

Insider Trading and Fair Value Estimates: Evidence from Goodwill Impairments under SFAS 142

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Keywords: Unverifiable fair value, goodwill, impairment, insider trading, SFAS 142

Current Date: January 2009

We thank Theodore Goodman and Jim Vincent for valuable comments and discussions. Muller acknowledges financial support from the Smeal Faculty Fellowship for 2008-2009.

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1. Introduction

Prior accounting research finds evidence that managers' reporting incentives affect goodwill impairment losses. Francis, Hanna, and Vincent [1996] provides the first analysis of the properties of different types of impairments. Examining charges reported during 1989-1992, a period lacking explicit financial reporting guidance regarding impairments, the study finds evidence that impairments of inventory and property, plant & equipment (PP&E) are little affected by reporting incentives. In contrast, impairments of goodwill and restructuring charges are affected by reporting incentives such as earnings management and CEO turnover. In addition, consistent with reporting incentives adversely affecting the reliability of goodwill impairment losses, Francis, Hanna and Vincent [1996] fails to find evidence of a market reaction to the announcement of goodwill write-offs. Subsequent studies investigating goodwill impairments under Statement of Financial Accounting Standard (SFAS) 121, *Accounting for the Impairment of Long-Lived Assets*, and SFAS No. 142, *Goodwill and Other Intangible Assets* provide similar evidence regarding managerial influence over the timing of goodwill impairment losses (Anantharaman [2007]; Ramanna and Watts [2008]), but also provide some evidence of the market responding negatively to announcements of goodwill impairments (Li, Shroff, and Venkataraman [2004]; Ahmed and Guler [2007]; Bens, Heltzer, and Segal [2007]).

Given the considerable managerial discretion inherent in the timing and measurement of goodwill impairments, we investigate whether firms' insiders are able to strategically sell their holdings ahead of goodwill impairment disclosures. Specifically, we examine whether insiders engage in abnormal selling behavior in the two years prior to the impairment disclosure, and whether abnormal returns for firms with insiders engaging in selling behavior are more negative than the returns of other impairment firms whose insiders do not sell prior to the disclosure. We

chose to examine these issues in the context of SFAS 142 goodwill impairments for two primary reasons. First, this provides an analysis of goodwill impairments assessed under the guidance of the currently applicable standard. Second and related, SFAS 142 has been heavily criticized for its reliance on subjective unverifiable fair value estimates (e.g., Hlousek [2002]). Specifically, SFAS 142 takes a fair value approach to goodwill valuation by eliminating the previous requirement to amortize goodwill, and replacing it with required periodic impairment testing of goodwill at the reporting unit level. In this context, impairment losses generally occur when the reporting unit fair value—calculated using discounted future cash flows—is less than the carrying value of the assets in the reporting unit. If the impairment testing determines that the value of goodwill is impaired, the impairment loss is then measured using the “implied fair value” of goodwill, which is the difference between the fair value of the reporting unit and the fair value of the net assets excluding goodwill in the reporting unit.

Despite some evidence that managers delay the recognition of goodwill impairments under SFAS 142 (e.g., Ramanna and Watts [2008]), it is an open question whether firm insiders trade on their private foreknowledge of goodwill impairments. Significant strategic selling by insiders before goodwill write-offs may not occur for two reasons. First, the economic impairment of goodwill may be already incorporated into market prices well before the actual reporting of goodwill impairments in accounting reports, consistent with previous findings that impairments generally lack timeliness (e.g., Elliot and Shaw [1988]; Alciatore, Easton, and Spear [2000]). In the context of goodwill impairments, some authors (e.g., Gu and Lev [2008]) argue that part of the goodwill recorded at the time of purchase reflects overpayment in ill-advised acquisitions, and that the characteristics of the original acquisitions can be powerful predictors of the eventual goodwill write-offs. To the extent that market participants price any overpayment at

the time of acquisition, this can limit or eliminate how much private information is revealed by the actual reporting of goodwill impairments. In addition, goodwill impairments already may be incorporated into market prices as investors have access to firm and industry performance measures, such as earnings and sales figures, which include prior reported and future forecasted amounts. Second, even if insiders have incentives to sell before the announcement of goodwill write-offs, legal and governance constraints and litigation concerns may limit their ability to do so (e.g., Huddart, Ke, and Shi [2007]).

In our empirical analyses, we find evidence that insiders of firms reporting goodwill impairments are more likely relative to insiders of a group of control firms not reporting goodwill impairments to sell their holdings during the time period eighteen-months before to six-months before the goodwill impairment announcement. Moreover, of firms recording goodwill impairments, firms where insiders are net sellers experience significantly more negative abnormal returns than firms where insiders are net buyers or do not trade shares. However, we fail to find evidence that insiders are more likely to sell during the six-month period directly prior to the goodwill impairment reporting. These findings are consistent with insiders possessing private information that becomes incorporated into market prices over time, and with legal and litigation concerns limiting insider trading in close proximity to the disclosure of material non-public information.

Our study contributes to the literature along several dimensions. First, this study extends prior insider trading research investigating strategic trade prior to the announcement of accounting information (e.g., Ke, Huddart, and Petroni [2003]). Specifically, we provide evidence of a particular financial reporting event—goodwill impairments—that insiders appear to anticipate and trade on far in advance of its public disclosure, and thereby minimize the

suspicion of informed trade. Our findings indicate that for goodwill impairments—where there is a lack of alternative verifiable sources of information regarding the fair value of the underlying assets—managers time their trades well in advance of the financial reporting of the impairment loss and avoid trades over the short-term horizon leading to the disclosure.

In addition, this study extends prior research investigating managerial reporting discretion over fair value estimates. While prior literature (Ramanna and Watts [2008]) finds that managers exert discretion over the timing of goodwill impairment losses, we document some of the consequences of managers' ability to delay the recognition of goodwill impairments. We show that in a setting where the underlying economic transactions are very complex and the financial reporting relies heavily on management estimates through the use of fair value accounting for non-traded assets, firm insiders are able to take advantage of their private information in the quarters leading up to the announcement of the goodwill impairment.

Finally, this study provides a better understanding of how the capital market learns about information pertaining to potentially unverifiable fair value estimates. Despite the relatively large magnitude of reported goodwill impairment losses, prior literature finds insignificant or relatively small negative market reactions to the announcement of these impairments (Francis, Hanna, and Vincent [1996]; Bens, Heltzer, and Segal [2007]).¹ Prior studies conclude that the market views some of these write-offs as not credible. Our findings indicate that selling by insiders prior to the impairment announcement is one mechanism by which information leaks to the market and gets incorporated into prices prior to the actual announcement.

The remainder of the paper is organized as follows. In the next section, we present background information and develop our hypotheses. Section 3 includes our sample selection

¹ For example, for their sample firms, Bens, Heltzer, and Segal [2007] find that the mean (median) goodwill impairment loss as a percentage of lagged market value of equity is 35% (24%), while the short window abnormal return around the goodwill impairment announcement has a mean (median) value of only -2.9% (-2.3%).

procedure and descriptive information. Section 4 presents the research design and the empirical findings. Section 5 concludes.

2. Background and Research Hypotheses

In this section, we discuss the background on both reporting for goodwill and the role of fair value accounting. We also discuss our expectations regarding the trading behavior of corporate insiders in the quarters prior to goodwill impairment announcements. Regarding the latter, under the argument that goodwill impairments are sources of non-public information, we discuss the incentives of corporate insiders to sell their holdings prior to goodwill impairment announcements.

2.1 BACKGROUND ON REPORTING FOR GOODWILL AND FAIR VALUE ACCOUNTING

Accounting for goodwill has been the subject of debate for a number of years, reflected in an evolving framework to address the reporting of this asset. The issuance of Accounting Principles Board Opinion No. 17, *Intangible Assets*, in 1970 provided early guidance on the reporting of goodwill, with two major provisions. First, goodwill was to be amortized over a period not exceeding forty years; second, any impairment testing of goodwill would be performed at the enterprise level. The subsequent issuance of SFAS 121 in 1995 sought to provide more guidance of impairment testing. Specifically, goodwill impairments were only assessed when an asset or a group of assets acquired in a business combination were suspected of being impaired due to some “triggering” event (e.g., operating losses or change in intended use of the asset). During periods when one or more triggering events were present at the lowest cash-generating unit level, an impairment loss would occur if the recoverable value of the assets—defined as the undiscounted future cash flows—exceeded the carrying value of the

assets. Most recently, SFAS 142 was issued in 2001 to revisit the reporting of goodwill, with three salient provisions. First, goodwill is no longer amortized, but must be tested annually for impairment. Second, the testing for impairment must occur at the reporting unit level, which often aligns with a firm's operating segment level reported under the provisions of SFAS 131, *Disclosures about Segments of an Enterprise and Related Information*. Finally, the impairment assessment is dictated under a two-step impairment test as follows: assess if the reporting unit fair value is less than its book value; if so, then derive the implied fair value of goodwill by subtracting the fair value of the net assets of the reporting unit from the fair value of the reporting unit; if the implied fair value of the goodwill is less than its book value, the difference is the reported goodwill impairment.

