional analyses, we explore whether there are certain firm fundamentals that might affect the implementation and relevance of a fair value based regime. In terms of Figure 1, what we seek are firm specific constructs that might be correlated with the lag, or L term. Ideally, one latent proxy that we would like to capture is the information asymmetry between managers and equity investors regarding firm operations. One general role of a

financial reporting system is to alleviate this asymmetry so that investors may improve upon their allocation of capital within the economy as well as their monitoring of past investments.[7] Thus, as this information asymmetry increases, so does the usefulness of an impairment accrual that communicates to outsiders the length of L in Figure 1.

Firm size has frequently been used as a conditioning variable in tests of returns-earnings (Freeman [1987]) or price-earnings (Collins, Kothari and Rayburn [1987]) relations. The evidence suggests that size captures the richness of a firm's information environment. This suggests that for small firms, the information content of goodwill write-offs is greater than for large firms, and that small firms will benefit more from a change in accounting if it makes the impairment more informative. However, a contradictory prediction is that small firms are less able to handle the complexity surrounding the implementation of SFAS 142 (or hire valuation consultants to do so) due to limited resources and limited regulatory guidance. The cost of implementing the new Standard was a consideration in the FASB's deliberations and conclusions (see paragraphs 142-144 of Appendix B).[8] Further, the guidance contained in the Standard for actually estimating fair value is limited. Thus while we expect that firm size will have an effect on the information content and timeliness of goodwill impairments, as well as incremental effects as SFAS 142 moves closer to fair value reporting, we do not sign this prediction.

Our second cross-sectional measure captures firm complexity, as measured by the concentration of sales across segments. Prior research suggests that analysts, who are often viewed as representing investors, find multi-segment firms inherently more difficult to follow.

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[7] The FASB conceptual framework puts it this way: "The objectives [of external reporting] stem primarily from the needs of external users who lack the authority to prescribe the information they want and must rely on information management communicates to them" (FASB Concepts No. 1).

[8] The recent passage of the Sarbanes-Oxley Act (SOX) provides another setting where compliance with heightened financial regulations dramatically increased costs for certain firms. Engel, Hayes and Wang [2004] suggest that smaller firms with greater inside ownership are more likely to go private post-SOX, presumably because such firms find compliance costs too high.

Gilson, Healy, Noe and Palepu [2001] find that analyst following and forecast accuracy are lower at conglomerate firms, and this is partially resolved when the firm becomes more focused. Berger and Hann [2003] find that an increase in the quality of disclosed segment information improves analyst forecast accuracy. Hence it seems likely that in our setting firms with diverse operations will experience the greatest effect of SFAS 142. As previously noted, one of the main changes under SFAS 142 was the refinement in the definition of reporting units to which goodwill is assigned. Thus, as in the Gilson et al. and Berger and Hann studies, more refined segment data can increase the value relevance of accounting information. However, following Watts [2003] and Porter [1996], it may be precisely for such firms where the joint cost/benefit problem is most pronounced. Hence the effect of firm complexity on the information content and timeliness of goodwill write-offs is ambiguous, and as with the size variable, we do not offer a signed prediction.

5. Sample

We gathered our sample by identifying firms on Compustat that took intangible asset write-offs of at least 5% of lagged assets over the period 1996-2003. Many write-off studies collect their samples by initially performing word searches on newswire databases (e.g., Francis et al. [1996]; Segal [2004]). However, this approach is extremely time consuming since many articles that mention "goodwill" and "impairment" will be false positives, as the firms simply discuss the approaching regime of SFAS 142. Moreover, often selected charges are small in magnitude, leading to low powered tests. Therefore we start with Compustat in selecting our firms and set the 5% threshold before we begin the hand collection of newswire reports.[9]

[9] The dependent variable in all of our regressions is some measure of stock returns. Therefore, we selected our sample based on the write-off as a percent of assets. If we use the lagged market value of equity as the scalar, we

Compustat added Annual Data Item 368 "Impairments of Goodwill Pretax" after the adoption of SFAS 142 in 2002. A firm qualified for our post-adoption sample in fiscal years 2002-2003 if Item 368 was greater than 5% of total lagged assets. SFAS 142 transition charges were *not* coded in Item 368, therefore we also identified adoption period firms with negative extraordinary items (Item 192) in 2002 that were greater than 5% of lagged assets.[10]

We identified potential pre-adoption goodwill write-offs by selecting firms with a decrease in Intangibles (Item 33) of at least 5% of lagged assets, after excluding the effects of amortization (Item 65) for the year. To increase the likelihood that this decline actually occurred from a write-off (as opposed to the disposition of a business segment that had been assigned goodwill), we selected the subset of firms with negative Special Items (Item 17) in excess of 2% of lagged assets (we lowered the cutoff from 5% to 2% to allow for positive Special Item transactions that might partially offset the goodwill impairment). A summary of write-off announcements found per year by way of our sample selection can be seen in Table 1.

Once the preliminary sample was gathered, we searched the Factiva database for goodwill write-off announcements, to ensure that there was actually an impairment, and to find any contemporaneously announced news. We found the announcement date of each different goodwill and intangible asset write-off by searching the following sources: Dow Jones News Service, PR Newswire, Business Wire and The Wall Street Journal using the key words "goodwill," "intangible," "writeoff," "write-off," "charge," "writedown" or "write-down." We found the first announcement mentioning the amount (or estimation of an amount) of the write-off in the relevant fiscal year. The amounts identified in the press releases were the values

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will bias our sample selection towards firms that have already experienced a decline in share prices, and thus induce a finding that write-offs are very untimely.

[10] Technically, transition charges are presented as cumulative effects of accounting changes. However, like extraordinary items, they are disclosed separately, net of tax, below the line of income before extraordinary items. Compustat groups all such charges in its extraordinary items category.

actually used in our analyses, as opposed to estimates derived from Compustat. If a range of write-off values was disclosed, we used the midpoint.

We eliminated all firms that "hinted" at the write-off before announcing the amount, to increase the likelihood that the announcement of the actual charge was a surprise to the market. We also eliminated firms from our initial sample for the following reasons: the necessary data was not found on CRSP, Compustat, or Factiva; the announcement did not separate the amount of write-off relating to the goodwill impairment from other special charges; the write-off pertained to discontinued operations or software; the firm was revaluing its assets via "Fresh Start" reporting as it emerged from bankruptcy; the firm was foreign; the value of the write-off was less than $1 million; or the sum of multiple goodwill write-offs for the year was greater than 5% of total lagged assets, but the individual write-offs were less than 5% of total lagged assets. See Table 1 for a summary of these eliminations. The sample of 423 represents our sample for all information content tests. For our timeliness tests, we eliminated another 50 observations because necessary two year historical data were incomplete on CRSP or Compustat.

Table 2 presents some fundamental characteristics regarding the observations used in the information content tests. Several points warrant mentioning. Note the difference in magnitudes of the write-offs when considering alternative deflators. When lagged assets are used as the scalar, the write-off variable has a mean of 18% of assets, and a median of 13%. To control for outliers, we cap the magnitude of the write-offs at 100% of beginning assets; there are three such firms.[11] When lagged market value of equity is used as the scaling variable, the distribution of the deflated write-off amount is shifted to the right, and more right skewed. The mean is 35% of lagged market value, while the median is 24%. Moreover, more than 10% of the observations

[11] This situation occurs when a firm expands its asset base significantly during the year via an acquisition, but then writes off a significant portion of the goodwill before the end of the year.

involve write-offs that exceed the entire market capitalization as of the beginning of the year. To prevent extreme values of the main treatment variable from overly influencing our results, we use the asset deflated measure of write-off intensity in our market related tests.[12]

Another observation from table 2 is that our firms are intangible intensive. The mean percentage of lagged total intangibles (Compustat item #33) to lagged total assets is 34%; the median is 30%. By contrast, for the Compustat population over this time period, the mean was 8% and the median 0.2%.[13] Finally, the sample firms are somewhat larger in size than the typical Compustat firms. The median asset value is $238 million while it is $137 million for the Compustat universe during this time period. The median market capitalization is $173 million, while it is $92 million per Compustat.

