3-2018

Financial reporting changes and internal information environment: Evidence from SFAS 142

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Forthcoming in Review of Accounting Studies, 2018

Financial Reporting Changes and the Internal Information Environment: Evidence from SFAS 142 *

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November 2017

Abstract

Using the adoption of SFAS 142 as an exogenous shock, we examine the effect of changes in financial reporting on firms' internal information environment. SFAS 142 removed goodwill amortization and required firms to perform a two-step impairment test. We argue that complying with SFAS 142 induces managers to acquire new information and, therefore, improves managers' information sets. Interviews with executives and auditors confirm this argument. Using a difference-in-differences design, we find that firms affected by SFAS 142 (i.e., treatment firms) experience an improvement in management forecast accuracy in the post-SFAS 142 period compared with those not affected. The increase is smaller for treatment firms with stronger monitoring mechanisms in the pre-SFAS 142 period and greater for firms with a higher likelihood of goodwill impairment. We further find that treatment firms with improvements in management forecast accuracy have higher M&A quality, internal capital allocation efficiency, and performance in the post-SFAS142 period than other treatment firms. Overall, our findings indicate that changes in external financial reporting can lead to better corporate decisions via their impact on the internal information environment.

* We thank Patty Dechow (the Editor), Sandip Dhole, Mark Evans, Gerald Lobo, Shuqing Luo, Mary Jane Rabier, Sugata Roychowdhury, Stephen Stubben, Terry Warfield, two anonymous referees, and workshop and conference participants from Hong Kong University of Science and Technology, INSEAD, National Taiwan University, Singapore Management University, University of Melbourne, University of Wisconsin-Madison, 2014 AAA Annual Meeting, 2014 SMU SOAR Symposium, 2015 FARS Mid-year Meeting, 2015 EAA Annul Congress, and 2015 CAAA Conference for helpful comments, and Dengqjin Zheng and Wei Ting Loh for research assistance. We thank financial support from the School of Accountancy Research Center (SOAR) at Singapore Management University. The authors gratefully acknowledge funding from the Lee Kong Chian Fellowship. Please contact authors at qcheng@smu.edu.sg (Qiang Cheng), yjcho@smu.edu.sg (Young Jun Cho), and hollyyang@smu.edu.sg (Holly Yang) for comments.

1. Introduction

In this paper, we examine the effect of changes in firms' external financial reporting on their internal information environment. Several recent studies suggest that changes in financial reporting improve firms' investment and capital allocation decisions (e.g., Graham, Hanlon, and Shevlin 2011; Cho 2015; Shroff 2017). Prior research provides two non-exclusive arguments for *how* changes in financial reporting affect firms' corporate decisions. The first argument is based on agency costs: improved external financial reporting can reduce the information asymmetry between managers and shareholders and thereby agency costs, leading to better corporate decisions (i.e., the agency cost hypothesis). The second argument is based on the change in the internal information environment (e.g., Shroff 2017): due to changes in external reporting, managers must collect more information in order to comply with the new standards. Through this process, managers likely obtain new information and such new information helps them to make better and more informed corporate decisions (i.e., the information hypothesis). While prior research has provided direct evidence on the agency cost hypothesis (e.g., Berger and Hann 2003, 2007; Hope and Thomas 2008; Cho 2015), there is little direct evidence on the second argument. The purpose of our study is to provide direct evidence on the information hypothesis.

Based on prior research and in-depth interviews with executives and auditors, we argue that the introduction of Statement of Financial Accounting Standards (SFAS) No. 142, *Goodwill and Other Intangible Assets*, by the Financial Accounting Standards Board (FASB) can improve firms' internal information environment. Effective with fiscal years beginning after December 15, 2001, the adoption of this standard changed the accounting for goodwill dramatically. Prior to SFAS 142, accounting for goodwill was governed by APB 17 and SFAS 121. APB 17 required the amortization of goodwill over its useful life and later SFAS 121 provided guidelines for the impairment of long-lived assets, including goodwill. Under

these standards, goodwill was reviewed for impairment with its related assets when changes in circumstances indicated that the carrying amount may not be recoverable, but the test was not conducted on a regular basis. In contrast, SFAS 142 removed goodwill amortization and required firms to perform a two-step impairment test *at least annually*. In step one, the firm determines whether the fair value of the reporting unit in which the goodwill resides is lower than its current book value. If so, the firm proceeds to step two to compare the unit's recorded goodwill to the implied goodwill (i.e., the excess of the unit's fair value over its net assets excluding goodwill). If the recorded goodwill is higher, the firm records an impairment loss.

Unlike other settings where information was available to managers but not required for disclosure before the new standard became effective (e.g., SFAS 131 on segment reporting), managers do not necessarily have the information about the fair value of the reporting units before the adoption of SFAS 142. Consistent with this conjecture, anecdotal evidence suggests that many firms did not know the fair value of their identifiable intangible assets before SFAS 142, and, afterwards, they relied on external experts (e.g., valuation consultants) to perform the valuation test on an ongoing basis due to the scope and complexity of the new standard (e.g., Reason 2003). After the adoption of SFAS 142, managers are also likely to spend more time and effort in obtaining additional information about the general economic and business conditions of operating units that is useful for forecasting sales and updating other inputs of the forecasting models, all of which will improve the managers' information sets. As such, the adoption of SFAS 142 is an ideal setting to study how a change in external reporting affects the internal information environment.

We use a difference-in-differences research design to isolate the effect of SFAS 142. The treatment group consists of firms that report goodwill throughout our sample period. The control group consists of firms that never report goodwill during the same time period and, therefore, are not affected by the SFAS 142 adoption. Following prior studies (Dorantes et al.

2013; Gallemore and Labro 2014; Goodman et al. 2014), we use management earnings forecast accuracy to capture the quality of managers' information sets. Consistent with our hypothesis, we find that compared with control firms, treatment firms provide more accurate earnings forecasts in the post-SFAS 142 period than in the pre-SFAS 142 period. This finding indicates that the annual assessment of the fair value of reporting units required under SFAS 142 induces managers to collect new information about the reporting units, thereby allowing them to make better forecasts of the firm's future performance.

Additional analyses indicate that this result is robust to alternative research designs. First, we use a propensity score matching approach to identify a set of control firms based on firm characteristics and obtain similar inferences. Second, we restrict our sample to treatment firms and find that the treatment firms with a larger goodwill balance experience a greater improvement in forecast accuracy than other treatment firms. If managers of these firms have to spend more time in valuing the reporting units, the uncovered information is likely to be more important in forming their earnings forecasts. These alternative designs are less subject to the concern that treatment and control firms differ fundamentally and might be affected differently by contemporaneous events, but the tradeoff is that the sample size is smaller, likely reducing the generalizability of the results.

We then conduct a series of cross-sectional analyses to reinforce the inferences. First, we investigate how the result varies with the effectiveness of firms' monitoring mechanisms. Prior research finds that firms with higher board independence are less likely to engage in financial frauds and are more likely to provide frequent and accurate earnings forecasts, consistent with boards of directors performing a monitoring role in reviewing the firm's information acquisition effort and disclosure policy (e.g., Dechow, Sloan, and Sweeney 1996; Ajinkya, Bhojraj, and Sengupta 2005). The interviewed executives and auditors also commented that firms conduct goodwill impairment tests more carefully when corporate

governance is strong; while this comment is made under the current accounting regime, it is conceivable that it applies to goodwill impairment tests under the former accounting regime. As such, we expect the adoption of SFAS 142 to have a smaller impact on firms with strong monitoring mechanisms in the pre-SFAS 142 period. Consistent with our predictions, we find that compared with other treatment firms, the treatment firms with higher board independence, higher market value, and stronger governance and monitoring in the pre-SFAS 142 period experience a smaller increase in management forecast accuracy.

Second, if managers expect the likelihood of goodwill impairment to be higher, they will be more diligent in collecting information and conducting the impairment test, leading to a bigger improvement in the internal information environment. Consistent with this conjecture, we find that the results are more pronounced for the treatment firms that experience a severe decline in the market-to-book ratio, face stronger competition, as captured by managers' references to competition in 10-K filings, and have a higher estimated probability of goodwill impairment. Overall, the cross-sectional evidence increases our confidence in attributing the main findings to the adoption of SFAS 142.

We conduct several additional analyses to further triangulate our main inferences and to provide new insights. First, we find that investors react more strongly to forecasts issued by treatment firms in the post-SFAS 142 period, compared with control firms. This result is consistent with investors perceiving these forecasts to be more accurate and informative. Second, if an improvement in internal information environment allows managers to integrate new information into financial reporting systems in a timelier manner, conducting goodwill impairment tests should reduce the preparation time between the fiscal-period end and the earnings announcement date. Consistent with this conjecture, we find that the speed in which earnings are announced improves for treatment firms in the post-SFAS 142 period.

Third, we conduct two falsification tests to strengthen our inferences. SFAS 142

changed the accounting for goodwill, but not for other intangible assets with finite lives. Thus, we should not find the same results for the firms with other intangibles. Indeed, we find that firms reporting other intangibles with finite lives throughout the sample period do not experience any changes in forecast accuracy, compared with those that do not report other intangibles. We also choose a pseudo-event year and do not find a difference in forecast accuracy between the pseudo-pre and pseudo-post periods. These results indicate that our findings are not attributable to contemporaneous events, the trend in M&A activities over time, or the fundamental heterogeneity between treatment and control firms.

Fourth, we rule out the possibility that our results are driven by contemporaneous regulatory changes (e.g., the SOX Act) by excluding firms with disclosed internal control material weaknesses and by controlling for the change in board independence.

An alternative explanation for our results is that managers of treatment firms are better able to manage earnings to meet their own forecasts. However, inconsistent with this alternative explanation, we find that treatment firms are not more likely to engage in earnings management in the post-SFAS 142 period than in the pre-SFAS 142 period, compared with control firms.

Lastly, if the improved internal information environment enables managers to make better corporate decisions, then we should observe that treatment firms with a larger improvement in forecast accuracy make better M&A and internal capital allocation decisions, ultimately leading to superior performance than other treatment firms. Consistent with this prediction, we find that treatment firms with a larger improvement in forecast accuracy exhibit higher M&A announcement returns (a proxy for M&A quality), internal capital allocation efficiency, and return-on-assets in the post-SFAS 142 period than other treatment firms. These results suggest that financial reporting changes can improve corporate decisions and performance via their impact on firms' internal information environment.

While our findings suggest that the information managers obtain from complying with SFAS 142 is helpful, there are a few reasons why not all managers of treatment firms collect such information prior to the adoption of SFAS 142. First, it is costly to estimate the fair value of goodwill and it is uncertain whether the collected information is beneficial. Indeed, Holtzman and Sinnett (2009) find that approximately 80% of firms indicated that the board and top management were somewhat or heavily involved in the process. Such involvement by senior executives is costly because it requires time and effort, distracting them from other important operational activities. Second, managers, who are not always rational, might not be aware of these benefits ex ante. Consistent with this notion, prior studies suggest managers exhibit cognitive biases that can lead them to make suboptimal decisions (Malmendier and Tate 2008). Third, managers might deliberately choose not to obtain the fair value estimate of the reporting units with goodwill, because doing so might reveal the potentially poor quality of their past M&A decisions, which might result from managerial overconfidence, agency costs (e.g., empire building), or unintentional mistakes. Failing to collect useful information is a manifestation of agency problems and such tendency should be higher when firms have weaker governance mechanisms. Consistent with this argument, we find that firms with weaker governance mechanisms in the pre-SFAS 142 period (e.g., lower board independence) experience a larger improvement in their forecast accuracy.

Our study contributes to the recent stream of literature on the consequences of financial reporting by shedding light on the underlying mechanisms (e.g., Graham, Harvey, and Rajgopal 2005; Hope and Thomas 2008; Graham et al. 2011; Cho 2015; Shroff 2017). Specifically, we extend this line of research by documenting that a change in financial reporting requirements can induce managers to collect more information and improve firms' internal information environment. Moreover, our findings indicate that a change in external reporting can improve managers' corporate decisions not only by reducing the information

asymmetry between managers and outside stakeholders and thereby agency costs, as established in prior literature (e.g., Berger and Hann 2003, 2007), but also by increasing the information internally available to managers.[1]

Our study is related to Shroff (2017) and Goodman et al. (2014). Shroff (2017) argues that time constraints and information processing costs can prohibit managers from using all firm-relevant information in their decisions. Consistent with the prediction, he documents a positive association between firms' investment decisions and the changes in GAAP that likely affect managers' information sets. Goodman et al. (2014) find a positive association between managerial forecast accuracy and investment efficiency and argue that managers' ability in forecasting improves both forecast accuracy and investment decisions. Our paper is different from these studies on two important dimensions. First, we extend these two studies by providing causal evidence on the effect of a change in external financial reporting on the internal information environment. While Shroff (2017) argues that the information hypothesis is the underlying link between the change in financial reporting and investment efficiency, he does not provide direct evidence on this issue. Similarly, Goodman et al. (2014) do not study the impact of changes in financial reporting on firms' internal information environment. Second, extending these two studies, we demonstrate that a change in external reporting can improve managers' information sets, which in turn leads to better corporate decisions.