The above discussion is evidence of both a specific debate on the use of fair values in goodwill reporting, and a broad debate on fair value accounting. Regarding fair values in goodwill reporting, proponents suggest that even in the context of fair value estimates for illiquid assets—such as goodwill—this approach provides managers with the flexibility to communicate their private information about future cash flows. However, opponents criticize fair value accounting under SFAS 142, suggesting that its use of unverifiable estimates results in an extreme level of managerial discretion, which, in turn, substantially increases the likelihood for opportunistic reporting (e.g., Holthausen and Watts [2001]; Hlousek [2002]; Ramanna and Watts [2008]). Further, given the current economic downturn and that aggregate reported goodwill for US firms increased from approximately \$3 trillion at the end of fiscal 2005 to \$3.9 trillion at the end of fiscal 2007, the likelihood of pervasive and substantial goodwill impairments in the upcoming reporting periods seems quite high.²

Regarding the broader debate on fair values in accounting, the use of these values in

² Aggregate goodwill amounts are derived from Compustat.

goodwill reporting is just one example of a broader shift of financial reporting standards away from historical costs and toward fair value accounting.³ Proponents argue that fair values are the most relevant information for financial statement users. However, currently under question is the validity of such fair value estimates during times of market inactivity and/or for assets that are not actively traded (such as goodwill). Related to this latter issue, the SEC recently has held a series of related round-table discussions resulting from the Emergency Economic Stabilization Act of 2008, which requires the SEC to submit to Congress in early 2009 a report on the role of fair value accounting in current capital market crisis. While the focus of these efforts relates to fair values for financial instruments and financial institutions, our current investigation is directly related, as the fair value accounting of both (illiquid) financial instruments and goodwill reflect the need to rely on managerial estimates in the absence of alternative verifiable sources of valuation relevant information.

2.2 RESEARCH HYPOTHESES

Prior research provides evidence of corporate insiders strategically trading on news prior to its public announcement, including accounting performance measures. For instance, a relatively large number of studies provide evidence of managers trading prior to the announcement of a number of corporate events—e.g., acquisitions (Seyhun [1990]), bankruptcy (Seyhun and Bradley [1997]), initiations of dividends (John and Lang [1991]), seasoned equity offerings (Karpoff and Lee [1991]), and share repurchases (Lee, Mikkelson, and Partch [1992]). In addition, a few recent studies provide evidence of insiders trading prior to the announcement of earnings performance measures: earnings announcements (Roulstone [2004]; Henderson,

³ Other reporting standards incorporating fair value accounting include SFAS 123 for stock options, SFAS 133 for derivatives, SFAS 141 for business combinations, and SFAS 144 for impairment testing.

Jagolinzer, and Muller [2008]; Jagolinzer [2008]), a break in a string of consecutive quarterly earnings increases (Ke, Huddart, and Petroni [2003]), and price-relevant information disclosed in Form 10-K or 10-Q filings released following earnings announcements (Huddart, Ke, and Shi [2007]).⁴

Corporate insiders also face incentives to unwind holdings in their firms prior to goodwill impairment announcements if such disclosures reveal managers' private information. Trading ahead of goodwill impairment losses may be attractive to corporate insiders as managerial discretion could permit such losses to be delayed for a considerable period of time. SFAS 142 provides opportunities for managerial discretion over the timing, as well as measurement, of goodwill impairments through a number of unverifiable choices. First, managers have flexibility defining each reporting unit. This definition is important because, under SFAS 142, goodwill has to be reviewed for impairment at a reporting unit level. SFAS 142 defines a reporting unit as an operating segment or a business component one level below an operating segment.⁵ Further, managers have flexibility over the allocation of goodwill acquired in a business combination to each reporting unit. Under the current standard, goodwill is allocated not only to the reporting units assigned the acquired assets and liabilities, but also other reporting units benefiting from synergies resulting from the acquisition. Managers can avoid recording goodwill impairment losses by allocating larger amounts of goodwill to more profitable reporting units and smaller amounts to relatively unprofitable units. Finally, the periodic impairment testing of goodwill at reporting unit level and the magnitude of the impairment loss are calculated by estimating fair values for the reporting units and their assets and liabilities in the absence of verifiable market

⁴ Earlier research (e.g., Elliot, Morse, and Richardson [1984]; Givoly and Palmon [1985]; Sivakumar and Waymire [1994]) failed to find evidence of strategic trade by corporate insiders prior to earnings announcements.

⁵ According to SFAS 131, *Disclosures about Segments of an Enterprise and Related Information*, firms are required to define operating segments consistent with how managers review and operate their business components for internal decision making purposes.

prices.

With respect to fair value estimates in particular, the practitioner literature acknowledges the very high level of managerial discretion afforded by SFAS 142. Hlousek [2002] discusses two opportunities for managerial discretion over discounted future cash flow estimates: “First, during the preparation for the annual impairment tests required by FAS 142, management may want to develop a model that tends to overestimate future cash flows to avoid write-offs. At other times, management may believe a significant write-off will benefit the company in the long-term. In these instances, they may develop a model that underestimates cash flows. Second, unrealized gains of some assets could offset unrealized losses of others, resulting in no required write-off. Consequently, management may tend to group assets inappropriately at times to avoid asset impairment write-offs.”

Consistent with managers having considerable discretion over the timing and measurement of goodwill impairment losses under SFAS 142 and earlier financial reporting standards, prior and concurrent academic research has found evidence of managers acting opportunistically when recognizing goodwill impairment losses. In the first analysis of such discretion, Francis, Hanna, and Vincent [1996] provides evidence that goodwill impairment losses announced during 1989-1992 (a time-period lacking explicit guidance regarding goodwill impairments) are substantially affected by reporting incentives such as the incentive to manage earnings upward or smooth earnings and, in the case of newly hired CEOs, the incentive to take a “big bath.” In addition, the study fails to find a market reaction to announcements of goodwill impairment losses, which is interpreted as the measurement of goodwill impairment losses being adversely affected by managerial reporting incentives. More recently, studies investigating SFAS 121 and 142 goodwill impairment losses provide evidence of significant managerial

influence over the reporting of goodwill impairment losses (Beatty and Weber [2006]; Ramanna and Watts [2008], Anantharaman [2008]), but find some evidence of negative market reactions to the announcement of goodwill impairment losses (Li, Schroff, and Venkataraman [2004], Ahmed and Guler [2007], Bens, Heltzer, and Segal [2007]).

Given that managers have considerable discretion over the timing of goodwill impairment losses under SFAS 142, corporate insiders face incentives to behave strategically with respect to their trades prior to the public announcement of such losses. Assuming that corporate insiders privately infer that a goodwill impairment loss will likely be recorded in the future, insiders will delay planned purchases (e.g., to achieve some targeted stock ownership level), and accelerate planned sales (e.g., for personal liquidity needs). If the price impact of their private information ends with public disclosure, these trading incentives will continue until the goodwill impairment loss is recognized. In addition, the severity of the insiders' private information regarding the economic impairment of goodwill should lead to greater incentives to delay purchases and accelerate sales prior to the announcement of the goodwill impairment loss.

Despite the evidence in prior research of delayed goodwill impairment reporting, it is unclear *ex ante* that insiders would unwind their holdings before the public announcement of a goodwill write-off. Corporate insiders may not trade strategically in advance of goodwill impairment announcements for a number of reasons. First, managers and other insiders may have little private information regarding goodwill impairment losses prior to their recognition. For instance, investors may infer upcoming goodwill impairment losses from alternative sources of information. One possible source is the characteristics of the original acquisition that gave rise to the goodwill. Gu and Lev [2008] provide evidence that factors suggesting overpayment in acquisitions can be powerful predictors of future goodwill impairments. Another possible source

of information is firm and industry performance measures (e.g., earnings and sales figures), which would include past reported amounts as well as future amounts forecasted by managers and analysts.