6. Results

6.1 Information Content Analyses

We calculated the short-window abnormal return for each firm in the pre-SFAS 142, adoption and post-SFAS 142 samples. Abnormal returns are calculated as size-adjusted buy-and-hold returns over the period beginning the day of the announcement and ending on the first trading day after the announcement.

[12] Christie [1987] suggests that market value of equity is the natural deflator for returns studies. Our rationale for using total assets in lieu of market value is to mitigate measurement error. While Christie allows that this might be a reasonable alternative, he finds it unlikely (p. 240). Our conclusions in the information content tests are largely unchanged when we use the market value of equity as the deflator, though significance levels are lower. In the timeliness tests, there is essentially zero association between the variation in the magnitudes of the write-off deflated by lagged market value of equity and variation in long window returns. That is, the sample firms, on average, exhibit significantly negative returns in the two years leading up to the charge; however, variation between the magnitudes of the charge deflated by stock price and returns is non-existent.

[13] We considered using a measure of intangible intensity as another proxy for information asymmetry in our cross-sectional tests. However, given that the firm with the lowest intangibles to total assets ratio in our sample is still 22 times more intangible intensive than the median Compustat firm, we believe there is little meaningful variation within our sample on this dimension.

Univariate statistics can be seen in Table 3. The abnormal returns are negative in all three periods. The mean returns are different from zero only in the non-adoption periods; medians are significant in all three periods. Economically, the magnitudes of the market reactions are also fairly large, especially in the non-adoption periods. This finding contradicts that of Francis et al. [1996] who found that short-window abnormal returns surrounding goodwill write-off announcements were insignificantly different from zero.[14] Panel D reveals that there is no statistically significant difference between the short-window abnormal returns in the pre- and post-SFAS 142 samples, suggesting the changes in fair value accounting of SFAS 142 do not impact the information content of accounting data. When we compare the adoption period returns to the other periods, we see that both the pre- and post-142 write-offs are accompanied by more negative market reactions than the transition charges. The difference is statistically significant for the post-142 vs. adoption period comparison. The results of these univariate tests should be interpreted with caution since the majority of write-offs announcements are announced with contemporaneous information.[15] Therefore, we present the multivariate tests next.

We first examine whether the adoption of SFAS 142 alters the information content of accounting information by estimating the following regressions:

$$AR_i = \alpha_0 + \alpha_1 UERW_i + \alpha_2 WO_i + \alpha_3 WO_i * XI_i + \alpha_4 WO_i * POST_i + \alpha_5 LOSS_i + \alpha_6 GAIN_i \quad (1)$$

$$AR_i = \alpha_0 + \alpha_1 UEFE_i + \alpha_2 WO_i + \alpha_3 WO_i * XI_i + \alpha_4 WO_i * POST_i + \alpha_5 LOSS_i + \alpha_6 GAIN_i \quad (2)$$

[14] The difference across studies may be due to different sample periods (Francis et al. study write-offs pre-SFAS 121), or the fact that our study focuses on much larger write-offs (5% of assets vs. 1% in the previous study).
[15] Prior research documents that only a small minority of write-off announcements occur in isolation from other information events (Francis et al. [1996]). Therefore we searched the five day window surrounding each date to ensure that contemporaneous news releases were collected. In our sample, approximately 94% of the goodwill impairments were disclosed along with earnings announcements or pre-announcements.

Where *AR* is the short-window abnormal return for firm *i* described above; *UERW* is unexpected contemporaneously announced quarterly earnings excluding the goodwill write-off using a seasonal random walk model to form earnings expectations;[16] *UEFE* is unexpected contemporaneously announced quarterly earnings per IBES using the consensus IBES forecast to measure expected earnings; *WO* is the *absolute value* of the goodwill write-off, net of tax;[17] *XI* is a dummy variable equal to one in the adoption period; *POST* is a dummy variable equal to one in the post-SFAS 142 period; *GAIN* is any contemporaneously announced non-recurring increase to earnings, net of tax; and *LOSS* is any non-recurring decrease to earnings, net of tax.[18] All explanatory variables are deflated by lagged assets. We expect that the coefficient on *WO*POST* (α_4) will be statistically significant if SFAS 142 alters the information content of goodwill write-offs. We also control for any differential reaction to transition charge announcements with the α_3 coefficient.[19]

Table 4, Panel A presents the results from estimating model (1) in the first column. Using the random walk model to form earnings expectations, we find an overall negative and significant short window reaction to the announcement of goodwill write-offs taken during the sample period, as evidenced by a significantly negative α_2 value. The market reaction remains negative and significant in the post-SFAS 142 period, as the coefficient on the interaction term

[16] Unexpected earnings are calculated as earnings before discontinued operations, extraordinary items and the contemporaneously announced goodwill write-off, less earnings from the same quarter one year prior. When calculating expected earnings during the Adoption and Post-SFAS 142 periods, intangible asset amortization was added back to lagged earnings, since the Standard halted goodwill amortization.

[17] A goodwill impairment under GAAP does *not* imply an impairment for tax purposes. Whenever a company provides pre-and post-tax goodwill write-off values, we use the post-tax value. If no tax information is provided we assume that the goodwill is not tax deductible, and thus the pre- and post-tax values are assumed to be equal.

[18] It is vital to control for other non-recurring items, as they frequently occur along with goodwill write-offs: 51% of sample firms announced a *LOSS* with the write-off, while 13% announced a *GAIN*.

[19] We do not include main treatment effects for *XI* and *POST* because we use size adjusted returns as the dependent variable. We have no reason to believe that this returns expectations model should be altered for different time periods, which is what the dummy variables would capture.

*WO*POST*, though positive, is insignificant. The coefficient that captures the incremental effects of a transitional charge, α_3, is positive but also insignificant.

The results using the consensus analyst forecast as the earnings expectations model are presented in the second column of Table 4, Panel A. The sample size declines by 33% from 423 to 283 due to the lack of IBES analyst following, and this may have a significant impact on the power of these tests. The most significant differences between models (1) and (2) are that unexpected earnings drives returns in the latter model, while the reaction to the goodwill write-off is insignificant. Similar to model (1), the coefficient reflecting the change in reaction to goodwill write-offs in the post-142 period is insignificant, suggesting that the new standard has not altered the information content as it mandates fair value accounting.

