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**Karthik Ramanna
Ross L. Watts**

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Evidence on the use of unverifiable estimates in required goodwill impairment*

Karthik Ramanna
Harvard Business School
kramanna@hbs.edu

and

Ross L. Watts
MIT Sloan School of Management
rwatts@mit.edu

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Abstract

SFAS 142 requires managers to estimate the current fair value of goodwill to determine goodwill write-offs. In promulgating the standard, the FASB predicted managers will, on average, use the fair value estimates to convey private information on future cash flows. The current fair value of goodwill is unverifiable because it depends in part on management's future actions (including managers' conceptualization and implementation of firm strategy). Thus, agency theory predicts managers will, on average, use the discretion in SFAS 142 consistent with private incentives. We test these hypotheses in a sample of firms with market indications of goodwill impairment. Our evidence, while consistent with some agency-theory derived predictions, does not confirm the private information hypothesis.

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1. Introduction

Accounting for acquired goodwill has been subject to considerable debate for at least the past fifty years: Zeff (2005) cites disagreements over goodwill accounting rules as among the causes for the collapse of both the Committee on Accounting Principles and the Accounting Principles Board. SFAS 142, issued by the FASB in 2001, introduced a new approach to goodwill accounting by abolishing goodwill amortization and requiring all goodwill be tested periodically for impairment using estimates of its current fair value. In issuing SFAS 142, the FASB (2001, p. 7) predicted that the standard “will improve financial reporting because the financial statements of entities that acquire goodwill and other intangible assets will [now] better reflect the underlying economics of those assets.” Specifically, the FASB expected financial statements generated under the standard to provide “users with a better understanding of the expectations about and changes in [goodwill and other intangible assets] over time.” That is, the board expected managers will, on average, use estimates of goodwill’s fair value to convey private information on future cash flows.

The SFAS 142 approach to goodwill accounting represents a significant innovation over prior practice and standards in that it relies solely on management estimates of goodwill’s current value.¹ The current fair value of goodwill is a function of management’s future actions, including managers’ conceptualization and implementation of firm strategy. As such, it is difficult to verify and audit. In effect, we expect the subjectivity inherent in estimating goodwill’s current fair value is greater than that in most other asset classes such as accounts receivables, inventories, and plant, making the goodwill impairment test under SFAS 142 particularly unreliable. *Ex post*, if a fair-value estimate used to justify goodwill non-impairment is not realized, a manager can claim it was due to factors outside her control (e.g., macroeconomic conditions). It is difficult to falsify such a claim in a court of law (the claim cannot be “objectively characterized as true or false,” *Ollman v. Evans*, 750 F.2d 970, D.C. Cir., 1984). Thus, we hypothesize managers exploit the SFAS 142 goodwill impairment test consistent with private incentives, as predicted by agency theory.

¹ Prior to SFAS 142, goodwill was impaired only when certain associated long-lived assets were also impaired (SFAS 121); moreover, goodwill was also subject to periodic amortization (APB 17).

How managers will use the opportunity to incorporate estimates of goodwill's fair value in practice is an empirical question. We investigate managers' implementation of the SFAS 142 goodwill impairment test in a sample of firms with market indications of goodwill impairment. We examine whether goodwill non-impairment in the sample is associated with proxies for managers' private information on positive future cash flows and/or with agency-based motives, including management's interests in increasing their compensation and in shielding their reputation from the implications of a goodwill write-off. We do not find evidence to confirm the private information argument, but we find some evidence consistent with agency-based predictions. We also test whether goodwill non-impairment varies with firm characteristics predicted by Ramanna (2008) to facilitate discretion under SFAS 142. These characteristics include: (1) the number and size of a firm's business units; and (2) the proportion of a firm's net assets that are unverifiable. We find goodwill non-impairments increase in proxies for both characteristics.

To generate the sample of firm-years with market indications of goodwill impairment, we begin with firms that have both: (i) book goodwill; and (ii) equity-market-values greater than equity-book-values. Among these firms, we retain only those that end each of the two subsequent fiscal years with book-to-market ratios (BTM) above one (where book values are calculated before the effect of any goodwill impairment, but after the effect of any other asset write-off). The condition $BTM > 1$ suggests the market expects goodwill impairments; however the condition can also be generated by certain GAAP rules on contingent losses, deferred taxes, and the impairment of (non-goodwill) long-lived assets.² To mitigate this possibility, we require sample firms to have two consecutive years of $BTM > 1$. Under such restriction, we argue goodwill is likely to be impaired; but our tests remain subject to the caveat that sample firms avoid write-offs because of certain GAAP rules. We investigate the determinants of goodwill non-impairment at the end of the second fiscal year with $BTM > 1$, conditional on the firms having non-zero goodwill balances at the beginning of that year. There are 124 firm-years on COMPUSTAT that meet the sample selection criteria between the years 2003 and

² In particular, among certain (non-goodwill) long-lived assets, impairment is triggered only when the undiscounted sum of future cash flows attributed to an asset is less than that asset's book value.

2006, our sample period.³ The frequency of goodwill non-impairment in sample firm-years (i.e., the second fiscal year with $BTM > 1$) is 69%.

It is possible that managers of sample firms avoid goodwill write-offs because they have (or believe they have) private information on positive future cash flows. We identify firms likely to have favorable private information as those firms with either positive net share-repurchase activity or positive net insider buying. Both activities suggest management believes the firm is undervalued. We examine whether sample firms without goodwill write-offs are more likely (than those with the write-offs) to have positive repurchase or insider buying activity. If this is the case, the data support the argument that managers' private information drives non-impairments. We find the frequency of firms with positive net share-repurchase activity among non-impairers (24%) is statistically indistinguishable from that among impairers (24%). Further, the frequency of firms with positive net insider buying among non-impairers (22%) is also statistically indistinguishable from that among impairers (18%).

Our use of share-repurchase and insider buying activity as indicators of managers' private information is subject to an important caveat. Such activities, if interpreted by the market as being caused by managers exploiting favorable private information, can result in increased stock returns such that a firm's BTM is no longer above 1, thus excluding the firm from our sample. Accordingly, our tests using these proxies can be of low power. To mitigate this concern, we conduct two additional tests of the private information hypothesis: the first using two proxies for positive private information based on linguistic analyses of sample firms' 10-Ks; the second based on an ex-post analysis of sample firms' stock returns.⁴

Our first linguistic proxy for positive private information, *Achievement*, is an indicator set to one when the proportion of "achievement"-related words in a sample firm's 10-K is greater than that in an industry-size match. "Achievement"-related words are defined in Appendix B and are constructed from a similarly named category in the

³ Our sample begins in 2003 because that was the first full-year of SFAS 142 adoption after the standard's transition adoption year; our sample ends in 2006 because financial data beyond 2006 was not available when we initiated this study.

⁴ To further address this concern, we also investigate whether firms with share repurchases and insider buying are disproportionately more likely to be eliminated from our sample due to our requirement that sample firms end the fiscal year with $BTM > 1$. We do not find evidence that this is the case.

Linguistic Inquiry & Word Count (LIWC) dictionary (Pennebaker, Francis, and Booth, 2001).⁵ High *Achievement* is expected to signify good news, which in turn can justify the non-impairment of goodwill. We find that the proportion of firms with high *Achievement* among non-impairers in the sample (57%) is statistically indistinguishable from that among sample impairers (54%). Thus, positive private information as manifested by an incidence of *Achievement* is unable to explain non-impairment in the sample.

Li (2008) introduces to the accounting literature the use of the Fog Index to analyze 10-Ks: this index is our second linguistic proxy for positive private information. A Fog Index over 18 denotes unreadability and can measure attempts at obfuscation in the annual report. *A priori*, a firm with positive private information is less likely to engage in obfuscation, and thus less likely to generate a 10-K with a Fog Index over 18. If positive private information motivates non-impairment, we expect a lower prevalence of 10-Ks with Fog Indices over 18 among sample non-impairers than among sample impairers. However, we find the proportion of non-impairing sample firms with Fog Indices over 18 (78%) is statistically higher than that of impairing sample firms (59%).⁶ Thus, non-impairing sample firms appear to be more likely to obfuscate in 10-Ks, inconsistent with favorable private information motivating non-impairment in the sample.

Inferences based on the linguistic proxies are subject to a “cheap talk” caveat; it is possible that the use of words to signify “achievement” or to obfuscate is costless, making the proxies noisy. Accordingly, our final tests of the private information hypothesis are based on an analysis of sample firms’ one-year-ahead stock returns. The purpose is to determine whether, on average, non-impairers are more likely to have higher one-year-ahead stock returns than impairers. If this is the case, then non-impairment is consistent with managers having positive private information, information that subsequently (over one year) becomes public. For the 124 firms in our sample, stock returns data over the following 12 months continue to be available on CRSP for 96 firms. Sixty-four of these 96 firms are non-impairers in the sample year; the other 32 are impairers. The mean and median one-year-ahead stock returns across non-impairers and

⁵ LIWC has been used previously in computational linguistic analyses across the social and behavioral sciences (see Tauczik and Pennebaker, 2009, for a review), including accounting research (e.g., Li, 2008).

⁶ Throughout the paper, statistical significance is inferred at the two-tail 90% confidence level or higher.

impairers are not statistically distinguishable (non-impairers' mean=22.9%, median=12.4%; impairers' mean=17.2%, median=13.3%).⁷

To investigate whether non-impairment is associated with motives predicted by agency theory to affect management's accounting choice, we test for the cross-sectional variation in goodwill write-offs with proxies for CEO compensation concerns, CEO reputation concerns, asset-pricing concerns, exchange-delisting concerns, and concerns relating to debt covenant violation. Beatty and Weber (2006) predict from prior literature that goodwill write-offs in the initial adoption year of SFAS 142 vary in these motives; they find evidence consistent with some of their predictions. Our agency-based predictions, while derived from those in Beatty and Weber, differ where appropriate, to account for differences in incentives between the transition year and subsequent years. We find no evidence to confirm that asset-pricing concerns and exchange-delisting concerns are associated with goodwill write-off decisions. The result on asset-pricing concerns is consistent with firms' stock prices already reflecting goodwill as impaired, a condition on which we attempted to select the sample. In contrast, we find a statistically higher proportion of firms with covenants that are likely to be goodwill inclusive among sample non-impairers (78%) than among sample impairers (63%). The proportion of non-impairing sample firms whose CEOs are likely to have goodwill-inclusive compensation contracts (57%) is also statistically higher than that of impairing sample firms (39%). In multivariate tests that control for firm-level economics and management's private information, there is some further evidence that debt-covenant and CEO compensation incentives are associated with non-impairment.

Also in the multivariate tests, we find evidence that non-impairment increases in CEO tenure. Long-tenured CEOs are more likely to have initiated the mergers that generated the goodwill now indicated by the market as impaired. Thus, if non-impairment is motivated by managers' interests in shielding their reputation from the implications of

⁷ We use data from Thomson One Banker to follow up on the status of the remaining 28 sample firms (i.e., 124 minus 96) that are dropped from the CRSP database in the post-sample year. A detailed analysis of these firms is available in Section 3. To summarize, most of these firms are acquired, delisted, or thinly traded; statistical comparisons within this subsample are precluded by the low n.

a goodwill write-off, long-tenured CEOs are less likely to authorize goodwill write-offs.⁸ In the multivariate tests, none of the proxies for managers' positive private information described earlier are statistically associated with non-impairment.

The evidence in this paper is consistent with managers avoiding timely goodwill write-offs under SFAS 142 in circumstances where they have agency-based motives to do so, despite market indications that such write-offs are due. The unverifiable nature of fair-value estimates of goodwill makes such behavior predictable under agency theory (Watts, 2003; Ramanna, 2008). The evidence does not confirm the FASB's implicit assumption that managers will use estimates of goodwill's fair value to convey private information on future cash flows. At a minimum, the results suggest, on average in our sample, SFAS 142 is generating financial reports that do not reflect economic reality with respect to goodwill. Even if contracts completely adjust for this deficiency (which is unlikely), the standard imposes costs in the sample: in particular, compliance costs and the costs of managers continuing negative NPV operations in order to avoid write-offs.

