How Good is Goodwill Accounting?
Comparative Evidence on post-FAS 141(R) Acquired Intangibles Accounting

Anne Beatty[a] Scott Liao[b] Joseph Weber[c]

April 30, 2025

Abstract

Concerns that goodwill impairments unresponsiveness to declining performance produces inflated goodwill led standard-setters to reconsider post-acquisition impairment-only accounting. We use granular large-scale data to provide institutionally relevant novel descriptive evidence motivated by this hotly debated accounting standard. Comparing goodwill versus other acquired intangibles growth-rates for firms reporting goodwill throughout the 2010–2020 post-FAS14(R) period provides no evidence of runaway goodwill inflation concerns. For firms with goodwill anytime during 2010-2020 we use Shapley values to explore the explanatory power of performance factors affecting goodwill impairments. Consistent with standard-setters intent, single-segment market performance explains 81% of goodwill impairment incidence variation (controlling for Fama-French-38-industry and time fixed-effects.) Limited evidence of reduced impairment incidence after incorporating FASB sanctioned control-premia or alternative market-values provides little support for discretionary impairment avoidance. Conversely, discretionary impairment recognition is supported by higher impairment incidence when IASB (2020) proposed off-balance-sheet headroom or market-to-book decreases are incorporated in book-values.

Keywords: Goodwill; Post-acquisition accounting; Intangible assets; Alternative methods.

We thank Matthias Breuer, Christine Botosan, Nellie Debbler (FASB discussant), Hila Fogel-Yaari, Michelle Hanlon, Trevor Harris, Claudia Marangoni (discussant), Mike Minnis (Chookaszian Research Center Director), Doran Nissim, SP Kothari, Doug Skinner (Academic discussant), Ram Venkataranam, Rodrigo Verdi and seminar participants at the University of California, Berkeley, Cambridge University, University of Cincinnati, Columbia University, Cyprus Accounting Symposium, the 2024 FASB Academic Research Symposium, LUMS/AMBS/ICAEW conference, MIT brownbag, New York University and University of Texas Arlington for their valuable comments and suggestions.

a) Fisher College of Business, The Ohio State University, 406 Fisher Hall, 2100 Neil Avenue Columbus, OH 43210
b) Rotman School of Management, University of Toronto, 105 St. George Street Toronto, ON M5S3E6
c) Sloan School of Management, Massachusetts Institute of Technology, 50 Memorial Drive, E52-325 Cambridge, MA 02142

I. INTRODUCTION

Over the 20 years since switching from an amortization and impairment to an impairment-only post-acquisition accounting model for goodwill and indefinite-lived intangibles, practitioners, standard-setters, and academics have raised concerns that discretion used to avoid impairments has led to inflated goodwill balances. For example, in the section titled "goodwill balances are too high" IFRS (2021a) summarizes constituent feedback on goodwill accounting. They cite "national standard setters" as well as several academic studies and other respondents who indicate goodwill balances have been growing and are currently too high due to deficiencies in the impairment model.[1] These criticisms culminated in both the IASB and the FASB proposing modifications to the impairment-only approach. The IASB continues to consider ways to address these concerns, and, after tabling amortization, the FASB included goodwill accounting in its 2025 Agenda Consultation.[2] Goodwill accounting remains a hotly debated core standard-setting topic.

Understanding basic facts about goodwill amounts and impairment incidence rates with exploratory data-driven evidence can enhance understanding of the potential magnitudes of standard-setting constituents' concerns. We provide this evidence by comparing goodwill balances and impairment incidences to those of finite-lived intangible assets. While finite-lived intangibles are both amortized and impairment tested based on a non-discounted cash flow trigger, goodwill is not amortized and is tested for impairment annually (or more frequently if circumstances suggest reduced fair values). Thus, comparing goodwill accounting to finite-lived intangible accounting

[1] See IFRS (2021a) Goodwill Impairment Subsequent Accounting for Goodwill. https://www.ifrs.org/content/dam/ifrs/meetings/2021/april/iasb/ap18f-subsequent-accounting-for-goodwill.pdf.
[2] See Appendix A, https://www.ifrs.org/news-and-events/updates/iasb/2025/iasb-update-february-2025/, https://www.fasb.org/page/showpdf?path=invitation_to_comment-agenda_consultation.pdf, https://www.ifrs.org/content/dam/ifrs/meetings/2022/may/iasb/ap18-goodwill-and-impairment-cover-paper.pdf, and https://players.brightcove.net/2205030511001/default_default/index.html?videoId=6053108542001,

provides evidence related to the IASB and FASB proposals.

Specifically, these tests provide evidence related to the concerns about inflated goodwill balances that have arisen from the elimination of goodwill amortization. In addition, concerns about the responsiveness of impairments to declining firm performance have arisen from differences in the asset-level assessment of other intangibles versus the reporting-unit level of goodwill due to other sources of market values such as the "headroom" created by unrecognized internally generated intangibles not captured in book values.[3]

We focus on two motivating questions arising from concerns over the impairment only model: i) are goodwill balances inflating? and ii) what factors alter the goodwill impairment incidence? Following the "inverted" structure advocated by Breuer (2023) we eschew formal hypothesis testing and address each of our research questions by first examining the relevant data related to goodwill inflation and to goodwill impairment incidence. As part of this structure, we then provide a discussion considering the limitations of our findings. Finally, we conclude by discussing how our findings contribute to furthering our understanding of goodwill accounting. By updating expectations about magnitudes and uncertainty, our exploratory findings allows us to consider potential implications for standard setting and suggest avenues for future research.

We address our research questions by examining growth in goodwill relative to other acquired intangible assets and specific factors affecting the association between the goodwill impairments incidence and firm performance. By comparing the growth rates in goodwill to that of finite-lived intangibles and total intangibles, we provide evidence on asset inflation under the

[3] IFRS (2020) defines headroom as "the amount by which the recoverable amount of a cash-generating unit exceeds the carrying amount of its recognised net assets. Headroom comprises: (a) internally generated goodwill; (b) unrecognised differences between the carrying amounts of recognised assets and liabilities and their recoverable amounts; and (c) unrecognised assets and liabilities." The IFRS (2021b) headroom discussion highlights how market capitalized unrecognized assets allow for post-acquisition market decreases that do not trigger impairments.

impairment only versus the amortization and impairment model. We further examine many important subtleties in goodwill impairment testing using previously underexplored disclosures to illuminate associations between performance measures and goodwill versus finite-lived intangible impairment rates for differing goodwill allocation groups. We also provide evidence on associations between goodwill impairments and firm performance based on alternative performance and book value measurements either allowed under the current standards or being considered as modifications for goodwill accounting. Jointly, these analyses are designed to inform standard setters and researchers evaluating the impairment-only model.

We first explore whether U.S. goodwill balances grew over the post FAS 141R period.[4] We consider trends in goodwill as a percentage of both total market value of assets, and either total intangibles or the sum of goodwill and finite-lived intangibles, respectively, for a constant sample of 712 nonfinancial U.S. firms over the 10 year sample period.[5] By requiring the firm to report goodwill for the entire period, and comparing the goodwill balances of these firms to the intangible asset balances of these same firms, we limit the potential for changing economic conditions, firm performance, or changes in sample composition to affect our results. While we find a statistically significant 1.99% annual increase in finite-lived intangibles relative to asset market value, we find a decrease in goodwill relative to the same scalar of 1.28% per year. Importantly, there is a small decrease in goodwill relative to total intangibles and to the sum of goodwill and finite-lived intangibles, respectively. Thus, we find no evidence that "goodwill balances are too high" due to the impairment-only model compared to the finite-lived intangibles impairment and amortization approach. These results are inconsistent with the claims by practitioners, academics, and standard-

[4] We focus on the 2011–2020 period to ensure lagged data (2010-2019) after the adoption of FAS 141R in 2009.
[5] While our main goodwill inflation analysis mitigates effects of sample composition changes by requiring goodwill throughout the sample period, expanding the goodwill inflation analyses to firms with goodwill anytime during 2011-2020 yields similar findings. Our subsequent impairment incidence analyses relax the constant sample constraint.

setters that impairment-only accounting inflates goodwill balances.[6]

We next expand our sample to incorporate all firms with goodwill in any sample period year to examine specific concerns related to goodwill impairment testing requirements and the relation of goodwill impairments to firm performance.[7] We partition this broader sample into two groups based on whether equity book values are greater than versus less than market values, and compare incidences of goodwill impairments to finite-lived intangible impairments across these subsamples.[8] The differing accounting rules for goodwill versus finite-lived intangibles allow us to evaluate the association between accounting rules, loss recognition, and firm performance.

We further partition our data into four goodwill reporting groups: (1) single reportable segment (RS) and reporting unit (RU), (2) single RS with multiple RUs, (3) multiple RSs with goodwill universally allocated to all segments, and (4) multiple RSs with at least one segment with no goodwill allocation. These partitions allow us to examine competing arguments about the role of RUs in impairment decisions, such as Ramana and Watts' (2012) argument that discretionary goodwill allocation facilitates impairment avoidance. Finally, these partitions allow us to provide evidence on standard setters' concerns that eliminating goodwill allocation to RUs would reduce the incidence of goodwill impairments when the amount of headroom varies across units.

We find a positive relation between book versus market and impairments of goodwill across all groups, with firms having goodwill in all segments showing the most impairment.[9] The evidence that single RS and single RU firms have the fewest impairments across all partitions is consistent with FASB concerns that eliminating goodwill allocation would reduce the incidence

[6] See IFRS (2021a), AFRAC (2020), ASBJ and HKICPA Staff Paper (2020) and Patloch-Kofler and Roider (2020).
[7] The increase in the sample for these relatively rare events potentially provides for more powerful tests.
[8] Use of book over market excess as a performance measure for impairment likelihood is consistent with accounting standards and prior research (Beatty and Weber, 2006; Ramana and Watts, 2012; Li and Sloan, 2017).
[9] The timeliness and informativeness of recognized goodwill reductions is a concern with both the impairment-only and the impairment and amortization models. Impairments concurrent with poor performance would be timely.

of impairments, although these firms have the greatest difference in impairment rates based on whether book exceeds or is exceeded by market values belying these concerns.[10] Specifically, within single RS firms with multiple RUs, goodwill impairment occurs in 32.13% of observations with book values exceeding market values, more than double the rate when book falls below market (12.80%). This disparity is smaller than the sixfold increase observed in single RU firms, where impairment incidence is 30.71% when book values exceed market versus only 4.80% when its book falls below market. For single-RS firms, Shapley values indicate that market performance explains 81% of goodwill impairment incidence variation compared to 19% for controls (i.e., complexity, size, ROA, market and book values).[11] These results provide little support for the Ramana and Watts (2012) concerns since impairment avoidance is the lowest for single RU firms.

When we compare multi-RS firms, we find a statistically significantly higher rate of goodwill impairments in firms that universally allocate goodwill, compared to those having some segments without goodwill. This difference could result from the strategic goodwill allocation to only segments with the strongest performance. Alternatively, when goodwill is universally allocated, there is a larger probability of having a single RS where book exceeds market values. This second possibility is supported by the higher incidence of goodwill impairments for the subsample with universal goodwill allocation when firm market exceeds book values.