Our study also contributes to the line of literature on the consequences of SFAS 142 adoption. To date, this body of research has primarily focused on managers' discretionary timing of goodwill impairment and investors' responses to impairment charges (e.g., Hayn and Hughes 2006; Ramanna 2008; Zang 2008; Li and Sloan 2017; Ramanna and Watts 2012; Chen et al. 2013). Collectively, these studies suggest that managers delay the recognition of

[1] Prior studies find that firms with high financial reporting quality have better investment efficiency (Biddle and Hilary 2006; McNichols and Stubben 2008; Biddle, Hilary, and Verdi 2009). These studies usually attribute the finding to the notion that high financial reporting quality reduces both moral hazard and adverse selection problems.

goodwill impairment charges and that investors do not see through firms' overstated goodwill balances.[2] An exception is Li et al. (2011), which finds that goodwill impairment losses can predict firms' future performance.

We extend this stream of research by documenting an unintended consequence of SFAS 142 adoption: its effect on firms' internal information environment and investment decisions. This finding should be of interest to regulators, practitioners, and researchers, as the merits of SFAS 142 and the move toward fair value accounting are still under considerable debate.[3] Our study speaks to a benefit of the goodwill impairment tests.

Note that while our findings are based on an analysis of SFAS 142, the results can potentially be generalized to other instances where firms are required to acquire additional information to comply with a new accounting standard. We focus on SFAS 142 because it likely provides us with the strongest setting to test the information hypothesis. The other accounting standard changes that also require managers to collect information only affect certain industries (e.g., SFAS 143: Accounting for Asset Retirement Obligations) or specific accounts (e.g., SFAS 112: Accounting for Post-retirement Benefits).[4] In contrast, SFAS 142 affects all firms with goodwill.

The remainder of the paper proceeds as follows. The next section discusses the institutional background on goodwill accounting and develops the hypotheses. Section 3 describes the sample selection and variable definitions. Sections 4 reports the empirical results on the effect of SFAS 142 on management forecast accuracy and Section 5 on additional analyses. Section 6 reports the effect of SFAS 142 on M&A quality, internal

[2] We argue that managers obtain new information during the goodwill impairment tests. Whether that information is provided in financial reporting in a timely fashion is a separate issue. Thus, our finding that firms experience an improvement in their internal information environment in the post-SFAS 142 period does not contradict firms' incentives to delay impairment charges.
[3] Please see http://www.mfa-cpa.com/Blog/2014/03/Public-Companies-and-Goodwill-Back-to-the-Future.
[4] SFAS 143 requires the recognition of the fair value of Asset Retirement Obligation liabilities for tangible long-lived assets. Guinn et al. (2005) find that only 10% of U.S. public companies are affected by this standard and that, among the companies affected, the reported changes in their financial statements were relatively minor.

capital allocation efficiency, and firm performance via its impact on the internal information environment. Section 7 concludes.

2. Institutional Background and Hypothesis Development

2.1 Institutional background and the main hypothesis

In this section, we describe the institutional background related to goodwill impairment and develop our main hypotheses based on the accounting standards and prior research. To better understand the impact of SFAS 142 and the differences in managers' and auditors' approaches to goodwill accounting under different reporting regimes, we interviewed seven executives,[5] including two Chief Financial Officers (one from a financial firm and the other from a non-financial firm), and four auditors at two Big4 accounting firms. These executives handle goodwill impairment tests for their respective companies. Similarly, the auditors we interviewed, two of which are partners, have vast experience working with their clients on goodwill impairment tests. The Internet Appendix provides a detailed summary of the insights obtained from the interviews; we incorporate the key points to the discussion below whenever appropriate.

Prior to the introduction of SFAS 142, APB Opinion 17 and SFAS 121 addressed how goodwill and other intangible assets should be accounted for. APB Opinion 17 viewed goodwill as an asset with a finite life and directed it to "be amortized by systematic charges to income over the period estimated to be benefited. The period of amortization should not, however, exceed forty years (AICPA 1970, para. 9)." Complementing APB Opinion 17, SFAS 121 governed accounting for the impairment of long-lived assets, certain identifiable intangibles, and goodwill related to those assets. Under SFAS 121, firms should review long-

[5] The majority of these executives are from financial industries and the sample firms are from non-financial industries. Thus, one caveat is that the insights obtained from interviews might not apply to firms in non-financial industries.

lived assets and certain identifiable intangibles for impairment "whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable (FASB 1995, para.4)." Under SFAS 121, goodwill was reviewed together with the related assets (i.e., those acquired in the same transaction that creates goodwill) if the related assets were tested for *recoverability*. Under SFAS 121, an asset was considered unrecoverable if its carrying value was higher than the sum of expected future cash flows (not the discounted value). An impairment loss was calculated as the amount by which the carrying amount of the asset exceeded the fair value of the asset.

The introduction of SFAS 142 dramatically changed the accounting for goodwill. It removes goodwill amortization and requires firms to perform a two-step impairment test *at least annually*, as discussed above. SFAS 142 differs from APB Opinion 17 and SFAS 121 in several important ways and, due to these differences, the adoption of SFAS 142 can enhance firms' internal information environment. First, compared with the amortization of goodwill under APB Opinion 17 and the discretion managers had with respect to impairment tests under SFAS 121, the mandatory requirement of fair-valuing assets and liabilities at the reporting unit level under SFAS 142 implies much more involvement by management (Holtzman and Sinnett 2009). To obtain a reasonable estimate of the fair value, firms need to estimate the expected future cash flows generated from the assets and the risks associated with those cash flows.[6] Cash flow projections are based on managers' estimates of revenue growth rates and operating margins, taking into account industry and market conditions. The discount rate is generally a weighted-average cost of capital adjusted for business-specific and region-specific risk characteristics.[7]

[6] Comiskey and Mulford (2010) review 10K filings of a sample of U.S. firms and find that the most frequently used methods in estimating the fair value of the reporting units are the present value of future cash flows and market multiples, or a weighted average of the two.

[7] For example, when describing the approach for the impairment test, HP states in its 2012 annual report that "HP calculates the fair value of a reporting unit based on the present value of estimated future cash flows. Cash flow projections are based on management's estimates of revenue growth rates and operating margins, taking

As one of the auditors we interviewed pointed out, many firms often do not have the resources, skill sets, or knowledge to provide a robust discounted cash flow as required by SFAS 142 for the goodwill impairment test. Due to the vast amount of information required to perform this task, 57% of surveyed CFOs indicated that with the adoption of SFAS 142, their firms are likely to use outside assistance for valuation purposes, and 71% said they would seek outside help when performing the impairment test (Lewis, Lippitt, and Mastracchio 2001).[8] In addition, outside consultants can provide managers with more in-depth information based on comparisons with their competitors and other firms in the same industry. All these discussions suggest that firms conduct goodwill impairment tests more rigorously under SFAS 142 than under SFAS 121.

Second, while companies were required to conduct goodwill impairment tests under SFAS 121, there was not enough guidance, reducing the effectiveness of such tests (Huefner and Largay 2004). For example, FASB states on page 6 of SFAS 142 that "Previous standards provided little guidance about how to determine and measure goodwill impairment; as a result, the accounting for goodwill impairments was not consistent and not comparable and yielded information of questionable usefulness. This Statement provides specific guidance for testing goodwill for impairment." In addition, because goodwill is no longer amortized, the likelihood of goodwill impairment is higher under SFAS 142 than under SFAS 121. This implies that firms have to conduct goodwill impairment tests more rigorously under SFAS 142 than under SFAS 121. For example, as one of the interviewed audit firm partner commented, "Because firms no longer amortize, the risk of impairment is higher and the magnitude is also likely to be higher now. As a result, the conversation with our clients has

into consideration industry and market conditions. The discount rate used is based on the weighted-average cost of capital adjusted for the relevant risk associated with business-specific characteristics and the uncertainty related to the business's ability to execute on the projected cash flows."

[8] These data are based on managers' responses to the initial adoption of SFAS 142. Reason (2003) argues that the demand for valuation consultants is expected to continue after the initial adoption year. These discussions *imply* an increase in the reliance on external valuation consultants after the adoption of SFAS 142.

changed." The interviewed executives also commented that they undertake goodwill impairment tests much more carefully and rigorously now than under SFAS 121 because of the pressure from auditors. As one interviewed executive pointed out, "Anything the auditors challenged or raised, we will have to make sure that we are comfortable with whatever we are doing. We have to address that point properly. So if they raised certain concerns, then we will have to go back to the team who prepares it, and try to understand, fit in or provide the comment back, and see how we can actually make it better or more accurate."

Third, while SFAS 121 required firms to review their assets for potential impairment, firms were not required to conduct the recoverability test on a regular basis (e.g., Riedl 2004; Chen, Kohlbeck, and Warfield 2008). In contrast, under SFAS 142, goodwill needs to be tested for impairment at least annually, and such tests must be performed on an interim basis if "an event occurs or circumstances change that would more likely than not reduce the fair value of a reporting unit below its carrying amount (FASB 2001, para. 28)." For example, one of the interviewed executives indicated that while careful and rigorous impairment tests are conducted toward the end of each year, the company also conducts goodwill impairment tests quarterly under the current practice, especially if there are any adverse changes to their internal forecasts. Consistent with this, Holtzman and Sinnett (2009) find that of the firms that recorded an impairment charge, 79% indicated that the impairment was taken due to an interim goodwill impairment test.

Overall, compared to SFAS 121, SFAS 142 is very specific about the timing, testing level, and amount of goodwill impairment. To estimate the fair value of the reporting unit, managers must collect relevant information to determine the appropriate revenue growth rate, operating margins, and discount factor. Since this information affects the strategic planning of the reporting unit, it will lead to revised inputs in the firm's long-term growth and short-term budget outlook, both of which are likely to be reflected in the firm's earnings forecasts.

For example, in the 2012 annual report, HP states that "in conjunction with HP's annual goodwill impairment testing, HP identified certain indicators of impairment. The indicators of impairment included lower than expected revenue and profitability levels over a sustained period of time, the trading values of HP stock and downward revisions to management's short-term and long-term forecast …, and the timing of this forecast revision coincided with the timing of HP's overall forecasting process for all reporting units (page 107)."

Hemmer and Labro (2008) model the relation between firms' internal accounting systems and their external financial reports. They show in their proposition 6 that a change in financial reporting towards standards that reveal more information about firm valuation and less information about managers' effort (e.g., fair-value oriented standards such as SFAS 142) can lead to improved profitability because the agent will endogenously choose the optimal managerial accounting system. Their model implies that firms affected by SFAS 142 will invest more time, effort, and resources to comply with the new standards, resulting in an improved internal information environment.

Overall, these discussions indicate that the adoption of SFAS 142 can improve managers' information sets for firms that are affected by SFAS 142 adoption. Note that both our argument and the insights obtained from the interviews suggest that the benefit from goodwill impairment tests is not conditional on the ex post occurrence of goodwill impairment. That is, our argument applies to all firms with goodwill, and therefore the treatment firms include all firms with goodwill. Firms without goodwill, referred to as control firms, are not affected by the adoption of SFAS 142 and should not experience any change in their internal information environment. Following prior research, we use management forecast accuracy to infer a firm's internal information quality.[9] As such, our first hypothesis

[9] Previous studies have used management forecast accuracy to capture the quality of managers' information sets in other settings, such as internal control (Feng, Li, and McVay 2009), enterprise systems implementation (Dorantes et al. 2013), capital investments (Goodman et al. 2014), and tax avoidance (Gallemore and Labro

(in alternative form) is:

> *H1: Ceteris paribus, treatment firms experience an improvement in management forecast accuracy following the adoption of SFAS 142, compared with control firms.*

2.2 Cross-sectional variation

The effect of SFAS 142 on management forecast accuracy is likely to vary across firms. The main argument for H1 focuses on the differences in the implementation of goodwill impairment tests between SFAS 142 and the previous standards. Based on these differences, we expect treatment firms to conduct goodwill impairment tests more carefully and rigorously and spend more time on the tests in the post-SFAS 142 period. It thus follows that the effect of SFAS 142 adoption on forecast accuracy improvement likely varies with (1) how carefully and rigorously the treatment firms conduct impairment tests in the pre-SFAS 142 period and (2) how much effort the treatment firms expend on the impairment tests in the post-SFAS 142 period. Accordingly, we conduct two cross-sectional analysis, one based on the variation in firms' monitoring mechanisms in the pre-SFAS 142 period that can affect the rigor of goodwill impairment tests, and the other based on the variation in the effort of conducting goodwill impairment tests in the post-SFAS 142 period as captured by the likelihood of goodwill impairment.

First, H1 is based on the notion that firms collect valuable information in conducting goodwill impairment tests. Given the value of the collected information, firms with stronger corporate governance likely already spend more time and effort collecting information when conducting goodwill impairment tests in the pre-SFAS 142 period.[10] If this is the case, the

2014). Ittner and Michels (2017) validate the use of management forecasts as a proxy for firms' internal information based on survey responses to firms' risk-based forecasting and planning processes.

[10] This argument is consistent with the findings in prior research on the effect of corporate governance on corporate disclosure. For example, Beasley (1996), Dechow et al. (1996), and Klein (2002) find that corporate governance characteristics are positively associated with financial reporting quality. Further, Ajinkya et al. (2005) and Karamanou and Vafeas (2005) find that firms with greater board independence provide forecasts with higher quality.

incremental effect of SFAS 142 adoption on internal information environment quality is likely to be smaller for these firms. The importance of governance in goodwill impairment tests is emphasized by both the interviewed executives and audit firm partners. For example, one interviewed executive commented that "We always emphasize [that] … the independent board has approved this [valuation]." When emphasizing the importance of governance, one interviewed audit partner commented that "there are other people in the organization [with whom] you can share your views, have those conversations. There's always the board; there's always the audit committee."[11]

Therefore, if firms with stronger monitoring mechanisms conduct goodwill impairment tests more rigorously in the pre-SFAS 142 period, then they should experience a smaller improvement in their internal information environment following the adoption of SFAS 142. This leads to our second hypothesis (in alternative form):

H2: The positive association between the adoption of SFAS 142 and management forecast accuracy, as stated in H1, is less pronounced for treatment firms with stronger monitoring mechanisms in the pre-SFAS 142 period than for other treatment firms.