We next examine whether the information content of goodwill write-offs is impacted by firm size and complexity by estimating models (3) and (4):

$$AR_i = \beta_0 + \beta_1 UERW_i + \beta_2 WO_i + \beta_3 WO_i*XI_i + \beta_4 WO_i*POST_i + \beta_5 LOSS_i + \beta_6 GAIN_i + \beta_7 SMALL_i + \beta_8 WO_i*SMALL_i + \beta_9 WO_i*SMALL_i*XI_i + \beta_{10} WO_i*SMALL_i* POST_i + \beta_{11} COMPLEX_i + \beta_{12} WO_i*COMPLEX_i + \beta_{13} WO_i*COMPLEX_i*XI_i + \beta_{14} WO_i*COMPLEX_i*POST_i \quad (3)$$

$$AR_i = \beta_0 + \beta_1 UEFE_i + \beta_2 WO_i + \beta_3 WO_i*XI_i + \beta_4 WO_i*POST_i + \beta_5 LOSS_i + \beta_6 GAIN_i + \beta_7 SMALL_i + \beta_8 WO_i*SMALL_i + \beta_9 WO_i*SMALL_i*XI_i + \beta_{10} WO_i*SMALL_i* POST_i + \beta_{11} COMPLEX_i + \beta_{12} WO_i*COMPLEX_i + \beta_{13} WO_i*COMPLEX_i*XI_i + \beta_{14} WO_i*COMPLEX_i*POST_i \quad (4)$$

Each of the variables above has been previously defined with the exception of *SMALL* and *COMPLEX*. *SMALL* is a dummy variable equal to one if lagged assets are less than the median Compustat asset balance for that year, zero otherwise. *COMPLEX* is a dummy variable equal to one if a firm level Herfindahl index, measured across segment sales, is less than the

median Compustat sales concentration for that year, zero otherwise. As it turns out, because each year the median Compustat firm consists of a single segment, this variable is equivalent to an indicator of whether the firm is a multi-segment corporation. As one might expect, the correlation between *COMPLEX* and *SMALL* is negative, -0.1317 with a p-value of .006, however this is not sufficient to induce collinearity problems.

The third and fourth columns in Table 4, Panel A present the estimated coefficients and t-statistics of models (3) and (4), respectively. The main effect of the goodwill write-off is significant in both models. Both models suggest that the main effect of size on the market reaction to goodwill write-offs across all periods is positive and statistically significant. This association does not change post-142, as the relevant coefficient estimate, β_{10}, is not statistically significant. Combined, these two results reveal the following: the information provided to the stock market with a goodwill write-off is sharply reduced for smaller firms, and this situation persists after the adoption of SFAS 142. Despite the likely weaker information environment these firms face, this rather large accrual provides the market with little information.

The main effect of *COMPLEX* on *WO* as captured by β_{12} is positive in both models. The statistical significance is marginal in the random walk sample (two-tailed p-value 0.12), yet higher in the analyst forecast group (p-value 0.01). These results suggest a lower market to reaction to goodwill write-offs for multi-segment firms. This effect does not change after SFAS 142, given the insignificant β_{14} coefficient. Hence, the information provided to the stock market with a goodwill write-off is reduced for complex firms, and this situation persists after the adoption of SFAS 142. While there appears to be a role for improved impairment measures for complex firms, the Standard, as implemented, does not fulfill it.

Given the myriad of interactions in models (3) and (4), collinearity might be an issue. The variance inflation factors and condition indices do not exceed the danger thresholds suggested by Kennedy [2003] and Belsey, Kuh and Welsch [1980]. However, for completeness, we present modified versions of the regressions in Panels B and C of Table 4. In Panel B, we conduct only one cross-sectional analysis at a time. The results generally support those documented in the expanded models of Panel A. In Panel C we revert back to the basic models (1) and (2) that include only the temporal interactions. We split the sample between large and small firms, and separately between simple and complex firms. In the large firm sub-sample, we still observe a negative main effect of the write-off in both models. Interestingly, in the small firm sub-sample, we observe positive stock market reactions to the impairments, but only in the reduced sample analyst following group. Moreover the sum of the main effect and temporal interactions are not significantly different from zero, suggesting these positive reactions are confined to a small sub-set of the population. Turning to the simple and complex split, we observe a negative and significant market reaction to the write-off only for the simple firms in the random walk model. The complex firms, by contrast do not exhibit a negative reaction to the charge. Like the small firm analysis, we actually observe a positive coefficient in the analyst following sub-sample, though once again this is restricted to a just a few firms as it does not persist in the transition and post-142 era; during those time periods the reaction to the write-off is essentially zero for these complex firms.

Summarizing the results of the information content tests, in most of our model specifications goodwill write-off announcements provide negative signals to equity investors. The magnitude of the reactions *do not* change following the adoption of the fair value standard SFAS 142. There is some indication that the transition period charges are associated with a less

significant stock market reaction. Finally, the stock price reactions to goodwill impairments of small firms and complex firms are significantly less negative (i.e., closer to zero) than their large and simple counterparts; this cross-sectional variation does not change after SFAS 142.

6.2 Sensitivity Analyses

Our information content tests may be hampered by lack of power as we assume that the entire goodwill impairment is a surprise to the market. We make two attempts at addressing this issue. First, we measured the market reaction to the original acquisition announcement of the deal with the currently impaired goodwill. If the stock market originally acted unfavorably toward the merger announcement, then we would expect less of a reaction to the ultimate goodwill impairment. Unfortunately, only 70 observations disclose the particular acquisition that led to the impairment and had historical stock return data available. Thus, we do not have enough sample observations to conduct meaningful cross-sectional analyses including a variable that captures the market reaction to the original acquisition.[20]

Our second approach was an attempt to infer the average age of each sample firm's goodwill. The assumption is that the older the goodwill, the more likely that investors will have formed expectations of its impairment prior to the firm's actual announcement. Compustat does not track accumulated amortization for intangible assets. Therefore, we used the prior year amortization amount and assumed that the useful life was estimated at either 40, 30 or 20 years in three different specifications.[21] Using one of these assumptions, we calculated an estimated average age for the impaired goodwill. However, this variable was insignificant when included

[20] When we do estimate our basic regression model (1) including such an additional explanatory variable, the model has no explanatory power as none of the variables are statistically significant.
[21] For 2003 impairments we used the amortization rate from two years prior, since amortization ceased in 2002.

in our regressions (not reported in tables), suggesting that the age of the goodwill was not a correlated omitted variable in our main regressions.

6.3 Timeliness Analyses

Descriptive statistics relating to the long window returns leading up to, and including the write-off announcement date are reported in Table 5. We measure year 0 (lagged 12 month) and year -1 (lagged 24 to12 month) raw and size adjusted returns. To reduce the effects of extreme values, returns are capped at 100 percent. A market wide impairment of a firm's future prospects is likely to be as relevant to determining goodwill write-offs as are idiosyncratic shocks affecting the firm alone. Thus raw returns are presented as a measure of equity investors' revaluations over the previous two years. For completeness we also present size adjusted returns.

A timely write-off is evidenced by a significantly negative year 0 return, while a less timely write-off would be evidenced by an insignificant year 0 return coupled with a significantly negative year -1 return. We are interested in whether the adoption of SFAS 142 changes the timeliness of write-offs. Panel D indicates that the year 0 returns are not significantly different in the pre- and post-SFAS 142 sample, suggesting that the adoption of SFAS 142 does not change the timeliness. Further, the adoption-period year 0 returns are significantly greater (i.e., less negative) that the pre-142 period.

Turning to the year -1 returns, we see that these are negative and significant across all sub-groups, suggesting that the write-offs contain some untimely information regarding economics losses at the firm. The adoption period sample exhibits negative returns that are not significantly different from the surrounding periods, irrespective of whether raw or size-adjusted returns are analyzed.