In a supplemental multi-RS firm analysis, we further explore how the impairment incidence varies with segment level performance and the interaction of segment and overall firm performance. In the absence of segment level market and book equity data we consider declines

[10] Lugo (2022) provides the following quote from FASB board member Christine Botosan 'We're making a number of significant cost reducing changes to the subsequent accounting for goodwill. So, I believe that leaving a few teeth in the impairment test like testing at a lower level is a reasonable compromise between preparers cost concerns and users concerns about losing information content from impairments becoming much less frequent.'

[11] These statistics exclude the 25% of variation that is explained by Fama-French 38 industry-and-time-fixed-effects.

in sales (a required segment disclosure) as an alternative potential impairment trigger. When market exceeds book, the segment sales decline trigger is associated with a higher incidence of goodwill impairment regardless of the goodwill allocation consistent with sales capturing declines in segment performance that are masked by aggregate firm market values in excess of book values.

In contrast, when book value exceeds market value, the relation between the goodwill impairment incidence and having at least one segment with a large sales decline depends on the goodwill segment allocation. The impairment incidence does not differ with sales performance with universal allocation where book greater than market would be triggered for at least one segment. In contrast when goodwill allocation is limited the segments assigned goodwill might not be triggered by aggregate book greater than market, increasing the importance of the individual segment performance trigger. We find higher incidence of goodwill impairment when segment sales decline and goodwill allocation is limited. Together these results indicate a book to market and sales trigger interaction that depends on the goodwill allocation.

To examine the association between our performance measures, organizational complexity, and impairment incidences under an alternative amortization and impairment accounting model, we further analyze finite-lived intangibles. We find that, for seven of the eight partitions, impairment rates are more than 50% lower for finite-lived intangibles than for goodwill. In general, the amortization and impairment model results in fewer impairments, especially for poorly performing firms, where the impairment rates are three times higher for goodwill than finite-lived intangibles. Similarly, for half of our partitions, poor performers are no more likely to record a finite-lived intangible impairment than good performers. For single-RS firms, Shapley values indicate that market performance explains only 7% of the finite-lived intangible impairment incidence variation with controls explaining the remainder (excluding 75% explained by Fama-

French-38-industry and time-fixed-effects.) Jointly these associations are consistent with the views expressed by the CFA Institute (Peters, 2021) that uninformative amortization leads to lower correlations between impairments and performance.

We next examine how potential sources of performance measurement discretion relate to the incidence of goodwill impairment. Specifically, we consider how impairment incidence differs based on i) annual industry level control premia (CP), ii) the use of analysts forecasted target prices rather than traded prices, iii) off-balance-sheet intangibles (headroom), and iv) changes in the difference between market and book values (based on the IASB's headroom proposal).

Focusing first on alternative market value measures, we note that under ASC 350 the FASB has explicitly allowed a CP adjustment added to market value to increase the impairment threshold and potential impairments avoidance. We find some marginal evidence of this with statistically and economically significantly lower impairment rates due to CP only for multi-RS firms with universal goodwill allocation (single RU firm evidence is economically but not statistically significant). We also consider analyst target price forecasts as a second alternative market measure capturing temporary market value deviations. Similarly, we find marginal evidence that firms with market prices below the target price forecasts record fewer impairments. This result is statistically and economically significant when the firm has a single RS with multiple RUs. For multi-RS firms the result is only statistically significant for firm with limited goodwill allocation.

Unlike the alternative market measures, current goodwill impairment testing requirements do not adjust book value for off-balance-sheet (OBS) headroom as proposed by the IFRS (2021b). Although not required, we find a higher impairment rate when OBS adjusted book exceeds market for each reporting group that is statistically greater for single RS-multiple RU firms. This suggests that the excess market over book value for these OBS assets only partially shields goodwill from

impairment. Similarly, while accounting standards do not adjust for decreases in market over book excesses, the goodwill impairment rate is statistically significantly higher when the market over book excess decreases rather than increases across all reporting groups suggesting declining headroom is at least partially associated with goodwill impairments.

We contribute to the goodwill accounting literature by using granular and large-scale data to make novel institutionally relevant comparisons (e.g., goodwill versus finite-lived intangibles) across reporting groups (e.g., single versus multi-unit firms), closely motivated by the standards (e.g., alternative market and book equity measures) pertaining to an ongoing hotly debated core standard-setting. We provide evidence of the potential magnitudes of the concerns related to whether "goodwill balances are too high" and the extent to which there is goodwill impairment avoidance. Specifically, we compare how post-acquisition intangible accounting variants are associated with both asset balances over time and the performance and impairment incidence association of these asset types. These analyses use the XBRL breakout of intangible assets into indefinite-lived and amortizable finite-lived intangibles to capture the joint effects of under-studied differences between an impairment-only versus amortization and impairment model and differences in impairment triggers across intangible asset types. Our finding that goodwill is declining relative to finite-lived intangibles provides no support for academic, practitioner and standard-setter arguments that the impairment-only model results in inflated goodwill balances.

We further contribute to the literature by incorporating goodwill reporting unit 10-K disclosures, to compare the relation between the impairment incidence and equity performance by goodwill allocation and reporting group for these asset types. Our finding that goodwill impairments are associated with performance across all reporting groups, and finite lived impairments do not have a similar association, provides no support for the argument that replacing

the goodwill impairment-only model would result better impairment and firm performance alignment. We also find some support for concerns that reducing requirements to allocate goodwill to reporting units might be associated with reduced impairments. We also contribute to the literature by examining alternative performance metrics using control premium data, OBS intangibles, and analysts' target price to examine discretion in the incidence of goodwill impairments. We find marginal evidence that discretion allowed by the accounting standards related to control premia or analyst target price is associated with less frequent impairments, and we find that available shielding provided by headroom is not being fully utilized.

II. INSTITUTIONAL DETAILS AND LITERATURE REVIEW

Accounting Rules for Goodwill and Other Intangibles pre and post SFAS 141

Goodwill, recognized when the acquisition purchase price exceeds the acquired identifiable net assets is allocated to reporting units, which are elements of operating segments, which are elements of reportable segments (ASC 350-20-35-10). Finite-lived intangibles are amortized over their estimated useful lives and are subject to impairment testing when events or changes in circumstances indicate potential impairment. Indefinite-lived intangibles, including goodwill, are subject to impairment testing only. Changes in goodwill balances can also arise from purchase price adjustments, disposals, foreign currency translation adjustments, and new acquisitions.

Goodwill and indefinite-lived intangibles must be evaluated for impairment at least annually during the annual assessment quarter or more frequently if circumstances arise (triggers). If book value exceeds fair value of the RU, [12] the implied goodwill value is the residual value after allocating the RU fair value to the non-goodwill assets.[13] A goodwill impairment results if the

[12] ASU 2011-08 provides an optional Step 0 qualitative likelihood assessment of RU carrying value exceeding fair value measured internally or by appraisal. (ASC 350-20-35-22 through 24).
[13] Indefinite-lived intangible impairments are based on an asset class rather than on reporting unit values.

book value exceeds the implied fair value.[14] In contrast, finite-lived intangibles are subject to amortization, do not require annual impairment testing and follow the same impairment rules as long-lived tangible assets (ASC 350-30-35-14). Thus, an impairment test is only required if circumstances suggest an asset carrying amount may not be recoverable, based on a comparison of the carrying amount to undiscounted future cash flows. In a finite-lived intangible impairment test an impairment charge must be taken if the carrying value exceeds the discounted cash flows.

There are several important elements affecting the incidence of goodwill impairments. First, the observability of a RU's market price. The firm's market price more reliably indicates the RU's fair value for firms with a single RU versus multiple RUs, providing less impairment assessment discretion. Second, the standards specifically indicate that quoted market prices are insufficient statistics for fair values. For example, even for single RU firms, market values will deviate from fair values in the presence of a control premium associated with the reporting unit's net asset bundle (ASC 350). Third, unrecognized internally generated intangibles and increases in the values of recognized assets not accounted for at fair value may reduce the effectiveness of the difference between equity market values and book values in goodwill impairment evaluations.

Post SFAS 141 Changes in M&A Accounting

After the adoption of SFAS 141, the FASB has made several important changes to accounting for goodwill and the related identifiable intangibles that arise in a business combination. Perhaps the most significant changes occurred when the FASB adopted SFAS 141(R) in 2009, which changed the purchase price allocation approach. Specifically, SFAS 141(R) expanded the scope of the assets and liabilities acquired to include contractual and non-contractual contingencies that are more likely than not to meet the definition of an asset or liability, and to

[14] This two-step process was eliminated for non-small reporting SEC filers beginning in 2020.

require firms to recognize In-Process-Research and Development (IPRD) as an asset, as opposed to an expense, at the time of the acquisition. Jointly these changes affected the amount of the acquisition price that gets allocated to goodwill and to other identifiable intangibles.[15]

Academics have suggested that this standard, and its effect on the purchase price allocation, have significantly impacted firms' financial statements. For example, Hopkins and Halsey (2023) suggest that the differences in accounting pre/post SFAS 141R are likely to "affect consolidated financial statements for many years to come and that these differences will impede the ability of analysts and investors to make valid comparisons across companies that engaged in acquisitions pre- versus post-2009." We thus focus our analyses on the period after SFAS 141R was enacted.

Issues with Compustat Data Availability for Goodwill and Other Intangible Assets

The informativeness of Compustat goodwill data has increased substantially over time. While Compustat began reporting goodwill in 1989, that data is incomplete prior to the FAS141 reporting requirement changes. Specifically, the introduction of goodwill separately reported from other intangible assets led to an increase in Compustat goodwill data. This post-2001 change increases Compustat goodwill balance accuracy, although other required goodwill reconciliation data were not immediately incorporated. E.g., goodwill acquisition data was added post SFAS 141R, but other reconciling items are still not broken out (e.g., foreign currency translations).

Due to the lack of Compustat goodwill impairments data prior to 2001, studies examining the pre-2001period imputed goodwill impairments using the change in goodwill adjusted for any amortization charges. This results in a misclassification of other factors affecting changes in goodwill as impairments. Post 2001, Compustat also includes indefinite-lived intangible impairment as part of goodwill impairments, suggesting research using goodwill impairment

[15] Post SFAS 141-R is rarely the focus except for Adame et al. (2024), who find the step 0 qualitative test allows avoidance of quantitative testing when market, book and goodwill values suggest a high impairment likelihood.

reported on Compustat may capture this measurement error. While Compustat separately reports the amount of finite-lived amortization expense, the balances of finite- and indefinite-lived intangibles are combined, as are the impairments of finite-lived and other long-lived assets. [16]

Practitioner, Investor, and Standard-Setting Literatures

The practitioner literature generally purports that goodwill balances grew dramatically in the post-FAS 141 adoption period. The evidence is less clear whether goodwill balances are growing consistently over time and economic conditions, or as a percentage of either total intangibles or other assets.[17] These articles also suggest that impairment charges are less timely in the post-SFAS 142 world and levy many other criticisms of the current goodwill accounting model.

For example, a KPMG (2020) survey of investors indicates: "There are concerns among users of financial statements that carrying amounts of goodwill may be overstated." This view motivates the discussion of the relative merits of impairment-only versus amortization and impairment models. Peters (2021) summarizing a CFA Institute survey, and Wahal and Repetto (2020), writing on behalf of Avantis Investors, indicate that goodwill balances are growing relative to equity over time with estimates of 32% in 2020 and 40% in 2019 respectively. Ryder (2018) discusses goodwill dollar values, indicating that worldwide goodwill is $8 trillion compared to $14 trillion in physical assets, but suggests goodwill impairments are increasing at a similarly fast pace.