In addition, insiders face legal constraints and litigation concerns when trading or entering trading plans while in possession of material non-public information. Under Rule 10b5, promulgated by the U.S. Securities and Exchange Commission (SEC) under the *Securities and Exchange Act* of 1934, insiders are prohibited from trading while in possession of material non-public information. Enforcement of Rule 10b5 by the SEC has historically focused on insiders' trades occurring prior to sharp price movements (Fried [1998]), which might be expected around goodwill impairment loss announcements. During our sample period, insiders also can trade within Rule 10b5-1 trading plans (promulgated by the SEC in October 2000). Rule 10b5-1 trading plans allow insiders to enter into preplanned trades while not in possession of material nonpublic information. The intent of such plans is to provide insiders with a means to engage in uninformed diversification trade. However, prior and concurrent research provides evidence that, despite the assumption of uninformed diversification trade, insiders engage in strategic trade within Rule 10b5-1 trading plans as well (Jagolinzer [2008], Henderson, Jagolinzer, and Muller [2008]).

In summary, corporate insiders face incentives to sell their holdings prior to the public release of goodwill impairments if such disclosures reveal managers' private information. In addition, corporate insiders face greater incentives the greater the severity of the economic problem causing the impairment in the goodwill value. However, managers will not trade prior to goodwill impairment announcements if market prices largely reflect upcoming impairments due to investors having access to other sources of information regarding goodwill impairments,

or if managers face significant legal jeopardy. These arguments lead to our two research hypotheses (stated in alternative form):

H_1 : Corporate insiders are net sellers of their company's shares prior to goodwill impairment announcements.

H_2 : For firms reporting goodwill impairments, firms where corporate insiders are net sellers of their company's shares prior to goodwill impairment announcements face lower abnormal returns relative to firms where corporate insiders are not net sellers of their company's shares.

3. Sample Selection and Descriptive Information

We first identify firms on Compustat Xpressfeed Quarterly reporting goodwill impairments during the period 2002–2007. Our starting point is 2002 to coincide with the effective year of SFAS 142 for most firms and to maintain consistency in the reporting standards underlying goodwill impairment, since SFAS 142 introduced a number of significant changes for goodwill valuation and reporting. Because some of our empirical tests focus on the time period preceding the reported goodwill impairment, we retain only the first quarterly goodwill impairment for each firm that reports multiple quarterly goodwill impairments, to avoid potential confounding effects arising from overlapping pre-goodwill impairment periods. We further restrict our sample to firms listed on the three major US stock exchanges (AMEX, NASDAQ and NYSE) to ensure sufficient liquidity in the markets the insiders may be trading on. After eliminating observations lacking necessary data for our analyses, we obtain a sample of 612 goodwill impairment firms (“GW Impair” sample). We collect financial information from Compustat Xpressfeed Quarterly, stock returns from CRSP, and insider trading and institutional holding data from Thompson Financial.

Panel A of Table 1 presents descriptive statistics for the GW Impair sample ($N = 612$). For comparison purposes we also present similar statistics for all Compustat firm-quarter observations having positive goodwill values but no reported goodwill impairments during our sample period ($N = 49,574$). Compared to this Compustat population, the GW Impair observations appear to have a greater concentration in the fourth quarter of each fiscal year. However, the final column suggests this concentration is limited to the frequency, but not the magnitude, of goodwill impairments – where the latter ranges from 1% to 23% of lagged market value of equity. Further, we note there is no substantial time clustering with respect to the magnitude and frequency of goodwill impairments for our sample. Panel B presents the frequency of goodwill impairments for our sample firms. The majority of firms (63.6%) report just one goodwill impairment over the six-year sample period, while less than a quarter (22.7%) report two write-offs.

Table 2 provides the industry composition of the GW Impair sample. The industry proportion of the impairment sample is similar to that of the general Compustat population of firms reporting goodwill, with the impairment sample reflecting a higher (lower) proportion of firms in the electronic equipment (depository institutions) industry. The three industries with the largest representation in our GW Impair sample are business services (13.4%), electronic equipment (10.1%), and machinery and computers (6.2%). The final column reveals some variation across industries in the average magnitude of reported goodwill impairments.

Table 3 presents descriptive statistics comparing the GW Impair sample to the overall sample of Compustat firms not reporting goodwill impairments. There is some evidence that firms reporting goodwill impairments are smaller (*SIZE*) though slightly more followed by analysts (*FOLLOW*), More conclusively, GW Impair firms have significantly lower profitability

(*ROA*) and higher book to market ratios (*BTM*), with the latter two variables inclusive of any reported goodwill impairment. In addition, the GW Impair firms have relatively higher levels of goodwill in the quarter just prior to the reported goodwill impairment (*LAG_GW*); however, this difference becomes insignificant after the impairment is reported (*GW*). The GW Impair firms also report significantly more frequent restructuring charges (*RESTRUCT_D*) and concurrent write-offs of non-goodwill assets (*OTH_IMPAIR_D*). These latter differences reveal that goodwill impairments do not occur in isolation, and suggest the importance of controlling for other concurrent charges in our multivariate analyses. Finally, the mean (median) magnitude of the goodwill impairment for our sample is 11.9% (2.3%) of the beginning market value of equity, indicating these impairments are economically significant events.

4. Research Design and Empirical Results

We now present the results of our empirical analyses examining insider trading behavior preceding reported goodwill impairments. We first examine whether insiders of firms reporting goodwill impairments are more likely to be net sellers of their firms' stock than insiders of firms reporting no goodwill impairment. We then focus our analyses on those firms reporting goodwill impairments, and examine whether the abnormal returns for firms with insiders that are net sellers are more negative than for those firms with insiders that either do not trade or are net buyers.

4.1. INSIDER TRADING BEFORE GOODWILL IMPAIRMENTS

Based on the findings of prior research that the reporting of goodwill impairments lags the economic impairment of goodwill (e.g., Hayn and Hughes [2006]; Ramanna and Watts [2008]), we investigate whether informed investors, specifically firm insiders, take advantage of the delays in the recognition of goodwill impairments and trade in anticipation of them. We

structure the analysis by focusing on the two years preceding the reported goodwill impairment, divided into four non-overlapping six-month periods (see Figure 1 for a timeline). We adopt this relatively long time frame for the following reasons. First, since SFAS 142 requires firms to test their goodwill for impairment annually (at the same time every year), insiders may obtain private information about the possibility of an unavoidable future impairment loss at least one year before the actual loss reporting. If a firm narrowly avoids recording a goodwill write-off in the current period and the firm insiders anticipate no substantial economic improvement over the following reporting period, they may infer that a future goodwill write-off is unavoidable. Second, prior literature (e.g., Ke, Huddart and Petroni [2003]) provides evidence that firm insiders are able to disguise their informed trading by avoiding trades reported too close to a relevant reporting event. For example, Ke, Huddart and Petroni [2003] documents that stock sales by insiders increase three to nine quarters prior to a break in a string of consecutive quarterly earnings increases.

To mitigate the concern that our empirical model captures trading activities that are unrelated to the desire to profit from the anticipated goodwill impairment reporting, we estimate our regressions using a comprehensive sample that includes both the goodwill impairment firms and a group of control firms. The latter control group is included to capture general insider trading activity coinciding with our sample period, and is comprised of all firms having available data for our analyses, but not reporting goodwill impairments. Similar to the selection of comparison firms in related research (e.g., Lee, Mikkelsen, and Partch [1992]), for each of these non-impairment firms, we randomly select a single quarter within our sample reporting period to determine the reporting window.

We first conduct univariate comparisons of insider selling preceding the reported goodwill impairment. We define an indicator variable equal to one for firms that experience net

insider selling (that is, total sales by insiders are greater than total purchases, where insiders are defined as firm officers), and zero otherwise. This variable is assessed over the following four non-overlapping windows, all defined with respect to month 0, the last month of the quarter in which the goodwill impairment is reported: $(-23,-18)$, $(-17,-12)$, $(-11,-6)$, and $(-5, 0)$.⁶

To examine the cross-sectional determinants of insider trading, we then adopt the following logistic regression to investigate whether insiders strategically sell ahead of anticipated goodwill impairments:⁷

$$INSIDER_SELL_{(Window)} = \varphi_0 + \varphi_1 GWI_D + \varphi_2 SIZE + \varphi_3 BTM + \varphi_4 RETBH + \varphi_5 RESTRUCT_D + \varphi_6 OTH_IMPAIR_D + \sum_{k=0}^K \varphi_{7,t-k} UE_Q_{t-k} + \varepsilon \quad (1)$$

where:

*INSIDER_SELL*_(Window) = an indicator variable equal to one for firms that experience net insider selling (i.e., total sales greater than total purchases) over the indicated six-month trading window, and zero otherwise;

GWI_D = an indicator variable equal to one for firms reporting a goodwill impairment in quarter *t*, and zero otherwise;

SIZE = log of total assets measured at the end of the indicated six-month window;

BTM = the book-to-market ratio measured at the end of the indicated six-month window;

RETBH = the buy-and-hold return measured over the six-month window prior to the indicated insider trading measurement window;

RESTRUCT_D = an indicator variable equal to one for firms reporting restructuring charges in quarter *t* (the goodwill impairment quarter), and zero otherwise;

⁶ Following prior literature (Lakonishok and Lee [2001]), we aggregate insider trades over six-month windows. Calculating insider trading measures based on shorter periods (such as a month or a quarter) results in many companies having no trades. Lakonishok and Lee [2001] argue that insider trading measures computed over six-month windows have greater predictive power.