Second, to the extent that managers can exercise some degree of discretion in applying accounting standards, the effect of SFAS 142 on the internal information environment likely varies with managers' incentives to review the value of goodwill. Given the significant number of assumptions and estimates involved in the forecasts of future cash flows, growth rates, and discount rates, and the high degree of uncertainty these assumptions and estimates are subject to, firms with a high likelihood of goodwill impairment are likely to be more concerned about the applicability of the models to the firm's assets and businesses. When managers expect an impending impairment of goodwill, they likely spend more time and

[11] By the same token, firms with stronger governance in the post-SFAS 142 period implement SFAS 142 more rigorously and thus should experience a bigger improvement in management forecast accuracy. An untabulated analysis confirms this conjecture. Note that board independence is not very sticky during our sample period due to exchange and SOX requirements on majority board independence.

effort in collecting information, and auditors are also likely to be more diligent. Therefore, firms with a higher likelihood of goodwill impairment, that is, those close to the impairment threshold, have stronger incentives to exert effort to conduct the impairment test rigorously in the post-SFAS 142 period. Accordingly, the effect of SFAS 142 adoption on the internal information environment is likely to be greater for these firms. This leads us to our third hypothesis (in alternative form):

> *H3: The positive association between the adoption of SFAS 142 and management forecast accuracy, as stated in H1, is more pronounced for treatment firms with a higher likelihood of goodwill impairment in the post-SFAS 142 period than for other treatment firms.*

3. Sample and Research Design

3.1 Data and sample

Given that SFAS 142 becomes effective for fiscal years starting after December 15, 2001, the *calendar* year of the adoption (as in financial statement dates) is 2002 for December fiscal year-end firms, and 2003 for non-December fiscal year-end firms. To test the effect of SFAS 142, we focus on the three fiscal years before the adoption year (referred to as the pre-SFAS 142 period) and the three fiscal years after the adoption year (referred to as the post-SFAS 142 period).[12] We do not include the year of adoption in the analyses to avoid the confounding effect of transition and uncertain timing of the impairment test (i.e., whether management forecasts are issued after the initial impairment test).

To select our sample firms, we begin with the Compustat / CRSP merged dataset. The treatment group consists of firms that report goodwill in their financial statements throughout the six-year sample period, while the control group consists of firms that do not report any goodwill at any point in time during our sample period. Firms that report goodwill in some

[12] The inferences are the same when we use a different measurement window for the pre- and post-SFAS 142 periods (e.g., four or five years).

years in the sample period but not in other years are excluded from the sample to increase the power of our tests.[13] We then merge this sample with management forecast data from First Call. We do not include earnings preannouncements because managers have little discretion in the issuance of these forecasts. To ensure that our results are not driven by the increasing coverage of First Call, we restrict our sample to firms that issue at least one earnings forecast in both the pre- and the post- SFAS 142 periods.[14] Requiring firm-years to have data on forecast accuracy and other variables, our final sample consists of 2,511 firm-years.

3.2 Regression model

Given that treatment firms have goodwill and control firms do not, they are likely to differ from each other in certain firm characteristics. For example, because treatment firms engaged in acquisitions that created goodwill, they are likely to be larger and more diversified than control firms. To control for the effect of these differences and the potential time trends in forecast accuracy, we use a difference-in-differences design with firm fixed effects to isolate the effect of SFAS 142 on management forecast accuracy. In an untabulated analysis, we find that the treatment and control firms do not differ in time trends in forecast accuracy in the pre-SFAS 142 period, validating the parallel assumption underlying the difference-in-differences design.[15] More specifically, we estimate the following regression:

$$\begin{aligned} \textit{Forecast Accuracy} = {} & \beta_0 + \beta_1\, \textit{Post142} + \beta_2\, \textit{Post142} \times \textit{Treatment} + \beta_3\, \textit{InstOwn} + \beta_4\, \textit{AC} \\ & + \beta_5\, \textit{RetVol} + \beta_6\, \textit{NumSeg} + \beta_7\, \textit{EqIss} + \beta_8\, \textit{Log(AT)} + \beta_9\, \textit{MTB} + \beta_{10}\, \textit{ROA} + \beta_{11}\, \textit{Ret} + \beta_{12}\, \textit{Loss} + \beta_{13}\, \textit{Leverage} + \beta_{14}\, \textit{CF} + \beta_{15}\, \textit{Horizon} \\ & + \textit{Firm Dummies} + e \end{aligned} \quad (1)$$

Forecast Accuracy is negative one times forecast error averaged across management forecasts for each firm-year. The forecast error of an individual forecast is calculated as the

[13] In untabulated analyses, we find that our inferences remain the same when we include in our control group the 54 firm-years that have goodwill in the pre-SFAS 142 period but no goodwill in the post-SFAS 142 period.
[14] Requiring the sample firms to issue at least one management forecast in each of the six years leads to the same inferences.
[15] In addition, our results hold after controlling for the time trend. Separately, adding the interaction terms of the *Treatment* variable with all the control variables leads to the same inferences; note that for this analysis, we replace firm fixed effects with industry fixed effects to avoid multicollinearity problems.

absolute value of the difference between the management earnings forecast and actual earnings, scaled by the stock price at the beginning of the fiscal year.[16] To ensure comparability between annual and quarterly forecasts, we multiply forecast error by four for quarterly forecasts, as in Cheng, Luo, and Yue (2013). *Post142* is an indicator variable that equals one for the post-SFAS 142 period, and zero otherwise. *Treatment* is an indicator variable that equals one for treatment firms, and zero for control firms. Because we include firm dummies, we do not include the main effect of *Treatment*.[17] The coefficient on *Post142* captures the change in forecast accuracy for control firms after the adoption of SFAS 142, and that on *Post142* × *Treatment* captures the incremental change in forecast accuracy for treatment firms. H1 implies a positive coefficient on this interaction term. Throughout the paper, we adjust all standard errors for clustering at the two-digit SIC industry-year level and report one-sided p-values for variables with signed predictions, and two-sided otherwise.

Following prior research, we include a comprehensive list of variables in Equation (1) to control for the effect of various firm and forecast characteristics on forecast accuracy. Please see Appendix A for detailed variable measurement. First, prior research finds that the market's demand for information increases with institutional ownership (*InstOwn*) and analyst coverage (*AC*) (e.g., Ajinkya et al. 2005; Hutton 2005). Second, managers are less likely to have precise information when the operation environment is volatile or when firm complexity is high. Accordingly, we control for return volatility (*RetVol*) and the number of business and geographic segments (*NumSeg*). Third, Frankel, McNichols, and Wilson (1995) find that firms with a greater need for external capital have an incentive to disclose more

[16] While empirical and anecdotal evidence suggests that firms typically exclude one-time items from their earnings forecasts, to ensure that our results are not driven by the inclusion of goodwill impairment charges, we hand-collect a subsample of earnings forecasts to verify that the impairment charge is excluded from both the earnings forecast and actual earnings reported in First Call. Moreover, our inferences remain when we exclude firm-years with goodwill impairments during the sample period.

[17] In untabulated analyses, we exclude firm fixed effects and include the main effect of *Treatment.* The inferences remain the same.

information in order to reduce information asymmetry. Accordingly, we include an indicator variable for firms that issue additional equity during the fiscal year (*EqIss*), as reported in Security Data Corporation's (SDC) Global New Issues database. Fourth, we control for firm size measured as the natural logarithm of assets (*Log(AT)*), leverage (*Leverage*), operating cash flows (*CF*), and the market-to-book ratio (*MTB*). Fifth, we control for contemporaneous accounting (*ROA, Loss*) and stock (*Ret*) performance because they can affect voluntary disclosure decisions (Miller 2002). Sixth, we control for forecast horizon (*Horizon*). Managers have more precise information when it is closer to the fiscal-period-end, and thus forecasts issued later in the fiscal period have greater accuracy. We expect forecast accuracy to be positively associated with *InstOwn*, *AC*, *EqIss*, *Log(AT)*, *MTB*, *ROA*, *Ret*, and *CF*, and negatively associated with *RetVol*, *Numseg*, *Loss*, *Leverage*, and *Horizon*. Lastly, we include firm fixed effects to control for the effect of time-invariant firm characteristics. In an untabulated analysis, we control for industry-year combination fixed effects and the inferences remain the same.

3.3 Descriptive statistics

Panel A of Table 1 presents the descriptive statistics on control variables, separately for treatment and control firms. It also reports the differences in means between the two groups for the pre- and post-periods. As reported in the table, relative to control firms, treatment firms experience a smaller increase in institutional ownership, a larger decrease in equity issuances, and a smaller increase in ROA, but similar changes in other variables, after the adoption of SFAS 142.[18] Nonetheless, it is important to control for the impact of these firm characteristics in the analyses.

[18] The similarity between the two groups in other characteristics is likely due to our sampling requirement that both the treatment and control groups issue earnings forecasts at least once in both the pre- and post-SFAS 142 periods. Prior research suggests that forecasting firms are typically larger than the average Compustat firm. For example, the average market capitalization is 5.6 billion for our sample firms, but only 3.8 billion for the average firm in Compustat / CRSP merged dataset.

[Insert Table 1]

Panel B of Table 1 presents the industry distribution. There is a large variation in industry concentration between treatment and control firms. About 29% of the treatment firms are in the manufacturing industry, while 32% of the control firms are in utilities. The other highly represented industries include retail, computers, finance, insurance, and real estate. The inclusion of firm dummies controls for industry effects.

4. Empirical Results

4.1 Univariate analyses

Table 2 presents the univariate analysis, the difference-in-differences comparison of *Forecast Accuracy* between the treatment and control firms. The average *Forecast Accuracy* is -0.0518 in the pre-SFAS 142 period and -0.0278 in the post-SFAS 142 period for the treatment firms. The improvement, 0.0240, is significant at the 0.01 level. Control firms also experience an increase in forecast accuracy; the average *Forecast Accuracy* is -0.0358 in the pre-SFAS 142 period and -0.0253 in the post-SFAS 142 period.[19] The difference in differences, 0.0135, is significant at the 0.03 level. This result suggests that while both treatment and control firms experience an improvement in forecast accuracy, the improvement is significantly greater for treatment firms, the firms affected by SFAS 142, consistent with H1.

[Insert Table 2]

4.2 Regression analysis: Test of H1

Table 3 presents the regression results. In Column (1), we estimate the baseline regression. The coefficient on *Post142* × *Treatment* is significantly positive (p = 0.001),

[19] As shown in Table 3, control firms do not experience an improvement in forecast accuracy after controlling for other factors that likely affect forecast accuracy.

indicating that treatment firms experience a greater increase in forecast accuracy than control firms after the adoption of SFAS 142. In terms of economic magnitude, this incremental change represents a relative improvement of 26% (=0.0137/0.0518) for treatment firms.

[Insert Table 3]

The results for the control variables are generally consistent with those reported in prior research. We find that larger firms and firms with more analysts following, higher market-to-book, and higher ROA issue more accurate forecasts. We also find that firms with more segments and higher leverage instead issue less accurate forecasts. We also find that forecasts with shorter horizons tend to be more accurate.

We adopt two alternative research designs to provide further support for H1. These two designs are less susceptible to the concern that treatment firms are fundamentally different from control firms and they are affected by contemporaneous changes differently. However, the tradeoff is that the sample size is smaller, reducing the generalizability of the results. First, we use the propensity score matching approach to identify a group of control firms with similar firm characteristics as treatment firms. To perform the matching, we first estimate the propensity score as the conditional probability that a firm is a treatment firm based on firm characteristics over the pre-SFAS 142 period. The firm characteristics are the control variables used in our main regressions. Then, for each control firm, we find two treatment firms with the closest propensity score across all possible permutations of pairs without replacement. Note that the sample has more treatment firms than control firms. Column (2) of Table 3 presents the regression results. Consistent with H1, we continue to find a positive coefficient on the interaction term *Post142* × *Treatment* (p = 0.007).[20]

[20] In untabulated analyses, we use two alternative matching approaches, coarsened exact matching and entropy balancing, and obtain the same inferences. Similarly, the inferences continue to hold if we conduct the analyses by matching treatment firm with control firm on (1) industry and size, (2) industry and performance, or (3) size and performance. We do not use all three dimensions at the same time because the resulting sample is too small to conduct meaningful analyses.

Second, we examine whether, within treatment firms, those with more goodwill experience greater improvements in forecast accuracy in the post period. For firms with relatively large magnitudes of goodwill, managers have to spend more time valuing the reporting units, likely uncovering more information. In addition, due to the size of goodwill relative to other type of assets, the uncovered information is likely to be more important in forming the forecasts of the firm's overall earnings. For this test, we redefine *Treatment* in Equation (1) as an indicator variable that is equal to one if the ratio of goodwill to long-term tangible assets in the post-SFAS 142 period is in the top quartile of the treatment sample, and zero otherwise. Column (3) reports the regression results. Consistent with H1, we find a positive coefficient on the interaction term *Post142* × *Treatment* (p = 0.027).