FASB (2020) summarizes comments on a recent goodwill accounting change proposal. Over half of the respondents opposed the impairment-only model, indicating "the lack of informational utility provided by the impairment test" and "that the information provided by the

[16]In addition to potential discrepancies between Compustat and GAAP reportable segment noted in Botosan et al. (2020), the aggregation of operating segments in reportable segments makes determining the number of operating segments and reporting units difficult. Typically, only aggregated acquisition amounts for each reportable segment are disclosed making external evaluation of specific acquisitions difficult.

[17] EFRAG (2018) shows that goodwill grew in 2007-2014, but when scaled by net assets or market value of equity, they declined. Ryan (2021) shows that the ratio of goodwill to book equity grew from 9 % to 28% in 1996 - 2019.

impairment test is limited." Reasons given included "the subjectivity of the impairment test results in lower quality information … and the results of the impairment test may be anomalous because the model is inconsistently applied, and two individuals could get different answers with the same fact pattern." This subjectivity results from control premium assessments, market multiples, and market dislocations. Footnotes Analyst (2018) criticizes the goodwill impairment-only model by highlighting that shielding provided by headroom creates cross-firm variation in goodwill impairment incidences, reducing financial statement comparability and informativeness.

Academic Research

Academic post-SFAS 142 goodwill accounting research is evaluated in at least four review papers (Amel-Zadeh et al. 2013; Wen and Moerle 2016; Boennen and Glaum 2015; d'Adrcy and Tarca 2018). Rather than summarizing this large body of research, we focus on the post-acquisition goodwill accounting (impairments) research most closely related to our study.[18]

One stream of this research compares the post-SFAS 142 impairment-only model to the pre-SFAS 142 amortization and impairment model, to provide evidence on the impact of the change in post-acquisition accounting for goodwill on a variety of different economic outcomes. Bens et al. (2011) and Li et al. (2011) provide evidence that the change in accounting rules led to statistically lower market reactions to goodwill impairment in the post-period. Both papers suggest that the reduced market reactions are indicative of SFAS 142 reducing the information content of impairment losses.[19] Li and Sloan (2017) also investigate the effects of SFAS 142 on post-acquisition accounting for goodwill, focusing on whether impairments are timely. As opposed to focusing on market reactions, they examine the size of goodwill impairments, and find a greater

[18] Given our U.S. firm focus, we also omit the IFRS goodwill literature reviewed by d'Arcy and Tarca (2018.

[19] Both Bens et al. (2011) and Li et al. (2011) examine market reactions to impairments in the SFAS 142 pre, post and transition periods. The papers differ in sample composition (with Bens et al., 2011, eliminating small impairments) and research designs, but each concludes that SFAS 142 reduced the information content of firms' accounting reports.

frequency of both small and large impairments in the post-142 period. They suggest that the results of large impairments are consistent with firms taking big bath write-offs and that impairments are less timely under SFAS 142. Based on these results they argue that goodwill balances are inflated.

Linsmeier and Wheeler (2021) also use pre- and post-SFAS 142 data to compare the relative size of the income statement charges under the impairment-only versus the impairment and amortization models. Like Li et al. (2011), they find smaller impairments before SFAS 142, but, when combining goodwill impairment and amortization, goodwill is expensed more quickly pre-SFAS 142. Linsmeier and Wheeler (2021) also examine headroom in the impairment model and the IASB's proposal to adjust the impairment testing model to incorporate headroom.[20] They focus on firms where there is only one acquisition in a given year and construct a measure of pre-acquisition headroom (PAH) based on the market-to-book ratio one year prior to the acquisition. They find that, for their sample of 216 non-serial acquirers, recording goodwill impairments for declines in PAH would have resulted in more impairments in the first year after acquisition.[21]

A second research stream focuses on the post SFAS 142 model exclusively. For example, Ramana and Watts (2012) hypothesize that firms will strategically allocate goodwill to reportable segments to take advantage of the headroom in their best segment, and provide evidence that firms engage in this behavior. Potepa and Thomas (2023) provide evidence that post-SFAS 142, 65% of the acquisitions they study that are likely to impair goodwill (based on a variety of indicators) actually take an impairment charge in the subsequent two years, suggesting there is relatively little opportunism in impairment decisions.[22] Chen, Schroff and Zhang (2019) provide evidence that

[20] Specifically, the IASB is considering adjusting the goodwill impairment trigger for declines in the excess of market over book values (see IFRS Staff Paper , 2021b).

[21] The timing of the goodwill balance and decline in PAH measurement relative to the acquisition is ambiguous.

[22] Potepa and Thomas (2023) examine acquisition level hand-collected data resulting in elimination of 93% of acquisitions during their sample period. They also only study specific acquisition goodwill impairments. As a result, ½ of their sample firms' goodwill impairments are treated as non-impairment observations.

15% of impairments post SFAS 142 are due to temporary declines in market prices.

Data availability is a key issue in studies comparing pre- and post-SFAS 142 periods. There is a lack of Compustat goodwill impairments in the pre-SFAS 142 environment. Some studies manually identify impairments through keyword searches leaving the potential for uncollected smaller impairments. Alternatively, other studies, such as Bens et al. (2011) and Li and Sloan (2017), impute impairments using changes in goodwill. This computation is affected by the data issues discussed above. Similar Compustat data limitations arise in studies such as Ramana and Watts (2012) when reportable segments are used to proxy for goodwill reporting units.

III. SAMPLE SELECTION AND CHARACTERISTICS

Table 1 documents our sample selection which draws from the intersection of the Compustat and Calcbench databases during the 2011–2020 period. We limit the sample to non-financial companies incorporated in the United States with CIK codes and both current and one period lagged data. We further require at least $80 million in assets, 1.25 million shares outstanding, a closing share price of $1, and either non-zero beginning or ending goodwill balances that match across the two databases. We also require non-missing RS and RU data. These restrictions produce a sample of 15,713 firm-year observations for 2,562 firms, which represents the "overall sample." Further restricting our sample to firms that report beginning or ending goodwill balances during each of the 10 year sample period, which we use for the inflated goodwill balance analysis, produces a "constant sample" of 712 firms with 7,120 firm-year observations.

Figure 1A provides the breakdown of our constant and overall samples by RS and RU. We use Compustat segment data to define RSs, and 10-K and 10-Q key word searches to identify RUs. For single RS firms, we partition by single versus multiple RUs. For multiple RS firms, we partition by universal versus limited goodwill allocation to segments.

We find that the single RS firms with a single RU are the least common group in both the constant and overall sample representing roughly 10% of the constant versus nearly 18% of the overall sample. The most frequent constant sample group, representing over 38% of the observations, are multi-RS firms with universal allocation. The most frequent overall sample group are multi-RS firms with limited allocation. This group represents roughly 36% of both samples.

Figure 1B provides a breakdown for our constant sample based on the number of firms that report acquisitions during the 10-year sample period. Over this period, 10% of the firms do not report any acquisitions while 11% report acquisitions in all 10 years and 12% report acquisition in 9 years. The median firm reports acquisitions in 5 years and acquisitions are reported in 53% of firm-years (untabulated). The high acquisition rate highlights the difficulty with ascribing goodwill impairments to acquisitions made in a specific year in the current accounting model, and highlights the need for a different accounting model if this is desirable, as espoused by the IASB.

Table 2 provides means and standard deviations for continuous variables examined in the constate sample for the inflated goodwill balance analysis. The table provides information on statistics for the aggregate sample and partitioned by whether the weighted-useful-life of the firms' median finite-lived intangible assets over the sample period is longer than the 10-year period considered by the FASB for goodwill amortization. One third of 637 firms that disclose the useful lives of finite intangible assets had an amortization period equal to or shorter than the 10-year period. The mean amortization period for this group of firms is 7.25 years. For firms with an amortization period more than 10 years the mean amortization period is 18.35 years.

IV. ARE GOODWILL BALANCES INFLATED?

Academics, correspondents, and standard setters have expressed concerns about increasing reported goodwill balances. Our first research question is whether post-SFAS 141R goodwill impairment-only accounting is associated with inflated goodwill balances relative to the

amortization and impairment accounting for other intangibles. We focus on goodwill growth relative to the i) the market value of total assets, ii) total acquired intangible assets, and iii) sum of goodwill and finite-lived intangibles subject to both amortization and impairment testing.

Evidence of Mean Goodwill versus Mean Intangible Asset Growth

To examine our first research question about trends in goodwill versus other intangibles we focus on a constant sample of firms with goodwill throughout the 2011-2020 period to allay potential concerns that firms entering or exiting the sample affect trends in goodwill[23].We compare trends in goodwill balances to intangible assets using the means and ratios described above, by year (as reported in Calcbench.) We also conduct Mann-Kendall trends tests of these annual means.

Despite widespread concerns that the impairment-only model leads to inflated goodwill balances relative to the finite-lived intangibles amortization and impairment model, we find little evidence of increases during our sample period in the percentage of goodwill relative to i) total asset market values, ii) total intangibles, or iii) the sum of goodwill and finite-lived intangibles assets. Figure 2 Panel A indicates that as a percentage of the market value of total assets, goodwill decreases over the ten-year sample period while total intangibles and finite-lived intangibles assets increase. Finite-lived intangibles grew (goodwill declined) from 3.1% to 3.7% (from 12.8% to 11.4%) of total market asset value, a 19.35% increase or 1.99% annually (a 10.94% decline or 1.28% annually). The lowest value for each of these measures was recorded in 2013 while the highest value for each was in 2018. Consistent evidence in Panel B shows decreases over time in goodwill relative to either total intangibles or the sum of goodwill and finite-lived intangible assets.

In Table 3, we provide evidence of a statistically significant decline in the Mann-Kendall trend statistics of the ratio of goodwill to total intangibles and to the sum of goodwill and finite-

[23] Using the overall sample produces similar results, see Appendix B

lived intangibles. This suggests a slower growth in goodwill compared to other intangible assets. Separately examining these trends for firms with useful intangible lives greater than 10 years versus those that are not, provides no evidence of faster growth in goodwill relative to all intangible assets. However, for firms with shorter finite-lived intangible amortization periods we do find statistically significant evidence of lower growth in goodwill compared to finite-lived intangible.

Evidence of the Distribution of Goodwill versus Intangible Asset Growth

In addition to the Figure 2 time trends of mean goodwill versus intangibles values, Figure 3 further explores the density of annual growth in goodwill versus intangible assets partitioned by intangible amortization periods. Panel A illustrates goodwill growth with fatter tails on either end for firms with amortization period below or equal to 10 years. This suggests that firms acquire more goodwill than other intangibles in acquisitions and take larger impairments.

We further verify that the difference in distribution between goodwill and other intangibles is driven by years with acquisitions, and the distribution seems similar between goodwill and other intangibles in the non-acquisitions years (untabulated). In Panel B we also observe goodwill growth similar to other intangibles for firms with amortization period greater than 10 years. These figures suggest higher goodwill growth for firms with lower amortizable period is largest in acquisition years while annual goodwill growth is otherwise not higher than other intangibles.