⁷ We also estimate equation (1) including time fixed effects to control for potential effects specific to different quarters within our sample period. The results are very similar to those tabulated.

- OTH_IMPAIR_D* = an indicator variable equal to one for firms reporting any non-goodwill impairments in quarter t (the goodwill impairment quarter), and zero otherwise; and
- UE_Q_{t-k}* = the unexpected earnings for quarter $t-k$, where the unexpected earnings are measured as earnings at the end of quarter $t-k$ minus earnings at the end of quarter $t-k-4$, scaled by market value of equity at the end of quarter $t-k-1$.

Paralleling the univariate analysis, equation (1) is estimated separately for four dependent variables, *INSIDER_SELL*_(Window), measured over the following monthly intervals preceding the reported impairment: (-23,-18), (-17,-12), (-11,-6), and (-5,0). Our primary variable of interest is *GWI_D*. If firm insiders are able to predict forthcoming goodwill impairments, and trade in anticipation of these reported amounts, we expect the probability that a firm experiences net informed selling to be higher for the goodwill impairment firms relative to the non-impairment firms, leading to a positive predicted coefficient for *GWI_D* and our primary test of H_1 .

We also include variables to control for other determinants of insider trading. First, we include firm size (*SIZE*) to proxy for portfolio rebalancing that is unrelated to private information trading. For larger firms, insiders are likely to hold larger stock and stock option positions. Therefore, we expect a positive association between the probability of selling stock and *SIZE*, if insiders with large stock holdings sell in an attempt to reduce their exposure to firm idiosyncratic risk. We also include the book-to-market ratio (*BTM*) to proxy for growth, with both components measured at the end of the indicated six-month period. Prior literature (Rozeff and Zaman [1988]; Piotroski and Roulstone [2005]) shows that insiders are more likely to hold larger stock positions as stocks change from growth to value categories; thus, we predict a negative coefficient for *BTM*. In addition, we include prior period returns (*RET_{BH}*) because insiders tend

to be contrarian (Lakonishok and Lee [2001]), leading to a predicted positive coefficient.

We also include control variables, *RESTRUCT_D* and *OTH_IMPAIR_D*, for other types of impairments and restructuring charges to address the concern that we attribute any potential informed trading activity to goodwill impairments when, in fact, such trading may reflect information contained in other types of charges. Because the expected direction of trading in the context of these other charges is unclear, we do not predict the sign for these coefficients.

Finally, to control for informed trading that could occur on a broader set of financial data, we also include in equation (1) the unexpected earnings for each of the quarters occurring from the start of the trading window up to the quarter of the reported impairment. Specifically, following Ke, Huddart, and Petroni [2003], we define $UE_{Q_{t-k}}$ as the unexpected earnings for quarter $t-k$, measured as the seasonally-adjusted change in quarterly earnings scaled by the lagged market value of equity. We include K quarters of unexpected earnings for each window to capture the full series of reporting quarters overlapping with the trading windows, where K is the number of quarters between the insider trading window and the impairment reporting quarter. For example, when the insider trading variable is measured over the window $(-5,0)$, we include in equation (1) unexpected earnings for two quarters—the goodwill impairment quarter and the quarter prior to the goodwill impairment. When the insider trading variable is measured over the window $(-11,-6)$, we include in equation (1) unexpected earnings for four quarters—the goodwill impairment quarter and the three quarters prior to the goodwill impairment.

Table 4 presents the univariate analysis of insiders' net selling behavior prior to the impairment announcement. We compare the mean and median values of *INSIDER_SELL* for the goodwill impairment firms versus the non-impairment (control) firms for each of the four windows. For three out of the four six-month trading windows, firms reporting a goodwill write-

off are significantly more likely to experience net insider selling relative to the non-impairment firms. Specifically, we find that 43.5%, 46.8% and 42.9% of the goodwill impairment firms experience net insider selling over the corresponding windows of $(-23,-18)$, $(-17,-12)$ and $(-11,-6)$ prior to the reported goodwill impairment. Over the same measurement windows, only 36.4%, 36.4% and 37.1% of non-impairment firms experience net insider selling. The differences between these two firm types are significant at a p -value less than 1% both for the means and the medians. However, we fail to find evidence of differences in net insider selling for the window $(-5, 0)$.

Table 5 presents multivariate results from estimating equation (1) for each of the four windows. As insiders' selling activities may be correlated in time, we report standard errors clustered by time (Petersen [2008]). We do not cluster the standard errors by firm, since each firm in our analysis enters the sample just once. For the windows $(-17,-12)$ and $(-11,-6)$, consistent with our hypothesis and with the univariate analysis, we find a significantly positive coefficient for GWI_D (z -statistics = 3.115 and 2.177, respectively). This finding indicates that, controlling for other determinants of net insider selling activity, firms reporting goodwill impairments experience significantly higher insider selling over the windows $(-17,-12)$ and $(-11,-6)$ compared with firms reporting positive goodwill but no such impairments. However, when insider trading activities are measured over the windows $(-23,-18)$ and $(-5, 0)$, we fail to find evidence of significantly higher insider selling activity as the coefficient on GWI_D is insignificant (z -statistics = 1.351 and 0.117, respectively). Among the control variables, we find that the coefficients for $SIZE$, BTM , and $RETBH$ are significantly positive, negative, and positive (respectively) in the predicted direction across all trading windows, as predicted. We find limited significance across the windows for the remaining control variables.

It is interesting to note that the timing of abnormally high insider selling volume centers near the (likely) annual impairment testing for the year preceding the actual goodwill impairment reporting (i.e., the 18 to 6 months prior to the reported goodwill impairment). While not definitive, this evidence is suggestive that during the current year's impairment testing insiders are able to generate private information about the probability of having to record goodwill impairments for the ensuing year, and trade in accordance with this inferred probability.⁸

4.2. ABNORMAL RETURNS TO INSIDER TRADES PRECEDING GOODWILL IMPAIRMENTS

The evidence presented in Tables 4 and 5 indicates that insider selling is higher during the 6 to 18 months preceding the impairment event for firms that report goodwill impairments relative to non-impairment firms. If this abnormally high insider selling activity is based on insiders' private information about the negative effect of a future goodwill write-off, we expect firms where insiders are net sellers to experience lower abnormal returns subsequent to insider trading compared to firms where insiders are net buyers or do not trade. To investigate this possibility, we first examine univariate differences in abnormal returns across these two groups of firms. We compute the abnormal buy-and-hold returns over windows that start directly after the end of six insider trading windows, and end with the last month of the goodwill impairment quarter (i.e., month 0). The six windows are as follows:

Insider Trading Window	Abnormal Buy-and-Hold Return
(-8, -3)	(-2, 0)
(-11, -6)	(-5, 0)
(-14, -9)	(-8, 0)
(-17, -12)	(-11, 0)
(-20, -15)	(-14, 0)
(-23, -18)	(-17, 0)

⁸ For example, a narrow avoidance of a goodwill impairment loss for the current year may allow insiders to infer that absent a substantial improvement in the firm's economic performance, a write-off is unavoidable for the next year.

To examine the cross-sectional determinants of abnormal buy-and-hold returns associated with insider trades for firms reporting goodwill impairments, we adopt the following equation:⁹

$$ABNORMAL_RET_{(Window)} = \phi_0 + \phi_1 INSIDER_SELL + \phi_2 SIZE + \phi_3 BTM + \phi_4 RETBH + \phi_5 RESTRUCT_D + \phi_6 OTH_IMPAIR_D + \sum_{k=0}^K \phi_{7,t-k} UE_Q_{t-k} + \zeta \quad (2)$$

where:

ABNORMAL_RET = the buy-and-hold abnormal returns to insider trades, computed over windows starting directly after the end of the insider trading window and ending with the last month of the goodwill impairment quarter (month 0).

All other variables are as previously defined. We measure insider trades over six-month rolling windows starting two years prior to the impairment event, and identify goodwill impairment firms where insiders are net sellers (*INSIDER_SELL* = 1) versus goodwill impairment firms where insiders are either net buyers or do not trade (*INSIDER_SELL* = 0).¹⁰ We then compute abnormal buy-and-hold returns over the period beginning directly after the insider trading window and ending with the goodwill impairment quarter.¹¹ Thus, paralleling the univariate analyses, equation (2) is estimated separately for six dependent variables, *ABNORMAL_RET*_(Window), measured over the following monthly intervals preceding the reported impairment: (-17,0), (-14,0), (-11,0), (-8,0), (-5,0), and (-2,0).