Our evidence is consistent with prior results on untimeliness of asset write-downs (e.g. Elliott and Shaw, 1988) and on the role of managerial incentives in write-down decisions (Francis, Hanna, and Vincent, 1996). Beatty and Weber (2006) also study the role of agency-based incentives in the implementation of SFAS 142, but in its adoption year; we extend their study to the four subsequent years, and moreover, attempt to determine whether managers' private information can explain impairment decisions. Given the innovative nature of SFAS 142 goodwill accounting rules, our evidence provides new insights into whether these rules are effective. In particular, since goodwill is no longer amortized, write-offs are the only way managers are held accountable in the income statement for unallocated acquisition premiums. If, as we find, goodwill write-offs are on average motivated by managers' private incentives, SFAS 142 is generating little accountability for acquired goodwill. This finding is consistent with the observation that both practice prior to the existence of regulated standard setting and standards prior to SFAS 142 did not rely solely on fair-value-based impairment testing for goodwill accounting. More generally, our evidence can speak to the use of unverifiable discretion

⁸ Avoiding timely impairments to prevent debt covenant violations can also be motivated by CEO reputation concerns (in addition to transferring wealth from debtholders to shareholders) since failure to do so can be perceived as managerial incompetence.

in financial reporting. Valuing goodwill is part of a broader shift in standard-setting towards valuing the firm (i.e., fair value). Our evidence suggests that fair values, when extended to assets with unauditible valuations, are likely to compromise financial reporting's role as a management control system.

The remainder of the paper is organized as follows. Section 2 describes the goodwill impairment test in SFAS 142, the construction of the sample and variables, and the research design. Descriptive statistics, the results of univariate tests, and the results of construct validity tests on a sample of firms under SFAS 121 are presented in Section 3. That section also presents the results of multivariate tests and some additional analyses. Section 4 concludes with a summary and implications.

2. The study

In this section, we first explain (in §2.1.) the SFAS 142 goodwill impairment rules. In §2.2., we describe the sample selection procedure and address potential caveats in the process. In §2.3., we discuss the possible motives (and our proxies for those motives) for managers to avoid impairment write-offs. In §2.4., we describe two firm characteristics (and their empirical proxies) that can provide managers with the ability to use the unverifiable discretion in SFAS 142. §2.5., describes the research design for multivariate tests.

2.1. Unverifiable discretion in the SFAS 142 goodwill impairment test

Prior to SFAS 142, accounting for acquired goodwill was governed by APB 17 (AICPA, 1970) and SFAS 121 (FASB, 1995). Under these standards, firms had the option to account for acquisitions using the pooling-of-interests method, thereby avoiding goodwill recognition altogether. Goodwill, when recognized, was subject to periodic amortization. Goodwill was also subject to impairment, but only when certain associated long-lived assets were also impaired. The test for asset impairment was based on comparing undiscounted future cash flows to book values. SFAS 142 abolished goodwill amortization and required instead an impairment-only approach to goodwill. Further, SFAS 142 no longer tied the goodwill impairment decision to impairment decisions on

related long-lived assets. Instead, goodwill is now impaired based on a comparison of a fair-value estimate of goodwill with the book value of goodwill.

SFAS 142 lays out the following procedure for goodwill impairment. All acquired goodwill is initially allocated among the “reporting units” of a firm. Generally, a reporting unit is an operating segment, or a component thereof, if that component constitutes a business with discrete financial information that is regularly reviewed by management (SFAS 142, §30). Goodwill is tested for impairment at this reporting unit level. For a given reporting unit, the goodwill impairment test is a two-step procedure as described below.

1. The reporting unit’s total fair value is estimated by management (or their agents). This fair value is then compared to the unit’s total book value. If the fair value is greater than the book value, Step 2 is skipped and no impairment loss is recognized.
2. If the unit’s estimated fair value is less than its book value, the fair value of the unit’s goodwill is estimated. The fair value of goodwill is defined as the difference between the unit’s total fair value (from Step 1) and the sum of the fair values of the unit’s non-goodwill net assets. The fair value of goodwill is then compared to the book value of goodwill. Any excess of goodwill’s book value over its fair value is recorded as the unit’s impairment loss (no loss or gain is recognized if the goodwill’s fair value estimate exceeds its book value). Goodwill impairment losses from the firm’s various reporting units are aggregated and reported as a separate above-the-line item in the income statement.

There are three layers of discretion in the impairment procedure described above. First, acquired goodwill, which represents rents expected from an acquisition, must be allocated across reporting units; second, the discounted future value of those reporting units must be estimated; and third, the current value of the units’ net assets (including non-goodwill intangibles) must be estimated. The discretion in the first two layers is difficult to audit in that it is *ex post* unverifiable. A similar argument can be made about

the discretion in the third layer, particularly with regards to current-value estimates of thinly traded assets and liabilities.

While there is discretion associated with estimating accruals in nearly all areas of accounting, we argue the subjectivity inherent in estimating the current fair value of goodwill is greater than that in most other asset classes such as accounts receivables, inventories, and plant. There are two bases for this argument. (1) Uncertainty in future cash flows: The uncertainty in future cash flows associated with capitalized goodwill is higher (relative to other capitalized assets) because goodwill represents a present-value estimate of future rents. The realization of those rents depends on several unpredictable factors such as the firm's competitive position vis-à-vis its customers, its suppliers, its employees, and the regulatory environment. (2) Moral hazard: The ability to realize the value embedded in book goodwill is contingent on management's future effort. Allowing managers to fair-value goodwill can result in managers receiving compensation (by overstating profits through non-impairment) on projects that are likely to fail. When that failure does occur, managers cannot be held accountable because it is impossible to objectively assess whether the failure was due to management actions.⁹

2.2. Sample selection

Our objective is to test whether firms with the ability and motives to manage SFAS 142 goodwill impairment losses actually do so. To do this, we need to identify a sample of firm-years where goodwill is likely impaired. We use the presence of book goodwill and the time-series of firms' book-to-market ratios (BTM) to select our sample (where, as noted earlier, BTM is calculated after the effect of all non-goodwill write-offs, but before the effect of any goodwill impairment). We begin with firms that have equity-book-values < equity-market-values and at least \$1 million of book goodwill at the end of year t-2. Then, we retain only those firms that end year t-1 with BTM > 1. When a firm goes from having equity-book-values < equity-market-values (in year t-2) to having BTM > 1 (in year t-1), there is likely an overstatement in its book value, suggesting a write-off

⁹ Unlike moral hazard implicit in valuing items like net accounts receivable (where subsequent management effort on collecting receivables is observable and can be entered into evidence), it is very difficult to make the case (in the event of *ex post* litigation) that goodwill losses were due to management inaction (rather than macroeconomic conditions). That is, the claim cannot be "objectively characterized as true or false" (*Ollman v. Evans*, 750 F.2d 970, D.C. Cir., 1984), the legal standard for verifiability.

is due. However, such a change can be associated with no write-off if the decline in market value is attributable to circumstances where GAAP does not require recognizing a contemporaneous expense (e.g., certain contingencies, deferred taxes, pensions, etc.).¹⁰ Further, GAAP rules on the impairment of certain (non-goodwill) long-lived assets can also result in firms with $BTM > 1$ not taking write-offs (under these rules, impairment is triggered only when the *undiscounted* sum of future cash flows attributed to an asset is less than that asset's book value).

To minimize the circumstances where the change from equity-book-values $<$ equity-market-values (in year $t-2$) to $BTM > 1$ (in year $t-1$) is not associated with GAAP requirements for a contemporaneous write-off, we limit our sample to firms where BTM stays above one for an additional fiscal year (year t). Additionally, we require that these firms begin year t with a non-zero goodwill balance. We argue that firms with two successive years of $BTM > 1$ are likely to have impairment in net assets. Further, since the firms have goodwill on their books, we expect at least some of that write-off to be in goodwill. Note if a firm takes an adequate write-off from an account other than goodwill, it is, by selection, not in our sample because its BTM should no longer be greater than one. We intentionally exclude negative book-value firms and firms with $BTM < 1$ from our analysis since the case for impairment in their goodwill is less compelling.

We examine the determinants of goodwill impairment in the second fiscal year with $BTM > 1$ (i.e., in year t). There are 124 “year t ” observations in the COMPUSTAT database that meet our sample criteria. The observations are from years 2003 through 2006. SFAS 142 was promulgated in June 2001 and mandatory adoption was required for fiscal years beginning after December 15, 2001. We exclude the initial adoption year (2002) from our year t analysis of impairments because in 2002 firms were permitted to ascribe goodwill impairments below-the-line to a “change in accounting principle;” in all subsequent years, impairments are charged above-the-line, to “income from continuing operations.” Beatty and Weber (2006) find evidence that absent contracting incentives, firms accelerate impairments into the adoption year to qualify for below-the-line

¹⁰ Even in such circumstances, assuming the decline in market value is permanent, auditors are likely to want managers to take timely write-offs.

accounting treatment. Thus, the factors that facilitate adoption-year impairments likely differ from the factors that facilitate impairments in subsequent years.¹¹

One can argue that the sample selection procedure is biased towards identifying firms that are not representative of the general population. Firms with two consecutive years of $BTM > 1$ are uncompetitive or are otherwise suffering from serious economic woes that make accounting compliance issues secondary. The incidence and properties of non-compliance in our sample are therefore not representative of accounting practice in the general population. An analogy to this argument is a criticism of a study that documents properties of brake failures in cars that travel over 50 mph in a 30 mph zone on the basis that most drivers do not engage in such activity. Cars likely do much more damage when their brakes fail at over 50 mph, so failures at this speed are likely to represent a large share of the costs of brake failure and thus be of interest to stewards of automobile safety. Similarly, we argue evidence on the properties of SFAS 142 non-compliance among firms with two consecutive years of $BTM > 1$ is likely to be of interest to managers, investors, and regulators. SFAS 142 is an impairment standard and our sample represents firms whose goodwill is very likely impaired. We argue this is where an effective impairment standard should work.

2.3. Motives to manage goodwill impairment losses

2.3.1. Managers' private information on positive future cash flows

Standard setters imply that the goodwill impairment test in SFAS 142 allows managers, on average, to convey private information on future cash flows. In explaining how SFAS 142 improves financial reporting, the FASB (2001, p. 7) argues the standard provides “users with a better understanding of the expectations about and changes in [goodwill and other intangible assets] over time.” If this is the case, managers' failure to impair goodwill can be attributed to information asymmetries between managers and shareholders, in particular, situations in which managers have favorable private information on future cash flows. We identify firms whose managers are likely to have positive private information as those with either positive net share-repurchase activity or

¹¹ Firms that accelerated impairments into the adoption year to create write-off loss reserves are unlikely to be in our sample since we filter out firms without positive goodwill balances.

positive net insider buying as of the end of year t (i.e., the second full fiscal-year with $BTM > 1$). Both activities can be interpreted as rational responses by managers to situations where their stock is undervalued. We code firms with positive net share-repurchase activity using the indicator variable *Repurchase*; firms with positive net insider buying using the indicator variable *Inside*; and firms with either of these two activities using the indicator variable *InfoAsym*. In our tests, we examine the univariate association of non-impairment in our sample with *InfoAsym*, *Repurchase*, and *Inside*, and examine in multivariate regressions the cross-sectional variation in impairment decisions with *InfoAsym*.