In an untabulated analysis, we redefine the treatment firms as those that report goodwill impairment charges at least once in the post-SFAS 142 period, 198 firms in total. However, we find insignificant or marginally significant results based on this alternative classification of treatment firms, depending on the model specifications. This weaker or insignificant result might be due to the smaller sample size and thus lower power of the test. In addition, the economic conditions that lead to goodwill impairment charges might also be associated with higher uncertainty, biasing against finding an improvement in forecast accuracy.

Overall, the above results are consistent with H1 that, under SFAS 142, treatment firms experience an improvement in management forecast accuracy, a proxy for the quality of internal information environment.

4.3 Cross-sectional analyses – the level of monitoring in the pre-SFAS 142 period: Test of H2

To test H2, we construct an indicator variable, *High_Monitoring*, which equals one for firms identified as having strong monitoring in the pre-SFAS 142 period. We use three variables to measure a firm's strength of monitoring: board independence, market value of

equity, and a common factor obtained from a factor analysis of three attributes of monitoring or the lack of it: CEO entrenchment as captured by G-index, CEO tenure, and audit quality as captured by an indicator for Big 4 auditors. (Note that higher G-index and longer CEO tenure imply weaker monitoring.) We add the interaction terms between *High_Monitoring* and both *Post142* and *Post142* × *Treatment* to Equation (1):

$$\begin{aligned} \textit{Forecast Accuracy} = {} & \beta_0 + \beta_1\, \textit{Post142} + \beta_2\, \textit{Post142} \times \textit{Treatment} + \beta_3\, \textit{Post142} \times \\ & \textit{High\_Monitoring} + \beta_4\, \textit{Post142} \times \textit{Treatment} \times \\ & \textit{High\_Monitoring} + \textbf{\textit{Controls}} + \textit{Firm Dummies} + e \end{aligned} \tag{2}$$

Note that *High_Monitoring* and *High_Monitoring* × *Treatment* are not included in the regression as they are subsumed by firm fixed effects. In this regression, the coefficient on *Post142* × *Treatment* captures the incremental change in forecast accuracy for treatment firms with weak monitoring and the coefficient on *Post142* × *Treatment* × *High_Monitoring* captures the incremental change in forecast accuracy for treatment firms with strong monitoring relative to those with weak monitoring. H2 implies a negative coefficient on this three-way interaction.

Table 4 presents the regression results. In Column (1), *High_Monitoring* equals one if board independence in the pre-SFAS 142 period is higher than the sample median, and zero otherwise. As reported in the table, the coefficient on the three-way interaction term, *Post142* × *Treatment* × *High_Monitoring*, is significantly negative ($p = 0.028$). In Column (2), *High_Monitoring* equals one if market value of equity measured over the pre-SFAS 142 period is higher than the sample median, and zero otherwise. Again, we find that the coefficient on the three-way interaction term is significantly negative ($p = 0.020$). In Column (3), *High_Monitoring* equals one if the common factor obtained from the factor analysis in the pre-SFAS 142 period is above the sample median, and zero otherwise. Again, we find that the coefficient on the three-way interaction term is significantly negative ($p = 0.005$).

Overall, these results indicate that compared with other treatment firms, those subject to

stronger monitoring before the introduction of SFAS 142 experience a smaller improvement in forecast accuracy after the adoption, as predicted in H2.

[Insert Table 4]

4.4 Cross-sectional analyses – goodwill impairment likelihood: Test of H3

The research design for the test of H3 is similar to that for H2. We construct an indicator variable, *High_Likelihood*, to capture managers' incentives to exert effort during the impairment testing process due to a higher likelihood of goodwill impairment. We then add the interaction terms between the indicator variable and both *Post142* and *Post142* × *Treatment* to Equation (1):

$$\begin{aligned} Forecast\ Accuracy = {} & \beta_0 + \beta_1\ Post142 + \beta_2\ Post142 \times Treatment + \beta_3\ Post142 \times \\ & High\_Likelihood + \beta_4\ Post142 \times Treatment \times High\_Likelihood + \\ & \textbf{\textit{Controls}} + Firm\ Dummies + e \end{aligned} \quad (3)$$

We use three variables to capture the ex-ante likelihood of goodwill impairment: change in the market-to-book ratio, change in the competition intensity, and the estimated likelihood of impairment from an impairment probability model. As in Equation (2), the coefficient of interest is that on the three-way interaction term, *Post142* × *Treatment* × *High_Likelihood*, which captures the difference in the change in forecast accuracy between treatment firms with a higher likelihood of goodwill impairment and other treatment firms. H3 implies a positive coefficient on this three-way interaction term.

Table 5 reports the regression results of Equation (3). In Column (1), we define *High_Likelihood* as one if the change in the market-to-book ratio from the pre- to the post-SFAS 142 period is in the bottom quintile of the sample distribution, and zero otherwise. The market-to-book ratio is a primary indicator for goodwill impairment, and firms with a severe decline in the market-to-book ratio are more likely to write-off goodwill. As reported in the table, the coefficient on *Post142* × *Treatment*× *High_Likelihood* is significantly positive ($p = 0.015$). In Column (2), we define *High_Likelihood* as one if the change in competition as

perceived by managers from the pre- to the post-SFAS 142 period is positive (i.e., more intensified competition), and zero otherwise. Firms often research their competitors to determine whether an impairment charge should be recognized (Holtman and Sinnett 2009; Chen et al. 2013). Following Li, Lundholm, and Minnis (2013), we measure the extent of competition based on the number of competition-related words scaled by the total number of words in the 10K.[21] Again, the coefficient on *Post142* × *Treatment*× *High_Likelihood* is significantly positive (p = 0.038).

Lastly, we use an impairment probability model similar to that in Francis et al. (1996) and Riedl (2004). Specifically, we estimate the probability of impairment as a function of the change in GDP, the change in the firm's industry ROA, the change in the firm's pre-write-off earnings, the change in the firm's analyst forecast EPS, and audit quality, along with managers' reporting incentives related to big bath and earnings smoothing.[22] We then define *High_Likelihood* as one if the probability of impairment estimated from the determinant model is above the sample median, and zero otherwise. As reported in Column (3), the coefficient on the three-way interaction term is significantly positive (p = 0.027). These results are consistent with the notion that firms facing a higher likelihood of goodwill impairment spend more time collecting information to calculate the fair value and, therefore, experience a greater improvement in the internal information environment.

[Insert Table 5]

5. Additional Analyses

[21] We thank Feng Li for sharing his competition data at http://webuser.bus.umich.edu/feng/. Li et al. (2013) provide a comprehensive validation test of the competition measure. We also conduct a validation test and find that the competition measure is negatively associated with future profitability after controlling for current profitability for our sample firms.

[22] We thank the anonymous reviewers for this suggestion. Because the number of firm-years with goodwill impairment is very small, we combined the cases of fixed asset impairment with goodwill impairment when estimating the impairment probability model.

In this section, we report several additional analyses to investigate the robustness of the results and to provide additional insights. We first broaden the scope of the analyses by examining the change in management forecast credibility – the market's perception of forecast accuracy, and the speed of earnings announcements – an alternative proxy for internal information environment quality. We then investigate the robustness of the results by conducting two falsification tests, by more explicitly controlling for contemporaneous regulatory changes (e.g., SOX), and by refuting an alternative explanation based on earnings management.

5.1 Management forecast credibility

Prior studies on management forecasts argue that investors will respond more strongly to forecasts of higher credibility, with the market reaction being more positive (negative) for each unit of good (bad) news (Williams 1996; Rogers and Stocken 2005). Thus, if investors believe that forecasts issued by treatment firms in the post-SFAS 142 period are more informative and accurate, then they should react more strongly to these forecasts. To test this conjecture, we estimate the following equation:

$$CAR(-1,1) = \beta_0 + \beta_1 Post142 + \beta_2 Post142 \times Treatment + \beta_3 Surprise + \beta_4 Surprise \times Post142 + \beta_5 Surprise \times Treatment + \beta_6 Surprise \times Post142 \times Treatment + Firm\ Dummies + e \quad (4)$$

CAR(-1,1) is the three-day market-adjusted return centered on the forecast issuance date. *Surprise* is the decile rank of forecast surprise, standardized to the range [0, 1], where forecast surprise is management forecast minus the prevailing analyst consensus, scaled by the beginning-of-period stock price. Our focus is β_6, which captures the incremental effect of management forecast credibility for treatment firms in the post-SFAS 142 period compared with control firms; we expect the coefficient to be positive.

Table 6 reports the regression results. As expected, the coefficient on *Surprise* is significantly positive, consistent with the market reaction being higher for good news than for

bad news. Consistent with our expectations, the coefficient on *Surprise* × *Post142* × *Treatment* is significantly positive (p = 0.056). This result indicates that earnings forecasts issued by treatment firms in the post-SFAS 142 period elicit a stronger market reaction than those issued in the pre-SFAS 142 period, compared with control firms. That is, the forecasts issued by treatment firms after SFAS 142 are perceived to be more credible.

[Insert Table 6]

5.2 Earnings announcement speed as an alternative proxy for the internal information environment quality

Following Gallemore and Labro (2015), we use the speed in which earnings are announced as an alternative measure of a firm's internal information environment quality. If the goodwill impairment test requires firms to collect information about the reporting units with goodwill in a timelier fashion and allows managers to more quickly integrate this information into the financial reporting system, then it should reduce the financial statement preparation time between the fiscal period end and the earnings announcement date. To test this conjecture, we replace the dependent variable in Equation (1) with *Speed of EA*, defined as negative one times the natural logarithm of the average difference in days between the fiscal quarter-end and the earnings announcement date across the quarters for each firm-year. Table 7 reports the regression results. Consistent with our expectation, we find a significantly positive coefficient on *Post142* × *Treatment* (p = 0.005). The magnitude of the coefficient suggests a relative decrease of 5.9% (= (-1) × [$e^{0.0574}$-1]) in the preparation time for treatment firms in the post-SFAS 142 period.

[Insert Table 7]

In untabulated analyses, we also examine alternative management forecast characteristics and find that treatment firms provide more frequent and precise earnings

forecasts after the adoption of SFAS 142.[23] Together with the results in Table 7, these findings suggest that SFAS 142 adoption affects not only management forecast accuracy, but also other measures that capture the quality of firms' internal information environment.

5.3 Falsification tests

To further strengthen the inferences, we conduct two sets of falsification tests. In the first test, we use other intangible assets to identify pseudo-treatment firms and in the second test, we use a different year as the pseudo-adoption year.

First, SFAS 142 changed accounting for goodwill, but not for other intangibles with finite lives. If the results documented above are driven by the fundamental differences between treatment and control firms, trends in M&A activities over time, or other contemporaneous regulatory changes, we should find similar results when we identify treatment and control firms based on the level of other intangible assets. However, if the above results are driven by the adoption of SFAS 142, we should not find similar results when we conduct a similar analysis of other intangible assets because SFAS 142 does not affect accounting for other intangible assets with finite lives. To distinguish between these two alternative explanations, we examine whether our result holds using firms with Other Intangibles as a pseudo-treatment group. The research design is similar to that for our main analysis. Specifically, *Pseudo_Treatment* equals one if the firm reports Other Intangibles throughout the six-year sample period as recorded in Compustat, and zero for pseudo control firms, which do not report Other Intangibles at any point in time during the period.[24] The

[23] We also examine whether SFAS 142 reduces the likelihood of firms having an earnings restatement in untabulated analyses. We differentiate between restatements due to unintentional clerical errors and those due to frauds. While we find that treatment firms are less likely to have a restatement due to clerical errors in the post-SFAS 142 period, we do not find that there is an incremental change in the likelihood of frauds for treatment firms. This is not surprising since goodwill impairment tests are conducted at the reporting unit level and fraud-related restatements are usually related to top executives' incentives.

[24] Other Intangibles arise primarily from companies' purchased intangible assets and the allocation of purchase price as a result of M&A activities. The amount of Other Intangibles is not trivial, as shown in Appendix B. Firms reporting Other Intangibles in some years but not in others are excluded from the sample to increase the power of the test. Also, we require pseudo-treatment and pseudo-control firms to issue at least one management forecast in both the pre- and post-SFAS 142 periods.

sample includes all firm-years with management forecasts issued by these pseudo-treatment and pseudo-control firms in the sample period. Appendix B presents the descriptive statistics for the pseudo-treatment and pseudo-control firms.[25] Column (1) of Table 8 reports the regression results. As reported in the table, the coefficient on *Post142* × *Pseudo_Treatment* is insignificantly different from zero (p = 0.934).

[Insert Table 8]

However, we note that the other intangible assets reported in Compustat can include intangible assets with finite lives as well as those with infinite lives. Since other intangibles with infinite lives are subject to the same accounting treatment as goodwill, they could confound the results reported in Column (1). In addition, some of the pseudo-treatment firms report goodwill, also potentially confounding the above results. To address these issues, we hand-collect data on Other Intangibles from footnotes of firms' financial statements and exclude pseudo-treatment firms with other intangibles with infinite lives or goodwill. The remaining pseudo-treatment firms only have other intangible assets with finite lives, providing a cleaner test, but the tradeoff is that the sample size is much smaller. Column (2) of Table 8 reports the results based on this subset of pseudo-treatment. As reported in the table, the inferences remain the same.