Our primary variable of interest is *INSIDER_SELL*. The variable captures the market-adjusted return avoided by insiders, who sell stock during the six-month insider trading window

⁹ We also estimate equation (2) for all of our six windows of interest including time fixed effects to control for potential effects specific to different quarters within our sample period. The results are very similar to those tabulated.

¹⁰ In the abnormal return to insider trading analysis, we compare goodwill impairment firms where insiders are net sellers versus all the other goodwill impairment firms where insiders are either net buyers or do not trade. We combine net buyers with non-traders because in our sample the number of net buyers is very small.

¹¹ The buy-and-hold abnormal return is the difference between the raw return for the firm and the corresponding return of the value-weighted market index.

rather than waiting to execute the sale until the goodwill impairment is publicly announced. The variable is defined similarly for firms reporting goodwill impairments but not having insiders with net selling activity. If firm insiders selling their company's shares prior to goodwill impairment announcements have greater private information regarding negative circumstances leading to an economic impairment of goodwill than those not selling their company's shares prior to the announcement, then we expect firms with insiders selling their shares to experience lower abnormal returns. This is our primary test of H₂.

To address the concern that the differences in buy-and-hold returns between firms with and without net insider selling are, in fact, driven by other firm characteristics that are correlated with insider trading, we include in equation (2) control variables for firm size (*SIZE*), book to market ratio (*BTM*) and past returns (*RETBH*). As explained previously in the variable description for equation (1), these firm characteristics should be correlated with insider trading. In addition, prior literature identifies these characteristics as stock return determinants. We also include control variables for other types of impairments and restructuring charges (*RESTRUCT_D* and *OTH_IMPAIR_D*) and for the unexpected earnings for each of the quarters occurring from the start to the end of the return window (*UE_Q_{t-k}*). These variables address the potential concern that we attribute the abnormally low returns for net insider selling impairment firms to insiders' private information about the loss in value of goodwill when, in fact, the lower returns are driven by a higher frequency of other types of impairments, restructuring charges and/or negative earnings surprises for the net insider selling firms relative to no trading or net buying firms.

Table 6 presents univariate mean and median buy-and-hold abnormal return comparisons for goodwill impairment firms having net insider selling versus all other goodwill impairment

firms. Figure 2 plots the mean buy-and-hold abnormal returns for each window. All goodwill impairment firms experience negative average abnormal returns in the quarters leading to the impairment, reflected in the negative mean and median returns for both net insider selling impairment firms as well as all other impairment firms across all return windows. However, the firms where insiders are net sellers have significantly more negative abnormal stock returns compared to the firms where insiders are not net sellers. Specifically, significant negative differences occur for the return windows of -11 to 0 (where the incremental negative return is -0.070 , t -statistic = 2.020), -14 to 0 (-0.108 , t -statistic = 2.740), and -17 to 0 (-0.129 , t -statistic = -3.010). The difference between net insider selling and the other impairment firms are not only statistically significant, but also economically significant. For example, using the insider trading window of $(-23,-18)$, firms where insiders are net sellers experience an average abnormal return of -23.4% over the eighteen months leading to the reported goodwill impairment, compared to only -10.5% for the impairment firms where insiders are not net sellers.

Table 7 presents multivariate results from estimating equation (2) for each of the six windows. Again, as insiders' selling activities may be correlated in time, we report standard errors clustered by time (Petersen [2008]). For the windows $(-17,0)$ $(-14,0)$, and $(-11,0)$, consistent with our hypothesis and with the univariate analysis, we find a significantly negative coefficient for *INSIDER_SELL* (t -statistics = -2.270 , -2.380 , -2.290 , respectively). This finding indicates that, controlling for other determinants of abnormal returns, insiders selling their company's shares prior to goodwill impairment announcements have more severe negative private information than those not selling their company's shares prior to the announcement. However, when insider trading activities are measured over the windows $(-8,-0)$, $(-5, 0)$, and $(-2, 0)$, we fail to find evidence of relatively lower abnormal returns as the coefficient on

INSIDER_SELL is insignificant (t -statistics = -0.780 , -0.780 , and -0.870 , respectively). Among the control variables, we find that *SIZE*, *BTM*, *RETBH*, and *OTHER_IMPAIR_D* are significant across most trading windows, as predicted. We find limited significance across the windows for the other control variables.

Consistent with the evidence from the prior literature (e.g., Ke, Huddart, and Petroni [2003]), our findings suggest that firm insiders are able to disguise their informed trading activities by timing their trades well in advance of the public disclosure of relevant information and by avoiding trades over the short-term horizon leading to the public disclosure event. In addition, some prior studies (e.g., Ramanna and Watts [2008]) argue that the current fair-value-based rules for the financial reporting of goodwill impairments allow managers too much flexibility, and that managers take advantage of the discretion afforded by the current reporting rules to delay the recognition of these impairments. Taken together, our empirical findings lend support to the delayed recognition criticism, since our findings suggest that insiders have information about the economic impairment of goodwill well in advance of the actual reporting of a goodwill write-off.

5. Conclusion

This paper examines whether insiders trade in anticipation of goodwill impairments reported under SFAS 142. We examine insider trading in this setting, as the fair value requirements for goodwill under this standard generally reflect unverifiable internal estimates, suggesting insiders may have opportunities to exploit informational advantages by trading on anticipated write-offs of this hard-to-value asset. However, insiders may not trade in anticipation of reported goodwill impairments, as equity markets may anticipate economic impairments of

goodwill prior to the reported impairment, and governance and litigation constraints may inhibit such strategic trading behavior.

Our empirical analyses reveal that insiders of firms reporting goodwill impairments exhibit higher net selling behavior relative to control firms not reporting goodwill impairments. This trading seems to occur between eighteen months to six months prior to the reported impairment, consistent with insiders avoiding such trades in close proximity to the reporting event. Further analysis reveals that among firms reporting goodwill impairments, those with net selling among insiders exhibit significantly more negative abnormal stock returns relative to those not reporting net selling among insiders. Results across both sets of analyses are robust to inclusion of controls for other determinants of insider trading activity and abnormal stock returns.

Overall, these results build upon prior research by documenting that managers appear to take advantage of reporting events where they have substantial timing and measurement discretion, and by revealing particular reporting items by which insiders appear to exploit their private information. Our results are consistent with criticisms of current goodwill reporting, which suggest that the level of discretion afforded by unverifiable accounting estimates likely exacerbates the ability of managers to act opportunistically with regards to the reporting of this information. Our results may also be of interest in the continuing debate on the role of fair value accounting for assets having unverifiable fair values, such as illiquid financial instruments, goodwill and other intangible assets.

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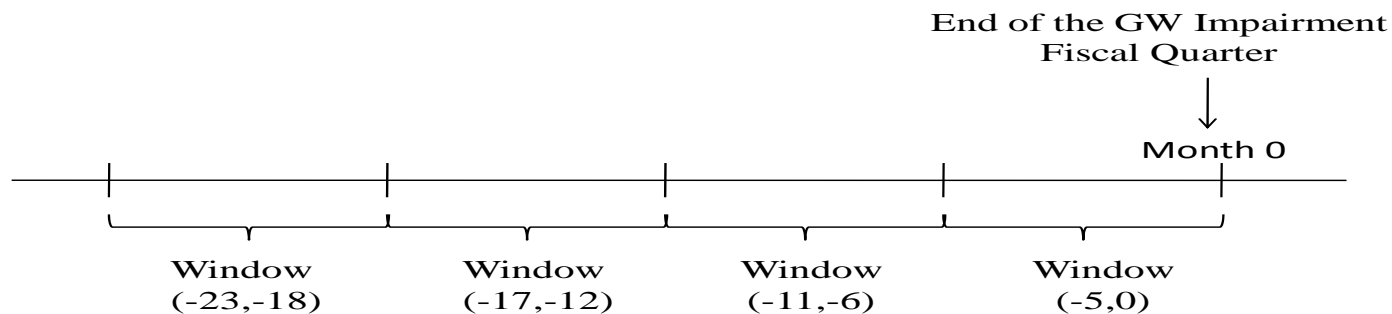


FIG. 1.—Timeline for the measurement of informed trading over the pre-goodwill impairment disclosure period. This figure presents a timeline for the measurement of the variables used in the informed trading analysis. The informed trading and the time-variant control variables are measured over four non-overlapping windows covering the two-year period prior to the reported goodwill impairment. The first window is measured over months -23 to -18 (inclusive); the second is measured over months -17 to -12 (inclusive); the third is measured over months -11 to -6 (inclusive); and the last window over months -5 to 0 (inclusive), where month 0 is the last month of the goodwill impairment fiscal quarter. For example, for a company that reports a goodwill impairment for the quarter ending December 31, 2006, the first window is measured from January 1, 2005 to June 30, 2005; the second window from July 1, 2005 to December 31, 2005; and so on.