V. WHAT FACTORS ALTER THE GOODWILL IMPAIRMENT INCIDENCE?

Do Goodwill Impairments Vary by Reporting Groups?

The FASB considered eliminating the requirement to allocate goodwill to reporting units (or segments) resulting in goodwill accounting at the entity level. Opponents have suggested that

it would reduce the extent to which goodwill impairments are taken when performance is poor.[24]

The ability to reconcile internally generated fair value measurements with external fair value indicators for publicly traded entities (as recommended in AICPA 2013), is relatively easier for single RS and single RU firms than for those with multiple reporting units. Universal versus limited allocation of goodwill to multiple reporting units likely affects the ease of these reconciliations. All else equal, for a given entity-wide level of relative book to market value, the probability of having at least one reporting unit with book greater than market increases with the number of reporting units. This is particularly likely for diversified conglomerates where asset values are not perfectly correlated. Compared to universal goodwill allocation to all reporting units, entity level goodwill accounting could decrease the likelihood of goodwill impairment recognition. In contrast if goodwill is strategically allocated to limited reporting units with a low probability of book value exceeding market value, eliminating the allocation to reporting units could be associated with an increase in the likelihood of impairment.

All else equal, the equivalence of the entity- and reporting-unit-level measurement of book and market values for single RU firms suggests that the incidence of goodwill impairments would be expected to be higher for single RS firms with a single RU versus single RS firms with multiple RUs when entity *book values exceed market values*. Similarly, multi-RS firms with universal goodwill allocation are expected to have higher impairment rates than those with limited goodwill allocation when entity *book values exceed market values*. In contrast, the incidence of goodwill impairment would be expected to be higher for single RS multi-RU or multi-RS firms with limited goodwill allocation when entity-wide *market values exceed book value*.

---

[24] See Botosan quote in Lugo (2022).

To better understand our binomial tests for goodwill impairment incidence differences we also conduct regression-based tests that provide conditional correlations to help alleviate confounding factors concerns. Specifically, we include the log of total assets, book equity, market equity, ROA, the Loughran and McDonald (2024) complexity measure, and FFI38 and time fixed effects. We further examine the Shapley values from these regressions to help quantify the attribution of goodwill impairment incidence variation to various factors. This analysis provides a perspective on the relative significance of these factors in driving goodwill impairment incidence.

Descriptive Statistics for Overall Sample by Reporting Groups

Table 4 reports the percentage of observations with dichotomous characteristics examined in the analysis of impairment incidences by performance groups partitioned based on single versus multi-RSs, with single RS firms further broken down into single and multi-RU and multi-RS firms broken down by limited versus universal allocation of goodwill. Among 15,713 firm-year observations, 2,662 have a single RU and RS, 2,804 have multiple RUs in a single RS, 5,786 have multi-RSs and limited allocation and 4,461 have multi-RSs and universal allocation. These groups appear similar along many dimensions, including the proportion of finite-lived impairments (*FLIMP_D*), while the incidence of goodwill impairment (*GWIMP_D*) and book value exceeding market value (B>M) both increase with reporting RSs and reporting RUs.

We also find that firms with a single RU are less likely to have book above market values measured using market prices (B>M) before or after an adjustment for a control premium ($B>M_{CP}$) or median analyst target price forecasts ($B>M_{AF}$), while the off-balance-sheet adjusted book above market ($B_{OBS}>M$) is similar for single RU and multi RS observations but higher for those with multi RU. Consistent with the differences in these performance metrics, single RU firms are much less likely to take a goodwill impairment than those with multi-RU/RS. In the analyses

that follow, we explore whether there are statistical differences in these patterns in the data.

Evidence of Goodwill Impairment Incidence by Book to Market and Reporting Group

Table 5 partitions the incidence of goodwill and finite-lived intangible impairments, by valuation groups and organizational complexity. Panel A row 1 and Figure 4 indicates that the overall goodwill impairment rate is monotonically increasing as organizational complexity increases (more RSs and RUs) with statistically significant differences between single RU versus multi-RU single RS firms (14.51% versus 6.16%), and statistically significant but economically smaller differences between limited versus universal allocation observations among multi-RS firms (19.39% versus 17.66%). We also find among multi-RS firms that impairment rates are statistically significantly higher when goodwill allocation is universal compared to when it is limited for both B>M and B<M, while among single RS firms the impairment rates are statistically and economically significantly higher for multi-RU versus single-RU observations when B<M (12.80% versus 4.80%).

These differences suggest two possibilities. Firms could strategically avoid goodwill impairments by allocating goodwill to segments with greater headroom or better performance. Alternatively, these findings could suggest an increased likelihood of triggering a goodwill impairment when goodwill is universally allocated for a given level of headroom and performance. In addition, for single RS firms, these results provide very limited evidence that impairment rates differ for more versus less complex organizations when B>M. When B<M, which suggests a goodwill impairment would not be needed at the aggregate level, we find the more reporting units a firm has, the more likely it is to take a goodwill impairment for both single and multi-RS firms.

Finally, Panel A row 4 indicates that for each reporting group, the goodwill impairment rate is both statistically and economically significantly higher when B>M versus when B<M. This

finding underscores the importance of this performance measure in explaining goodwill impairments across reporting groups. Similar results are tabulated in Appendix B after controlling for size, book equity, market equity, ROA, complexity, and fixed time effects (i.e., the regression coefficient on B>M – B<M versus the univariate value reported in Table 5 for single RU firms is 26.1 versus 25.9, for multi RU firms is 17.6 versus 19.3, for multi RS limited firms is 15.1 versus 17.8 and for multi RS universal firms is 17.6 versus 21.56).

The Shapley value decomposition depicted in Figure 5 for single RS firms indicates that of the 75% of goodwill impairment incidence variation unexplained by FFI38 and time fixed-effects, 19% is explained by the control variables while 81% is explained by the B>M – B<M performance measure. For multi-segment firms the proportion explained by this performance metric drops to 63%.In contrast, Panel B, which details a similar analysis for finite-lived intangible impairments, provides little evidence of statistical differences in impairment rates across reporting groups in the full sample or in the partition of the sample where B>M. For the multi-RS group, the impairment rate for B>M is statistically higher than B<M, suggesting a possible association between that metric and the difference between fair values and carrying values of finite-lived intangible assets for multi-RS firms. When we compare Panels A and B, in seven of the eight partitions, the impairment rate is larger for goodwill compared to finite-lived intangibles. (All are statistically significant, untabulated.) These findings together also suggest that moving the accounting rules for goodwill impairments closer to those for finite-lived intangible asset accounting is likely to reduce impairment rates.

Does Goodwill Impairment Incidence Vary by Segment Sales Declines?

We explore whether and how goodwill impairments vary with segment triggers proxied by sales declines likely indicating declines in discounted future cash flows. A decline in segment

sales is a commonly discussed indicator of impairment of multi-segment firms. For example, in their 2022 10-K Warner Brothers cite a decline in segment sales when discussing their network segment goodwill impairment. We expect firms with large segment sales declines and universal goodwill allocation to be especially likely to impair goodwill compared to firms with limited goodwill allocation. We examine whether the goodwill impairment incidence is higher in segments with large declines in segment sales, how this sales trigger interacts with firm book-to-market ratios, and whether this relation varies with goodwill allocations among segments.

If valuation and segment level signals are complements, we expect the segment sales trigger to be more important when firm B>M; on the other hand, if valuation and segment level signals are substitutes, we expect the segment sales trigger to be more indicative of goodwill impairment when firm B<M. In Figure 6, we find that when firm B>M and at least one segment experiences a large sales decline (30% or above) the incidence of goodwill impairments does not vary significantly with goodwill allocation among segments. However, when firm B<M, the presence of a large segment sales decline is associated with an increase in goodwill impairment incidence when goodwill allocation is universal consistent with sales capturing segment performance declines that are masked by aggregate firm market in excess of book values.

These findings also suggest that firm valuation performance and segment sales trigger serve as substitutes for firms with universal goodwill allocation. In the goodwill universal allocation group, the difference in goodwill impairment between B>M (40%) and B<M (35.2%) is only 4.8% when there is any segment with sales decreasing by more than 30% (i.e., the Trigger group). In contrast, for the limited allocation group, when B>M and when there is a sales trigger, 43% of firms report a goodwill impairment which is 18.8% higher than when B<M. This suggests that segment sales triggers appear to be a more important in universal allocation firms, and segment triggers appear

to be substitutes for firm level valuations for limited goodwill allocation firms.

When the sales trigger is included in the regression model for multi -RS firms we observe a reduction in the proportion of the goodwill impairment incidence variation associated with fixed effects from 45% to 38% and an increase in the proportion or the remaining variation explained by our performance metrics from 63% to 71%.

Do Goodwill Impairments Vary with Market Measures?

We also consider how several potential sources of performance measurement discretion relate to the incidence of goodwill impairment. In Appendix C, we provide excerpts from NRG's 2015 SEC comment letter response clarifying the determination of the fair value of its NRG Texas subsidiary. As this example illustrates, ASC 350 allows a control premium (CP) adjustment that could be used to avoid triggering a goodwill impairment when book value exceeds unadjusted market value .[25] In response NRG indicated that the firm has a 20% control premium, a portion of which was attributable to NRG Texas. Consistent with the AICPA's best practices approach of using more than industry control premium benchmarks including reference to enhanced cash flows or reduced risk associated with control, NRG also supports their discounted EBITDA valuations based on their analyst target price forecast. Specifically, as indicated in comment 5, NRG uses analyst target price forecasts as a valuation input to avoid impairments when these alternative market value estimates exceed book value and book values exceed traded market values.

Evidence of Goodwill Impairment Incidence by Book to Market and Market Measures

Table 6 reports the incidence of goodwill impairments by reporting group using two alternative market value measures. The first alternative adjusts the market value for the control

[25] This approach comports with the reliance on a control premium benchmark by the majority of public firms surveyed by the AICPA. See Duff and Phelps (2013), "U.S. Goodwill Impairment Study."

premium, M_{CP}, which is derived from FactSet Mergerstat/BVR study on control premiums by industry. This measure captures the discretion allowed by the accounting standards to avoid impairment charges for firms worth more than traded market values due to control premiums. The second alternative market measure is the median analyst price target forecast, M_{AF}, multiplied by the number of shares outstanding. This measure is designed to capture discretion available to avoid impairment charges if current prices temporarily deviate from fair values. To provide evidence on the associations between these market value adjustments and impairment incidence, we partition the B>M observations based on whether book exceeds adjusted market values and analyze goodwill impairment variation with these valuation partitions across different reporting unit levels.

In Table 6 Panel A, we examine control premium adjustments to market values. Comparing cases where B>M and B>M_{CP} (row 2) to B>M but B<M_{CP} (row 3), we find higher impairments in the former, statistically only for multi-RS firms. This suggests limited evidence of firms avoiding impairments through discretionary CP adjustments even though accounting standards allow for this. In Panel B, we use analyst target price forecasts to account for temporary timing differences in market values. For firms with B>M, most analyst target prices exceed current market values, leading to forecasted market values surpassing book values. The impairment rate for single-unit firms with B>M but B>M_{AF} is not statistically higher than those with B>M and B<M_{AF}, but statistically significantly higher for multi-unit firms, indicating that firms with less temporarily low market prices are more likely to impair goodwill.[26]

Do Goodwill Impairments Vary with Book Measures?