Our next set of tests are similar to those used by Alciatore, Easton and Spear [2000]. That study examines the timeliness of asset write-offs in the petroleum industry, by comparing the association between oil and gas inventory impairments with stock returns in the contemporaneous and lagged quarters. Unlike Alciatore et al., our focus is on how this relation for goodwill write-offs varies both over time (with the new Standard) and cross-sectionally. Also, we use annual rather than quarterly returns as we expect that impairment reviews for intangibles are more complicated to implement and therefore less frequent than for the inventory of commodities, such as oil and gas. The models below are used to explore the timeliness issue.

$$R_{i;t=0} = \gamma_0 + \gamma_1 E_{i;\,t=0} + \gamma_2 WO_i + \gamma_3 WO_i * XI_i + \gamma_4 WO_i * POST_i \quad (5)$$

$$R_{i;t=-1} = \delta_0 + \delta_1 PYE_{i;\,t=-1} + \delta_2 WO_i + \delta_3 WO_i * XI_i + \delta_4 WO_i * POST_i \quad (6)$$

In model (5), the dependent variable is the stock return (either raw or size adjusted) beginning one year before the write-off and ending on the day following the announcement (year 0). In model (6) the dependent variable is the stock return beginning 24 months before the write-off and ending 12 months later (year -1). We control for earnings excluding the write-off and goodwill amortization, *E* or *PYE*. Amortization is added back to ensure that the variable is consistently measured over the sample period, since SFAS 142 eliminated most amortization.

The primary coefficients of interest are γ_4 and δ_4. If the write-offs are more timely in the post-142 period, then we expect γ_4 to be negative and δ_4 positive. As a supplementary test, we also control for the differential timeliness of transition charges with γ_3 and δ_3.

The results from estimating these two models, using both raw and size adjusted returns are presented in Table 6. Panel A presents the regressions using year 0 returns; Panel B uses

year -1. In model (5), regardless of whether raw or market adjusted year 0 returns are used, goodwill write-offs are strongly associated with contemporaneous returns. Moreover, this association is not statistically different after SFAS 142 adoption, suggesting no change in timeliness. Interestingly, the transitional charges are less associated with returns from the past 12 months, as evidenced by the positive and significant γ_3 coefficients.

When we turn to model (6) in Panel B where the dependent variable is the year -1 return, we observe no association between the magnitude of the goodwill write-off and these returns. In addition, there is no significant change in this association across reporting regimes. These firms do, on average, experience negative returns in year -1 as evidenced by the intercepts.

Our conclusions from these tests indicate that while goodwill impairments are somewhat timely under SFAS 142, there was no significant change from the previous reporting regime. Moreover the evidence suggests that the transitional charges were used to "clear the decks" and remove goodwill. Not only are these charges largely unrelated to contemporaneous returns, they are also not associated with returns from year -1 to a greater extent than the other charges. Thus they are not "catch up" accruals.

The temporal analyses above suggest that SFAS 142 did not change the timeliness of goodwill impairments for the average firm. We next explore whether this association differs by firm size and complexity. The regression models used are listed below.

$$R_{i;t=0} = \eta_0 + \eta_1 E_{i;\,t=0} + \eta_2 WO_i + \eta_3 WO_i{*}XI_i + \eta_4 WO_i{*}POST_i + \eta_5 SMALL_i + \eta_6\, WO_i{*}SMALL_i + \eta_7 WO_i{*}SMALL_i{*}XI_i + \eta_8\, WO_i{*}SMALL_i{*}\, POST_i + \eta_9 COMPLEX_i + \eta_{10}\, WO_i{*}COMPLEX_i + \eta_{11}\, WO_i{*}COMPLEX_i{*}XI_i + \eta_{12}\, WO_i{*}COMPLEX_i{*}POST_i \quad (7)$$

$$R_{i;t=-1} = \lambda_0 + \lambda_1 PYE_{i;\,t=-1} + \lambda_2 WO_i + \lambda_3 WO_i*XI_i + \lambda_4 WO_i*POST_i + \lambda_5 SMALL_i + \lambda_6 WO_i*SMALL_i +$$
$$\lambda_7 WO_i*SMALL_i*XI_i + \lambda_8 WO_i*SMALL_i*POST_i + \lambda_9 COMPLEX_i + \lambda_{10} WO_i*COMPLEX_i +$$
$$\lambda_{11} WO_i*COMPLEX_i*XI_i + \lambda_{12} WO_i*COMPLEX_i*POST_i \quad (8)$$

The results from estimating model (7), where the stock return from year 0 is the dependent variable, are listed in Table 6, Panel A. We observe that while write-offs are negatively associated with current period returns (η_2 is significantly negative), this holds only for large firms, as the interaction of the small firm dummy with *WO* is positive and significant. This does not change post-142. There is no statistical association between complexity and the timeliness of goodwill write-offs, and this does not change after adoption of the Standard.

In addition, we see that the lack of timeliness of transitional charges is not concentrated in small or complex firms. The main effect (η_3) remains positive and significant, and does not change with size or complexity. Finally, we still observe little association between the *magnitude* of the write-offs and returns in year -1. However, there are significant negative returns for these firms, on average, as reflected by the intercepts.

Summarizing the timeliness tests, we find that goodwill impairment charges are negatively associated with current year returns, though this association is not as strong for transition period charges. When comparing the write-offs to returns from the previous year, there is no significant association between the magnitude of the impairment and returns. However, sample firms do experience significant negative returns of the same magnitude, on average. Finally, the cross-sectional tests reveal some variation to these results, as timeliness appears to be lower for small firms, and this does not change post-142.

7. Conclusions

Proponents of fair value accounting claim that it leads to a more meaningful economic measure of a firm's performance and financial position. Critics counter that the discretion allowed in generating estimates are inherently unverifiable, inducing excess noise and potentially bias into accounting reports. Moreover, assigning *synergistic* intangibles to a single segment may be impossible.

This paper presents an exploratory analysis by examining how changes in fair value reporting affect both the information content and timeliness of accounting information. We study the fair value reporting of goodwill and other intangible assets, focusing specifically on how changes to the impairment trigger and reporting unit allocation affect market reactions to, and the timeliness of these write-offs.

Our analyses show that goodwill write-offs generate significant negative stock returns when they are announced. However, this association did not change as firms moved from the quasi-fair value regime of SFAS 121 to SFAS 142 fair value accounting. Moreover, these associations are attenuated for both small firms and complex firms, and this does not change after SFAS 142. Ironically, these are the firms where such write-offs could potentially be most informative: small firms lack a rich information environment, and complex firms have multiple operating segments making it more difficult for outside investors to value intangibles as they lack a market price of the unit.

Our timeliness tests reveal that goodwill write-offs tend to reflect current period economic losses as measured by stock prices. Once again, this relationship does not change after adoption of the new Standard. Moreover, write-offs are significantly less timely for small firms.

Finally, our results provide some evidence that the transition impairment was used to "clear the decks" of goodwill for many firms. Those charges, excluded from income from continuing operations, generated short window returns that were significantly less negative than the write-offs in the surrounding periods, though this result was not statistically significant in the multivariate specification. Moreover, these transition charges were significantly less associated with economic returns prior to the write-off. This possible strategic application, similar in spirit to that documented by Beatty and Weber [2005], allows firms to manage prospective earnings in that they can avoid reporting future economic losses in the period that they actually occur.

The FASB has responded to requests that it provide more implementation guidance for the increasing number of fair value standards with an Exposure Draft, *Fair Value Measurements*. This appears to be a reasonable response given our findings that the change to a more internally consistent fair value scheme for determining goodwill impairments has altered neither the information content nor timeliness of such charges. Moreover, the firms that could potentially benefit the most from this Standard, in the sense that their write-offs could be more informative to investors, do not enjoy such a benefit. Hence, the demand for such guidance is justified.