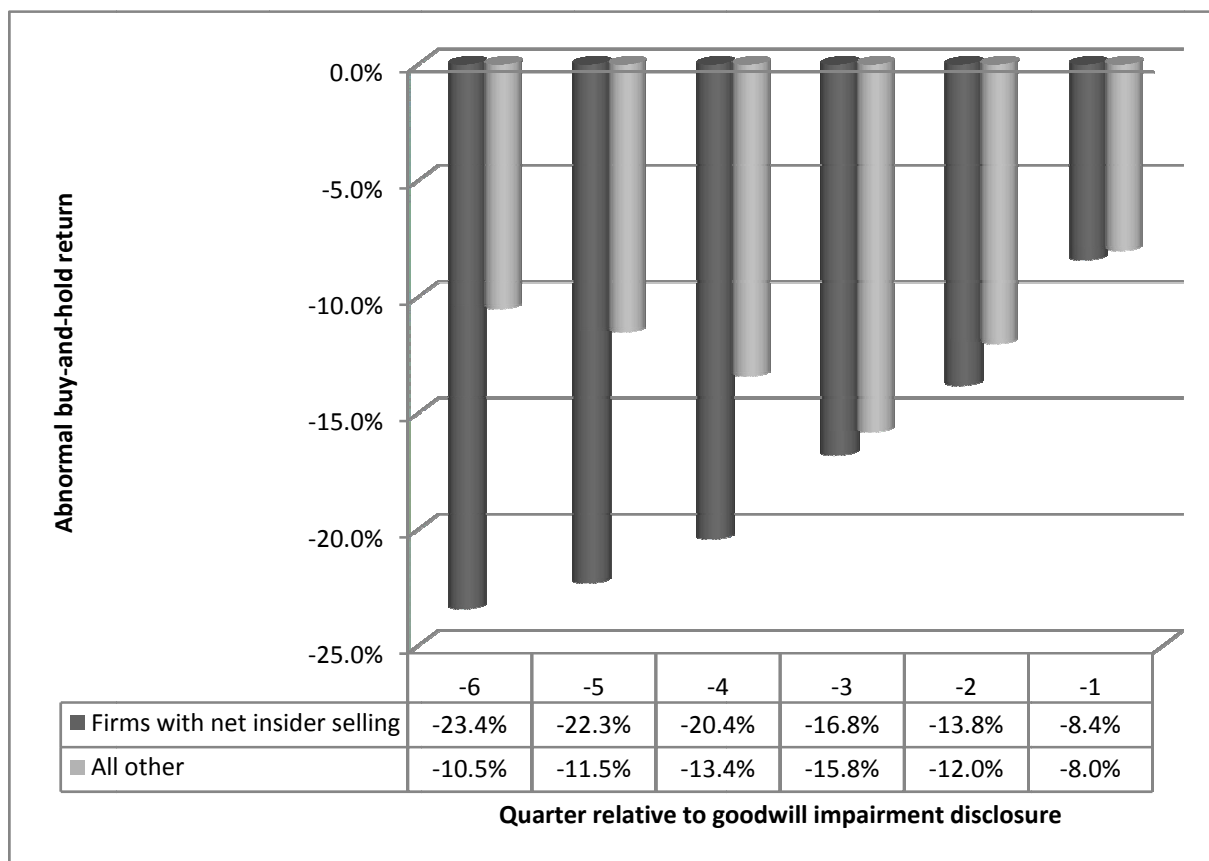


FIG. 2.—Abnormal buy-and-hold returns for firms reporting *SFAS 142* goodwill impairments. This figure presents evidence that firms reporting goodwill impairments and with net insider selling transactions face relatively more negative abnormal buy-and-hold returns as compared to firms reporting goodwill impairments and not exhibiting net insider selling transactions. The abnormal buy-and-hold returns to insider trades are computed over windows starting directly after the end of the insider trading window and ending with the last month of the goodwill impairment quarter (i.e., month 0). Thus, the first column presents results for insider trading calculated over months (–23, –18), and abnormal returns calculated over months (–17, 0).

TABLE 1
Descriptive Statistics of SFAS 142 Goodwill Impairments

Panel A: Goodwill impairments by reporting period, 2002–2007

		Firms Reporting Goodwill Impairments	% of Total Impairment Sample	Compustat Firms Reporting Goodwill	% of Total Compustat Firms with Goodwill	Impairment Firms / Compustat Firms	Mean of Reported Impairment / Market Value _{t-1}
		(a)	(b)	(c)	(d)	(a)/(c)=(e)	(f)
2002	Q1	3	0.5%	1,135	2.3%	0.26%	3%
	Q2	19	3.1%	1,507	3.0%	1.26%	17%
	Q3	28	4.6%	1,646	3.3%	1.70%	23%
	Q4	103	16.8%	1,762	3.6%	5.85%	19%
2003	Q1	7	1.1%	1,945	3.9%	0.36%	3%
	Q2	24	3.9%	1,814	3.7%	1.32%	13%
	Q3	21	3.4%	1,835	3.7%	1.14%	15%
	Q4	52	8.5%	1,924	3.9%	2.70%	14%
2004	Q1	9	1.5%	2,211	4.5%	0.41%	3%
	Q2	14	2.3%	2,087	4.2%	0.67%	7%
	Q3	25	4.1%	2,167	4.4%	1.15%	6%
	Q4	52	8.5%	2,243	4.5%	2.32%	7%
2005	Q1	8	1.3%	2,352	4.7%	0.34%	3%
	Q2	16	2.6%	2,227	4.5%	0.72%	9%
	Q3	13	2.1%	2,280	4.6%	0.57%	14%
	Q4	57	9.3%	2,358	4.8%	2.42%	10%
2006	Q1	12	2.0%	2,419	4.9%	0.50%	2%
	Q2	18	2.9%	2,252	4.5%	0.80%	8%
	Q3	16	2.6%	2,290	4.6%	0.70%	10%
	Q4	63	10.3%	2,380	4.8%	2.65%	13%
2007	Q1	8	1.3%	2,411	4.9%	0.33%	1%
	Q2	21	3.4%	2,247	4.5%	0.93%	8%
	Q3	15	2.5%	2,243	4.5%	0.67%	7%
	Q4	8	1.3%	1,839	3.7%	0.44%	4%
		612	100.0%	49,574	100.0%	1.26%	

Panel B: Goodwill impairments per firm, 2002–2007

# of Impairments	1	2	3	4	5	6	7 +	Total
Number of firms	389	139	47	17	8	5	7	612
Percent of sample	63.6%	22.7%	7.7%	2.8%	1.3%	0.8%	1.1%	100.0%

This table presents descriptive statistics for the sample of firms reporting goodwill impairments during the period 2002–2007, as well as comparative amounts for all other Compustat firms reporting positive goodwill but no goodwill impairment. Panel A presents the distribution by fiscal quarter. Panel B presents the distribution of sample firms by the number of reported goodwill impairments within the sample period. Only the first reported impairment for the 2002–2007 period is included in the sample.

TABLE 2
SFAS 142 Goodwill Impairments by Industry

Industry Name	SIC	Firms Reporting Goodwill Impairments (a)	% of Total Sample (b)	Compustat Firms Reporting Goodwill (c)	% of Total Compustat Firms with Goodwill (d)	Mean of Reported Impairment / Market value (e)
Building Construction	15	11	1.8%	116	0.2%	3%
Food and Kindred Products	20	12	2.0%	1,003	2.0%	7%
Chemicals and Allied Products	28	32	5.2%	3,213	6.5%	11%
Rubber and Misc Plastics	30	10	1.6%	374	0.8%	3%
Primary Metal	33	13	2.1%	522	1.1%	7%
Ind./Comm. Machinery and Computers	35	38	6.2%	2,608	5.3%	7%
Electronic Equipment	36	62	10.1%	3,218	6.5%	16%
Transportation Equipment	37	14	2.3%	880	1.8%	25%
Instruments and Related Products	38	36	5.9%	3,202	6.5%	7%
Communication	48	28	4.6%	1,573	3.2%	19%
Wholesale Trade - Durable Goods	50	10	1.6%	1,299	2.6%	11%
Wholesale Trade - Non-durable Goods	51	11	1.8%	528	1.1%	14%
Eating and Drinking Places	58	13	2.1%	791	1.6%	4%
Miscellaneous Retail	59	12	2.0%	1,130	2.3%	14%
Depository Institutions	60	28	4.6%	5,767	11.7%	2%
Business Services	73	82	13.4%	6,895	13.9%	24%
Health Services	80	14	2.3%	1,068	2.2%	21%
Engineering and Related Services	87	16	2.6%	1,088	2.2%	21%
All Other Industries (aggregated)		170	27.8%	14,299	28.9%	7%
		612	100.0%	49,574	100.0%	

This table presents the industry composition during the sample period 2002-2007, with industries representing 1.5% or more (less than 1.5%) of the sample goodwill impairment firms presented individually (aggregated). We provide the industry composition for both the sample firms reporting goodwill impairments under SFAS 142, as well as all Compustat firms reporting positive goodwill but no goodwill impairment. The final column presents the mean reported goodwill impairment divided by lagged market value for those firms reporting goodwill impairments.