InfoAsym, *Repurchase*, and *Inside* are likely to be effective measures of managers' positive private information to the extent that managers are not so cash constrained that they cannot engage in share buying activity. Moreover, such share buying activity, if interpreted by the market as being caused by managers exploiting favorable private information, can result in increased stock returns such that a firm's BTM is no longer above 1. In this case, the firm will not be in our sample, and our tests using *InfoAsym* and associated proxies can be of low power.¹² To generate a measure of managers' positive private information that is not limited by these concerns, we examine the extent to which managers discuss their "achievements" in the year t form 10K filing. More "achievements" can signify good news, which in turn can justify the non-impairment of goodwill. The Linguistic Inquiry & Word Count (LIWC) software (Pennebaker *et al.*, 2001) allows researchers to assess the proportion of words in a document that are associated with "achievement." LIWC has been used previously in computational linguistic analyses across the social and behavioral sciences (see Tauczik and Pennebaker, 2009, for a review), including accounting research (e.g., Li, 2008). LIWC contains an internal dictionary of English words related to achievement (among

¹² To investigate this concern further, we look at firms eliminated by our sample selection procedure for evidence that this group has a disproportionately higher incidence of positive private information (i.e., $InfoAsym=1$). In particular, we analyze all firms with year " t " in the 2003–2006 period, and with $BTM_{t,2} < 1$ and $BTM_{t,1} > 1$. There are 366 such firms (of these, 124 firms also have $BTM_t > 1$; these are the firms in our primary sample). We are interested in determining if among the 366 firms, those with $BTM_t > 1$ (124 firms) have a lower frequency of $InfoAsym=1$ than those with $BTM_t < 1$ (242 firms). The frequency of firms with $InfoAsym=1$ among the $BTM_t > 1$ sample is 41.1% (51 of 124 firms), which is actually higher than that among the $BTM_t < 1$ sample, 28.5% (69 of 242 firms); the comparison is statistically significant (chi-square p-value is 0.015). The result is inconsistent with the concern that our sample selection procedure disproportionately excludes firms with positive private information.

other categories): the dictionary has been validated by having independent evaluators score hundreds of test documents, comparing their results to those of the LIWC software (Pennebaker and King, 1999). Because the “achievement” dictionary in LIWC also contains words that are antonyms to achievement (e.g., “beaten,” “defeated,” “unsuccessful”), for all subsequent tests we edit the LIWC dictionary to exclude these antonyms.¹³ The “achievement” dictionary used in our tests is reproduced in Appendix B.

To construct our measure of achievement (hereafter denoted, *Achievement*), we define a dummy variable set to one if the proportion of “achievement”-related words (as defined in Appendix B) in the sample firm’s year *t* 10K is greater than the corresponding proportion in its size-match. The size-match is a firm in the same 3-digit NAICS industry with the closest year *t*-1 sales. We use a size-match in defining *Achievement* because the raw proportion of “achievement”-related words as output by LIWC is by itself difficult to objectively assess.

Achievement can be a noisy measure for private information if use of words connoting “achievement” in the 10-K is costless, i.e., if *Achievement* is “cheap talk.” Accordingly, we develop an additional linguistics-based proxy for managers’ positive private information: the proxy is denoted *Fog*. Li (2008) introduces to the accounting literature the use of the Fog Index to analyze 10-Ks. A Fog Index over 18 denotes unreadability and can measure attempts at obfuscation in the annual report. We define the variable *Fog* as a dummy set to one if the Fog Index of a sample firm-year’s 10-K is greater than 18. *A priori*, a firm with positive private information is less likely to engage in obfuscation and generate an unreadable 10-K, i.e., a value of *Fog*=1. Thus, if positive private information motivates non-impairment, we expect a lower prevalence of *Fog*=1 among sample non-impairers than among sample impairers.

If a legitimate justification of non-impairment requires complex language that the Fog Index captures as “obfuscation,” our tests based on *Fog* are confounded. Accordingly, in a final series of tests of the private information hypothesis, we study sample firms’ one-year-ahead stock returns. In particular, we investigate whether sample non-impairers are more likely to have, on average, higher one-year-ahead stock returns than sample impairers. If this is the case, then non-impairment is consistent with

¹³ Reported results are insensitive to using the LIWC achievement dictionary as originally published.

managers having positive private information that is revealed publicly over the following one year. We report on the results of tests based on proxies described herein in Section 3.

2.3.2. Incentives predicted by agency theory

Agency theory predicts managers (all else equal) will on average use unverifiability in accounting judgment, such as that in SFAS 142 impairment tests, to opportunistically manage financial reports (Watts, 2003; Ramanna, 2008). Beatty and Weber (2006) study firms' agency-based motives to delay goodwill losses in the SFAS 142 transition period. They argue from prior literature that the decision to delay goodwill losses is based on: debt and compensation contracts written on goodwill accounts (Watts and Zimmerman, 1986), management reputation (Francis *et al.*, 1996), and equity-asset-pricing concerns (i.e., the responsiveness of stock prices to goodwill-inclusive earnings, Fields, Lys, and Vincent, 2001). Beatty and Weber also hypothesize that exchange delisting concerns can affect the impairment loss recognition decision when delisting is triggered by goodwill-inclusive covenants. In empirical tests, they find support for all motives except equity-asset-pricing concerns. Our tests on the variation in goodwill impairment across agency-based motives are based on predictions in Beatty and Weber, with some important modifications to account for differences in incentives between the transition year and subsequent years, as noted below.

1. Contracting motives:

(a) The costs of violating debt covenants (*CovDebt*): Our proxy for the cost of violating debt covenants is the product of the ratio of current period debt to prior period assets and an indicator if the firm has an outstanding net worth or net income based debt covenant. Net worth and net income based covenants are goodwill inclusive; thus, the existence of such covenants in a firm is likely to incent management decisions on goodwill write-offs. For firms with debt contracts written on accounting numbers, violating a covenant will be more costly, the greater its leverage. Thus, we multiply the covenant indicator variable by leverage.¹⁴ Beatty and Weber measure the debt-covenant incentives on write-

¹⁴ Dichev and Skinner (2002) find that leverage is a relatively noisy proxy for the *probability* of debt covenant violation; however, holding constant this probability, leverage is likely a good proxy for the *cost*

off decisions using a firm-specific covenant slack variable that attempts to capture the significance of a firm's goodwill account balance to meeting its net worth covenant requirements. We cannot use a similar variable because numerical data on the net worth covenant requirements for our sample are not available (Beatty and Weber's sample is selected in part on the availability of these data; our sample is selected on market expectations of a goodwill write-off, resulting in smaller firms that are unlikely to disclose detailed covenant data). Our proxy on debt-covenant incentives is admittedly weaker than that in Beatty and Weber, potentially reducing the power of our tests.

(b) Managers' accounting-based compensation (*Bonus*): Our proxy for managers' accounting-based compensation concerns is an indicator for whether a firm's CEO received a cash bonus during the year in question. Murphy (1999) reports that accounting-based compensation is usually paid out as a cash bonus and that accounting-based compensation contracts are usually written on net income (and so include the effect of goodwill write-offs). Thus, we expect sample firms with *Bonus*=1 to be less likely to take goodwill write-offs. In the case of compensation incentives as well, our prediction and proxy differ from that in Beatty and Weber. In their study, Beatty and Weber examine how the decision to accelerate goodwill write-offs to the SFAS 142 transition year depends on the presence of management compensation contracts that exclude special items (transition year goodwill write-offs are classified as a special item). Since we are interested in the role of management compensation incentives in write-offs *on an ongoing basis*, the inclusion or exclusion of special items in compensation contracts is irrelevant to us.

(c) The firm being traded on an exchange with accounting-based delisting requirements (*Delist*): Beatty and Weber report that firms listed on the NASDAQ and AMEX are subject to goodwill-inclusive accounting-based delisting requirements. OTC listed firms do not have such delisting requirements, while NYSE listed firms face delisting based on subjective criteria. To capture exchange

of debt covenant violation (the more debt a firm has, the more costly it will be to renegotiate contracts once covenants are violated). Further, we expect the probability of covenant violation in our sample (firms with two years of $BTM > 1$) is relatively high.

- delisting concerns, we create a dummy variable, *Delist*, set to one if the firm trades on NASDAQ or AMEX; zero otherwise. This variable is similar to that in the Beatty and Weber study.
2. Reputation motives, managers' interests in shielding their reputations from the implications of a goodwill write-off (*Tenure*): Beatty and Weber argue that among firms with book goodwill, CEOs with longer tenures are more likely to have been involved in the acquisitions that generated that goodwill. To avoid reputation costs, such long-tenured CEOs are less likely to take goodwill write-offs. In our study, as in Beatty and Weber, CEO tenure is measured as the number of years the incumbent CEO has held that office.
 3. Valuation motives, equity-asset-pricing concerns (*AsstPrc*): We use the earnings response coefficient (ERC) to measure the capitalization of earnings in returns. If equity-asset-pricing concerns affect managers' accounting decisions (e.g., Fields *et al.*, 2001), including their impairment decisions, non-impairment is likely to increase in ERC. Following Beatty and Weber, we define ERC for a given firm-year as the coefficient from a regression of the firm's share price on its operating income using at least 16 and up to 20 quarters of data prior to the firm-year. Importantly, in our setting, in contrast to that in Beatty and Weber, the prediction on *AsstPrc*'s impact on write-off decisions is more ambiguous. This is because we attempt to select our sample on market indications of impaired goodwill; if we are successful in this regard, our sample firms' stock prices will already reflect goodwill as impaired, mitigating the incentives generated by asset-pricing concerns.

2.4. Financial characteristics that facilitate unverifiable discretion under SFAS 142

In the prior section, we discussed some of the potential motives for impairment management. In addition to having the *motives* to manage impairment losses, firms must have the *ability* to do so. In this section, we discuss how the rules in SFAS 142 can make it easier for firms with certain financial characteristics to manage impairment losses. From Ramanna (2008), below we identify two firm financial characteristics that increase

firms' unverifiable discretion to determine impairment under SFAS 142: the number and size of reporting units; and the unverifiable net assets in reporting units.

2.4.1. Number and size of reporting units

When a firm recognizes goodwill in an acquisition, SFAS 142 requires the firm allocate that goodwill among the reporting units that benefit from the acquisition. If the rents that goodwill represents are generated jointly by the units, any allocation is arbitrary and there is no way to meaningfully allocate goodwill: any one allocation scheme is as good as another (Watts 2003; Roychowdhury and Watts, 2007). For a given firm, the larger the number of reporting units and the larger the size of those units relative to acquired goodwill, the greater the flexibility in allocating goodwill. This initial flexibility in goodwill allocation provides the opportunity to later avoid or overstate impairment losses. Goodwill can be allocated to units where subsequent impairment can be masked by the units' internally generated unrecognized gains or losses. Managers can allocate goodwill either to low growth units to accelerate impairment (a big bath), or to high growth units (with existing unrecorded internally generated growth options) to delay impairment. The larger and more numerous the reporting units, the greater is management's flexibility in determining future impairment losses.¹⁵

Empirical Proxies for Number and Size of Reporting Units

Ln(Seg): Empirical data on "the number and size of reporting units" are not readily available. SFAS 131, however, requires firms to disclose data on their business segments. We use the number of business segments as our proxy for the number and size of reporting units. Reporting units are at least as numerous as business segments (SFAS 142, §30). Thus, using business segments as proxies understates the number of reporting units. This, in turn, biases against finding an association between impairment delays and the number of reporting units.

¹⁵ Once goodwill is allocated among reporting units, reallocation in future years is not permitted (SFAS 142, §34). Thus, in principle, the "number and size of reporting units" provides flexibility only at the time of acquisition. However, firms can reorganize their reporting structures in future years (SFAS 142, §36), effectively leading to a reallocation in acquired goodwill.