However, it is possible (and some critics would say "likely") that such guidance will do little to improve the matter. Fair value estimates require assumptions that are difficult for external auditors to verify, and the synergistic value created by business combinations will never be easily assigned across business units in a rational manner (Watts [2003]).

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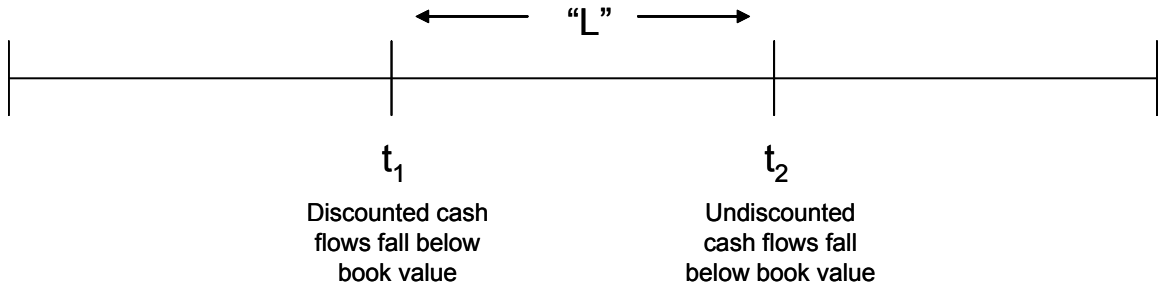
Figure 1

Below is a figure summarizing the accounting for impairments under SFAS 121 and SFAS 142. For ease of comparability we have made two assumptions: (1) the "reporting unit" of SFAS 121 is equivalent to the "identifiable cash flow" grouping of SFAS 142 (represented by subscript *i* below), and (2) firms use a discounted cash flow technique to estimate fair values, since it is unlikely that there will be actively quoted market prices for the unique collection of assets that make up most firms' reporting units. Time is represented in the figure below by the subscript *t*, and managements' expectations at time *t* are represented by E_t. Other variables used in the figure below include Cash Flow of the unit (*CF*), Book Value of the unit (*BV*), Fair Value of the unit (*FV*), Book Value of Goodwill of the unit (*BVGW*) and Fair Value of Identifiable Assets Other than Goodwill of the unit (*FVOA*).



SFAS 121 Test

Step One: If $E_t[\sum CF_i] < BV_i$, then write-down all impaired assets, including goodwill, to fair market value.

SFAS 142 Test

Step One: If $FV_i = E_t[\sum \frac{CF_i}{(1+r)^t}] < BV_i$, then estimate the fair values of identifiable assets of the reporting unit other than goodwill, or $FVOA_i$.

Step Two: If $BVGW_i > FV_i - FVOA_i$, then goodwill impairment is recorded in an amount equal to $BVGW_i - (FV_i - FVOA_i)$.

Table 1
Sample Selection for Information Content Tests.

This table pertains to all firms found via our initial search per fiscal year, and outlines the reasons for eliminating observations. For the timeliness tests we were forced to eliminate another 50 observations because necessary two year historical data were incomplete on CRSP or Compustat.

	Fiscal Year								
	1996	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**TOTAL**
Total Observations Found in Initial Search	36	22	36	29	64	164	495	84	930
Elimination Causes:									
Point or range estimate of charge not given in initial announcement	0	(2)	0	(5)	(7)	(10)	(67)	(9)	(100)
Necessary CRSP and/or Compustat data not available	(2)	0	(2)	(1)	(2)	(8)	(29)	(2)	(46)
Announcement not found on Factiva	(16)	(3)	(6)	(5)	(9)	(21)	(33)	(11)	(104)
Specific charges not specified	(6)	(6)	(6)	(5)	(6)	(31)	(12)	(10)	(82)
Write-off pertains to discontinued operations or software	0	(1)	(4)	(1)	(5)	0	(1)	0	(12)
Write-off taken as part of Chapter 11 reorganization plan	0	(1)	(3)	(2)	(6)	(1)	(5)	(3)	(21)
Write-off firm is foreign	(1)	(3)	(2)	(1)	(2)	(19)	(40)	0	(68)
Write-off is less than $1M	0	0	0	0	(1)	(4)	(2)	0	(7)
Total value of annual write-offs is greater than 5% of lagged assets, but individual write-off is less than 5% of lagged assets	(1)	(2)	(2)	(2)	(4)	(5)	(19)	(2)	(37)
Other	(2)	0	0	(1)	0	0	(24)	(3)	(30)
Total Eliminations	(28)	(18)	(25)	(23)	(40)	(99)	(232)	(40)	(507)
Final Sample	**8**	**4**	**11**	**6**	**22**	**65**	**263**	**44**	**423**

Table 2

Summary Statistics of Sample Variables.

Below are summary statistics pertaining to the total sample The variables outlined below are: the absolute value of the raw goodwill write-off (*RAW WO*); the absolute value of the raw goodwill write-off scaled by lagged assets (*RAW WO/ASSETS*); the absolute value of the raw goodwill write-off scaled by lagged market value of equity (*RAW WO/MVE*); lagged assets (*LAGGED ASSETS*); market value of equity at the beginning of the period (*LAGGED MVE*); lagged total intangible assets divided by lagged total assets (*GWINTENSE*); and the Herfindahl index (*HERF*).

Variable	N	Mean	Standard Deviation	Minimum	10th Percentile	25th Percentile	Median	75th Percentile	90th Percentile	Maximum
RAW WO	423	411.44	2,916.04	1.50	6.20	12.50	39.30	143.70	416.50	50,000.00
RAW WO/ ASSETS	423	0.18	0.16	0.05	0.06	0.08	0.13	0.23	0.36	1.00
RAW WO/ MVE	423	0.35	0.32	0.01	0.05	0.10	0.24	0.50	1.00	1.00
LAGGED ASSETS	423	1,917.25	11,229.32	11.10	48.80	98.40	237.70	832.50	2,775.00	208,504.00
LAGGED MVE	423	1,507.77	7,852.35	1.44	18.23	48.18	173.74	617.87	2,267.65	142,177.00
GW INTENSE	418	0.34	0.21	0.04	0.10	0.17	0.30	0.48	0.64	0.91
HERF	423	0.80	0.25	0.18	0.40	0.55	1.00	1.00	1.00	1.00

Table 3
Summary Statistics of Sample used for Information Content Tests.

Below are summary statistics pertaining to the variables used throughout our information content tests. The variables outlined below are: the short window abnormal returns, where abnormal returns are calculated as size-adjusted buy-and-hold returns over the period beginning the day of the announcement and ending on the first trading day after the announcement (*AR*); the absolute value of the raw goodwill write-off scaled by lagged assets (*WO*); change in quarterly earnings from the prior year excluding the goodwill write-off scaled by lagged assets (*UERW*); unexpected quarterly earnings based on analyst forecast errors (*UEFE*); contemporaneously announced non-recurring decreases to income, scaled by lagged assets and net of tax (*LOSS*); and contemporaneously announced non-recurring increases to income, scaled by lagged assets and net of tax (*GAIN*). *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Panel A – Pre-SFAS 142 Sample.