TABLE 3
Descriptive Statistics

Variable	Observations with Goodwill Impairment (“GW Impair”) (N = 612)		Compustat Observations with Goodwill but No Impairment (“All Other”) (N = 49,574)		Tests of Means (GW Impair – All Other)		Test of Medians (GW Impair – All Other)	
	Mean	Median	Mean	Median	Mean	p-value	Median	p-value
<i>SIZE</i>	6,706.960	578.614	9,533.970	583.486	-2,827.010	0.055	-4.870	0.109
<i>FOLLOW</i>	5.724	4.000	5.428	3.000	0.296	0.262	1.000	0.003
<i>BTM</i>	0.753	0.617	0.490	0.445	0.263	0.000	0.172	0.000
<i>ROA</i>	-0.095	-0.023	0.002	0.008	-0.097	0.000	-0.031	0.000
<i>GW</i>	0.146	0.101	0.142	0.083	0.004	0.518	0.018	0.912
<i>LAG_GW</i>	0.190	0.144	0.144	0.086	0.046	0.000	0.058	0.000
<i>RESTRUCT_D</i>	0.327	0.000	0.145	0.000	0.182	0.000	0.000	0.000
<i>OTH_IMPAIR_D</i>	0.317	0.000	0.051	0.000	0.266	0.000	0.000	0.000
<i>GW_IMPAIR</i>	0.119	0.023						

This table presents descriptive statistics and comparisons across firms that report a goodwill impairment (designated as “GW Impair”) versus all other Compustat firms reporting positive goodwill at the end of the prior quarter but not reporting a goodwill impairment over our sample period (designated as “All Other”). Across all variables for firms reporting goodwill impairments, quarter *t* refers to the impairment quarter. All *p*-values are based on two-tailed *t*-tests.

The variables are:

- SIZE* = total assets (in \$ millions) at the end of quarter *t*;
- FOLLOW* = the number of financial analysts (per IBES) following the firm in quarter *t*;
- BTM* = the book to market ratio at the end of quarter *t*, with book reflecting the reported goodwill impairment;
- ROA* = income before extraordinary items divided total assets at the end of quarter *t*, with both income and total assets

GW = reflecting any reported goodwill impairment;
= the ratio of goodwill at the end of quarter t to total assets at the end of quarter t , with both goodwill and total assets reflecting any reported impairment charges;

LAG_GW = the ratio of goodwill at the end of quarter $t-1$ to total assets at the end of quarter $t-1$;

RESTRUCT_D = an indicator variable equal to one for firms reporting restructuring charges in quarter t , and zero otherwise;

OTH_IMPAIR_D = an indicator variable equal to one for firms reporting any non-goodwill impairments in quarter t , and zero otherwise;
and

GW_IMPAIR = reported goodwill impairment for quarter t divided by market value of equity at the end of quarter $t-1$.

TABLE 4
Insider Selling Over the Two Years Preceding the Goodwill Impairment
Univariate Analyses

Window (month 0 is reporting of goodwill impairment)	Goodwill Impairment Firms			Non-impairment Firms			Difference (Goodwill Impairment – Non-impairment)		Difference (Goodwill Impairment – Non-impairment)	
	N	Mean	Median	N	Mean	Median	Mean	<i>t</i> -statistic	Median	<i>z</i> -statistic
	(–23, –18)	607	0.435	0.000	4,920	0.364	0.000	0.071	3.410 ***	0.000
(–17, –12)	626	0.468	0.000	5,216	0.364	0.000	0.104	5.080 ***	0.000	5.067 ***
(–11, –6)	651	0.429	0.000	5,459	0.371	0.000	0.058	2.840 ***	0.000	2.839 ***
(–5, 0)	669	0.371	0.000	5,680	0.367	0.000	0.004	0.180	0.000	0.813

This table presents results from univariate analyses examining insider trading during the two years preceding the reported goodwill impairment under SFAS 142 across two groups of firms: those reporting goodwill impairments (“Goodwill Impairment Firms”), and those not reporting goodwill impairments (“Non-Impairment Firms”). Insider trading is assessed as an indicator variable equal to one for firms that experience net insider trading (i.e., total sales greater than total purchases, defined for firm officers) over the indicated six-month trading window, and zero otherwise. Results are presented over four non-overlapping windows: months –23 to –18 (inclusive); months –17 to –12 (inclusive); months –11 to –6 (inclusive); and months –5 to 0 (inclusive). For firms reporting goodwill impairments (the reporting of which is designated as month 0), the windows are assessed relative to the end of the quarter in which the goodwill impairment is reported. For firms not reporting goodwill impairments, we randomly select a single quarter within our sample reporting period to determine the reporting window. The differences in mean values are based on two-tailed *t*-tests; the differences in medians are based on two-tailed Wilcoxon tests.

TABLE 5
Insider Selling Over the Two Years Preceding the Goodwill Impairment
Multivariate Analyses

Variable	Predicted Sign	Window (-23, -18)	Window (-17, -12)	Window (-11, -6)	Window (-5, 0)
Intercept	?	-1.583 *** (-12.870)	-1.705 *** (-17.917)	-1.954 *** (-9.423)	-2.100 *** (-9.816)
<i>GWI_D</i>	+	0.121 (1.351)	0.327 *** (3.115)	0.187 ** (2.177)	0.012 (0.117)
<i>SIZE</i>	+	0.262 *** (23.840)	0.276 *** (25.402)	0.293 *** (13.274)	0.274 *** (12.684)
<i>BTM</i>	-	-0.962 *** (-9.617)	-0.878 *** (-7.822)	-0.591 *** (-6.030)	-0.239 *** (-4.088)
<i>RETBH</i>	+	0.538 *** (6.080)	0.486 *** (6.113)	0.650 *** (8.145)	0.673 *** (13.343)
<i>RESTRUCT_D</i>	+ / -	0.166 (1.420)	0.199 ** (1.966)	-0.047 (-0.509)	0.151 (1.223)
<i>OTH_IMPAIR_D</i>	+ / -	-0.119 (-0.987)	-0.243 ** (-2.156)	-0.088 (-0.941)	-0.386 *** (-3.996)
<i>UE_Q₀</i>	-	-0.025 (-1.236)	-0.124 (-1.056)	-0.278 *** (-3.097)	-0.018 (-0.526)
<i>UE_Q₋₁</i>	-	-0.017 (-0.348)	-0.181 *** (-3.869)	-0.137 *** (-2.684)	0.016 (0.250)
<i>UE_Q₋₂</i>	-	-0.107** (-2.457)	-0.044 (-0.349)	-0.180 (-1.058)	
<i>UE_Q₋₃</i>	-	-0.340 (-1.303)	-0.091 (-0.704)	-0.335 (-1.580)	
<i>UE_Q₋₄</i>	-	-0.050 (-0.333)	-0.155 (-0.929)		
<i>UE_Q₋₅</i>	-	-0.234 (-1.476)	-0.130 (-1.063)		
<i>UE_Q₋₆</i>	-	-0.314 ** (-1.948)			
<i>UE_Q₋₇</i>	-	-0.123** (-2.107)			
Pseudo R^2		0.180	0.180	0.166	0.124
Observations		5,527	5,842	6,110	6,349

This table presents results from multivariate logistic analyses examining insider trading during the two years preceding the reported goodwill impairment under SFAS 142 using two groups of firms: those reporting goodwill impairments (“Goodwill Impairment Firms”), and those not reporting goodwill impairments (“Non-Impairment Firms”). The dependent variable is *INSIDER_SELL*, an indicator variable equal to one for firms that experience net insider trading (i.e., total sales greater than total purchases, defined for firm officers) over the indicated six-month trading window, and zero otherwise. Results are presented over four non-overlapping windows: months –23 to –18 (inclusive); months –17 to –12 (inclusive); months –11 to –6 (inclusive); and months –5 to 0 (inclusive). For firms reporting goodwill impairments (the reporting of which is designated as month 0), the windows are assessed relative to the end of the quarter in which the goodwill impairment is reported. For firms not reporting goodwill impairments, we randomly select a single quarter within our sample reporting period to determine the reporting window. Z-statistics are presented in parentheses. ***, ** and * denote statistical significance at 1%, 5% and 10%, respectively, based on two-tailed tests. Standard errors are cluster-adjusted by time following Petersen [2008].