The NRG comment letter response (Appendix C) also highlights how headroom can affect the impairment propensity. Specifically, NRG highlights (comment 4 last bullet point) the

[26] Inferences are similar from regression model including control variables and fixed effects reported in Appendix B

synergies between its NRG Texas and its wholesale units, which contribute to the Texas unit's headroom (e.g., OBS intangibles). Similarly, headroom declines reflected in market over book excesses may not trigger goodwill impairment tests when market continues to exceed book values.

Table 7 reports the goodwill impairment incidence by reporting group for two alternative headroom-related measures, including a book adjusted value. The Table 5 impairment incidence differences across reporting groups for each valuation group when B<M are repeated in row 1 of each panel of Table 7. In Panel A, we adjust book value for OBS internally generated intangibles to reflect potential shielding of goodwill impairments when B<M. We partition the B<M observations based on whether book value adjusted for OBS intangibles (collected from Peters and Taylor's database) exceeds market equity value (i.e., B_{OBS}>M versus B_{OBS}<M) and analyze goodwill impairment varying with these valuation partitions across different reporting unit levels. Firms are more likely to impair goodwill when B_{OBS}>M, suggesting the use of headroom from unrecognized intangible assets, even though standards do not require recognizing this headroom.

Panel B examines the IASB's proposal to consider current period declines in market less book values. We partition the sample where B<M based on whether the changes in the market less book equity value are less than zero (i.e., D(ΔMB<0) versus D(ΔMB>0)) and analyze goodwill impairment varying with these valuation partitions across different reporting unit levels. Row 2 highlights that firms with B<M and declining market less book take more impairments than those where market less book is increasing. This suggests that the discretion to use available headroom to avoid impairment losses is only partially being used.[27]

Exploratory Analysis

Finally, we provide some preliminary evidence on whether the adoption of ASU 2017-04,

[27] Inferences are similar from regression model including control variables and fixed effects reported in Appendix B

which simplifies the accounting for goodwill impairments by eliminating Step 2 from the goodwill impairment test, impacted impairment propensities. Under the updated rules, if "the carrying amount of a reporting unit exceeds its fair value, an impairment loss shall be recognized in an amount equal to that excess, limited to the total amount of goodwill allocated to that reporting unit."[28] To assess the impact of this ASU, we compare goodwill and finite-lived intangible asset impairments before and after ASU adoption in a subsample of 522 firms that disclose adoption.

For this subsample, we find that, in the years after adoption, the propensity of goodwill impairments when B>M increases from 28% pre-adoption to 48% post-adoption, statistically significant at the 1% level. For firms with B<M, goodwill impairment also increases from 13.5% to 24%, but this difference versus when B>M is not statistically significant at conventional levels. While the overall goodwill impairment incidence increases in the post- versus pre-adoption period, we find no evidence of a statistical increase in the impairment of finite-lived intangible assets.

VI. IMPLICATIONS OF OUR ANALYSES

The evidence in the figures and tables above has important implications for researchers and standard setters. First, in contrast to prior research, popular press articles and standard setters' comments, we find no evidence that goodwill balances are becoming increasingly inflated due to impairment-only accounting. In fact, finite-lived intangible assets accounted for using amortization and impairment are growing at rates slightly greater than goodwill, especially for firms with shorter amortization periods. Jointly, the evidence provided in the figures and tables provides no evidence that the impairment-only model is associated with greater goodwill growth than would an amortization and impairment model similar to finite lived intangibles.

We find little evidence that managers use reporting unit level goodwill accounting to avoid

[28] Previously, after determining in Step 1 that a reporting unit's book exceeded fair values, Step 2 implied goodwill fair value was calculated as the Step 1 fair value less the fair value of net assets (*cum* unrecognized intangibles).

impairments. Higher impairment rates are observed in multi-unit single RS firms that do not fail Step 1 (B<M), but not in those that do (B>M). Firms do not seem to avoid impairments by allocating goodwill to their best reporting unit based on this finding. For firms not failing Step 1, impairment rates are higher when there are more RSs and when goodwill is allocated to all segments. Overall, these results highlight the possibility that moving impairment testing to the entity level might actually reduce impairments. We show that the Step 1 goodwill impairment book versus market trigger, correlates with impairment incidence. Firms are 2 to 5 times more likely to impair goodwill when B>M. Similar results are found with alternative market and book measures. This evidence could guide standard setters on goodwill impairment triggers.

While our levels analyses indicate that the growth rates of goodwill, finite-lived intangibles and total other intangibles are similar, our impairment analyses yield evidence that there are some statistically significant differences in impairment rates and impairment decisions. First, when the Step 1 test is failed, goodwill impairments are 3 to 5 times more likely than finite-lived intangible impairments. This difference in impairment rates is much smaller when impairments are not expected. Overall, these results raise the possibility that moving to an amortization model could reduce the propensity for firms to impair when firms' financial performance is deteriorating.

Our results also speak to proposed modifications to the impairment-only model. Our evidence suggests modest impacts on impairment rates of currently allowed market value adjustments like adding a CP or using analyst target prices to address temporary market price deviations. Similarly, the lack of evidence that firms use headroom to avoid impairments suggests that proposed IASB adjustments to book values or headroom may have little effect.

Limitations of Our Analyses

In the absence of a controlled experiment where treatment and control observations have

similar economic conditions, firm performance, impairment triggers, and RU structures, and RUs have observable market and net asset values, our study takes an exploratory approach that provides descriptive evidence on trends in goodwill balances and incidence rates of goodwill impairments. As a result, we do not attempt to draw causal inferences.

Instead, we provide descriptive evidence based on observable data that hold constant these important impairment determinants to the greatest extent possible. For our constant sample inflated goodwill balance analyses, we compare acquired intangible asset balances during a given period under two models: impairment only for goodwill and amortization and impairment for acquired finite lived intangibles. While this comparison holds constant economic conditions, firm performance and new acquisitions, we acknowledge that the goodwill fair value impairment trigger differs from the finite-lived intangibles undiscounted cash flow trigger and the allocation to RU requirement also differs between goodwill and finite lived intangibles for multi RU firms.[29]

We acknowledge that the difficulty of assessing whether an impairment should have been taken will differ based on the allocation of goodwill to RUs, and separately evaluate the impairment incidence based on the RU allocation. We examine if firms' incidence of goodwill impairment aligns with goodwill impairment standards, considering FABS allowed alternative market values. While our results provide limited evidence that firms use control premiums or analyst target prices to avoid impairments, we acknowledge the inherent measurement challenges associated with this evaluation.

VII. CONCLUSIONS

Growing concerns that the current impairment-only model leads to inflated goodwill not reflective of performance led to IASB and FASB projects reconsidering post-acquisition goodwill

[29] Although the low discount rates and benign economic conditions from 2011-2020 likely minimized differences between these triggers.

accounting. These proposals consider reinstating amortization, changing the goodwill impairment testing level (RU versus RS), and adjusting the goodwill impairment test for headroom. We provide evidence to illuminate these proposals and standard-setters' ongoing deliberations.

To build on existing research using unbalanced samples of pre- versus post-SFAS 142 goodwill data, we compare impairment-only goodwill balances to the alternative impairment and amortization finite-lived intangible asset balances for a constant firm sample during a common period of economic growth. For an expanded sample of firms with goodwill at any point during our sample period we examine previously underexplored subtleties in goodwill impairment testing.

Overall, the evidence from our alternative research design produces new and different inferences. Specifically, our findings are not consistent with the concerns that the impairment-only accounting model is associated with inflated goodwill balances and provides no support for calls to reinstate amortization to reduce inflated goodwill balances. Our analyses also suggest that the current goodwill impairment incidence at least partially incorporates headroom and reductions in headroom consistent with IASB proposals. We find only limited evidence that increased firm market values incorporating control premiums or analyst target price forecasts are associated with a reduced goodwill impairments incidence. Our paper also provides evidence on the role of RSs and RUs in impairment decisions. Although the goodwill impairment incidence is lower for single RS firms with fewer RUs, consistent with concerns that eliminating goodwill allocations to RUs might result in fewer impairments, this difference is not economically or statistically significant when book exceeds market. Our evidence that goodwill impairment incidence is lower for multi-RS firms with limited goodwill allocation to RS relative to those with universal allocation is not inconsistent with concerns decreased impairments when limited goodwill allocation is limited.

References

Adame, K., K. Lem, and S. Mookerjee. 2024. Step Zero: Implications of reliance on the qualitative goodwill impairment assessment. https://ssrn.com/abstract=3368549 or http://dx.doi.org/10.2139/ssrn.3368549

ASBJ and HKICPA Staff (2020), Goodwill: Improvements to Subsequent Accounting and an Update of the Quantitative Study, ASAF meeting, April 2020, Agenda paper 1A.

Australian Financial Reporting Auditing Committee (AFRAC). 2020. Comment on IASB's Discussion Paper (DP) Business Combinations Disclosures, Goodwill Impairment. https://www.afrac.at/wp-content/uploads/AFRAC_CL_DP_BusinessCombinations.pdf

AICPA. 2013. Testing goodwill for impairment - Accounting and valuation guide, American Institute of Certified Public Accountants, Inc.

Amel-Zadeh, A., J. Faasse, K. Li and G. Meeks. 2013. Has accounting regulation secured more valuable goodwill disclosures? Working Paper, University of Cambridge.

Athey, S., and S. Imbens. 2017. The state of applied econometrics: causality and policy evaluation. *Journal of Economic Perspectives* 21 (2): 3-32.

Beatty, A. and J. Weber. 2006. Accounting discretion in fair value estimates. *Journal of Accounting Research* Vol 44 Issue 2: 257-288.

Bens, D. A., W. Heltzer, and B. Segal. 2011. The information content of goodwill impairments and SFAS 142. *Journal of Accounting, Auditing & Finance*, 26(3), 527–555. https://doi.org/10.1177/0148558X11401551

Boennen, S., and M. Glaum. 2015. Goodwill accounting: A review of the literature. https://ssrn.com/abstract=2462516

Botosan, C., A. Huffman, M. Stanford. 2021. The state of segment reporting by U.S. public entities: 1996 – 2017. *Accounting Horizons, 35 (1): 1–27.* https://doi.org/10.2308/HORIZONS-19-104

Breuer, M. 2023. Another way forward: Comments on Ohlson's critique of empirical accounting research. *Accounting, Economics, and Law: A Convivium*. https://doi.org/10.1515/ael-2022-0093

Chen, W., P. Schroff, I. and Zhang. 2019. Fair value accounting: Consequences of booking market-driven goodwill impairment. https://ssrn.com/abstract=2420528 or http://dx.doi.org/10.2139/ssrn.2420528

d'Arcy, A., and A. Tarca. 2018. Reviewing IFRS goodwill accounting research: Implementation effects and cross-country differences. *The International Journal of Accounting* 53(3): 203–226. https://doi.org/10.1016/j.intacc.2018.07.004

EFRAG. 2018. Goodwill and Impairment – Updated Headroom Approach – Issues Paper. Accessed at https://www.efrag.org/Assets/Download?assetUrl=%2Fsites%2Fwebpublishing%2FMeeting%20Documents%2F1801080908338930%2F0802%20-%20Issues%20paper%20on%20Updated%20Headroom%20Approach%20-%20Goodwill%20and%20Impairment%20-%20EFRAG%20TEG%20%2018-03-07.pdf

FASB. 2020. Comment letter summary on the invitation to comment, identifiable intangible assets and subsequent accounting for goodwill. Accessed at https://www.fasb.org/document/blob?fileName=Public_Comment_Letter_Summary.pdf

FASB. 2025. Agenda consultation. Accessed at https://storage.fasb.org/ITC%E2%80%94Agenda%20Consultation.pdf

Footnotes Analyst. 2018. Goodwill impairments may not identify impaired goodwill. Accessed at https://www.footnotesanalyst.com/goodwill-impairments-may-not-identify-impaired-goodwill/

Hopkins, P., and R. Halsey. 2023. Advanced Accounting, 5th Edition, myBusinessCourse.