HHI: We also use a variant of the Herfindahl-Hirschman Index (*HHI*) as a proxy for the number and size of reporting units. We calculate each firm's *HHI* as follows.

$$HHI = \sum_{i=1}^n (s_i^2);$$

where n is the number of business segments in the firm and s_i is the ratio of the i^{th} business-segments' sales to total firm sales. Thus, *HHI* is an index of segment concentration within a firm. *HHI* ranges from zero to one. If a firm has only one segment, then its *HHI* is one; if a firm has several segments, but one of them is much larger than the others, its *HHI* is close to one. As the number of segments increases, and as segments become of similar size, the firm's *HHI* gets closer to zero. Thus, an *HHI* close to zero indicates a firm with several equally sized segments, while an *HHI* close to one indicates a firm with a few disproportionately sized segments. In using *HHI* to proxy for the number and size of reporting units, note that low *HHI* (several equally sized segments) offers the greater flexibility associated with more and larger reporting units, while high *HHI* (few disproportionately sized segments) offers the lesser flexibility associated with fewer and smaller reporting units. Thus, *HHI* is expected to be negatively associated with $Ln(Seg)$.

2.4.2. Unverifiable net assets in reporting units

If a reporting unit fails Step 1 of the impairment test (i.e., if the unit's fair value to book value ratio is less than one), management must estimate the fair value of the unit's goodwill under Step 2. That estimate is calculated as the difference between the unit's total fair value (from Step 1) and the fair value of the unit's constituent net assets (excluding book goodwill). Thus, in Step 2, managers must obtain fair-value appraisals for all of the unit's assets and liabilities. For units that have a larger proportion of net assets (excluding goodwill) without readily observable market values (hereafter, unverifiable net assets), assessing fair values of net assets introduces additional subjectivity in determining impairment losses. Subjectivity in appraising the fair values of net assets other than goodwill results in subjectivity in estimating the fair value of goodwill, and consequently in estimating the amount of impairment loss. The subjectivity

suggests that units with more unverifiable net assets have greater ability to manage goodwill impairment losses.

Empirical Proxies for Unverifiable Net Assets in Reporting Units

UNA: We compute the ratio of [Cash + All Investments and Advances – Debt – Preferred Equity] to [Assets – Liabilities]. The denominator in this ratio is total net assets, while the numerator is intended to proxy for that component of net assets whose fair-values are likely most verifiable (Richardson, Sloan, Soliman, and Tuna, 2005). Thus, this ratio is intended to capture the verifiability of net assets (VNA). Items *excluded* from the numerator include plant and equipment, receivables, payables, inventories, advances, etc. Fair-value estimates of these items are likely less verifiable than cash, investments, debt, and preferred equity. Thus, as the VNA ratio decreases, subjectivity in estimating the fair value of goodwill is expected to increase. To obtain a measure that increases in the subjectivity of estimating the fair value of goodwill, we multiply VNA by -1. We then rank the resulting value in-sample and denote it *UNA*, where “UNA” refers to the unverifiability of net assets.¹⁶

IndLev: A potential problem with *UNA* is that it homogenizes the net assets considered unverifiable across all industries. Fabricant (1936) reports that in a sample of 208 large listed industrial US firms for the period 1925-1934, property, plant, and equipment write-ups were more numerous (70) than investment write-ups (43). Watts (2006, p. 54) argues the property, plant, and equipment written up were likely to be general, non-firm-specific assets for which market prices were more observable. If that is true, *UNA* measures unverifiability with error. Consequently, as an alternate proxy for the unverifiability of net assets, we also use the firm’s industry-average debt-to-assets.

Leverage can be a good proxy for non-firm-specific assets (Myers, 1977; Smith and Watts, 1992). Such assets are more likely to have verifiable fair-value estimates. At the firm level, leverage is a noisy measure of assets-in-place because it also proxies for distress (especially likely in our sample where all firms have $BTM > 1$). Industry mean

¹⁶ In unreported tests, we find the VNA ratio has high in-sample variance; we also find relatively high kurtosis in this variable, suggesting the high variance is due to a few extreme observations. To mitigate the effect of such observations (and to avoid trimming-induced data loss in what is a relatively small dataset), we use in-sample ranks in computing *UNA*.

leverage, however, can average out the firm-specific distress component of leverage, leaving us with a proxy for assets-in-place. The higher the industry's average leverage, the more likely the nature of assets in a firm are such that they can be reliably valued; and thus, the less likely the unverifiability of net assets. We define "industry" as four-digit NAICS codes, and rank all such industries by mean leverage. We use the industry mean leverage rank, *IndLev*, as a proxy for verifiability of firm assets. Thus, we expect the subjectivity generated by unverifiable net assets to decrease in *IndLev*.

In addition to the two financial characteristics described above (i.e., the number and size of reporting units and the unverifiable net assets in reporting units), Ramanna (2008) describes a third firm attribute that can facilitate write-off management: the fair-value-to-book-value ratio (FTB) of reporting units. Under Step 1 of SFAS 142, impairment losses are recognized only when the unit's estimated fair value is less than the book value of its net assets. This step implicitly assigns all of the difference between a unit's fair value and its book value to acquired goodwill. However, at least two other factors can be responsible for this difference. First, internally generated growth options can increase the unit's fair value without increasing its book value. Second, the book value of the unit's recorded net assets can be below their market value. These two factors mean that the value implicitly allotted to acquired goodwill in Step 1 of the SFAS 142 impairment test can be overstated. Units with high FTB ratios can avoid impairment of acquired goodwill even when that goodwill is impaired because internally generated rents and understatement of net assets can absorb any drop in goodwill value. We do not explicitly test this hypothesis. We cannot directly observe FTB ratios, and the best available proxy for FTB ratios—firm-wide market-to-book ratios—is used to select our sample. In other words, since our sample only consists of firms with $BTM > 1$, testing whether firms with high FTB are avoiding impairment losses is not possible. This suggests that the extent of non-impairment documented in this paper is a lower bound on the total avoidance occurring under SFAS 142.

2.5. Research design

To examine the determinants of goodwill non-impairment in the sample in a multivariate setting, we estimate the following regression for all firm-years “*i*.”

$$\begin{aligned} Imp_i = & \text{Intercept} + \beta_k^*(\text{Private information motives}_i) + \beta_l^*(\text{Contracting motives}_i) \\ & + \beta_m^*(\text{Reputation motives}_i) + \beta_n^*(\text{Valuation motives}_i) + \beta_o^*(\text{Reporting flexibility}_i) \\ & + \beta_p^*(\text{Control variables}_i) + \varepsilon_i \dots (1) \end{aligned}$$

In the above equation, Imp_i measures a firm’s goodwill impairment at the end of year t (i.e., the second full fiscal-year with $BTM > 1$), scaled by beginning-of-period assets. If impairments are not reported on COMPUSTAT (i.e., if impairments are coded as “missing” or “combined” with other data), we assume impairments are zero.¹⁷ The set of “private information motives” is either *InfoAsym* alone or (in a separate regression) *InfoAsym* together with the content-analysis based variables, *Achievement* and *Fog*. The content-analysis based variables are excluded from the first regression specification because they cannot be computed for six firms in the sample due to limitations in obtaining these firms’ 10-K filings.¹⁸

The set of “contracting motives” is *CovDebt*, *Bonus*, and *Delist*; “reputation motives” is *Tenure*; and “valuation motives” is *AsstPrc*. *AsstPrc* cannot be estimated for 38 of the 124 sample firms due to data restrictions and so is excluded from the primary regression specification. The set of “reporting flexibility” proxies is each of four combinations (estimated across four separate regressions) of a goodwill allocation variable (i.e., $\ln(\text{Seg})$ or *HHI*) and an unverifiability variable (i.e., *UNA* or *IndLev*). The control variables from equation (1) are as follows.

- (a) *Size*: The natural log of beginning-of-period assets.
- (b) *PropGw*: The ratio of beginning-of-period goodwill to prior year assets.
- (c) *BHRet*: The “year t ” buy-and-hold return.
- (d) *NumQtrBTM>1*: The number of quarters in “year t ” with $BTM > 1$.

Size and *PropGw* are likely proxies for the magnitude of goodwill write-offs, while *BHRet* and *NumQtrBTM>1* are likely proxies for the economic necessity of a

¹⁷ We tested this assumption for a random sample of ten firms by searching 10-K filings for impairments data. We found no instance where our assumption was inconsistent with data in the 10-K.

¹⁸ These six firms did not file 10-Ks with the SEC within eight months of their fiscal-year ends.

write-off. Unless otherwise mentioned, all variables in our analyses are measured at the end of “year t.” See Appendix A for a consolidated description of all variables. Parameter estimates in the multivariate regression are computed using ordinary least squares and standard errors are adjusted for heteroskedasticity as suggested by White (1980).

3. Results

3.1. Sample descriptive statistics

Table 1 reports summary statistics for all variables in our analyses. The median impairment (*Imp*) in our sample is zero, while the mean is 4.7% of beginning-of-period assets. About 24% of sample firms engage in net share repurchase activities in year t, while about 21% engage in net insider buying. The mean value of *InfoAsym* is 0.4113 (i.e., about 41% of the sample engage in either repurchase or insider buying activities). Mean *Achievement*, the proportion of sample firms with more “achievement” words than their matches, is 0.5593. Mean *Fog*, the proportion of the sample with unreadable 10-Ks, is 0.7203.¹⁹

Turning to the agency-theory based proxies, the median firm’s *CovDebt* (i.e., the product of firm leverage and an indicator if the firm has an outstanding net worth or net income based debt covenant) is 0.1341. Nearly 52% of CEOs of sample firms received a bonus in year t and the median (mean) CEO was in office for 4 years (5.5 years) by the end of year t. Over 51% of sample firms have delisting-based incentives to avoid impairments.

The median value of *ln(Seg)* is 0.693, suggesting that the median firm in our sample has two business segments. The median *HHI* in the sample 0.768, suggesting that most firms in the sample are not concentrated in one segment. The median industry-leverage rank for firms in the sample is 1192 (the highest possible rank in COMPUSTAT is 2133). The median value of *UNA* is 63 by construction.

The median (mean) firm in our sample has \$210 million (\$273 million) in assets and 14.1% (25.6%) of its assets in goodwill. Sample firms experience a median (mean) year-t buy-and-hold return of -7.2% (5.1%). The median firm closed each of its four

¹⁹ Li (2008, p. 227) reports that the 25th percentile value of the Fog Index in a broad sample of firms on COMPUSTAT is 18.44, suggesting the proportion of COMPUSTAT firms with unreadable 10-Ks is over 75%.

quarters in year t with $BTM > 1$, while on average, firms in the sample experienced 3.49 quarters of $BTM > 1$ in year t .

3.2. Association of sample non-impairment with private information

Table 2 reports the results of univariate frequency tests of association between goodwill non-impairment and the proxies for managers' private information on positive future cash flows. As noted earlier, there are 124 firms in COMPUSTAT meeting our sample criteria. Of these, 31% (38 firms) record goodwill impairments in year t , the second full fiscal-year with $BTM > 1$; 69% (86 firms) do not. It is possible that managers avoid goodwill write-offs due to private information on positive future cash flows. To test this explanation, we examine whether non-impairment firms are more likely to show evidence of net repurchase or insider buying activity (i.e., $InfoAsym=1$). Panel A of Table 2 reports that the frequency of firms with $InfoAsym=1$ among non-impairers (42%) is statistically indistinguishable from that among impairers (39%). The chi-square statistic for the 2x2 comparison has a p-value of 0.8034.

In Panel B of Table 2, we report on the association of non-impairment with $InfoAsym$ among sample firms with only one business segment. Earlier, we argued that firms with large numbers of, and large-sized, reporting units are more likely to be able to avoid impairments by strategically allocating goodwill to units with internally generated rents. If this is the case, it is useful to determine if, in single-segment firms, unverifiability in net assets provides adequate discretion to avoid write-offs. Panel B reports the year- t frequency of non-impairment among single-segment sample firms is 69% (36 of 52 firms), the same as the frequency of non-impairment among all sample firms. Further, among single-segment firms, the frequency of firms with $InfoAsym=1$ among non-impairers (39%) is statistically indistinguishable from that among impairers (31%); p-value is 0.5975. Thus, non-impairment does not appear to be limited to multi-segment firms, nor does the evidence confirm that non-impairment in single-segment firms is motivated by managers' private information on future cash flows.