Second, if the results documented above are not driven by SFAS 142 but by the differential time trend for treatment and control firms, we should find similar results when we use a different year as the adoption year. We choose 2006 as the pseudo-adoption year so as to exclude the calendar year of SFAS 142 adoption (i.e., 2002) from the pseudo-pre-adoption period. We identify treatment and control firms using the same approach as described in

[25] Note that we require treatment (control) firms to have (not have) goodwill throughout the sample period and pseudo-treatment (control) firms to have (not have) Other Intangibles throughout the sample period. The firms that have goodwill in some years but not in other years are excluded from the main analysis. Similarly, the firms that have Other Intangibles in some years but not in other years are excluded from the falsification test. As such, the overlap between the two classifications is not very high. Approximately 37% (47%) of the observations in the pseudo-treatment (control) group are also classified as treatment (control) firms in the main analysis.

Section 3.1. *Pseudo_Post 142* equals one (zero) for years 2007 through 2009 (2003 through 2005).[26] Column (3) of Table 8 reports the regression results for this analysis. As reported in the table, the coefficient on *Pseudo_Post142* × *Treatment* is insignificantly different from zero (p = 0.834).

Overall, these results suggest that our findings, as documented above, are attributable to the adoption of SFAS 142, not to the fundamental differences between treatment and control firms or contemporaneous changes.

5.4 Contemporaneous regulatory changes as an alternative explanation

An alternative explanation for our results is that they are driven by other contemporaneous regulatory or macroeconomic changes. Our sample period overlaps with various regulatory changes, especially the SOX Act. For these contemporaneous changes to drive our results, they must affect treatment firms and control firms differently. However, we do not have a strong reason to believe this to be the case. Nevertheless, we conduct two additional analyses and provide additional evidence that our results are unlikely to be attributable to SOX. First, one important requirement of SOX is that firms disclose the quality of their internal control system under Section 302 and auditor evaluate the quality of the internal control systems under Section 404. One might argue that due to their complexity, treatment firms had more internal control weaknesses and as a result of the disclosure requirement, treatment firms improve their internal control effectiveness, leading to an improvement in internal information environment and management forecast accuracy. In contrast to this alternative explanation, we do not find that treatment firms have a higher likelihood of internal control material weaknesses than control firms. To further address this concern, we replicate the main test after excluding observations of firms with internal control weaknesses in any of the year during the sample period (about 17% of the sample). Panel A

[26] Our inferences do not change when we choose 1998 as an alternative pseudo-adoption year.

of Table 9 reports the results. We find that the coefficient on *Post142* × *Treatment* continues to be significantly positive (p = 0.001).

[Insert Table 9]

Second, SOX requires firms to have majority independent boards, leading to an increase in board independence, especially for firms that did not satisfy the requirement before SOX. However, we do not find that treatment firms experience a larger increase in board independence than control firms. Moreover, when we explicitly control for the impact of the increase in board independence (Δ*BIND*) by adding its interaction term with *Post142*, as reported in Panel B of Table 9, we continue to find a significantly positive coefficient on *Post142* × *Treatment* (p = 0.005).

Altogether, these results suggest that the improvement in forecast accuracy documented above is not driven by other contemporaneous changes in regulation, particularly the SOX Act. We also rule out the possibility that our results are driven by the dotcom bubble, which coincides with the pre-SFAS 142 period and might affect treatment firms more than control firms.[27] Of course, we cannot completely rule out the possibility that other unknown contemporaneous regulatory changes at least partially explain our results.

5.5 Earnings management as an alternative explanation

Another alternative explanation for the increased forecast accuracy for the treatment firms in the post-SFAS 142 period is that the two-step impairment tests provide managers with more information and that managers exploit the extra information to engage in earnings

[27] During the dotcom bubble, treatment firms engaged in more acquisitions and likely wrote off goodwill in the post-SFAS 142 period. Therefore, one may argue that treatment firms experience an improvement in forecast accuracy in the post-SFAS 142 period because they were overvalued during the bubble period or because bad acquisitions were written off after the bubble. However, to the extent that the dotcom bubble affects high-tech firms most, we obtain similar results after we exclude from our sample the firms in high-tech industries (three-digit SIC codes of 357 or 737). The inferences also remain the same after we remove firms that are likely overvalued during the pre-SFAS 142 period – the firms with the change in average annual returns from the pre- and post-SFAS 142 period in the bottom 10%, 20%, 30%, or 40% of the sample distribution.

management in order to avoid missing their own forecasts.[28] Note that this interpretation differs from our inference in that managers use the information opportunistically rather than for better decision-making. If firms use discretionary accruals to meet or beat their own forecasts under the earnings management explanation (Kasznik 1999), then we should expect more discretionary accruals for treatment firms in the post-SFAS 142 period than in the pre-SFAS 142 period, compared with control firms. Similarly, if treatment firms use management forecasts to guide analyst expectations, then we should observe that treatment firms are more likely to meet or just beat analysts' forecasts than control firms. However, we fail to find consistent evidence with either argument, suggesting that the improvement in forecast accuracy is unlikely to be driven by more earnings management after the SFAS 142 adoption.

6. The effect of SFAS 142 on investment efficiency and firm performance

6.1 SFAS 142 adoption, the improvement in information environment, and M&A quality

In this section, we examine whether treatment firms with greater improvement in forecast accuracy make better M&A decisions. To the extent that SFAS 142 improves managers' information sets, the newly acquired information can help managers better evaluate the potential synergy between the current operating units and potential targets, leading to better M&A decisions.[29] Indeed, one of the interviewed executives commented that knowing that the company has to perform an impairment exercise every period forces senior management to make sure that the acquisition is sound; otherwise they face the possibility of goodwill impairment later on.

Following prior research, we capture M&A quality using announcement returns

[28] Note that both actual and forecasted earnings are before goodwill impairment. Thus, the results are not consistent with the notion that managers use goodwill impairment to manage earnings.
[29] We focus on the quality of M&As, not the overall investment quality, because goodwill primarily arises from the synergy of acquisitions and thus managers likely pay particular attention to the quality of past M&As during the impairment tests.

(*AcqCAR(-1,+1)*) based on the three-day cumulative market-adjusted return centered on the M&A announcement date. Because not all treatment firms experience an improvement in management forecast accuracy, the prediction only applies to treatment firms with an improvement in management forecast accuracy. Thus, our analysis focuses on the comparison between treatment firms with and those without an improvement in management forecast accuracy. We then estimate the following equation to examine whether treatment firms with an improvement in forecast accuracy experience an increase in M&A quality following the SFAS 142 adoption:

$$AcqCAR(-1,+1) = \beta_0 + \beta_1 Post142 + \beta_2 Post142 \times Improvement + \textbf{Controls} + Firm\ Dummies + e \quad (5)$$

Improvement is a dummy variable that equals one if the change in forecast accuracy from the pre- to the post-SFAS 142 period is above the median of all treatment firms, and zero otherwise. A positive coefficient on *Post142* × *Improvement* suggests that treatment firms with an improvement in forecast accuracy due to SFAS 142 experience higher M&A announcement returns in the post-SFAS 142 period than other treatment firms. We estimate Equation (5) using treatment firms alone because M&A transactions are rare for control firms.

Panel A of Table 10 describes the control variables used in this analysis and presents the regression results based on the treatment firms that have M&A announcements in both the pre- and post-SFAS 142 periods. We find a significantly positive coefficient on *Post142* × *Improvement* ($p = 0.056$), indicating that an improvement in forecast accuracy is associated with higher M&A announcement returns in the post-SFAS 142 period, consistent with our conjecture that treatment firms with an improvement in their internal information environment quality make better M&A decisions.

[Insert Table 10]

6.2 SFAS 142 adoption, the improvement in information environment, and internal capital

market efficiency

In this section, we examine whether an improvement in the information environment leads to higher internal capital market efficiency (*ICM Efficiency*) based on the extent to which a firm allocates more (less) of its capital to the operating units with higher (lower) future profitability. Given that managers have better information about specific reporting units, they likely make better capital allocation decisions after the adoption of SFAS 142. As one of the interviewed executives commented, "The impairment exercise is a very good discipline, and it is a necessary discipline….Because whatever impairment you take for goodwill will flow through your P&L, it does affect our capital allocation." Specifically, we estimate the following equation to examine whether the efficiency of internal capital allocation improves following SFAS 142 for treatment firms:

$$ICM\ Efficiency_{i,t} = \beta_0 + \beta_1\ Post142 + \beta_2\ Post142 \times Treatment + \beta_3\ Post142 \times Treatment \times Improvement + \textbf{Controls} + Firm\ Dummies + e_{i,t} \quad (6)$$

Please see the note to Panel B of Table 10 for a detailed description of *ICM Efficiency*. *Improvement* is as defined above. Since we are only interested in the incremental effect of information improvement on *ICM Efficiency* for treatment firms, *Improvement* is set to zero for all control firms; as such, we do not include *Post142* × *Improvement* in the regression. A positive coefficient on *Post142* × *Treatment* × *Improvement* suggests that firms with an improvement in forecast accuracy due to SFAS 142 also experience an improvement in internal capital allocation efficiency in the post-SFAS 142 period.

Panel B of Table 10 presents the regression results based on the sample of firms with *ICM Efficiency* data available in both periods. Consistent with our conjecture, we find a significantly positive coefficient on *Post142* × *Treatment* × *Improvement* ($p = 0.005$), indicating that the treatment firms with an improvement in forecast accuracy is associated with a greater improvement in internal capital market efficiency in the post-SFAS 142 period than other treatment firms.

6.3 SFAS 142 adoption, the improvement in information environment, and firm performance

If SFAS 142 improves the information environment and helps managers make better investment decisions, it should eventually translate into improved firm performance. As such, we examine whether treatment firms with improved forecast accuracy also enjoy better performance after the adoption of SFAS 142. Specifically, we estimate the following equation to examine whether *ROA* improves following SFAS 142 for treatment firms:

$$ROA_{i,t} = \beta_0 + \beta_1 Post142 + \beta_2 Post142 \times Treatment + \beta_3 Post142 \times Treatment \times Improvement + Lagged\ ROA + Firm\ Dummies + e_{i,t} \quad (7)$$

Similar to the analysis above, since we are only interested in the incremental effect of information improvement on *ROA* for treatment firms, *Improvement* is set to zero for all control firms; as such, we do not include *Post142* × *Improvement* in the regression. A positive coefficient on *Post142* × *Treatment* × *Improvement* suggests that firms with an improvement in forecast accuracy due to SFAS 142 also experience an improvement in performance in the post-SFAS 142 period.

Panel C of Table 10 presents the regression results. Consistent with our conjecture, we find a significantly positive coefficient on *Post142* × *Treatment* × *Improvement* ($p = 0.015$), indicating that the treatment firms with an improvement in forecast accuracy are also able to generate better performance in the post-SFAS 142 period than other treatment firms.

In sum, the results reported in this section indicate that the treatment firms experiencing an improvement in management forecast accuracy make better M&A and internal capital allocation decisions and have better performance in the post-SFAS 142 period than other treatment firms.

7. Conclusion

In this paper, we examine the effect of a change in a firm's financial reporting on its

internal information environment by investigating the impact of SFAS 142 adoption on management forecast accuracy, a proxy for internal information environment quality. We argue that a mandatory change in external reporting induces managers to acquire new information and, therefore, improves managers' information sets and the internal information environment. The adoption of SFAS 142 is an ideal setting to test this effect because it requires firms to perform a two-step impairment test, which includes calculating the fair value of the reporting units at least annually, inducing managers to collect information they otherwise would not have.

Using a difference-in-differences research design, we find that firms affected by SFAS 142 experience a greater increase in their forecast accuracy than other firms, consistent with an improvement in firms' internal information environment quality following the adoption of SFAS 142. The effect is less pronounced for firms with stronger monitoring in the pre-SFAS 142 period, but is more pronounced for firms with a higher likelihood of goodwill impairment in the post-SFAS 142 period. Treatment firms also experience an improvement in the speed of earnings announcements. A series of additional tests indicate that the results are not driven by the differences between treatment and control firms or by contemporaneous regulatory changes. We also find that firms that experience an improvement in forecast accuracy are associated with better M&A decisions, more efficient internal capital allocations, and better performance in the post-SFAS 142 period. These results indicate that improved internal information environment is one of the channels through which the change in external financial reporting affects corporate decisions and future performance.

The findings in this paper suggest that a change in external financial reporting can have a positive effect on firms' internal information environment and, as such, should be of interest to standard setters, practitioners, and researchers.

References

AICPA, 1970, Accounting Principles Board (APB) Opinions No. 17: Intangible Assets.

Ajinkya, B., S. Bhojraj, and P. Sengupta, 2005, The association between outside directors, institutional investors, and the properties of management earnings forecasts, *Journal of Accounting Research* 43: 343-376.

Beasley, M., 1996, An empirical analysis of the relation between the board of director composition and financial statement fraud, *The Accounting Review* 71: 443-465.

Berger, P. and R. Hann, 2003, The impact of SFAS 131 on information and monitoring, *Journal of Accounting Research* 41: 163-223.

Berger, P. and R. Hann, 2007, Segment profitability and the proprietary and agency costs of disclosure, *The Accounting Review* 82: 869-906.

Biddle, G. and G. Hilary, 2006, Accounting quality and firm-level capital investment, *The Accounting Review* 81: 963-982.

Biddle, G., G. Hilary, and R. Verdi, 2009, How does financial reporting quality relate to investment efficiency?, *Journal of Accounting and Economics* 48: 112-131.

Chen, C., M. Kohlbeck, and T. Warfield, 2008, Timeliness of impairment recognition: Evidence from the initial adoption of SFAS 142, *Advances in Accounting* 24: 72-81.