IFRS . 2020. Business Combinations – Disclosure and Goodwill Impairment. Standards Discussion Paper DP/2020/1 https://www.ifrs.org/content/dam/ifrs/project/goodwill-and-impairment/goodwill-and-impairment-dp-march-2020.pdf

IFRS Staff Paper. 2021a. Goodwill Impairment Subsequent Accounting for Goodwill. https://www.ifrs.org/content/dam/ifrs/meetings/2021/april/iasb/ap18f-subsequent-accounting-for-goodwill.pdf

IFRS Staff Paper. 2021b. Project goodwill and impairment. Paper Topic Academic Evidence. Accessed at: https://www.ifrs.org/content/dam/ifrs/resources-for/academics/research-citations/goodwill-and-impairment-academic-evidence.pdf

KPMG. 2014. Who cares about goodwill impairment. A collection of stakeholder views. Accessed at https://assets.kpmg.com/content/dam/kpmg/pdf/2014/04/impairment-qa.pdf

KPMG. 2020. Should goodwill amortization be reintroduced. Accessed at https://kpmg.com/xx/en/home/insights/2020/03/goodwill-and-impairment-dp.html

Li, K. K., and R. G. Sloan. 2017. Has goodwill accounting gone bad? *Review of Accounting Studies* 22(2): 964–1003. https://doi.org/10.1007/s11142-017-9401-7

Li, Z., P.K. Shroff, R. Venkataraman, and I. X. Zhang. 2011. Causes and consequences of goodwill impairment losses. *Review of Accounting Studies* 16(4): 745–778. https://doi.org/10.1007/s11142-011-9167-2

Linsmeier, T. J., and E. Wheeler. 2021. The debate over subsequent accounting for goodwill. *Accounting Horizons* 35(2):107-128.

Lugo, D. 2022. Level at which goodwill is tested for impairment won't change, FASB signals https://tax.thomsonreuters.com /news/level-at-which-goodwill-is-tested-for-impairment-wont-change-fasb-signals/

Patloch-Kofler, Markus; Roider, David (2020), Impairment-Only oder Amortization? - Eine Glaubensfrage im Lichte des IASB-Discussion Paper, RWZ 9/2020.

Peters, S. 2021. Goodwill: Investor perspectives improve disclosures, rather than revert to amortization. CFA Institute. https://www.cfainstitute.org/en/research/survey-reports/goodwill-investor-perspectives

Potepa, J. and J. Thomas. 2023. Goodwill impairment after M&A: acquisition-level evidence. *Journal of Financial Reporting* 8(2): 131-155.

Ramanna, K., and R. L. Watts. 2012. Evidence on the use of unverifiable estimates in required goodwill impairment. *Review of Accounting Studies* 17(4): 749–780. https://doi.org/10.1007/s11142-012-9188-5

Ryan, V. 2021. Is goodwill accounting's future in the past? CFO.com. Accessed at https://www.cfo.com/accounting-standards/2021/12/is-goodwill-accountings-future-in-the-past/

Ryder. 2018. Disputes over goodwill can seem arcane. The Economist August 30, 2018. Accessed at: https://www.economist.com/business/2018/08/30/disputes-over-goodwill-can-seem-arcane

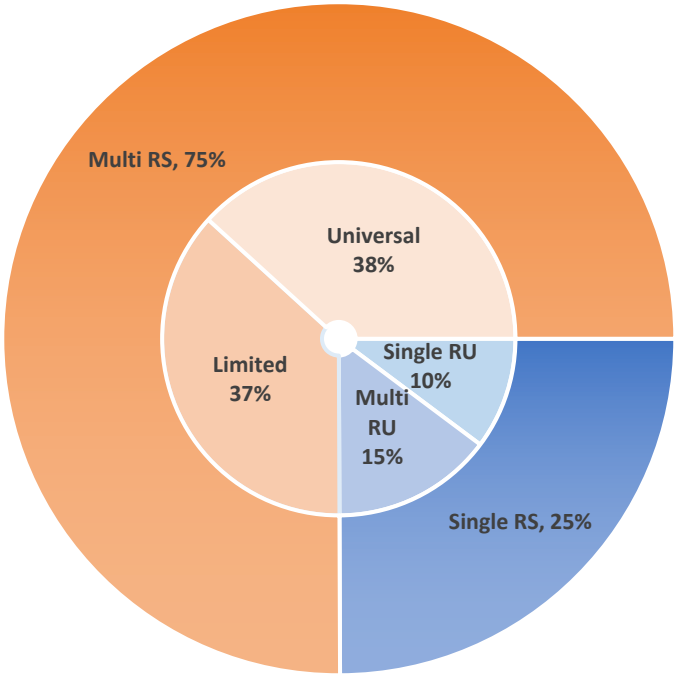
Wahal, S. and E. Repetto. 2020. "On the importance of goodwill". Avantis Investors. https://www.avantisinvestors.com/content/dam/ac/pdfs/ipro/viewpoint/iuo/avantis-importance-of-goodwill.pdf Last accessed March 2024.

Wen, H., and S. R. Moehrle. 2016. Accounting for goodwill: An academic literature review and analysis to inform the debate. *Research in Accounting Regulation* 28(1): 11–21. https://doi.org/10.1016/j.racreg.2016.03.002

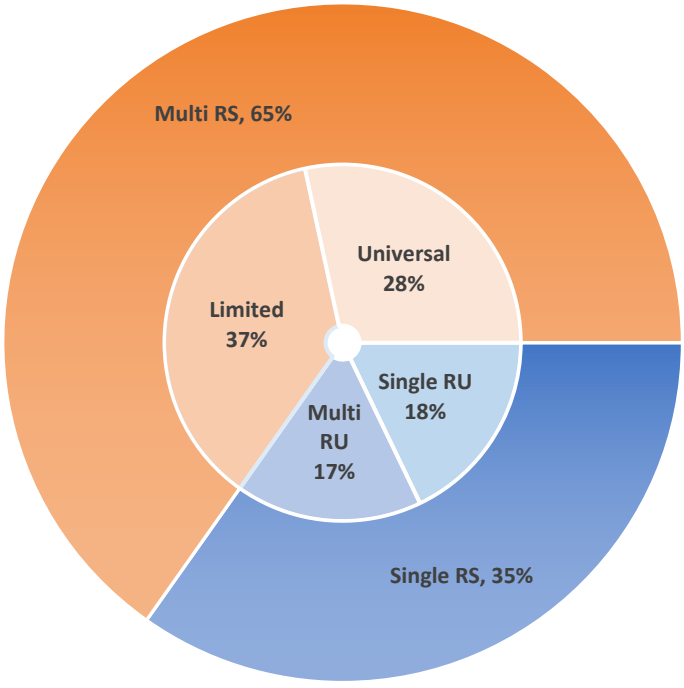
FIGURE 1
Variation in Composition of Segment and Reporting Unit Structure for the Constant Sample Used in the Goodwill Balance Analysis and the Overall Sample Used in the Impairment Incidence Analysis

Panel A: Composition of Samples by Reporting Groups

Constant Sample of 7,120 Firm-years



Overall Sample of 15,172 Firm-years



Panel B: Frequency of Acquisitions for the Constant Sample Used in the Goodwill Balance Analysis

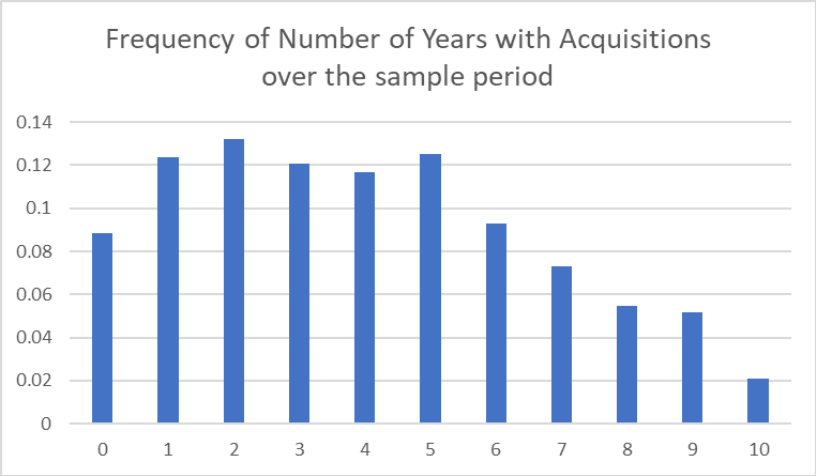
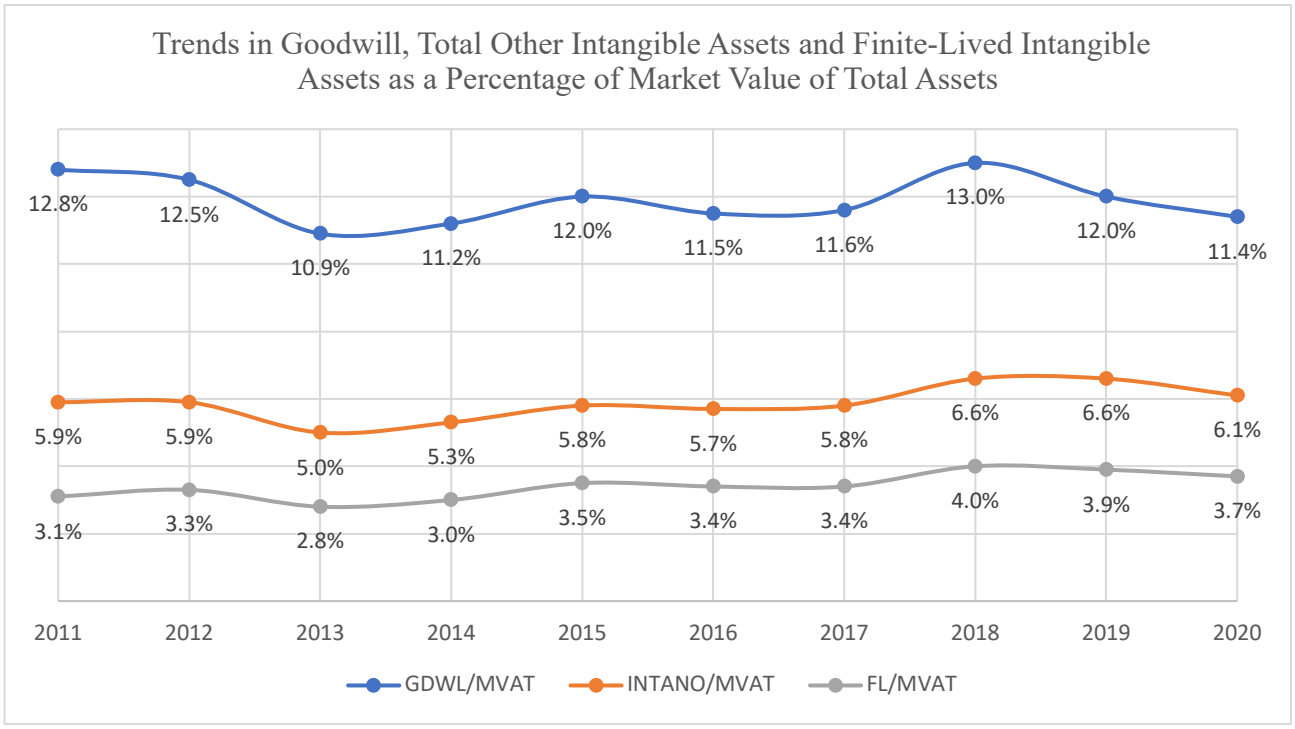