Positive net insider buying is arguably a stronger measure of favorable information asymmetry (between managers and shareholders) than $InfoAsym$ (recall, $InfoAsym$ is firms with either positive net share repurchase activity or positive net insider

buying). We thus test whether goodwill non-impairment frequency is associated with favorable information asymmetry when the latter is defined only by positive net share repurchase (*Repurchase*) or by positive net insider buying (*Inside*). The results are reported in Panels C and D of Table 2. We find: (1) the frequency of firms with *Repurchase*=1 among non-impairers (24%) is statistically indistinguishable from that among impairers (24%); (2) the frequency of firms with *Inside*=1 among non-impairers (22%) is statistically indistinguishable from that among impairers (18%). The p-values for the comparisons are 0.9298 and 0.6430, respectively. Overall, the data cannot confirm that non-impairment in the sample is due to management's possession of favorable private information, at least as based on share repurchase and insider buying activity.

We next turn to tests of the private information hypothesis that are based on content-analyses of firms' 10-Ks. In these tests, six of the 124 sample firms are excluded because they failed to file 10-Ks within eight months of their fiscal year-ends. In Panel E of Table 2, we find that the proportion of firms with high *Achievement* (i.e., *Achievement*=1) among non-impairers in the sample (57%) is statistically indistinguishable from that among sample impairers (54%); the p-value is 0.7812. Thus, positive private information as manifested by an incidence of *Achievement* is unable to explain non-impairment in the sample. In Panel F of Table 2, we report on the association of goodwill non-impairment with *Fog*. If positive private information motivates non-impairment, we expect a lower prevalence of *Fog*=1 among sample non-impairers than among sample impairers. However, we find the proportion of non-impairing sample firms with *Fog*=1 (78%) is statistically higher than that of impairing sample firms (59%). The p-value on this comparison is 0.0397. Thus, while we find an association between non-impairment and *Fog*, the relation is in the opposite direction as that predicted by the private information hypothesis.

The tests of the private information hypothesis reported on thus far are subject to certain caveats, as discussed in Section 2. To mitigate concerns generated by these caveats, we also investigate whether sample non-impairers have, on average, higher one-year-ahead stock returns than sample impairers. If this is the case, then non-impairment is consistent with managers having positive private information that is revealed publicly,

and incorporated into stock prices, over the following one year. The results of tests based on one-year-ahead stock returns are presented in Table 3.

For the 124 firms in our sample, stock returns data over the following 12 months continue to be available on CRSP for 96 firms. These firms are classified as “Active, CRSP” in Table 3. Sixty-four of these 96 firms are identified as non-impairers in our sample year; the other 32 are impairers. As the data in the table show, the mean one-year-ahead return for “Active, CRSP” firms not taking goodwill impairment (n=64) is higher than that for such firms who take goodwill impairment (n=32). However, the opposite is true when comparing the medians across the two groups. Neither comparison is statistically significant. Thus, we cannot reject the null that there is no difference in one-year-ahead returns between goodwill impairers and non-impairers. These data are inconsistent with the proposition that goodwill non-impairment in the sample year is due to managers’ private information, information that subsequently (over one year) becomes public and is incorporated into stock prices.

For the remaining 28 sample firms without one-year-ahead returns data on CRSP (i.e., 124 minus 96), we attempt to gather the returns data from Thomson One Banker. Fifteen of the 28 firms have 12-month-ahead stock price information available on Thomson. From this price information, we compute the 12-month-ahead stock returns; these firms are classified as “Active, not CRSP” in Table 3. We are not certain why these firms, previously covered by CRSP, are dropped in the year ahead. Irregular price reporting and low-volume trades, as reported in Thomson, suggest that these firms are thinly traded during the year ahead. Twelve of the 15 firms are identified as non-impairers in our sample year; the other three are impairers. Among “Active, not CRSP” firms, the mean and median one-year-ahead returns for firms not taking goodwill impairment (n=12) are higher than those for firms taking goodwill impairment (n=3). However, the comparisons are not statistically significant, and moreover, the number of observations among impairers in this group (n=3) is too small to facilitate reliable statistical inferences.

A further six of the 28 firms without one-year-ahead returns data on CRSP have stock price data available on Thomson for some period less than the following 12 months: these firms are either delisted or acquired over the 12 month period. For these

firms, returns are calculated from the sample fiscal-year-end date to the date of the last reported stock trade. Since these firms do not trade for a full 12 months after the sample fiscal-year-end, they are referred to as “Inactive” in the table below. Five of the “Inactive” firms are identified as non-impairers in our sample year; the other one firm impaired in the sample year.

Finally, seven firms of our sample of 124 have no year-ahead stock returns data on either Thomson One Banker or CRSP. Of these seven, we identify four as being acquired over the year following the sample year, and another one as being delisted. No further data on the other two are available. Five of the seven firms are identified as non-impairers in our sample year; the other two are impairers. A more detailed analysis of the acquisition and delisting status of sample firms in the one-year ahead is provided in Table 7, which is discussed at the end of this section.

3.3. Association of sample non-impairment with agency-theory predictions

In Table 4, we report on univariate frequency tests of association between goodwill non-impairment and the three contracting-based motives described in §2.3.2, specifically, *CovDebt*, *Bonus*, and *Delist*. Since *CovDebt* is not a binary variable, we define an indicator *DCovDebt* for use in the frequency tests; *DCovDebt* is set to one if the firm has an outstanding net-income or net-worth based covenant.

Panel A of Table 4 reports a statistically higher proportion of firms with *DCovDebt*=1 among sample non-impairers (78%) than among sample impairers (63%). The p-value for this comparison is 0.0867. The proportion of non-impairing sample firms whose CEOs are likely to have goodwill-inclusive compensation contracts (*Bonus*=1) is reported in Panel B of Table 4. This proportion (57%) is statistically higher than that of impairing sample firms (39%); the p-value is 0.0722. The association of goodwill non-impairment and *Delist* is tested in Panel C of Table 4. We find that the proportion of firms with *Delist*=1 among non-impairers in the sample (51%) is statistically indistinguishable from that among sample impairers (53%); the p-value is 0.8801. Thus, overall, there is evidence that goodwill non-impairment in the sample is associated with debt and CEO compensation contracting concerns; while we cannot confirm that non-impairment is associated with delisting-based concerns.

We cannot perform similar univariate frequency tests on the other two agency-theory-based variables described in §2.3.2, *Tenure* and *AsstPrc*, since these variables are continuous in nature. We test for their association with goodwill non-impairment in multivariate regressions.

3.4. Validating empirical constructs of managers' private information

In Table 2, the hypothesis that managers' private information is positively associated with sample non-impairment is not confirmed for any of the five proxies used: *Fog* is associated with goodwill write-offs, but in the opposite direction to that predicted by the private information hypothesis. The lack of statistical association among four of the five private information proxies in Table 2 can be driven by noise in these proxies. To assess the validity of these four proxies (i.e., *Repurchase*, *Inside*, *InfoAsym*, and *Achievement*), we test for their association with non-impairment in a similarly constructed sample (i.e., firms with market indications of impaired goodwill) under SFAS 121, the standard that preceded SFAS 142.²⁰

In untabulated tests, we find that the frequency of non-impairing firms with positive net repurchase activity (36%) is statistically higher than that of impairing firms (22%); p-value is 0.0256. Moreover, the proportion of firms with *Achievement*=1 among non-impairers (49%) is statistically higher than that among sample impairers (37%); p-value of 0.0824. We cannot estimate *Inside*, and consequently *InfoAsym*, in the SFAS 121 sample due to limitations in obtaining reliable insider-buying data from this period.²¹ Thus, overall, we can conclude that non-impairment in the SFAS 121 sample appears to be related to managers' private information as proxied by share repurchases and the use of "achievement"-related words. These results suggest *Repurchase* and *Achievement* have construct validity as proxies for managers' private information.

As noted earlier, the nature of goodwill recognition and impairment rules under SFAS 121 differ significantly from those under SFAS 142. Specifically, when SFAS 121

²⁰ Specifically, the SFAS 121 sample consists of firms with fiscal years "t" ending between December 1996 and December 2000 that have: (i) book goodwill; (ii) equity-market-values greater than equity-book-values in t-2; (iii) $BTM > 1$ in t-1; and (iv) $BTM > 1$ in t, where BTM is calculated after accounting for all non-goodwill write-offs, but before any goodwill write-off.

²¹ Brochet (2010) reports that the informativeness of Form 4 insider-trading filings increases after the SEC mandated timelier filings (since August 2002) and electronic filing (since June 2003).

was in effect: (1) firms had the option to use the pooling-of-interests method to account for acquisitions, thus avoiding goodwill recognition altogether; and (2) goodwill, if recognized, was subject to amortization. These conditions imply that the base of book goodwill available for impairment at a given point was likely to be lower when SFAS 121 was in effect. A lower magnitude of impairment can affect incentives to avoid write-offs. Moreover, if, as the SEC suggested, firms engaged in pooling acquisitions to manage earnings (Turner, 1999), the sample of firms with book goodwill under the SFAS 121 regime can contain companies less prone to earnings management.²² Accordingly, one can construct hypotheses to explain why goodwill non-impairments under SFAS 121 are more likely to be associated with positive private information, as we find. We do not explore explanations for our findings on the SFAS 121 sample since they are outside the scope of our study. The purpose of the SFAS 121 tests is simply to validate the constructs for private information.

3.5. Pearson correlations between explanatory variables

The conclusion from the univariate tests described through Table 4 is that goodwill non-impairment in the sample of firms under SFAS 142 is associated with proxies for debt and compensation contracting concerns, but not with exchange delisting concerns or with any proxies for managers' private information. Construct validity tests on the proxies for private information suggest share repurchases and *Achievement* can validly measure managers' favorable private information. In subsequent tests, we examine the determinants of goodwill non-impairment under SFAS 142 in a multivariate setting.

Before describing the multivariate results, in this sub-section, we report Pearson correlations between the continuous explanatory variables in the multivariate regressions (Table 5).²³ Size is significantly positively associated with *CovDebt* and the number of business segments and significantly negatively associated with *HHI* and industry leverage rank (*IndLev*). *IndLev* is also significantly positively associated with *HHI*. The absolute

²² The academic evidence on the governance characteristics of pooling versus purchase method acquirers and on the consequences of pooling versus purchase method acquisitions is consistent with the SEC's claim (e.g., Martinez-Jerez, 2008).

²³ In untabulated frequency tests, we find none of the discrete explanatory variables used in the multivariate regressions (e.g., *Bonus*, *Delist*, *InfoAsym*, etc.) are significantly associated with each other.

value of the correlation between the two proxies for goodwill allocation flexibility across reporting units, $\ln(\text{Seg})$ and HHI is 0.8933, consistent with the variables measuring a conceptually similar construct (the correlation is negative because allocation flexibility is expected to increase in the number of segments and decrease in segment concentration, HHI). Finally, UNA is positively associated with CovDebt , suggesting *firm* leverage in the sample is not a good proxy for verifiable assets-in-place (and thereby, supporting the use of *industry* leverage, IndLev , as a proxy for assets-in-place).

3.6. Multivariate results

Table 6 reports on multivariate tests of the determinants of non-impairment in the SFAS 142 sample. The specification for the multivariate regressions is provided in §2.5. Since we do not have data to compute AsstPrc and the content-analyses-based private information proxies for all the observations in our sample (see Table 1), we report the results both with and without these variables. There are two panels to Table 6, each panel with a different explanatory variable representing flexibility in estimating the fair value of reporting units' net assets: UNA in Panel A and IndLev in Panel B. Within each panel, there are four regressions that cover the inclusion and exclusion of two sets of explanatory variables: first, AsstPrc and the content-analyses-based private information proxies, and second, one proxy for goodwill allocation flexibility across reporting units, i.e., $\ln(\text{Seg})$ or HHI .