Chen, W., P. Shroff, and I. Zhang, 2013, Consequences of booking market-driven goodwill impairments, Working Paper, University of Minnesota.

Cheng, Q., T. Luo, and H. Yue, 2013, Managerial incentives and management forecast precision, *The Accounting Review* 88: 1575-1602.

Cho, Y. J., 2015, Segment disclosure transparency and internal capital market efficiency: Evidence from SFAS No. 131, *Journal of Accounting Research* 53: 669-723.

Comiskey, E. and C. Mulford, 2010, Goodwill, triggering events, and impairment accounting, *Managerial Finance* 36: 746-767.

Dechow, P., R. Sloan, and A. Sweeney, 1996, Causes and consequences of earnings management: An analysis of firms subject to enforcement actions by the SEC, *Contemporary Accounting Research* 13: 1-36.

Dorantes, C., C. Li, G. Peters, and V. Richardson, 2013, The effect of enterprise systems implementation on the firm information environment, *Contemporary Accounting Research* 30: 1427-1461.

FASB (Financial Accounting Standards Board), 1995, Statement of Financial Accounting Standards No. 121: Accounting for the impairment of long-lived assets and for long-lived assets to be disposed of.

FASB (Financial Accounting Standards Board), 2001, Statement of Financial Accounting Standards No. 142: Goodwill and other intangible assets.

Feng, M., C. Li, and S. McVay, 2009, Internal control and management guidance, *Journal of Accounting and Economics* 48: 190-209.

Francis, J., J. Hanna, and L. Vincent, 1996, Causes and effects of discretionary asset write-offs, *Journal of Accounting Research* 38: 117-134.

Frankel, R., M. McNichols, and P. Wilson, 1995, Discretionary disclosure and external financing, *The Accounting Review* 70: 135-150.

Gallemore, J. and E. Labro, 2014, The importance of the internal information environment for tax avoidance, *Journal of Accounting and Economics*, Forthcoming.

Goodman, T., M. Neamtiu, N. Shroff, and H. White, 2014, Management forecast quality and capital investment decisions, *The Accounting Review*, 89: 331-365.

Graham, J., C. Harvey, and S. Rajgopal, 2005, The economic implications of corporate financial reporting, *Journal of Accounting and Economics* 40: 3-73.

Graham, J., M. Hanlon, and T. Shevlin, 2011, Real effects of accounting rules: Evidence from multinational firms' investment location and profit repatriation decisions, *Journal of Accounting Research* 49: 137-185.

Guinn, R., R. Schroeder, and S. Sevin, 2005. Accounting for Asset Retirement Obligations, *The CPA Journal*.

Hayn, C. and J. Hughes, 2006, Leading indicators of goodwill impairment, *Journal of Accounting, Auditing, and Finance* 21: 223-265.

Hemmer, T. and E. Labro, 2008, On the optimal relation between the properties of managerial and financial reporting systems, *Journal of Accounting Research* 46: 1209-1240.

Holtzman, M. P. and W. M. Sinnett, 2009, Goodwill impairments. http://www.duffandphelps.com/SiteCollectionDocuments/Articles/09_goodwill_impairments.pdf

Hope, O. and W. Thomas, 2008, Managerial empire building and firm disclosures, *Journal of Accounting Research* 46: 591-626.

Huefner, R. and J. Largay, 2004, The effect of the new goodwill accounting rules on financial statements, *The CPA Journal* 10: 30-35.

Hutton, A., 2005, Determinants of managerial earnings guidance prior to Regulation Fair Disclosure and bias in analysts' earnings forecasts, *Contemporary Accounting Research* 22: 867-914.

Ittner, C. and J. Michels, 2017, Risk-based forecasting and planning and management earnings forecasts, *Review of Accounting Studies* 22: 1005-1047.

Karamanou, I. and N. Vafeas, 2005, The association between corporate boards, audit committees, and management earnings forecasts: An empirical analysis, *Journal of Accounting Research* 43: 453-486.

Kasznik, R., 1999, On the association between voluntary disclosure and earnings management, *Journal of Accounting Research* 37: 57-81.

Klein, A., 2002, Audit committee, board of director characteristics, and earnings management, *Journal of Accounting and Economics* 33: 375-400.

Lewis, E., J. Lippitt, and N. Mastracchio, 2001, Users' comments on SFAS 141 and 142 on business combinations and goodwill, *The CPA Journal*.

Li, F., R. Lundholm, and M. Minnis, 2013, A measure of competition based on 10-K filings, *Journal of Accounting Research* 51: 399-436.

Li, K. and R. Sloan, 2017, Has goodwill accounting gone bad?, *Review of Accounting Studies* 22: 964-1003.

Li, Z., P. Shroff, R. Venkataraman, and X. Zhang, 2011, Causes and consequences of goodwill impairment losses, *Review of Accounting Studies* 16: 745-778.

Malmendier, U., and G. Tate, 2008, Who makes acquisitions? CEO overconfidence and the market's reaction, *Journal of Financial Economics* 89: 20-43.

McNichols, M. and S. Stubben, 2008, Does earnings management affect firms' investment decisions?, *The Accounting Review* 83: 1571-1603.

Miller, G., 2002, Earnings performance and discretionary disclosure, *Journal of Accounting Research* 40: 173-204.

Ramanna, K., 2008, The implications of unverifiable fair-value accounting: Evidence from the political economy of goodwill accounting, *Journal of Accounting and Economics* 45: 253-281.

Ramanna, K. and R. Watts, 2012, Evidence on the use of unverifiable estimates in required goodwill impairment, *Review of Accounting Studies* 17: 749-780.

Reason, T., 2003, Goodwill to all pieces: Are companies properly valuing and assigning acquired intangibles to business units?, CFO Magazine.

Riedl, E., 2004, An examination of long-lived asset impairments, *The Accounting Review 79*: 823-852.

Rogers, J. and P. Stocken, 2005, Credibility of management forecasts, *The Accounting Review* 80: 1233-1260.

Shroff, N., 2017, Corporate investment and changes in GAAP, *Review of Accounting Studies* 22: 1-63.

Williams, P., 1996, The relation between a prior earnings forecast by management and analyst response to a current management forecast, *The Accounting Review* 71: 103-115.

Zang, Y. S., 2008, Discretionary behavior with respect to the adoption of SFAS142 and the behavior or security prices, *Review of Accounting and Finance* 7: 38-68.

Appendix A: Variable Definitions

Key dependent variable

Forecast Accuracy = management forecast accuracy, averaged across management forecasts each firm-year, calculated as the absolute value of the difference between management earnings forecast and actual earnings multiplied by negative one, scaled by the stock price at the beginning of the fiscal year.

Independent variables of interest

Post142 = an indicator variable that equals one for the post-SFAS 142 period, and zero otherwise.

Treatment = an indicator variable that equals one for firms in the treatment group, and zero for control firms.

Control variables

InstOwn = institutional ownership, measured as the number of shares held by institutional investors as reported in Thomson Reuters Institutional (13f) Holdings database divided by the total number of shares outstanding. Firms not covered by 13f institutions are assumed to have zero institutional ownership.

AC = analyst coverage, calculated as the number of unique analysts who issue earnings forecasts for the firm as reported in the IBES database. Firms not covered by IBES are assumed to have zero analyst coverage.

RetVol = return volatility, measured as the standard deviation of the firm's daily stock returns over the fiscal year.

NumSeg = the number of business and geographic segments.

EqIss = an indicator variable that equals one for firms that issue additional equity during the fiscal year as reported in Security Data Corporation's (SDC) Global New Issues database.

Log(AT) = the natural logarithm of total assets at the beginning of the fiscal year.

MTB = the market-to-book ratio, measured as the market value of equity divided by book value of equity at the beginning of the fiscal year. A firm's market value of equity is calculated as the number of shares outstanding multiplied by the closing price at its fiscal year-end.

ROA= return on assets, measured as income before extraordinary items divided by the beginning-of-period total assets.

Ret = the market-adjusted annual return over the fiscal year.

Loss = an indicator variable that equals one if the firm's income before extraordinary items is less than zero, and zero otherwise.

Leverage = long term debt plus debt in current liabilities, scaled by total assets.

CF = Operating cash flows divided by the beginning-of-period total assets.

Horizon = the number of days between managers' forecast date and the fiscal period-end, averaged across each firm-year, scaled by 365.

Partitioning variables

High_Monitoring = an indicator variable that equals one if the firm's board independence, market value of equity, and the common factor of monitoring measured over the pre-SFAS 142 period is above the sample median in Columns (1), (2), and (3) of Table 4, respectively, and zero otherwise. Board independence (*BIND*) is defined as the proportion of unaffiliated board directors on the board. Market value of equity (*MVE*) is calculated as the number of shares outstanding multiplied by the closing price at the fiscal year-end. The

common factor of monitoring is obtained from a factor analysis of three proxies for monitoring: G-index (inverse ranking), CEO tenure (inverse ranking), and an indicator for Big 4 auditors.

High_Likelihood = an indicator variable that equals one if the change in the market-to-book ratio (*MTB*) from the pre- to the post-SFAS 142 period is in the bottom quintile of the sample distribution (Column (1) of Table 5), the change in firm competition (*Competition*) from the pre- to the post-SFAS 142 period is positive (Column (2) of Table 5), or the impairment probability estimated over the post-SFAS 142 period is above the sample median (Column (3) of Table 5), and zero otherwise. *Competition* is measured as the number of competition-related words scaled by the total number of words in the 10K, as in Li et al. (2013). Similar to Francis et al.'s (1996) and Riedl's (2004) prediction model, the impairment probability is estimated as a function of the change in GDP, the change in the firm's industry ROA, the change in the firm's pre-write-off earnings, the change in the firm's analyst forecast EPS, and audit quality, along with managerial reporting incentives related to big bath and earnings smoothing.

Appendix B: Descriptive Statistics for Pseudo-Treatment and Pseudo-Control Samples

	Pre-SFAS 142 Period			Post-SFAS 142 Period				
	(1) Pseudo Treatment Group (N=588)	(2) Pseudo Control Group (N=248)	(3) Diff.	(4) Pseudo Treatment Group (N=816)	(5) Pseudo Control Group (N=351)	(6) Diff.	(7) Diff. in Diff.	
	Mean	Mean	p-val.	Mean	Mean	p-val.	Mean	p-val.
InstOwn	0.4948	0.4976	0.90	0.6341	0.6403	0.72	-0.0034	0.90
AC	9.5629	8.2298	0.01	9.5551	9.3789	0.69	-1.1569	0.08*
RetVol	0.0354	0.0364	0.36	0.0207	0.0229	0.00	-0.0012	0.33
NumSeg	4.7602	3.8105	0.00	4.9400	3.5271	0.00	0.4632	0.07*
EqIss	0.0782	0.0685	0.63	0.0539	0.0541	0.99	-0.0099	0.68
Log(AT)	7.2071	6.6857	0.00	7.4223	6.9636	0.00	-0.0627	0.70
AT (million)	4894.79	3377.97	0.04	6490.22	4730.98	0.02	242.42	0.84
MTB	4.1104	2.8119	0.00	3.0940	2.6915	0.05	-0.8961	0.02**
ROA	0.0337	0.0519	0.09	0.0619	0.0690	0.22	0.0110	0.34
Ret	0.1919	0.1840	0.87	0.0524	0.0958	0.17	-0.0512	0.36
Loss	0.1684	0.1411	0.33	0.1054	0.1026	0.88	-0.0244	0.46
Leverage	0.2711	0.2157	0.00	0.2278	0.1611	0.00	0.0114	0.51
CF	0.1083	0.1065	0.84	0.1105	0.1162	0.39	-0.0075	0.45
GW (million)	523.18	398.48	0.51	1206.41	325.80	0.00	755.92	0.04*
Other Intangibles (million)	744.08			525.49				

Note: Appendix B reports summary statistics on firm characteristics for the sample of 2,003 firm-years of pseudo treatment and control firms. See Appendix A for variable definitions. To reduce the influence of extreme values, all continuous variables are winsorized at the first and ninety-ninth percentiles.