FIGURE 2
Trends in Goodwill Compared to Other Intangible Assets for the Constant Sample of Firms that Have Goodwill Every Year during the Period 2011 through 2020

Panel A



Panel B

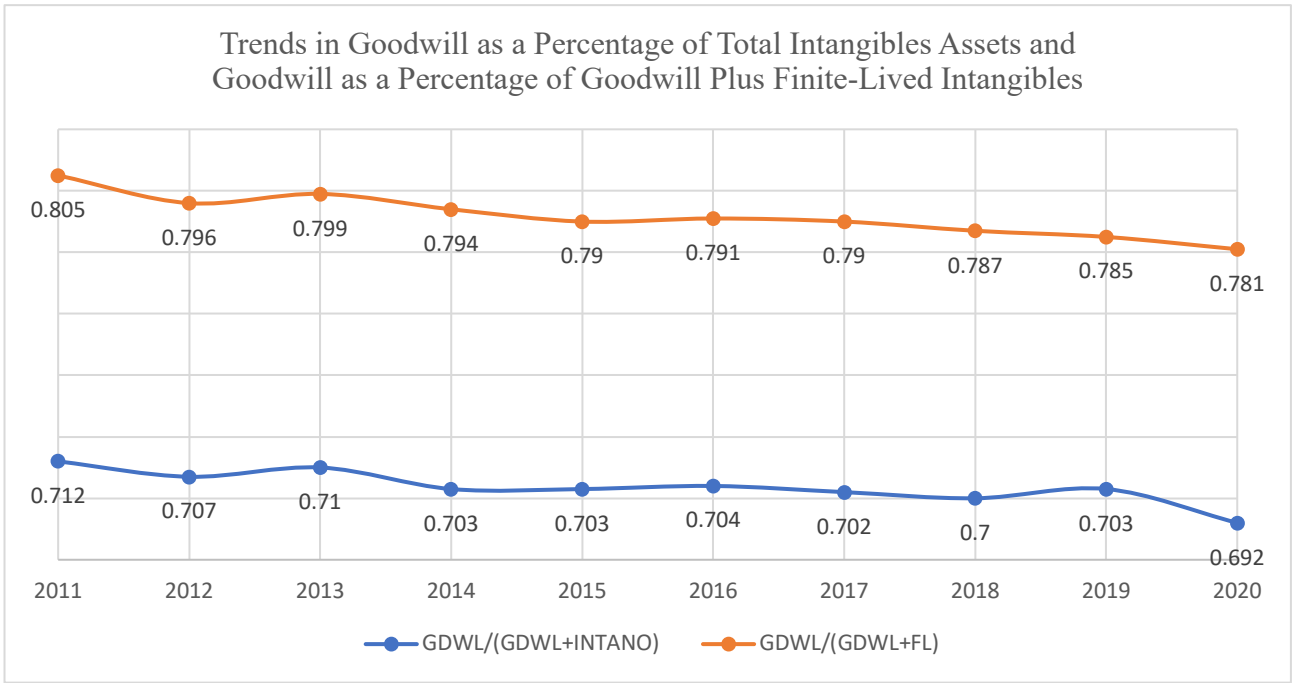
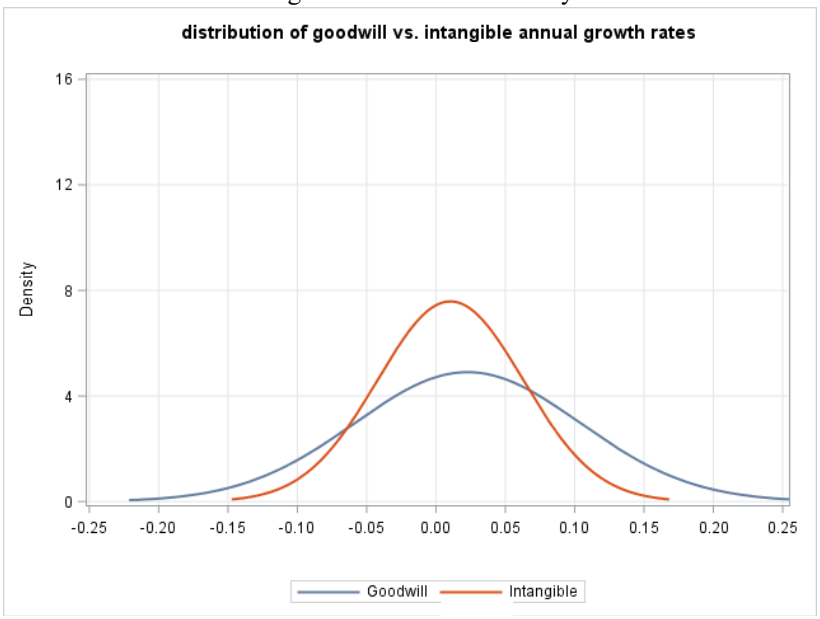


FIGURE 3
Density of Distribution of Goodwill versus Intangible Annual Growth Rates Partitioned by Finite-Lived Intangible Life

Panel A Finite-Lived Intangible Life Lower than 10 years



Panel B Finite-Lived Intangible Life Higher than 10 years

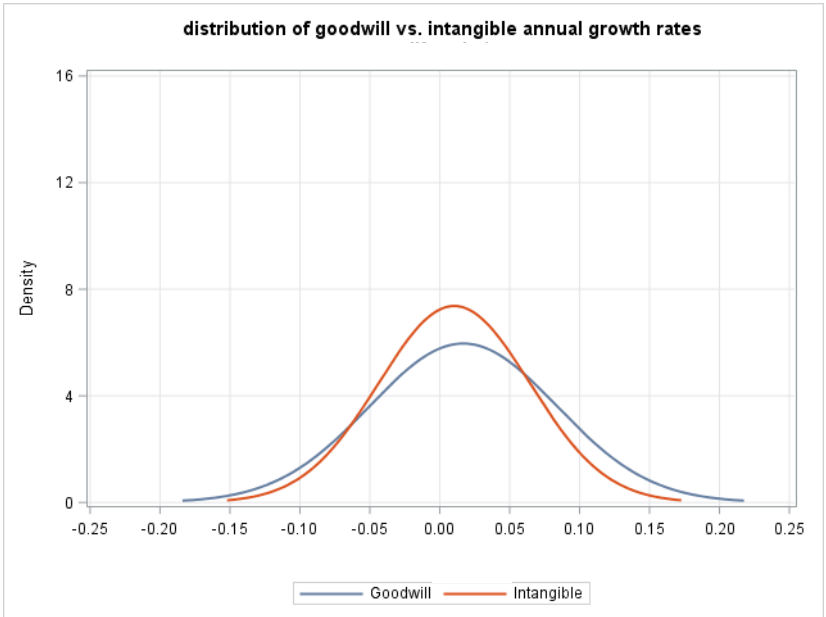


Figure 4
Goodwill Impairments Depending on Performance for Single versus Multiple Segments

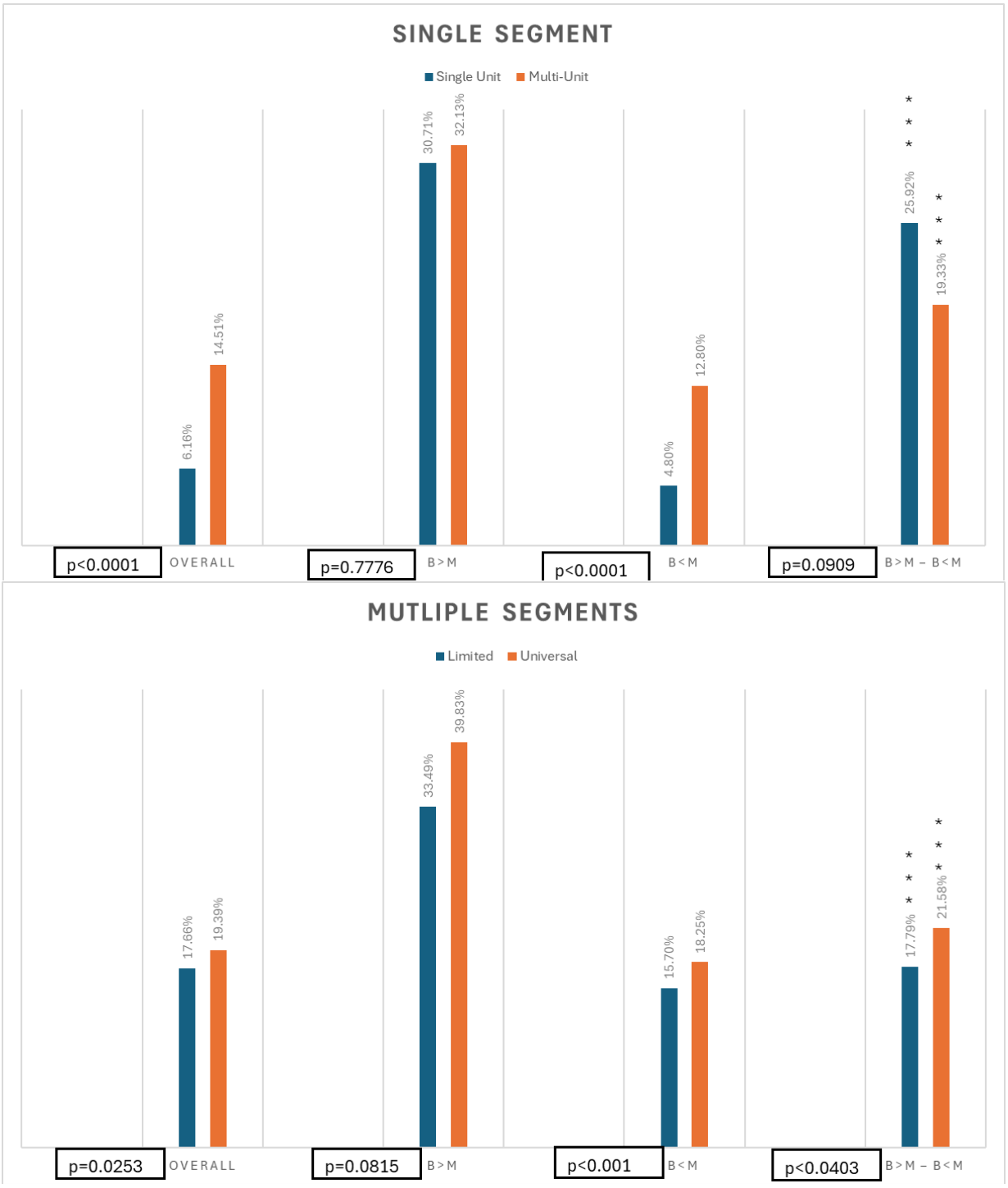


Figure 5
Shapley Value of Test Performance Variables versus Control Variables and Fixed Effects for Single-Segment Firms and Multiple-Segment Firms