Variable Name	N	Mean	Standard Deviation	Minimum	10th Percentile	25th Percentile	Median	75th Percentile	90th Percentile	Maximum
AR	116	-0.034*	0.1921	-0.9029	-0.2254	-0.0899	-0.0275***	0.0312	0.1179	0.6846
WO	116	0.2140***	0.1868	0.0507	0.0702	0.0946	0.1340***	0.2694	0.4736	1.0000
UERW	116	-0.0509***	0.1588	-1.0000	-0.1738	-0.0936	-0.0271***	0.0027	0.0632	0.5094
UEFE	78	-0.0229***	0.05422	-0.0316	-0.0836	-0.0255	-0.0011***	0.0000	0.0127	0.0482
GAIN	116	0.0040**	0.0167	0.0000	0.0000	0.0000	0.0000***	0.0000	0.0035	0.1270
LOSS	116	0.0350***	0.1000	0.0000	0.0000	0.0000	0.0078***	0.0378	0.0971	1.0000

Panel B – Adoption Period Sample.

Variable Name	N	Mean	Standard Deviation	Minimum	10th Percentile	25th Percentile	Median	75th Percentile	90th Percentile	Maximum
AR	166	-0.0154	0.1292	-0.4850	-0.1514	-0.0623	-0.0117**	0.0305	0.1085	0.5050
WO	166	0.1654***	0.1291	0.0508	0.0624	0.0788	0.1163***	0.2200	0.3335	0.9633
UERW	166	0.0290**	0.1684	-0.4322	-0.0259	-0.0088	0.0000	0.0159	0.0665	1.0000
UEFE	98	-0.0027*	0.0157	-0.1224	-0.0097	-0.0018	0.0000	0.0012	0.0060	0.0239
GAIN	166	0.0006**	0.0033	0.0000	0.0000	0.0000	0.0000***	0.0000	0.0001	0.0384
LOSS	166	0.0066***	0.0196	0.0000	0.0000	0.0000	0.0000***	0.0041	0.0194	0.1624

Panel C – Post-SFAS 142 Period Sample.

Variable Name	N	Mean	Standard Deviation	Minimum	10th Percentile	25th Percentile	Median	75th Percentile	90th Percentile	Maximum
AR	141	-0.0420***	0.1251	-0.3240	-0.1963	-0.1149	-0.0395***	0.0158	0.0857	0.4176
WO	141	0.1773***	0.1568	0.0503	0.0607	0.0795	0.1287***	0.2013	0.3422	1.0000
UERW	141	0.0355***	0.1582	-0.2138	-0.0517	-0.0135	0.0000**	0.0362	0.1363	1.0000
UEFE	107	-0.0096**	0.0389	-0.2325	-0.0151	-0.0053	0.0000**	0.0010	0.0054	0.0498
GAIN	141	0.0012*	0.0078	0.0000	0.0000	0.0000	0.0000***	0.0000	0.0006	0.0907
LOSS	141	0.0209***	0.0390	0.0000	0.0000	0.0000	0.0021***	0.0267	0.0591	0.2415

Panel D – Differences.

Differences in Abnormal Returns Across Periods	Mean		Median	
Pre-SFAS 142 AR less Post-SFAS 142 AR	0.0081		0.0120	
Pre-SFAS 142 AR less Adoption Period AR	-0.0186		-0.0158	
Post-SFAS 142 AR less Adoption Period AR	-0.0266	*	-0.0278	***

Table 4
Information Content Tests – Temporal and Cross-Sectional Analyses.

The following table provides regression results from estimating regression models (1) through (4). The dependent variable in models (1) through (4) is short window abnormal returns (*AR*), where abnormal returns are calculated as size-adjusted buy-and-hold returns over the period beginning the day of the announcement and ending on the first trading day after the announcement. The independent variables are the absolute value of the goodwill write-off scaled by lagged assets (*WO*); a dummy variable equal to one if the period is the transitional period, zero otherwise (*XI*); a dummy variable equal to one if the period is the post-adoption period, zero otherwise (*POST*); change in quarterly earnings from the prior year excluding the goodwill write-off scaled by lagged assets (*UERW*); unexpected quarterly earnings based on analyst forecast errors (*UEFE*); contemporaneously announced non-recurring decreases to income, scaled by lagged assets and net of tax (*LOSS*); contemporaneously announced non-recurring increases to income, scaled by lagged assets and net of tax (*GAIN*); a dummy variable equal to one if a firm level Herfindahl index, measured across segment sales, is less than the Compustat median, zero otherwise (*HERF*); and a dummy variable equal to one if lagged assets are less than the Compustat median, zero otherwise (*SMALL*). *, **, and *** denote significance at the 10%, 5% and 1% levels, respectively.

PANEL A – Regression Analysis Employing the Entire Sample.

Explanatory Variables	*Model (1)*		*Model (2)*		*Model (3)*		*Model (4)*	
Intercept	-0.0111		-0.0053		0.0173		0.0161	
	(-0.96)		(-0.38)		(0.85)		(0.75)	
UERW	-0.0056				-0.0063			
	(-0.12)				(-0.14)			
UEFE			0.5526	***			0.5523	***
			(2.60)				(2.61)	
WO	-0.1500	**	-0.0321		-0.4114	***	-0.393	***
	(-2.53)		(-0.38)		(-4.82)		(-3.22)	
*WO*XI*	0.0927		-0.0630		0.1740		0.1600	
	(1.21)		(-0.65)		(1.33)		(1.14)	
*WO*POST*	0.0546		-0.1222		0.1133		0.0791	
	(0.74)		(-1.26)		(0.91)		(0.60)	
LOSS	-0.0779		-0.0800		-0.0797		-0.0640	
	(-0.63)		(-0.66)		(-0.65)		(-0.54)	
GAIN	0.8818		0.0721		0.3645		-0.1439	
	(1.22)		(0.08)		(0.49)		(-0.17)	
SMALL					-0.0236		-0.0337	
					(-1.01)		(-1.17)	
*WO*SMALL*					0.2916	**	0.5780	***
					(2.36)		(3.37)	
*WO*SMALL*XI*					-0.0822		-0.3296	
					(-0.51)		(-1.65)	
*WO*SMALL*POST*					-0.0697		-0.2210	
					(-0.46)		(-1.41)	
COMPLEX					-0.0306		-0.0316	
					(-1.30)		(-1.16)	
*WO*COMPLEX*					0.1906		0.4961	***
					(1.56)		(2.67)	
*WO*COMPLEX*XI*					-0.0196		-0.3323	
					(-0.12)		(-1.59)	
*WO*COMPLEX*POST*					0.0571		-0.2500	
					(0.35)		(-1.21)	
Adjusted R^2	0.0064		0.0173		0.0159		0.0641	
N	423		283		423		283	

PANEL B – Regression Analysis Employing the Entire Sample and Conducting Single Cross-Sectional Analyses.