The variables are:

<i>INSIDER_SELL</i>	= an indicator variable equal to one for firms that experience net insider selling (i.e., total sales greater than total purchases) over the indicated six-month trading window, and zero otherwise;
<i>GWI_D</i>	= an indicator variable equal to one for firms reporting a goodwill impairment in quarter <i>t</i> , and zero otherwise;
<i>SIZE</i>	= log of total assets measured at the end of the indicated six-month window;
<i>BTM</i>	= the book-to-market ratio measured at the end of the indicated six-month window;
<i>RETBH</i>	= the buy-and-hold return measured over the six-month window prior to the indicated insider trading measurement window;
<i>RESTRUCT_D</i>	= an indicator variable equal to one for firms reporting restructuring charges in quarter <i>t</i> (the goodwill impairment quarter), and zero otherwise;
<i>OTH_IMPAIR_D</i>	= an indicator variable equal to one for firms reporting any non-goodwill impairments in quarter <i>t</i> (the goodwill impairment quarter), and zero otherwise;
<i>UE_Q_{t-k}</i>	= the unexpected earnings for quarter <i>t-k</i> , where the unexpected earnings are measured as earnings at the end of quarter <i>t</i> minus earnings at the end of quarter <i>t-k-4</i> , scaled by market value of equity at the end of quarter <i>t-k-1</i> .

TABLE 6
Abnormal Returns to Insider Selling Over the Two Years Preceding the Goodwill Impairment – Univariate Analyses

Insider Trading Window	Abnormal Buy and Hold Return Window	Buy-and-Hold Return: Net Insider Selling Impairment Firms (<i>INSIDER_SELL</i> = 1)			Buy-and-Hold Return: All Other Impairment Firms (<i>INSIDER_SELL</i> = 0)			Difference (Net Insider Selling – All Other)		Difference (Net Insider Selling – All Other)	
		<i>N</i>	Mean	Median	<i>N</i>	Mean	Median	Mean	<i>t</i> -statistic	Median	<i>z</i> -statistic
(-8, -3)	(-2, 0)	246	-0.084	-0.059	366	-0.080	-0.082	-0.004	0.190	0.023	0.373
(-11, -6)	(-5, 0)	265	-0.138	-0.123	347	-0.120	-0.139	-0.018	0.720	0.016	0.004
(-14, -9)	(-8, 0)	284	-0.168	-0.162	328	-0.158	-0.181	-0.010	0.330	0.019	0.379
(-17, -12)	(-11, 0)	287	-0.204	-0.217	325	-0.134	-0.192	-0.070	2.020 **	-0.025	-1.244
(-20, -15)	(-14, 0)	277	-0.223	-0.234	335	-0.115	-0.209	-0.108	2.740 ***	-0.025	-2.187 **
(-23, -18)	(-17, 0)	268	-0.234	-0.277	344	-0.105	-0.197	-0.129	3.010 ***	-0.080	-2.246 **

This table presents univariate comparisons of abnormal buy-and-hold returns to insider trades for two groups of firms reporting goodwill impairments under SFAS 142. The first group is firms where insiders (defined as firm officers) are net sellers (i.e., the variable *INSIDER_SELL* = 1), and is designated as “Net Insider Selling Impairment Firms.” The second is firms where insiders are not net sellers (i.e., the variable *INSIDER_SELL* = 0), and is designated as “All Other Impairment Firms.” Insider trades are measured over six-month rolling windows covering the two years prior to the goodwill impairment event. The buy-and-hold abnormal returns to insider trades are computed over windows starting directly after the end of the insider trading window and ending with the last month of the goodwill impairment quarter (i.e., month 0). ***, ** and * denote statistical significance at 1%, 5% and 10%, respectively, based on two-tailed *t*-tests of means or two-tailed *z*-tests of medians.

TABLE 7
*Abnormal Returns to Insider Selling Over the Two Years
 Preceding the Goodwill Impairment – Multivariate Analyses*

Variable	Pred Sign	Return Window (-17, 0)	Return Window (-14, 0)	Return Window (-11, 0)	Return Window (-8, 0)	Return Window (-5, 0)	Return Window (-2, 0)
Intercept	?	-0.324*** (-2.740)	-0.253** (-2.500)	-0.277*** (-3.030)	-0.321*** (-3.340)	-0.313*** (-4.560)	-0.179*** (-4.660)
<i>INSIDER_SELL</i>	-	-0.125** (-2.270)	-0.090** (-2.380)	-0.073** (-2.290)	-0.029 (-0.780)	-0.027 (-0.780)	-0.020 (-0.870)
<i>SIZE</i>	+ / -	0.029** (2.070)	0.018 (1.450)	0.024** (2.200)	0.026** (2.630)	0.024*** (2.780)	0.015*** (3.000)
<i>BTM</i>	+ / -	0.102 (1.610)	0.097* (1.760)	0.053 (1.070)	0.054* (0.970)	0.099** (2.580)	0.041** (2.200)
<i>RETBH</i>	+ / -	0.147** (2.260)	0.141* (1.710)	0.149** (2.520)	0.158** (2.330)	0.186*** (3.100)	0.184*** (2.920)
<i>RESTRUCT_D</i>	+ / -	-0.006 (-0.130)	-0.035 (-0.930)	-0.054 (-1.500)	-0.044 (-1.680)	-0.040 (-1.600)	-0.006 (-0.300)
<i>OTH_IMPAIR_D</i>	+ / -	-0.118*** (-3.000)	-0.119*** (-3.040)	-0.080** (-2.580)	-0.072** (-2.020)	-0.047 (-1.210)	-0.031 (-1.030)
<i>UE_Q0</i>	+	-0.168 (-0.990)	-0.164 (-1.060)	-0.107 (-1.220)	-0.144 (-1.510)	-0.096 (-1.510)	-0.028 (-0.530)
<i>UE_Q1</i>	+	0.445* (1.910)	0.290* (1.790)	0.380** (2.390)	0.132 (0.890)	0.049 (0.340)	
<i>UE_Q2</i>	+	0.058 (1.050)	0.071 (0.860)	-0.051 (-0.680)	-0.028 (-1.080)		
<i>UE_Q3</i>	+	0.622* (1.910)	0.621*** (3.700)	0.854*** (4.310)			
<i>UE_Q4</i>	+	0.227 (1.430)	0.210 (1.360)				
<i>UE_Q5</i>	+	0.645 (1.310)					
Pseudo R^2		0.083	0.075	0.082	0.059	0.064	0.059

This table presents results from multivariate analyses examining abnormal buy-and-hold returns to insider trades for two groups of firms reporting goodwill impairments under SFAS 142. The first group is firms where insiders (defined as firm officers) are net sellers (i.e., the variable *INSIDER_SELL* = 1). The second is firms where insiders are not net sellers (i.e., the variable *INSIDER_SELL* = 0). Insider trades are measured over six-month rolling windows covering the two years prior to the goodwill impairment event. The dependent variable is *ABNORMAL_RET*, the buy-and-hold abnormal returns to insider trades computed over windows starting directly after the end of the insider trading window and

ending with the last month of the goodwill impairment quarter (i.e., month 0). ***, ** and * denote statistical significance at 1%, 5% and 10%. Standard errors are cluster-adjusted by time following Petersen [2008]. For all regressions, $N = 612$.

The variables are:

- ABNORMAL_RET* = the buy-and-hold abnormal returns to insider trades, computed over windows starting directly after the end of the insider trading window and ending with the last month of the goodwill impairment quarter (month 0);
- INSIDER_SELL* = an indicator variable equal to one for firms that experience net insider selling (i.e., total sales greater than total purchases) over the indicated six-month trading window, and zero otherwise;
- SIZE* = log of total assets measured at the end of the indicated six-month window;
- BTM* = the book-to-market ratio measured at the end of the indicated six-month window;
- RETBH* = the buy-and-hold return measured over the six-month window prior to the indicated insider trading measurement window;
- RESTRUCT_D* = an indicator variable equal to one for firms reporting restructuring charges in quarter t (the goodwill impairment quarter), and zero otherwise;
- OTH_IMPAIR_D* = an indicator variable equal to one for firms reporting any non-goodwill impairments in quarter t (the goodwill impairment quarter), and zero otherwise; and
- UE_Q_{t-k}* = the unexpected earnings for quarter $t-k$, where the unexpected earnings are measured as earnings at the end of quarter t minus earnings at the end of quarter $t-k-4$, scaled by market value of equity at the end of quarter $t-k-1$.