Across all eight regressions in Table 6, none of the proxies for managers' private information are statistically significant (in all tests, statistical significance is inferred at least at the two-tail 90% confidence level). Thus, based on the private-information proxies employed, the multivariate tests cannot confirm the hypothesis that goodwill non-impairment under SFAS 142 is associated with managers' favorable private information on future cash flows.

Among the contracting-based motives for non-impairment, CovDebt , a measure of the cost of debt covenant violations, is a negative and statistically significant predictor of impairment in the two regressions that use IndLev , AsstPrc , and all the content-analyses-based private information proxies. The relation between CovDebt and non-impairment is likely due to managers' desire to avoid covenant renegotiation. Avoiding

renegotiation facilitates wealth transfers from debtholders to shareholders, but can also be motivated by management reputation concerns (since failure to do so can be perceived as managerial incompetence). Further, *Bonus*, the proxy for CEO's compensation concerns, is a negative and statistically significant predictor of impairment in all four regressions that include *AsstPrc* and the content-analyses-based private information proxies. In contrast, we do not find any evidence to suggest that delisting based concerns are associated with firms' decisions on goodwill write-offs.

Tenure, the measure of CEOs' concerns on reputational loss from the implications of a goodwill write-off, is a negative and statistically significant predictor of impairment in all specifications of Table 6. The interpretation—that CEO-reputation concerns mitigate the likelihood of goodwill write-offs—is consistent with predictions from agency theory and findings in Beatty and Weber (2006). Interpreting the magnitude of the coefficient from column (1) of Panel A, Table 6, a one standard deviation increase in *Tenure* is associated with a 5.5% decrease in the magnitude of impairment (as a fraction of recorded goodwill).²⁴ The proxy for managers' concerns over the equity-asset-pricing impact of goodwill impairment, *AsstPrc*, is insignificant in all four regressions in which it appears. Since we attempted to select our sample on market indications of impaired goodwill, our sample firms' stock prices likely already reflect goodwill as impaired, mitigating the incentives generated by *AsstPrc*.

Among the characteristics predicted by Ramanna (2008) to affect the ability to avoid goodwill impairment under SFAS 142, *HHI*—a proxy for goodwill allocation flexibility across reporting units—is significant with the predicted sign in two of four regressions in which it appears, specifically, the regressions on the full sample of 124 firms. In contrast, *ln(Seg)* is only significant in one of four regressions in which it appears, column (1) of Panel A. Further, the proxies representing flexibility in estimating the fair value of reporting units' net assets, *UNA* and *IndLev*, are significant in all of the Table 6 regressions in which they appear. To interpret the economic significance of the reporting flexibility variables on impairment decisions, consider column (1) of Panel A as

²⁴ To investigate whether the negative association between *Imp* and *Tenure* is driven by firms with new CEOs (assuming new CEOs are more likely to take goodwill write-offs as part of a big bath), we re-run the regressions replacing *Tenure* with an indicator variable set to one when firm-CEOs have been in office less than one year. The indicator variable is not statistically significant, suggesting that the reported results on *Tenure* are unlikely to be driven by new-management induced big baths.

an example. Here, a one standard deviation increase in $\ln(\text{Seg})$ decreases the proportion of goodwill impaired (as a fraction of beginning-of-period assets) by about 2%. Since the mean sample firm has about 25% of its assets in goodwill, we can say that a one standard deviation increase in $\ln(\text{Seg})$ decreases the magnitude of impairment by about 8% of recorded goodwill. Similarly, a one standard deviation increase in UNA decreases the proportion of goodwill impaired by about 2.8% of beginning-of-period assets, or about 11.24% of recorded goodwill. The interpretation is that impairments decrease with the number and size of reporting units and increase with the verifiability of net assets within the unit.

Turning to economic-fundamental variables in the sample, we find the one-year buy-and-hold return ($BHRet$) is a negative predictor of impairments, though this relation is not statistically significant in all specifications of Table 6. When we estimate the regression specification across the limited sample for which $AsstPrc$ data are also available, $BHRet$ loses its statistical significance.

To summarize the multivariate results, we find: (1) *Tenure*—the measure of CEOs’ concerns on reputational loss from the implications of a goodwill write-off—and proxies representing flexibility in estimating the fair value of reporting units’ net assets— UNA and $IndLev$ —are reliable predictors of non-impairment; (2) $CovDebt$ —a measure of the cost of debt covenant violations, $Bonus$ —the proxy for CEO’s compensation concerns, and the proxies for goodwill allocation flexibility across reporting units, i.e., $\ln(\text{Seg})$ and HHI , are significantly associated with non-impairment in only some specifications; and (3) none of the proxies for managers’ private information are significantly associated with non-impairment.

3.7. Analysis of firms in the year $t+1$

In Table 7, we report on the acquisition and delisting status of sample firms in the year $t+1$, i.e., the year after our principal year of analysis. Seventy-one percent of the sample remain active in year $t+1$; 14.5% of firms are acquired and another 14.5% are delisted. Comparing the frequency of acquisitions, delistings, and active firms across evidence of favorable information asymmetry ($InfoAsym$), we find the following: there is little difference in the percentage of firms acquired (15% for $InfoAsym=0$ and 14% for

InfoAsym=1); there is a higher frequency of delistings among non-information-asymmetry firms (22% for *InfoAsym=0* and 4% for *InfoAsym=1*); and there is a lower frequency of active firms among non-information-asymmetry firms (63% for *InfoAsym=0* and 82% for *InfoAsym=1*). The chi-square statistic for the comparison of these frequencies has a p-value of 0.0156. Overall, there is evidence in year t+1 of a greater likelihood of delisting and a smaller likelihood of staying active among sample firms whose managers are unlikely to have favorable private information. The evidence supports the use of *InfoAsym* as a construct for managers' private information on future cash flows.

4. Conclusion and implications

We investigate the implementation of SFAS 142, an innovative standard that requires managers to estimate the current fair value of goodwill to determine goodwill write-offs. Estimates of the current fair value of goodwill rely on unverifiable assumptions such as expectations of value to be generated by managers' future actions. Standard setters imply that the fair-value estimates will, on average, allow managers to convey private information on future cash flows, while agency theory predicts managers (all else equal) will, on average, use the unverifiability in goodwill accounting rules to manage financial reports opportunistically. We test these arguments in the paper.

In a sample of firms with market indications of goodwill impairment (firms with book goodwill and two successive years of book-to-market ratios above one), we find the frequency of goodwill non-impairment is 69%. We test whether the goodwill non-impairment can be attributed to managers' private information on positive future cash flows, but we find no evidence to confirm this story. We also investigate whether non-impairment in the sample under SFAS 142 is associated with motives predicted by agency theory to affect management choice. We find some evidence of association between goodwill non-impairment and CEO compensation, CEO reputation, and debt-covenant violation concerns. Finally, we test whether goodwill non-impairment in the sample can be explained by factors predicted in prior literature to afford managers greater flexibility under the SFAS 142 write-off rules. We find some evidence to this effect.

Our results are subject to certain important caveats related to noise in our empirical proxies and the selection of our sample. These caveats are discussed in the introduction and, more fully, in Section 2 of the paper. With these caveats in perspective, we conclude that the paper provides evidence of managers, on average, using the unverifiable discretion in SFAS 142 to avoid timely goodwill write-offs in circumstances where they have agency-based motives to do so (Kothari, Ramanna, and Skinner, 2010). The results in the paper highlight the potential costs of unverifiable fair values in SFAS 142. It is possible that the standard is net beneficial, but we do not find any evidence to this effect in our study, nor are we aware of any other formal evidence consistent with this possibility.

Future research can investigate the implementation of SFAS 142 and the incidence of goodwill write-offs over a more recent sample period encompassing the 2008–09 financial crisis. That crisis dramatically altered the capital market environment in the U.S. and abroad. A study of goodwill impairment decisions through and after the crisis period is likely to be interesting and important to academics and practitioners alike.

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Appendix A

Sample description and variable definitions

The sample is the 124 firms on COMPUSTAT with fiscal year “t” between 2003 and 2006 that have goodwill > \$1m in year t-2, equity-book-value < equity-market-value in year t-2, BTM > 1 in year t-1, BTM > 1 in year t, and goodwill > 0 at the beginning of year t. BTM is the ratio of equity-book-value plus goodwill impairment (if any) to equity-market-value.

Type	Variable	Definition
<i>Dependent Variable</i>	<i>Imp</i>	Goodwill impairment (t) / Assets (t-1)
	<i>InfoAsym</i>	Dummy variable set to one if the firm exhibits positive net share repurchase activity or positive net insider buying in year t
<i>Private Information Motive</i>	<i>Repurchase</i>	Dummy variable set to one if the firm exhibits positive net share repurchase activity in year t
	<i>Inside</i>	Dummy variable set to one if the firm exhibits positive net insider buying in year t
	<i>Achievement</i>	Dummy variable set to one if the proportion of “achievement”-related words in the firm’s year t 10K is greater than the corresponding proportion in its size-match. “Achievement”-related words are based on the LIWC 2007 dictionary (see Appendix B). The “size-match” is a firm in the same 3-digit NAICS industry with the closest year t-1 sales.
	<i>Fog</i>	Dummy variable set to one if the Fog Index of the firm’s year t 10K is greater than 18 (the “unreadable” threshold)
<i>Contracting Motives</i>	<i>CovDebt</i>	Product of Debt (t) / Assets (t-1) and an indicator if the firm has an accounting-based debt covenant
	<i>Bonus</i>	Dummy variable set to one if the firm’s CEO received a cash bonus in year t
	<i>Delist</i>	Dummy variable set to one if the firm trades on the NASDAQ or AMEX
<i>Reputation Motive</i>	<i>Tenure</i>	Tenure in years of the CEO in year t
<i>Valuation Motive</i>	<i>AsstPrc</i>	The coefficient from regressing a firm’s price on its operating income using at least 16 and up to 20 quarters of data prior to year t
<i>Goodwill Reporting Flexibility</i>	<i>ln(Seg)</i>	Natural log of the number of business segments
	<i>HHI</i>	The firm’s Herfindahl Hirschman Index, calculated as the sum of the square of the ratios of segment sales to total firm sales
	<i>IndLev</i>	Ind.Lev is the ranked mean leverage of the firm’s industry (using 4-digit NAICS codes)
	<i>UNA</i>	The in-sample rank of $-1 * [\text{Cash} + \text{All Investments and Advances} - \text{Debt} - \text{Preferred Equity}] \div [\text{Assets} - \text{Liabilities}]$
<i>Control Variables</i>	<i>Size</i>	$\text{Log}[\text{Assets (t-1)}]$
	<i>PropGw</i>	Goodwill (t-1) / Assets (t-2)
	<i>BHRet</i>	Buy-and-hold return over year t
	<i>NumQtrBTM>1</i>	Number of quarters in year t with BTM > 1

Appendix B

List of word stems associated with “achievement,” based on the LIWC 2007 dictionary

abilit*	determined	masters	recover*
able*	diligen*	mastery	requir*
accomplish*	domina*	medal*	resolv*
ace	driven	motiv*	resourceful*
achiev*	earn*	obtain*	responsib*
acquir*	effect*	opportun*	reward*
acquisition*	efficien*	organiz*	skill
adequa*	effort*	originat*	skilled
advanc*	elit*	outcome*	skills
advantag*	enabl*	overcome	solution*
ahead	endeav*	overtak*	solve
ambiti*	excel*	perfect*	solved
approv*	finaliz*	perform*	solves
attain*	first	persever*	solving
attempt*	firsts	persist*	strateg*
authorit*	founded	plan	strength*
award*	founder*	planned	striv*
best	founding	planner*	strong*
better	fulfill*	planning	succeed*
bonus*	gain*	plans	success*
capab*	goal*	potential*	super
celebrat*	hero*	power*	superb*
challeng*	honor*	practice	surviv*
champ*	honour*	prais*	team*
climb*	ideal*	presiden*	top
closure	importan*	pride	triumph*
compet*	improve*	prize*	unbeat*
conclud*	improving	produc*	victor*
conclus*	incentive*	proficien*	win
confidence	initiat*	progress	winn*
confident	king*	promot*	wins
confidently	lead*	proud*	won
conquer*	lesson*	purpose*	work
conscientious*	limit*	queen	workabl*
control*	master	queenly	worked
create*	mastered	rank	worker*
creati*	masterful*	ranked	working*
crown*	mastering	ranking	works
determina*	mastermind*	ranks	