Explanatory Variables	*Model (3) Variant*		*Model (4) Variant*		*Model (3) Variant*		*Model (4) Variant*	
Intercept	0.0013		0.0039		-0.0019		0.0021	
	(0.08)		(0.24)		(-0.12)		(0.11)	
UERW	0.0037				-0.0165			
	(0.08)				(-0.36)			
UEFE			0.5914	***			0.5202	**
			(2.79)				(2.45)	
WO	-0.3425	***	-0.2473	**	-0.2298	***	-0.1513	
	(-3.59)		(-2.34)		(-3.01)		(-1.50)	
*WO*XI*	0.1969	*	0.0779		0.1392		0.0366	
	(1.81)		(0.65)		(1.44)		(0.32)	
*WO*POST*	0.1517		0.0099		0.0861		-0.0735	
	(1.37)		(0.08)		(0.97)		(-0.64)	
LOSS	-0.0710		-0.0710		-0.0831		-0.0734	
	(-0.58)		(-0.60)		(-0.67)		(-0.61)	
GAIN	0.6148		-0.1557		0.6239		0.0998	
	(0.85)		(-0.18)		(0.85)		(0.11)	
SMALL	-0.0166		-0.0278					
	(-0.73)		(-0.97)					
*WO*SMALL*	0.2956	**	0.5452	***				
	(2.45)		(3.18)					
*WO*SMALL*XI*	-0.1445		-0.3441	*				
	(-0.95)		(-1.74)					
*WO*SMALL*POST*	-0.1429		-0.2542					
	(-0.98)		(-1.27)					
COMPLEX					-0.0210		-0.0251	
					(-0.91)		(-0.92)	
*WO*COMPLEX*					0.2106	*	0.4513	**
					(1.75)		(2.41)	
*WO*COMPLEX*XI*					-0.1217		-0.3629	*
					(-0.79)		(-1.73)	
*WO*COMPLEX*POST*					-0.0453		-0.2146	
					(-0.29)		(-1.02)	
Adjusted R^2	0.0158		0.0504		0.0056		0.0273	
N	423		283		423		283	

PANEL C – Regression Analysis Employing Sub-samples Determined by the Cross-Sectional Variables of Interest.

Model	*Sample*	*Intercept*	*UERW*	*UEFE*		*WO*		*WO*XI*		*WO*POST*		*LOSS*	*GAIN*		*Adjusted* R^2	*N*
Model (1)	*Only Large Firms*	0.0013 (0.07)	0.0286 (0.43)			-0.3341 (-3.27)	***	0.1896 (1.61)		0.1522 (1.28)		-0.1801 (-0.61)	1.1508 (0.73)		0.0311	247
Model (2)	*Only Large Firms*	0.0056 (0.32)		0.8480 (2.85)	***	-0.2140 (-1.94)	*	0.0481 (0.38)		-0.0064 (-0.05)		-0.3455 (-1.22)	1.2647 (0.81)		0.0683	192
Model (1)	*Only Small Firms*	-0.0146 (-0.94)	-0.0292 (-0.48)			-0.0589 (-0.82)		0.0688 (0.68)		0.0208 (0.23)		-0.0424 (-0.34)	0.5218 (0.68)		-0.0279	176
Model (2)	*Only Small Firms*	-0.0299 (-1.30)		0.3256 (1.12)		0.2971 (2.35)	**	-0.2544 (-1.71)	*	-0.2460 (-1.63)		-0.0141 (-0.11)	-0.8032 (-0.82)		0.0158	91
Model (1)	*Only Complex Firms*	-0.0209 (-1.40)	-0.0699 (-1.26)			-0.0214 (-0.26)		0.0176 (0.17)		0.0477 (0.42)		-0.1347 (-0.45)	0.6219 (0.65)		-0.0213	188
Model (2)	*Only Complex Firms*	-0.0210 (-1.19)		0.4466 (1.51)		0.3069 (2.39)	**	-0.3422 (-2.38)	**	-0.3097 (2.14)	**	0.1068 (0.30)	-4.0334 (-1.81)	*	0.0474	125
Model (1)	*Only Simple Firms*	-0.0035 (-0.20)	0.0316 (0.45)			-0.2085 (-2.37)	**	0.1197 (1.08)		0.0654 (0.64)		-0.0737 (-0.50)	0.5715 (0.53)		0.0136	235
Model (2)	*Only Simple Firms*	0.0017 (0.08)		0.5837 (1.95)	*	-0.1473 (-1.29)		0.0341 (0.26)		-0.0729 (-0.56)		-0.0903 (-0.64)	0.5603 (0.54)		0.0217	158

Table 5

Summary Statistics of Sample Used in Timeliness Tests.

Below are summary statistics pertaining to the variables used throughout our timeliness tests. The variables outlined below are: the year 0 (lagged 12 month) raw returns *($RR_{t=0}$)* and year -1 (lagged 24 to 12 month) raw returns ($RR_{t=-1}$); the year 0 (lagged 12 months) size adjusted returns *($AR_{t=0}$)* and year -1 (lagged 24 to 12 month) size adjusted returns ($AR_{t=-1}$); the absolute value of the goodwill write-off scaled by lagged assets (*WO*); year 0 earnings excluding both the write-off and goodwill amortization (*E*); and year -1 earnings excluding both the write-off and goodwill amortization (*PYE*). Variable values are truncated at plus or minus 1.00. *, **, and *** denote significance at the 10%, 5% and 1% levels, respectively.

Panel A – Pre-SFAS 142 Sample.

Variable Name	N	Mean	Standard Deviation	Minimum	10th Percentile	25th Percentile	Median	75th Percentile	90th Percentile	Maximum
$RR_{t=0}$	93	-0.3621***	0.4764	-0.9781	-0.8653	-0.7766	-0.4631***	-0.0566	0.2796	1.0000
$RR_{t=-1}$	93	-0.1818***	0.5690	-0.9235	-0.8275	-0.6594	-0.2500***	0.0185	1.0000	1.0000
$AR_{t=0}$	93	-0.4054***	0.4462	-0.9763	-0.8722	-0.7612	-0.5001***	-0.1598	0.1760	1.0000
$AR_{t=-1}$	93	-0.2426***	0.5398	-0.9107	-0.8285	-0.6774	-0.3489***	-0.0035	0.5648	1.0000
WO	93	0.1825***	0.1570	0.0507	0.0700	0.0848	0.1207***	0.2082	0.3892	1.0000
E	93	-0.1505***	0.2184	-1.0000	-0.4542	-0.2523	-0.0948	-0.0139	0.0594	0.2436
PYE	93	-0.0571	0.3803	-1.0000	-0.3968	-0.1609	0.0068	0.0717	0.3335	1.0000

Panel B – Adoption Period Sample.

Variable Name	N	Mean	Standard Deviation	Minimum	10th Percentile	25th Percentile	Median	75th Percentile	90th Percentile	Maximum
$RR_{t=0}$	156	-0.0966**	0.5289	-0.9772	-0.7950	-0.5286	-0.1345***	0.1630	0.7676	1.0000
$RR_{t=-1}$	156	-0.2354***	0.4515	-0.9600	-0.8298	-0.5827	-0.2791***	0.0608	0.3750	1.0000
$AR_{t=0}$	156	-0.1032**	0.5096	-0.9713	-0.7699	-0.5076	-0.1232***	0.1850	0.6006	1.0000
$AR_{t=-1}$	156	-0.2255***	0.4632	-0.9659	-0.8056	-0.5863	-0.2853***	0.1029	0.4196	1.0000
WO	156	0.1655***	0.1316	0.0508	0.0619	0.0763	0.1154***	0.2190	0.3338	0.9633
E	156	-0.0825***	0.1996	-1.0000	-0.3048	-0.0880	-0.0116***	0.0242	0.0460	0.1133
PYE	156	-0.0797***	0.2325	-1.0000	-0.3444	-0.1040	0.0062	0.0374	0.0714	0.2442

Panel C – Post-SFAS 142 Period Sample.