Table 1 Descriptive Statistics and Industry Composition

Panel A: Descriptive Statistics

	Pre-SFAS 142 Period			Post-SFAS 142 Period				
	(1) Treatment Group (N=787)	(2) Control Group (N=247)	(3) Diff.	(4) Treatment Group (N=1,111)	(5) Control Group (N=366)	(6) Diff.	(7) Diff. in Diff.	
	Mean	Mean	p-val.	Mean	Mean	p-val.	Mean	p-val.
Control variables								
InstOwn	0.5455	0.4225	0.00	0.6699	0.6010	0.00	-0.0541	0.03**
AC	9.0356	9.5223	0.31	8.9955	9.3989	0.32	0.0833	0.89
RetVol	0.0350	0.0339	0.42	0.0208	0.0202	0.34	-0.0005	0.65
NumSeg	4.9898	3.7166	0.00	5.1125	3.7459	0.00	0.0934	0.71
EqIss	0.0673	0.0850	0.38	0.0549	0.1175	0.00	-0.0449	0.06*
Log(AT)	7.1275	7.2223	0.49	7.4173	7.4142	0.98	0.0979	0.53
AT (million)	4,593.04	5,899.92	0.07	5,942.88	6,894.58	0.16	355	0.75
MTB	3.4187	3.7639	0.35	2.9454	2.8572	0.67	0.4334	0.25
ROA	0.0535	0.0385	0.15	0.0624	0.0624	1.00	-0.0150	0.08*
Ret	0.2163	0.1925	0.61	0.0550	0.0520	0.90	-0.0208	0.67
Loss	0.1321	0.1457	0.59	0.0765	0.0820	0.74	0.0081	0.77
Leverage	0.2637	0.2616	0.89	0.2162	0.2176	0.91	-0.0035	0.84
CF	0.1145	0.1067	0.41	0.1132	0.1117	0.82	-0.0063	0.49
GW (million)	846.39			1,123.50				
Partitioning variables used in cross-sectional analyses								
BIND	0.7148	0.6609	0.01	0.7662	0.7026	0.00	0.0096	0.63
MVE (million)	5,362.42	4,416.90	0.20	6,083.35	4,847.33	0.04	290.50	0.78
Common Factor of Monitoring	0.0401	0.1101	0.07	0.0175	0.1132	0.71	0.0821	0.17

MTB	3.4187	3.7639	0.35	2.9454	2.8572	0.67	0.4334	0.25
Competition	0.6455	0.6864	0.43	0.3201	0.3536	0.22	0.0074	0.88
Impairment Probability	0.1882	0.2013	0.20	0.2129	0.2197	0.18	0.0063	0.55

Table 1 (Cont'd)

Panel B: Industry Composition

Industry Description	SIC Code	Treatment Firms		Control Firms		All Sample Firms	
		Frequency	%	Frequency	%	Frequency	%
Durable manufacturers	3000-3999, excluding 3570-3579 and 3670-3679	125	29%	22	14%	147	25%
Retail	5000-5999	73	17%	24	16%	97	16%
Computers	3570-3579, 3670-3679, 7370-7379	48	11%	18	12%	66	11%
Finance, insurance, real estate	6000-6799	38	9%	16	11%	54	9%
Utilities	4900-4999	4	1%	49	32%	53	9%
Services	7000-8999, excluding 7370-7379	44	10%	4	3%	48	8%
Textile and printing/publishing	2200-2799	34	8%	6	4%	40	7%
Transportation	4000-4899	16	4%	4	3%	20	3%
Mining, construction, and extractive	1000-1999, 2900-2999	18	4%	0	0%	18	3%
Food	2000-2111	12	3%	4	3%	16	3%
Others		26	6%	5	3%	31	5%
Total		438	100%	152	100%	590	100%

Note: Table 1 reports descriptive statistics (Panel A) and industry composition (Panel B) based on a sample of 2,511 treatment and control firm-years (590 unique firms) in the sample period. See Appendix A for variable definitions. To reduce the influence of extreme values, all continuous variables are winsorized at the first and ninety-ninth percentiles.

Table 2 Univariate Analysis of Forecast Accuracy

				Treatment-Control Difference
		Treatment Group	Control Group	[p-value]
Pre-SFAS 142	*Forecast Accuracy*	-0.0518	-0.0358	-0.0160 ***
Period	N	787	247	[0.00]
Post-SFAS 142	*Forecast Accuracy*	-0.0278	-0.0253	-0.0025
Period	N	1,111	366	[0.42]
	Post-Pre Difference	0.0240 ***	0.0105 **	**0.0135** **
	[p-value]	[0.00]	[0.02]	**[0.03]**

Note: Table 2 reports the means of *Forecast Accuracy* based on 2,511 treatment and control firm-years. See Appendix A for variable definitions. To reduce the influence of extreme values, *Forecast Accuracy* is winsorized at the first and ninety-ninth percentiles.

Table 3 Effect of SFAS 142 on Forecast Accuracy: Test of H1

		(1) Full Sample		(2) Matched Sample		(3) Alternative Definition of Treatment and Control Firms	
	Pred.	Coef.	p-val.	Coef.	p-val.	Coef.	p-val.
Post142	*?*	-0.0035	0.481	-0.0042	0.388	0.0067	0.101
Post142 × Treatment	**+**	**0.0137*** **	**0.001**	**0.0112*** **	**0.007**	**0.0146** **	**0.027**
InstOwn	+	-0.0027	0.619	-0.0018	0.565	-0.0031	0.604
AC	+	0.0025***	0.000	0.0023***	0.000	0.0023***	0.000
RetVol	-	-0.0724	0.341	-0.1374	0.250	0.0579	0.607
NumSeg	-	-0.0012*	0.093	-0.0024***	0.004	-0.0004	0.357
EqIss	+	0.0018	0.290	0.0047	0.088	0.0020	0.337
Log(AT)	+	0.0312***	0.000	0.0269***	0.000	0.0371***	0.000
MTB	+	0.0019***	0.000	0.0016***	0.000	0.0020***	0.000
ROA	+	0.0552**	0.030	0.0061	0.409	0.1302***	0.001
Ret	+	-0.0141	1.000	-0.0160	1.000	-0.0147	1.000
Loss	-	-0.0081	0.061	-0.0115**	0.037	0.0000	0.503
Leverage	-	-0.0499***	0.001	-0.0698***	0.000	-0.0569***	0.001
CF	+	0.0093	0.308	0.0269*	0.092	0.0096	0.333
Horizon	-	-0.0112**	0.033	-0.0016	0.414	-0.0113*	0.052
Firm Dummies		Included		Included		Included	
N		2,511		1,881		1,898	
Adjusted R^2		0.6084		0.6215		0.6428	

Note: Table 3 reports the results from regressions of *Forecast Accuracy*. In Column (1), the analysis is based on the full sample of 2,511 treatment and control firm-years in the sample period. In Column (2), the analysis is based on 1,881 firm-years from matched treatment and control firms in the sample period. To perform matching, we first estimate the propensity score as the conditional probability that a firm is a treatment firm based on firm characteristics (i.e., the control variables used in our main regressions) over the pre-SFAS 142 period. Then for each control firm, we find two treatment firms as close to it as possible in terms of the propensity score across all possible permutations of pairs without replacement. In Column (3), the analysis is based on a sample of

1,898 treatment firm-years in the sample period, in which *Treatment* is redefined to take a value of one if the ratio of goodwill to long-term tangible asset (PP&E) in the post-SFAS 142 period is in the top quartile of the treatment firm sample, and zero otherwise. See Appendix A for variable definitions. To reduce the influence of extreme values, all continuous variables are winsorized at the first and ninety-ninth percentiles. P-values are based on standard errors adjusted for clustering at the industry (SIC 2 digit)-year level. The p-values are one-sided for variables with predicted signs and two-sided otherwise.

Table 4 Cross-Sectional Effect of SFAS 142 by Monitoring in the Pre-SFAS 142 period: Test of H2

		(1) *High_Monitoring* Defined Based on Board Independence		(2) *High_Monitoring* Defined Based on Market Value of Equity		(3) *High_Monitoring* Defined Based on Common Factor of Monitoring	
	Pred.	Coef.	p-val.	Coef.	p-val.	Coef.	p-val.
Post142	*?*	-0.0047	0.587	-0.0111	0.203	-0.0106	0.210
Post142 × Treatment	+	0.0248***	0.002	0.0281***	0.001	0.0291***	0.000
Post142 × High_Monitoring	*?*	0.0110	0.297	0.0112	0.221	0.0127*	0.085
Post142 × Treatment × High_Monitoring	**-**	**-0.0212****	**0.028**	**-0.0209****	**0.020**	**-0.0240*****	**0.005**
InstOwn	+	0.0052	0.341	-0.0051	0.706	-0.0119	0.815
AC	+	0.0027***	0.000	0.0025***	0.000	0.0017***	0.001
RetVol	-	0.0536	0.393	-0.0905	0.309	-0.0643	0.400
NumSeg	-	-0.0010	0.182	-0.0013*	0.081	-0.0018*	0.067
EqIss	+	0.0010	0.397	0.0011	0.360	0.0025	0.322
Log(AT)	+	0.0287***	0.000	0.0313***	0.000	0.0430***	0.000
MTB	+	0.0018***	0.000	0.0018***	0.000	0.0022***	0.000
ROA	+	0.0491*	0.083	0.0572**	0.026	0.1334***	0.002
Ret	+	-0.0157	1.000	-0.0141	1.000	-0.0202	1.000
Loss	-	-0.0059	0.165	-0.0086*	0.052	0.0063	0.818
Leverage	-	-0.0463***	0.004	-0.0487***	0.001	-0.0516**	0.020
CF	+	0.0168	0.251	0.0105	0.287	0.0180	0.231
Horizon	-	-0.0071	0.177	-0.0116**	0.031	-0.0176**	0.037
Firm Dummies		Included		Included		Included	
N		2,074		2,476		1,125	
Adjusted R^2		0.6238		0.6113		0.6337	

Note: Table 4 reports the results from regressions of *Forecast Accuracy*. In Column (1) ((2), (3)), the analysis is based on a sample of 2,074 (2,476, 1,125) treatment and control firm-years with data on the additional variables in the sample period. See Appendix A for variable definitions. To reduce the influence of extreme values, all continuous variables are winsorized at the first and ninety-ninth percentiles. P-values are based on standard errors adjusted for clustering at the industry (SIC 2 digit)-year level. The p-values are one-sided for variables with predicted signs and two-sided otherwise.

Table 5 Cross-Sectional Effects of SFAS 142 by Goodwill Impairment Likelihood: Test of H3

		(1) *High_Likelihood* Defined Based on Change in MTB		(2) *High_Likelihood* Defined Based on Change in Competition		(3) *High_Likelihood* Defined Based on Impairment Probability	
	Pred.	Coef.	p-val.	Coef.	p-val.	Coef.	p-val.
Post142	*?*	0.0010	0.842	-0.0007	0.922	0.0049	0.452
Post142 × Treatment	+	0.0110**	0.015	0.0106*	0.705	0.0026	0.349
Post142 × High_Likelihood	*?*	-0.0322***	0.000	-0.0222	0.181	-0.0128	0.148
Post142 × Treatment × High_Likelihood	**+**	**0.0190****	**0.015**	**0.0329****	**0.038**	**0.0192****	**0.027**
InstOwn	+	-0.0056	0.728	-0.0117	0.817	-0.0044	0.681
AC	+	0.0025***	0.000	0.0023***	0.000	0.0025***	0.000
RetVol	-	-0.1175	0.248	-0.1576	0.260	-0.0897	0.308
NumSeg	-	-0.0010	0.117	-0.0008	0.267	-0.0013*	0.085
EqIss	+	0.0019	0.273	0.0006	0.451	0.0013	0.353
Log(AT)	+	0.0322***	0.000	0.0347***	0.000	0.0312***	0.000
MTB	+	0.0016***	0.000	0.0025***	0.000	0.0019***	0.000
ROA	+	0.0554**	0.026	0.0602	0.160	0.0579**	0.026
Ret	+	-0.0151	1.000	-0.0147	1.000	-0.0141	1.000
Loss	-	-0.0083*	0.055	-0.0097	0.118	-0.0090**	0.043
Leverage	-	-0.0494***	0.001	-0.0506***	0.007	-0.0525***	0.001
CF	+	0.0088	0.319	0.0172	0.256	0.0108	0.285
Horizon	-	-0.0119**	0.028	-0.0070	0.203	-0.0116**	0.033
Firm Dummies		Included		Included		Included	
N		2,476		1,424		2,431	
Adjusted R^2		0.6133		0.6298		0.5746	

Note: Table 5 reports the results from regressions of *Forecast Accuracy*. In Column (1) ((2), (3)), the analysis is based on a sample of 2,476 (1,424, 2,431) treatment and control firm-years with data on additional variables in the sample period. See Appendix A for variable definitions. To reduce the influence of extreme values, all continuous variables are winsorized at the first and ninety-ninth percentiles. P-values are based on standard errors adjusted for clustering at the industry (SIC 2 digit)-year level. The p-values are one-sided for variables with predicted signs and two-sided otherwise.

Table 6 Effect of SFAS 142 on the Credibility of Management Forecasts

	Pred.	Coef.	p-val.
Post142	*?*	0.0632***	0.000
Post142 × *Treatment*	*?*	-0.0219	0.235
Surprise	+	0.1324***	0.000
Surprise × *Post142*	*?*	-0.0640***	0.006
Surprise × *Treatment*	*?*	-0.0012	0.964
Surprise* × *Post142* × *Treatment	**+**	**0.0432***	**0.056**
Firm Dummies		Included	
N		2,501	
Adjusted R^2		0.2206	

Note: Table 6 reports the results from regressions of market reaction to management forecasts based on a sample of 2,501 firm-years. The dependent variable, *CAR(-1,+1)*, is the three-day cumulative market-adjusted return centered on the management forecast date, averaged across management forecasts for each firm-year. *Surprise* is the standardized decile rank of forecast surprise, which is calculated as the management forecast minus the prevailing analyst consensus forecast, averaged across management forecasts for each firm-year. To reduce the influence of extreme values, all continuous variables are winsorized at the first and ninety-ninth percentiles. P-values are based on standard errors adjusted for clustering at the industry (SIC 2 digit)-year level. The p-values are one-sided for variables with predicted signs and two-sided otherwise.