Table 1

Summary statistics for all variables in the sample

The sample is the 124 firms on COMPUSTAT with fiscal year “t” between 2003 and 2006 that have goodwill > \$1m in year t-2, equity-book-value < equity-market-value in year t-2, BTM > 1 in year t-1, BTM > 1 in year t, and goodwill > 0 at the beginning of year t. BTM is the ratio of equity-book-value plus goodwill impairment (if any) to equity-market-value. *Imp* is goodwill impairment (t) / Assets (t-1). *InfoAsym* is a dummy variable set to one if the firm exhibits positive net share repurchase activity or positive net insider buying in year t. *Repurchase* is a dummy variable set to one if the firm exhibits positive net share repurchase activity in year t. *Inside* is a dummy variable set to one if the firm exhibits positive net insider buying in year t. *Achievement* is a dummy variable set to one if the proportion of “achievement”-related words in the firm’s year t 10K is greater than the corresponding proportion in its size-match. “Achievement”-related words are based on the LIWC 2007 dictionary (see Appendix B). The “size-match” is a firm in the same 3-digit NAICS industry with the closest year t-1 sales. *Fog* is a dummy variable set to one if the Fog Index of the firm’s year t 10K is greater than 18 (the “unreadable” threshold). *CovDebt* is the product of Debt (t) / Assets (t-1) and an indicator if the firm has an accounting-based debt covenant. *Bonus* is a dummy variable set to one if the firm’s CEO received a cash bonus in year t. *Delist* is a dummy variable set to one if the firm trades on the NASDAQ or AMEX. *Tenure* is the tenure in years of the CEO in year t. *AsstPrc* is the coefficient from regressing a firm’s price on its operating income using at least 16 and up to 20 quarters of data prior to year t. *ln(Seg)* is the natural log of the number of business segments. *HHI* is the firm’s Herfindahl Hirschman Index, calculated as the sum of the square of the ratios of segment sales to total firm sales. *IndLev* is the ranked mean leverage of the firm’s industry (using 4-digit NAICS codes). *UNA* is the in-sample rank of $-1 * [\text{Cash} + \text{All Investments and Advances} - \text{Debt} - \text{Preferred Equity}] \div [\text{Assets} - \text{Liabilities}]$. *Size* is $\text{Log}[\text{Assets} (t-1)]$. *PropGw* is goodwill (t-1) / Assets (t-2). *BHRet* is buy-and-hold return over year t. *NumQtrBTM>1* is number of quarters in year t with BTM > 1.

Type	Variable	N	Median	Mean	Standard Dev.
<i>Dependent Variable</i>	<i>Imp</i>	124	0	0.0467	0.1219
	<i>InfoAsym</i>	124	0	0.4113	0.4941
<i>Private Information Motive</i>	<i>Repurchase</i>	124	0	0.2419	0.4300
	<i>Inside</i>	124	0	0.2097	0.4087
	<i>Achievement</i>	118	1	0.5593	0.4986
	<i>Fog</i>	118	1	0.7203	0.4507
<i>Contracting Motives</i>	<i>CovDebt</i>	124	0.1341	0.1778	0.1863
	<i>Bonus</i>	124	1	0.5161	0.5018
	<i>Delist</i>	124	1	0.5161	0.5018
<i>Reputation Motive</i>	<i>Tenure</i>	124	4	5.5262	5.6349
<i>Valuation Motive</i>	<i>AsstPrc</i>	91	5.7645	11.6929	16.2306
	<i>ln(Seg)</i>	123	0.6931	0.7075	0.6632
<i>Goodwill Reporting Flexibility</i>	<i>HHI</i>	123	0.7679	0.7459	0.2564
	<i>IndLev</i>	124	1192	1163	636
	<i>UNA</i>	124	63	63	36
	<i>Size</i>	124	5.3504	5.6107	2.0851
<i>Control Variables</i>	<i>PropGw</i>	124	0.1409	0.2562	0.4639
	<i>BHRet</i>	124	-0.0720	0.0505	0.6273
	<i>NumQtrBTM>1</i>	124	4	3.4919	0.8014

Table 2**Association of goodwill impairment with private information proxies**

The sample is the 124 firms on COMPUSTAT with fiscal year “t” between 2003 and 2006 that have goodwill > \$1m in year t-2, equity-book-value < equity-market-value in year t-2, BTM > 1 in year t-1, BTM > 1 in year t, and goodwill > 0 at the beginning of year t. BTM is the ratio of equity-book-value plus goodwill impairment (if any) to equity-market-value. *InfoAsym* is a dummy variable set to one if the firm exhibits positive net share repurchase activity or positive net insider buying in year t. *Repurchase* is a dummy variable set to one if the firm exhibits positive net share repurchase activity in year t. *Inside* is a dummy variable set to one if the firm exhibits positive net insider buying in year t. *Achievement* is a dummy variable set to one if the proportion of “achievement”-related words in the firm’s year t 10K is greater than the corresponding proportion in its size-match. “Achievement”-related words are based on the LIWC 2007 dictionary (see Appendix B). The “size-match” is a firm in the same 3-digit NAICS industry with the closest year t-1 sales. *Fog* is a dummy variable set to one if the Fog Index of the firm’s year t 10K is greater than 18 (the “unreadable” threshold).

Panel A: Goodwill impairments in year t

	no impairment	impairment	Total
<i>InfoAsym</i> =0	50	23	73
<i>InfoAsym</i> =1	36	15	51
Total	86	38	124
% with positive private information	42%	39%	41%

The chi-square statistic for the table has a p-value of 0.8034.

Panel B: Goodwill impairments in year t among firms with only one business segment

	no impairment	impairment	Total
<i>InfoAsym</i> =0	22	11	33
<i>InfoAsym</i> =1	14	5	19
Total	36	16	52
% with positive private information	39%	31%	37%

The chi-square statistic for the table has a p-value of 0.5975.

Panel C: Goodwill impairments in year t when private information is measured using positive net share repurchase activity

	no impairment	impairment	Total
<i>Repurchase=0</i>	65	29	94
<i>Repurchase=1</i>	21	9	30
<i>Total</i>	86	38	124
<i>% with positive repurchases</i>	24%	24%	24%

The chi-square statistic for the table has a p-value of 0.9298.

Panel E: Goodwill impairments in year t when private information is measured using the relative proportion of “achievement”-related words in the Form 10K

	no impairment	impairment	Total
<i>Achievement =0</i>	35	17	52
<i>Achievement =1</i>	46	20	66
<i>Total</i>	81	37	118*
<i>% with higher relative achievement</i>	57%	54%	56%

The chi-square statistic for the table has a p-value of 0.7812.

Panel D: Goodwill impairments in year t when private information is measured using positive net insider buying

	no impairment	impairment	Total
<i>Inside=0</i>	67	31	98
<i>Inside=1</i>	19	7	26
<i>Total</i>	86	38	124
<i>% with positive repurchases</i>	22%	18%	21%

The chi-square statistic for the table has a p-value of 0.6430.

Panel F: Goodwill impairments in year t by readability of Form 10K (as measured by the Fog Index)

	no impairment	impairment	Total
<i>Fog=0</i>	18	15	33
<i>Fog=1</i>	63	22	85
<i>Total</i>	81	37	118*
<i>% with higher Fog</i>	78%	59%	72%

The chi-square statistic for the table has a p-value of 0.0397.

* Six firms are omitted because they did not file Form 10Ks within eight months of their fiscal-year end.

Table 3**Analysis of one-year-ahead stock returns by sample firms' impairment status**

The sample is the 124 firms on COMPUSTAT with fiscal year “t” between 2003 and 2006 that have goodwill > \$1m in year t-2, equity-book-value < equity-market-value in year t-2, BTM > 1 in year t-1, BTM > 1 in year t, and goodwill > 0 at the beginning of year t. BTM is the ratio of equity-book-value plus goodwill impairment (if any) to equity-market-value. “Active, CRSP” refers to firms that continue to have stock returns data on CRSP one year past the sample year. “Active, Not CRSP” refers to firms that are dropped from CRSP in the post sample-year, but that have one-year-ahead stock prices available on Thomson One Banker. “Inactive” are firms that are acquired or delisted in the post sample-year, as inferred from price data on Thomson. “No data” refers to firms without any stock price coverage in CRSP or Thomson in the post sample-year.

Category	Non-Impairers			Impairers		
	N	Mean	Median	N	Mean	Median
Active, CRSP	64	0.2293	0.1239	32	0.1721	0.1331
Active, not CRSP	12	1.6588	0.4113	3	-0.4229	-0.2400
Inactive	5	0.5395	0.6434	1	0.4688	0.4688
No data	5	.	.	2	.	.

Table 4**Association of goodwill impairment with agency-related proxies**

The sample is the 124 firms on COMPUSTAT with fiscal year “t” between 2003 and 2006 that have goodwill > \$1m in year t-2, equity-book-value < equity-market-value in year t-2, BTM > 1 in year t-1, BTM > 1 in year t, and goodwill > 0 at the beginning of year t. BTM is the ratio of equity-book-value plus goodwill impairment (if any) to equity-market-value. *DCovDebt* is an indicator if the firm has an accounting-based debt covenant. *Bonus* is a dummy variable set to one if the firm’s CEO received a cash bonus in year t. *Delist* is a dummy variable set to one if the firm trades on the NASDAQ or AMEX.

Panel A: By presence of accounting-based debt covenants

	no impairment	impairment	Total
<i>DCovDebt</i> =0	19	14	33
<i>DCovDebt</i> =1	67	24	91
Total	86	38	124
% with debt covenant incentives	78%	63%	73%

The chi-square statistic for the table has a p-value of 0.0867.

Panel C: By accounting-based delisting requirements

	no impairment	impairment	Total
<i>Delist</i> =0	42	18	60
<i>Delist</i> =1	44	20	64
Total	86	38	124
% with delisting incentives	51%	53%	52%

The chi-square statistic for the table has a p-value of 0.8801.

Panel B: By CEO’s receipt of an accounting-based bonus

	no impairment	impairment	Total
<i>Bonus</i> =0	37	23	60
<i>Bonus</i> =1	49	15	64
Total	86	38	124
% with compensation incentives	57%	39%	52%

The chi-square statistic for the table has a p-value of 0.0722.

Table 5**Pearson correlations of continuous explanatory variables (p-values in parentheses)**

The sample is the 124 firms on COMPUSTAT with fiscal year “t” between 2003 and 2006 that have goodwill > \$1m in year t-2, equity-book-value < equity-market-value in year t-2, BTM > 1 in year t-1, BTM > 1 in year t, and goodwill > 0 at the beginning of year t. BTM is the ratio of equity-book-value plus goodwill impairment (if any) to equity-market-value. *CovDebt* is the product of Debt (t) / Assets (t-1) and an indicator if the firm has an accounting-based debt covenant. *Tenure* is the tenure in years of the CEO in year t. *AsstPrc* is the coefficient from regressing a firm’s price on its operating income using at least 16 and up to 20 quarters of data prior to year t. *ln(Seg)* is the natural log of the number of business segments. *HHI* is the firm’s Herfindahl Hirschman Index, calculated as the sum of the square of the ratios of segment sales to total firm sales. *IndLev* is the ranked mean leverage of the firm’s industry (using 4-digit NAICS codes). *UNA* is the in-sample rank of $-1 * [\text{Cash} + \text{All Investments and Advances} - \text{Debt} - \text{Preferred Equity}] \div [\text{Assets} - \text{Liabilities}]$. *Size* is $\text{Log}[\text{Assets} (t-1)]$. *PropGw* is goodwill (t-1) / Assets (t-2). *BHRet* is buy-and-hold return over year t. *NumQtrBTM>1* is number of quarters in year t with BTM > 1.