Variable Name	N	Mean	Standard Deviation	Minimum	10th Percentile	25th Percentile	Median	75th Percentile	90th Percentile	Maximum
$RR_{t=0}$	124	-0.4338***	0.4825	-0.9626	-0.8693	-0.7807	-0.6061***	-0.2859	0.2649	1.0000
$RR_{t=-1}$	124	-0.3101***	0.4547	-0.9535	-0.8255	-0.6979	-0.4093***	-0.0083	0.3815	1.0000
$AR_{t=0}$	124	-0.4702***	0.3935	-0.9531	-0.8488	-0.7533	-0.5718***	-0.2984	-0.0083	1.0000
$AR_{t=-1}$	124	-0.2872***	0.4359	-0.9368	-0.7837	-0.6588	-0.3870***	0.0358	0.3984	1.0000
WO	124	0.1790***	0.1465	0.0503	0.0633	0.0862	0.1302***	0.2118	0.3491	0.9606
E	124	-0.1599***	0.2491	-1.0000	-0.4216	-0.2595	-0.0708***	-0.0018	0.0417	0.3533
PYE	124	-0.1869***	0.2932	-1.0000	-0.6289	-0.3153	-0.0786***	0.0221	0.0574	0.3763

Panel D – Differences.

Differences in Returns Between Periods	Mean		Median	
Pre-SFAS 142 $RR_{t=0}$ less Post-SFAS 142 $RR_{t=0}$	0.0717		0.1430	
Pre-SFAS 142 $RR_{t=0}$ less Adoption Period $RR_{t=0}$	-0.2655	***	-0.3286	***
Post-SFAS 142 $RR_{t=0}$ less Adoption Period $RR_{t=0}$	-0.3372	***	-0.4716	***

Differences in Returns Between Periods	Mean		Median
Pre-SFAS 142 $RR_{t=-1}$ less Post-SFAS 142 $RR_{t=-1}$	0.1283	*	0.1593
Pre-SFAS 142 $RR_{t=-1}$ less Adoption Period $RR_{t=-1}$	0.0536		0.0291
Post-SFAS 142 $RR_{t=-1}$ less Adoption Period $RR_{t=-1}$	-0.0747		-0.1302

Differences in Returns Between Periods	Mean		Median	
Pre-SFAS 142 $AR_{t=0}$ less Post-SFAS 142 $AR_{t=0}$	0.0647		0.0717	
Pre-SFAS 142 $AR_{t=0}$ less Adoption Period $AR_{t=0}$	-0.3022	***	-0.3769	***
Post-SFAS 142 $AR_{t=0}$ less Adoption Period $AR_{t=0}$	-0.3670	***	-0.4486	***

Differences in Returns Between Periods	Mean	Median
Pre-SFAS 142 $AR_{t=-1}$ less Post-SFAS 142 $AR_{t=-1}$	0.0446	0.0381
Pre-SFAS 142 $AR_{t=-1}$ less Adoption Period $AR_{t=-1}$	-0.0171	-0.0636
Post-SFAS 142 $AR_{t=-1}$ less Adoption Period $AR_{t=-1}$	-0.0617	-0.1017

Table 6
Timeliness Tests - Temporal and Cross-Sectional Analyses.

The following table provides regression results from estimating regression models (5) through (8). In Panel A, the dependent variable in both models (5) and (7) is year 0 (lagged 12 month) returns *(*$RR_{t=0}$ and $AR_{t=0}$) where *RR* represents raw returns and *AR* represents size adjusted returns. In Panel B, the dependent variable in both models (6) and (8) is year -1 (lagged 24 to 12 month) returns *(*$RR_{t=-1}$ and $AR_{t=-1}$). The independent variables are: year 0 earnings excluding both the write-off and goodwill amortization (*E*), or year -1 earnings excluding both the write-off and goodwill amortization (*PYE*); the absolute value of the goodwill write-off scaled by lagged assets (*WO*); a dummy variable equal to one if the period is the transitional period, zero otherwise (*XI*); a dummy variable equal to one if the period is the post-adoption period, zero otherwise (*POST*); a dummy variable equal to one if a firm level Herfindahl index, measured across segment sales, is less than the Compustat median, zero otherwise (*COMPLEX*); and a dummy variable equal to one when lagged assets are less than the Compustat median, zero otherwise (*SMALL*). *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Panel A – Year 0 Returns.

	Raw Returns				*Abnormal Returns*			
	Model (5)		*Model (7)*		*Model (5)*		*Model (7)*	
Intercept	-0.0980	**	0.0069		-0.1287	***	-0.0236	
	(-2.41)		(0.10)		(-3.42)		(-0.36)	
E	0.4529	***	0.4524	***	0.4156	***	0.3969	***
	(3.87)		(3.77)		(3.84)		(3.59)	
WO	-0.8666	***	-1.835	***	-0.8938	***	-1.8104	***
	(-3.43)		(-4.37)		(-3.83)		(-4.67)	
*WO*XI*	0.6975	**	0.8856	*	0.7334	***	0.9242	**
	(2.46)		(1.83)		(2.79)		(2.07)	
*WO*POST*	-0.2949		-0.0464		-0.250		0.0673	
	(-1.04)		(-0.10)		(-0.95)		(0.16)	
SMALL			-0.1910	**			-0.2264	***
			(-2.30)				(-2.96)	
*WO*SMALL*			1.5424	***			1.604	***
			(2.97)				(3.34)	
*WO*SMALL*XI*			-0.3788				-0.5994	
			(-0.63)				(-1.08)	
*WO*SMALL*POST*			-0.4609				-0.5416	
			(-0.78)				(-.099)	
COMPLEX			-0.0297				-0.0065	
			(-0.36)				(-0.09)	
*WO*COMPLEX*			0.1747				0.0088	
			(0.34)				(0.02)	
*WO*COMPLEX*XI*			0.3064				0.4906	
			(0.51)				(0.88)	
*WO*COMPLEX*POST*			0.4684				0.3012	
			(0.76)				(0.53)	
Adjusted R^2	0.1318		0.1459		0.1442		0.1622	
N	373		373		373		373	

Panel B – Year -1 Returns.

	Raw Returns				*Abnormal Returns*			
	Model (6)		*Model (8)*		*Model (6)*		*Model (8)*	
Intercept	-0.1610	***	-0.2244	***	-0.1691	***	-0.1979	***
	(-4.25)		(-3.36)		(-4.56)		(-3.05)	
PYE	0.5225	***	0.4892	***	0.5221	***	0.4743	***
	(6.50)		(5.83)		(6.63)		(5.82)	
WO	0.1254		0.3928		-0.0052		0.1390	
	(0.54)		(0.98)		(-0.02)		(0.36)	
*WO*XI*	-0.4133		-0.3603		-0.2173		-0.1065	
	(-1.56)		(-0.78)		(-0.84)		(-0.24)	
*WO*POST*	-0.3660		-0.6225		-0.1346		-0.3317	
	(-1.36)		(-1.39)		(-0.51)		(-0.76)	
SMALL			-0.0047				-0.0822	
			(-0.06)				(-1.08)	
*WO*SMALL*			0.1922				0.4101	
			(0.39)				(0.85)	
*WO*SMALL*XI*			-0.5970				-0.7248	
			(-1.04)				(-1.30)	
*WO*SMALL*POST*			-0.3361				-0.5212	
			(-0.59)				(-0.95)	
COMPLEX			0.1025				0.0921	
			(1.31)				(1.21)	
*WO*COMPLEX*			-0.7307				-0.6733	
			(-1.51)				(-1.43)	
*WO*COMPLEX*XI*			0.4774				0.4440	
			(0.83)				(0.80)	
*WO*COMPLEX*POST*			1.1386	*			1.2373	**
			(1.95)				(2.18)	
Adjusted R^2	.1103		0.1113		0.1065		0.1203	
N	373		373		373		373	