Table 7 Effect of SFAS 142 on the Speed of Earnings Announcements

	Pred.	Coef.	p-val.
Post142	*?*	-0.0914***	0.000
Post142 × Treatment	**+**	**0.0574*** **	**0.005**
InstOwn	+	0.0068	0.432
AC	+	0.0079***	0.000
RetVol	-	0.7428	0.890
NumSeg	-	0.0046	0.882
EqIss	+	0.0132	0.147
Log(AT)	+	-0.0323	0.992
MTB	+	0.0019**	0.021
ROA	+	-0.0292	0.677
Ret	+	0.0105	0.107
Loss	-	-0.0128	0.225
Leverage	-	0.0105	0.603
CF	+	0.0272	0.320
Firm Dummies		Included	
N		2,473	
Adjusted R^2		0.7453	

Note: Table 7 reports the regression results of *Speed of EA*. The dependent variable, *Speed of EA*, is measured as (-1) times the natural logarithm of the average difference in days between the fiscal quarter-end and the quarterly earnings announcement (EA) date, across the quarters for a firm-year. See Appendix A for variable definitions. To reduce the influence of extreme values, all continuous variables are winsorized at the first and ninety-ninth percentiles. P-values are based on standard errors adjusted for clustering at the industry (SIC 2 digit)-year level. The p-values are one-sided for variables with predicted signs and two-sided otherwise.

Table 8 Falsification Tests

		(1) Pseudo Treatment Sample		(2) Pseudo Treatment Sample (excluding firms with intangible with infinite lives or goodwill)		(3) Pseudo Event Sample	
	Pred.	Coef.	p-val.	Coef.	p-val.	Coef.	p-val.
Post142	*?*	0.0011	0.858	-0.0088	0.272		
Post142 × Pseudo_Treatment	***?***	**0.0005**	**0.934**	**0.0011**	**0.904**		
Pseudo_ Post142	*?*					0.0075**	0.027
Pseudo_Post142 × Treatment	***?***					**0.0007**	**0.834**
InstOwn	+	-0.0093	0.852	-0.0327	0.954	0.0051	0.148
AC	+	0.0019***	0.000	0.0029***	0.008	0.0007***	0.001
RetVol	-	-0.4454***	0.006	-0.6301**	0.049	-0.2442***	0.002
NumSeg	-	-0.0010	0.132	-0.0006	0.328	0.0012	0.998
EqIss	+	0.0044	0.172	0.0069	0.202	-0.0016	0.779
Log(AT)	+	0.0240***	0.000	0.0540***	0.000	0.0130***	0.000
MTB	+	0.0016***	0.000	0.0036***	0.001	0.0008***	0.000
ROA	+	0.0436**	0.014	0.0230	0.293	0.0340***	0.005
Ret	+	-0.0157	1.000	-0.0113	0.977	-0.0107	1.000
Loss	-	-0.0109**	0.012	-0.0186**	0.021	-0.0109***	0.000
Leverage	-	-0.0485***	0.001	-0.0631**	0.027	-0.0074	0.155
CF	+	0.0049	0.394	0.0088	0.401	0.0150	0.117
Horizon	-	-0.0139**	0.024	-0.0032	0.402	-0.0050	0.145
Firm Dummies		Included		Included		Included	
N		2,003		650		4,304	
Adjusted R^2		0.5331		0.5263		0.4766	

Note: Table 8 reports the results from regressions of *Forecast Accuracy*. In Columns (1) and (2), *Pseudo_Treatment* equals one if the firm reports Other Intangibles throughout the six-year sample period and zero for pseudo control firms, which do not have any Other Intangibles throughout the six-year period. In Column (1), the sample includes 2,003 firm-years from the pseudo-treatment and pseudo-control sample that issued earnings forecast at least once in both the pre- and post-SFAS 142 periods. In Column (2), we exclude pseudo-treatment firms from the sample if they report either goodwill or other intangibles with infinite lives. In Column (3), the pseudo-adoption year is 2006; *Pseudo_Post142* equals one for the years 2007 through 2009 and zero for the years 2003 through 2005. The results are based on a sample of 4,304 firm-years from the treatment and control firms that issued earnings forecast at least once in both the pseudo pre- and post-SFAS 142 periods. Treatment (control) firms are the firms that have (do not have) goodwill from 2003 to 2009. See Appendix A for variable definitions. To reduce the influence of extreme values, all continuous variables are winsorized at the first and ninety-ninth percentiles. P-values are based on standard errors adjusted for clustering at the industry (SIC 2 digit)-year level. The p-values are one-sided for variables with predicted signs and two-sided otherwise.

Table 9 Effect of SFAS 142 on Management Forecast Accuracy – Controlling for Impact of Contemporaneous Changes

Panel A: Excluding Firms with Internal Control Material Weaknesses

	Pred.	Coef.	p-val.
Post142	*?*	-0.0062	0.264
Post142 × Treatment	**+**	**0.0163*** **	**0.001**
Control Variables		Included	
Firm Dummies		Included	
N		2,076	
Adjusted R^2		0.6304	

Panel B: Controlling for Changes in Board Independence

	Pred.	Coef.	p-val.
Post142	*?*	-0.0018	0.763
Post142 × Treatment	**+**	**0.0139*** **	**0.005**
Post142 × Δ*BIND*	+	0.0346**	0.016
Control Variables		Included	
Firm Dummies		Included	
N		2,035	
Adjusted R^2		0.6045	

Note: Table 9 reports the results from regressions of *Forecast Accuracy*. In Panel A, the regression is estimated after excluding firms that disclosed internal control material weaknesses under SOX Section 302 or 404. In Panel B, the regression is estimated after including *Post142* × Δ*BIND*. Δ*BIND* is the change in the average proportion of independent directors on the board from the pre- to the post-SFAS 142 period. Δ*BIND* is not included in the regression because it is subsumed by the firm fixed effect. See Appendix A for variable definitions. To reduce the influence of extreme values, all continuous variables are winsorized at the first and ninety-ninth percentiles. P-values are based on standard errors adjusted for clustering at the industry (SIC 2 digit)-year level. The p-values are one-sided for variables with predicted signs and two-sided otherwise.

Table 10 Effect of SFAS 142 on Investment Efficiency and Firm Performance

Panel A: M&A Quality (AcqCAR(-1,+1))

	Pred.	Coef.	p-val.
Post142	*?*	-0.0066	0.321
Post142 × Improvement	**+**	**0.0109***	**0.056**
Tobin's q	*?*	-0.0075**	0.021
Log(MV)	*?*	-0.0026	0.721
Leverage	*?*	0.0194	0.489
ROA	*?*	0.0079	0.820
Numseg	*?*	0.0010	0.490
InstOwn	*?*	0.0026	0.904
RelSize	+	0.0000	0.394
Public	-	-0.0207***	0.003
Domestic	*?*	-0.0055	0.381
Tender	*?*	0.0141	0.188
AllCash	-	0.0007	0.556
AllStock	-	0.0129	0.868
DiffInd	-	-0.0051	0.185
Hostile	-	0.0085	0.717
NumBidder	-	-0.0190*	0.091
Firm Dummies		Included	
N		713	
Adjusted R^2		0.0963	

Note: Table 10 reports the results of the analyses that examine the impact of SFAS 142 on investment efficiency and performance. Panel A of Table 10 reports the results from regressions of acquirers' M&A announcement returns based on a sample of 713 M&A announcements of treatment firms that have at least one M&A announcement in both the pre- and post-SFAS 142 periods. The sample consists only of treatment firms because M&A transactions are rare for control firms. The dependent variable, *AcqCAR(-1,+1)*, is the three-day cumulative market-adjusted return centered around the M&A announcement date. We use SDC Platinum Merger and Acquisition Database and select completed transactions identified as mergers, acquisitions of majority interest, and acquisition of assets made by US firms. To ensure the economic significance of the M&A transactions, we require the transaction value be greater than $1 million and its relative size (defined as the ratio of transaction value to the acquirer's pre-acquisition market value of equity) be at least 1%. *Improvement* equals one if the change in forecast accuracy from the pre- to the post-SFAS 142 period is above the median of treatment firms, and zero otherwise. *Tobin's q*, *Log(MV)*, *Leverage*, *ROA, NumSeg, and InstOwn* are measured at the last fiscal-year-end prior to the M&A announcement. To reduce the influence of extreme values, all continuous variables are winsorized at the first and ninety-ninth percentiles. P-values are based on standard errors adjusted for clustering at the industry (SIC 2 digit)-year level. The p-values are one-sided for variables with predicted signs and two-sided otherwise.

Variable definitions:

Tobin's q = the sum of market value of equity, book value of preferred stock, and book value of debt, scaled by total assets.

Log(MV) = the natural logarithm of the market value of equity.

Leverage =	long term debt plus debt in current liabilities, scaled by total assets.
ROA =	return on assets, measured as income before extraordinary items divided by the beginning-of-period total assets.
NumSeg =	the number of business and geographic segments.
InstOwn =	institutional ownership, measured as the number of shares held by institutional investors as reported in Thomson Reuters Institutional (13f) Holdings database divided by the total number of shares outstanding. Firms not covered by 13f institutions are assumed to have zero institutional ownership.
RelSize =	the relative size of the transaction, calculated as the deal's transaction value scaled by the acquirer's pre-acquisition market value of equity.
Public =	a dummy variable that equals one if the target is a public firm, and zero otherwise.
Domestic =	a dummy variable that equals one if the target is a US firm, and zero otherwise.
Tender =	a dummy variable that equals one if the transaction is classified as tender offer, and zero otherwise.
AllCash =	a dummy variable that equals one if the only consideration offered for the transaction is cash, earnout, or assumption of liabilities, or any combination of the three.
AllStock =	a dummy variable that equals one if the only consideration for the transaction is a form of stock.
DiffInd =	a dummy variable that equals one if the acquirer's two-digit primary SIC code is different from that of the target, and zero otherwise.
Hostile =	a dummy variable that equals one if the attitude of the target company's management or board of directors toward the transaction is hostile, and zero otherwise.
NumBidder =	the number of bidders for the same target.

Table 10 (Cont'd)

Panel B: Internal Capital Market Efficiency (ICM Efficiency)

	Pred.	Coef.	p-val.
Post142	*?*	-0.1158**	0.027
Post142 × Treatment	*?*	0.0259	0.696
Post142 × Treatment × Improvement	**+**	**0.1670*** **	**0.005**
CAPX	*?*	-2.0395**	0.041
Leverage	*?*	0.2112	0.399
Dividend	*?*	0.0992	0.265
Liquidity	*?*	-0.2226	0.383
Log(AT)	*?*	-0.1488**	0.015
MTB	*?*	-0.0106	0.102
ROA	*?*	-0.7658	0.117
Ret	*?*	-0.0740	0.110
Loss	*?*	-0.1128	0.189
NumSeg	*?*	0.0431**	0.013
Firm Dummies		Included	
N		628	
Adjusted R^2		0.0916	

Note: Panel B of Table 10 reports the results from regressions of *ICM Efficiency*, a firm's internal capital market efficiency. The analysis is based on a sample of 628 firm-years with *ICM Efficiency* measurable in both the pre- and post-SFAS 142 periods. *ICM efficiency* is the sum of Δ*CAPX* among operating units with higher future profitability minus the sum of Δ*CAPX* among operating units with lower future profitability, scaled by average total *CAPX:*

$$ICM\ \ Efficiency_{it} = \frac{\sum_j \Delta CAPX_{ijt} \cdot HFP_{ijt} - \sum_j \Delta CAPX_{ijt} \cdot LFP_{ijt}}{(\sum_j CAPX_{ijt} + \sum_j CAPX_{ijt-1}) \Big/ 2},$$

where, $\Delta CAPX_{ijt}$ is the change in capital expenditures (*CAPX*) for operating unit *j* of firm *i* in year *t,* HFP_{ijt} (LFP_{ijt}) is an indicator variable for operating units with high (low) future profitability. An operating unit is regarded as having high (low) future profitability if its future profitability is higher (lower) than the median of future profitability across operating units of the firm, in which an operating unit's future profitability is assumed to be the median value of the one-year-ahead ROA of single-industry firms in the same industry. Note that an operating unit is defined based on the reported segments with the same four-digit SIC codes. For treatment firms, *Improvement* equals one if the change in forecast accuracy from the pre- to the post-SFAS 142 period is above the median of treatment firms, and zero otherwise. *Improvement* is zero for control firms. *CAPX* is capital expenditure scaled by total assets. *Dividend* is a dummy variable equal to one if the firm pays dividends in the year and zero otherwise. *Liquidity* is cash plus cash equivalents, scaled by total assets. See Appendix A for the definition of other variables. To reduce the influence of extreme values, all continuous variables are winsorized at the first and ninety-ninth percentiles P-values are based on standard errors adjusted for clustering at the industry (SIC 2 digit)-year level. The p-values are one-sided for variables with predicted signs and two-sided otherwise.

Table 10 (Cont'd)

Panel C: Firm Performance (ROA)

	Pred.	Coef.	p-val.
Post142	*?*	0.0137*	0.055
Post142 × Treatment	*?*	-0.0059	0.179
Post142 × Treatment × Improvement	**+**	**0.0099****	**0.015**
Lagged ROA	+	0.2803***	0.001
Firm Dummies		Included	
N		2,444	
Adjusted R^2		0.4916	

Note: Panel C of Table 10 reports the results from regressions of *ROA* based on a sample of 2,444 firm-years with ROA measurable in both the pre- and post-SFAS 142 periods. For treatment firms, *Improvement* equals one if the change in forecast accuracy from the pre- to the post-SFAS 142 period is above the median of treatment firms, and zero otherwise. *Improvement* is zero for control firms. To reduce the influence of extreme values, all continuous variables are winsorized at the first and ninety-ninth percentiles P-values are based on standard errors adjusted for clustering at the industry (SIC 2 digit)-year level. The p-values are one-sided for variables with predicted signs and two-sided otherwise.