	<i>CovDebt</i>	<i>Tenure</i>	<i>AsstPrc</i>	<i>ln(Seg)</i>	<i>HHI</i>	<i>IndLev</i>	<i>UNA</i>	<i>Size</i>	<i>PropGw</i>	<i>BHRet</i>
<i>Tenure</i>	-0.0378 (0.6770)									
<i>AsstPrc</i>	0.0793 (0.4553)	0.1303 (0.2185)								
<i>ln(Seg)</i>	0.0541 (0.5523)	-0.0561 (0.5381)	-0.1137 (0.2858)							
<i>HHI</i>	-0.0503 (0.5808)	0.0595 (0.5132)	0.1069 (0.3161)	-0.8933 (<.0001)						
<i>IndLev</i>	-0.0027 (0.9764)	0.0518 (0.5680)	0.0169 (0.8736)	-0.1792 (0.0474)	0.2183 (0.0153)					
<i>UNA</i>	0.6215 (<.0001)	-0.0298 (0.7425)	0.0546 (0.6072)	-0.0704 (0.4391)	0.0575 (0.5278)	0.0029 (0.9741)				
<i>Size</i>	0.2421 (0.0068)	-0.0872 (0.3357)	-0.0178 (0.8673)	0.2222 (0.0135)	-0.2469 (0.0059)	-0.3488 (<.0001)	0.0691 (0.4458)			
<i>PropGw</i>	-0.0602 (0.5065)	-0.0945 (0.2967)	-0.0185 (0.8616)	-0.0634 (0.4862)	0.0767 (0.3990)	0.1335 (0.1393)	-0.0145 (0.8733)	-0.0732 (0.4192)		
<i>BHRet</i>	-0.0963 (0.2873)	-0.0330 (0.7159)	-0.1265 (0.2323)	-0.0206 (0.8213)	-0.0272 (0.7656)	0.0687 (0.4482)	-0.1338 (0.1386)	-0.1735 (0.0539)	-0.0271 (0.7655)	
<i>NumQtrBTM>1</i>	0.0321 (0.7231)	0.0363 (0.6891)	0.0957 (0.3668)	0.1214 (0.181)	-0.1188 (0.1906)	-0.0510 (0.5737)	0.0464 (0.6086)	0.1011 (0.2638)	-0.1153 (0.2024)	-0.0547 (0.5462)

Table 6

Multivariate regression of goodwill impairment on the hypothesized determinants

The sample is the 124 firms on COMPUSTAT with fiscal year “t” between 2003 and 2006 that have goodwill > \$1m in year t-2, equity-book-value < equity-market-value in year t-2, BTM > 1 in year t-1, BTM > 1 in year t, and goodwill > 0 at the beginning of year t. BTM is the ratio of equity-book-value plus goodwill impairment (if any) to equity-market-value. *Imp* is goodwill impairment (t) / Assets (t-1). *InfoAsym* is a dummy variable set to one if the firm exhibits positive net share repurchase activity or positive net insider buying in year t. *Repurchase* is a dummy variable set to one if the firm exhibits positive net share repurchase activity in year t. *Inside* is a dummy variable set to one if the firm exhibits positive net insider buying in year t. *Achievement* is a dummy variable set to one if the proportion of “achievement”-related words in the firm’s year t 10K is greater than the corresponding proportion in its size-match. “Achievement”-related words are based on the LIWC 2007 dictionary (see Appendix B). The “size-match” is a firm in the same 3-digit NAICS industry with the closest year t-1 sales. *Fog* is a dummy variable set to one if the Fog Index of the firm’s year t 10K is greater than 18 (the “unreadable” threshold). *CovDebt* is the product of Debt (t) / Assets (t-1) and an indicator if the firm has an accounting-based debt covenant. *Bonus* is a dummy variable set to one if the firm’s CEO received a cash bonus in year t. *Delist* is a dummy variable set to one if the firm trades on the NASDAQ or AMEX. *Tenure* is the tenure in years of the CEO in year t. *AsstPrc* is the coefficient from regressing a firm’s price on its operating income using at least 16 and up to 20 quarters of data prior to year t. *ln(Seg)* is the natural log of the number of business segments. *HHI* is the firm’s Herfindahl Hirschman Index, calculated as the sum of the square of the ratios of segment sales to total firm sales. *IndLev* is the ranked mean leverage of the firm’s industry (using 4-digit NAICS codes). *UNA* is the in-sample rank of $-1 * [\text{Cash} + \text{All Investments and Advances} - \text{Debt} - \text{Preferred Equity}] \div [\text{Assets} - \text{Liabilities}]$. *Size* is $\text{Log}[\text{Assets} (t-1)]$. *PropGw* is goodwill (t-1) / Assets (t-2). *BHRet* is buy-and-hold return over year t. *NumQtrBTM>1* is number of quarters in year t with BTM > 1. All standard errors are robust to White’s correction. *, **, *** denote statistical significance at the 90, 95, and 99 percent confidence level, respectively.

Panel A: Unverifiability of net assets measured with UNA

Effect	Parameter		(1)	(2)	(3)	(4)
			Est. (S.E.)	Est. (S.E.)	Est. (S.E.)	Est. (S.E.)
	<i>Intercept</i>		0.2853 *** (0.0992)	0.1544 ** (0.0710)	0.2046 ** (0.0911)	0.1118 * (0.0657)
	<i>InfoAsym</i>	-	-0.0213 (0.0198)	-0.0015 (0.0161)	-0.0231 (0.0203)	-0.0033 (0.0167)
Private Info. Motive	<i>Achievement</i>	-		-0.0076 (0.0156)		-0.0077 (0.0156)
	<i>Fog</i>	+/-		-0.0200 (0.0200)		-0.0173 (0.0195)
	<i>CovDebt</i>	-	0.0263 (0.0492)	0.0201 (0.0392)	0.0224 (0.0494)	0.0190 (0.0405)
Contract. Motives	<i>Bonus</i>	-	-0.0190 (0.0223)	-0.0334 ** (0.0165)	-0.0175 (0.0226)	-0.0332 ** (0.0163)
	<i>Delist</i>	-	-0.0340 (0.0341)	-0.0131 (0.0165)	-0.0321 (0.0343)	-0.0116 (0.0164)
Reputation Motive	<i>Tenure</i>	-	-0.0025 * (0.0014)	-0.0024 ** (0.0011)	-0.0025 * (0.0014)	-0.0024 ** (0.0011)
Valuation Motive	<i>AsstPrc</i>	-		0.0002 (0.0005)		0.0002 (0.0004)
	<i>ln(Seg)</i>	-	-0.0301 * (0.0155)	-0.0148 (0.0126)		
Goodwill Reporting Flexibility	<i>HHI</i>	+			0.0742 ** (0.0367)	0.0378 (0.0308)
	<i>UNA</i>	-	-0.0008 ** (0.0004)	-0.0007 *** (0.0002)	-0.0008 ** (0.0004)	-0.0007 *** (0.0002)
	<i>Size</i>		-0.0084 (0.0059)	-0.0045 (0.0046)	-0.0081 (0.0060)	-0.0040 (0.0047)
Control Variables	<i>PropGw</i>		0.0346 (0.0276)	0.1687 *** (0.0397)	0.0341 (0.0269)	0.1657 *** (0.0403)
	<i>BHRet</i>		-0.0537 * (0.0273)	0.0076 (0.0190)	-0.0522 * (0.0272)	0.0092 (0.0189)
	<i>NumQtrBTM>1</i>		-0.0227 (0.0150)	-0.0069 (0.0116)	-0.0228 (0.0150)	-0.0071 (0.0113)
	Adj R2		0.1296	0.2850	0.1267	0.2847
	N		124	86	124	86

Panel B: Unverifiability of net assets measured with IndLev

Effect	Parameter	(1)		(2)		(3)		(4)	
		Est.	(S.E.)	Est.	(S.E.)	Est.	(S.E.)	Est.	(S.E.)
	<i>Intercept</i>	0.1838 **	(0.0848)	0.0419	(0.0583)	0.1217	(0.0791)	0.0145	(0.0608)
	<i>InfoAsym</i>	-	-0.0183 (0.0192)	-	0.0027 (0.0159)	-	-0.0198 (0.0196)	-	0.0012 (0.0164)
Private Information Motive	<i>Achievement</i>	-		-	-0.0012 (0.0150)	-		-	-0.0017 (0.0149)
	<i>Fog</i>	+/-		-	-0.0198 (0.0191)	-		-	-0.0182 (0.0188)
	<i>CovDebt</i>	-	-0.0772 (0.049)	-	-0.0773 * (0.0433)	-	-0.0771 (0.0491)	-	-0.0781 * (0.0434)
Contracting Motives	<i>Bonus</i>	-	-0.0245 (0.0234)	-	-0.0418 ** (0.0182)	-	-0.0231 (0.0238)	-	-0.0417 ** (0.0181)
	<i>Delist</i>	-	-0.0130 (0.0295)	-	0.0014 (0.0170)	-	-0.0121 (0.0297)	-	0.0027 (0.0170)
Reputation Motive	<i>Tenure</i>	-	-0.0027 * (0.0014)	-	-0.0026 * (0.0014)	-	-0.0027 * (0.0014)	-	-0.0026 * (0.0014)
Valuation Motive	<i>AsstPrc</i>	-		-	0.0002 (0.0005)	-		-	0.0002 (0.0004)
	<i>ln(Seg)</i>	-	-0.0241 (0.0149)	-	-0.0117 (0.0120)	-		-	
Goodwill Reporting Flexibility	<i>HHI</i>	+		-		-	0.0602 * (0.0361)	-	0.0252 (0.0306)
	<i>IndLev</i>	+	2.60E-05 * (0.0000)	+	3.20E-05 ** (0.0000)	+	2.50E-05 * (0.0000)	+	3.20E-05 ** (0.0000)
	<i>Size</i>		-0.0029 (0.0051)		0.0018 (0.0046)		-0.0028 (0.0052)		0.0019 (0.0047)
Control Variables	<i>PropGw</i>		0.0282 (0.0265)		0.1518 *** (0.0406)		0.0279 (0.0260)		0.1492 *** (0.0411)
	<i>BHRet</i>		-0.0458 * (0.0274)		0.0167 (0.0203)		-0.0448 * (0.0273)		0.0178 (0.0205)
	<i>NumQtrBTM>1</i>		-0.0235 (0.0153)		-0.0046 (0.0113)		-0.0236 (0.0153)		-0.0049 (0.0111)
	Adj. R2		0.1114		0.2796		0.1097		0.2769
	N		124		86		124		86

Table 7**Analysis of sample firms in the year t+1**

The sample is the 124 firms on COMPUSTAT with fiscal year “t” between 2003 and 2006 that have goodwill > \$1m in year t-2, equity-book-value < equity-market-value in year t-2, BTM > 1 in year t-1, BTM > 1 in year t, and goodwill > 0 at the beginning of year t. BTM is the ratio of equity-book-value plus goodwill impairment (if any) to equity-market-value. *InfoAsym* is a dummy variable set to one if the firm exhibits positive net share repurchase activity or positive net insider buying in year t. “Acquired” means that the firm was merged into another corporation. “Delisted” means that the firm filed for bankruptcy, was liquidated, was forced to trade over-the-counter, or was otherwise involuntarily delisted. “Active” means that the firm is still actively traded and regularly files financial reports with the SEC.

	<i>InfoAsym</i> =0	<i>InfoAsym</i> =1	<i>Total</i>
Acquired	11 (15%)	7 (14%)	18 (14.5%)
Delisted	16 (22%)	2 (4%)	18(14.5%)
Active	46 (63%)	42 (82%)	88 (71%)
<i>Total</i>	73	51	124

The chi-square statistic for the table has a p-value of 0.0156.