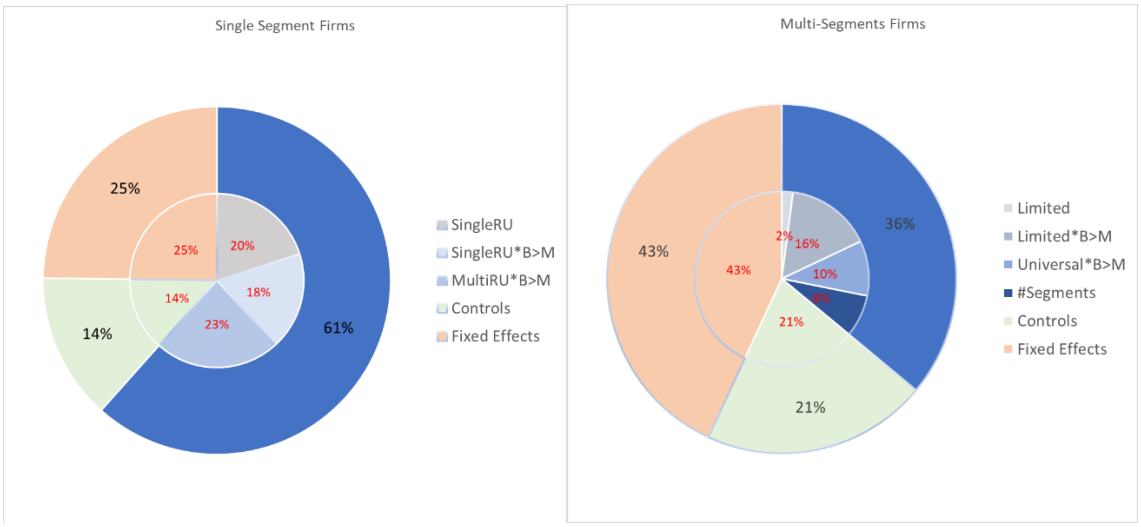


FIGURE6
Goodwill Impairment Incidence by Whether There Is a Segment with A Decline in Sales Greater than 30% among Multi-Segment Firms. The Sample is Partitioned into Firms where Book Value Exceeds Market Value (B>M), Book Value Is Less Than Market Value (B<M) and for Difference Between B>M and B<M

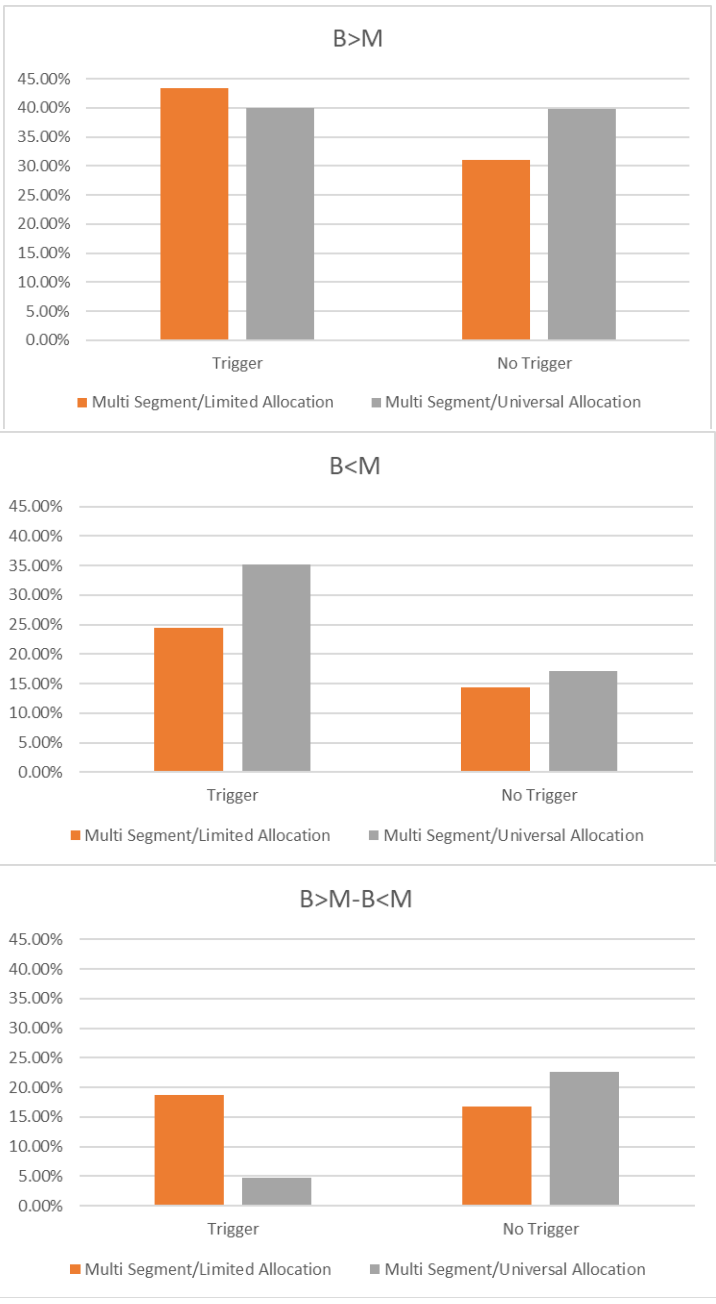


TABLE 1
Constant Sample Selection Process for Firms with Goodwill Each Year Over the Ten-Year period 2011-2020

Steps	Total Firm-year Observations	Total Firm Observations
All COMPUSTAT observations from 2011-2020 with CURCD = USD, FIC=USA, INDFMT=INDL and non-missing CIK	64,057	9,307
Missing lagged observations	51,997	8,311
Requiring beginning PRCC_F>1, CSHO>1.25, AT>80	25,620	4,544
Excluding SIC beginning with 6	22,435	3,687
Requiring GDWL or beginning GDWL > 0	17,331	2,804
Requiring Calcbench asset match	16,929	2,749
Requiring Calcbench goodwill match	16,755	2,732
Requiring Calcbench goodwill impairment information	16,751	2,732
Requiring reporting segment information	16,462	2,693
Requiring reporting unit information	15,713	2,562
Constant sample that has either beginning or ending goodwill	7,120	712

Note: The last line in this table shows the results of our sample selection process identifying firms with goodwill in each fiscal year over the sample period spanning from 2011 to 2020. The second to last line identifies the larger sample that is used in the impairment analysis.

TABLE 2
Descriptive Statistics (means and [medians]) for Constant Sample, and Constant Samples Partitioned by Number of Acquisitions or Finite Lived Asset Life

Variables	Constant Sample	Sample with FL_LIFE higher than 10 years	Sample with FL_LIFE lower than 10 years
GDWL/MVAT	0.119 [0.091]	0.126 [0.102]	0.116 [0.078]
INTANO/MVAT	0.058 [0.035]	0.065 [0.042]	0.052 [0.027]
FL/MVAT	0.034 [0.018]	0.042 [0.026]	0.027 [0.015]
GDWL/(GDWL+INTANO)	0.704 [0.723]	0.681 [0.699]	0.720 [0.746]
GDWL/(GDWL+FL)	0.792 [0.819]	0.760 [0.781]	0.801 [0.826]
FL_LIFE	17.856 [13.509]	18.355 [14.667]	7.225 [7.744]
N	7,120	4,330	2,040

Note: This table shows means and medians of key variables we used for in analyses based on the constant sample from 2011 to 2020. For partitions by finite-lived intangible life, we cut the sample based on the firm's median life of finite-lived intangibles (FL_LIFE) defined below over the sample period, above versus below 10 years.

Variable Definitions:

GDWL/MVAT: Goodwill (Compustat "gdwl") divided by market value of total assets (Compustat "at" – "ceq" + "prcc_f"* "csho").

INTANO/MVAT: Intangibles other than goodwill (Compustat "intano") divided by market value of total assets (Compustat "at" – "ceq" + "prcc_f"* "csho").

FL/MVAT: Finite-lived intangibles (Calcbench "FiniteLivedIntangiblesAssetsNet"/1000000) divided by market value of total assets (Compustat "at" – "ceq" + "prcc_f"* "csho").

GDWL/(GDWL+INTANO): Ratio of goodwill (Compustat "gdwl") over total intangibles (Compustat "gdwl" + "intano").

GDWL/(GDWL+FL): Ratio of goodwill (Compustat "gdwl") over sum of goodwill and finite-lived intangibles (Compustat "gdwl" + Calcbench "FiniteLivedIntangiblesAssetsNet"/1000000).

FL_LIFE: Firm median over the sample period of the gross finite-lived assets divided by amortization expense (Calcbench "FiniteLivedIntangiblesAssetsNet"" + "FiniteLivedIntangibleAssetsAccumulatedAmortization" divided by "AmortizationOfIntangibleAssets") measured at the beginning of the year.

TABLE 3
Kendal Tau Trend Test (Coefficients and p-values) from 2011-2020

	GDWL/ MVAT	INTANO/ MVAT	GDWL/ (GDWL+INTANO)	FL/ MVAT	GDWL/ (GDWL+FL)	N
Overall Constant Sample	0.012 (0.1612)	0.027 (0.0012)	-0.024 (0.0038)	0.044 (<0.0001)	-0.036 (<0.0001)	7,120
FL_LIFE>10 years	0.008 (0.4526)	0.029 (0.0073)	-0.023 (0.0318)	0.042 (<0.0001)	-0.015 (0.1806)	4,330
FL_LIFE<= 10 years	0.036 (0.0189)	0.044 (0.0049)	-0.025 (0.1080)	0.067 (<0.0001)	-0.047 (0.0024)	2,040

Note: This table shows Kendal Tau Trend Test coefficients (and p-values) testing based on the constant sample from 2011 to 2020. For partitions by finite-lived intangible life, we cut the sample based on the firm's median life of finite-lived intangibles (FL_LIFE) defined below over the sample period, above versus below 10 years.

Variable Definitions:

GDWL/MVAT: Goodwill (Compustat "gdwl") divided by market value of total assets (Compustat "at" – "ceq" + "prcc_f"* "csho").

INTANO/MVAT: Intangibles other than goodwill (Compustat "intano") divided by market value of total assets (Compustat "at" – "ceq" + "prcc_f"* "csho").

FL/MVAT: Finite-lived intangibles (Calcbench "FiniteLivedIntangibleAssetsNet"/1000000) divided by market value of total assets (Compustat "at" – "ceq" + "prcc_f"* "csho").

GDWL/(GDWL+INTANO): Ratio of goodwill (Compustat "gdwl") over total intangibles (Compustat "gdwl" + "intano").

GDWL/(GDWL+FL): Ratio of goodwill (Compustat "gdwl") over sum of goodwill and finite-lived intangibles (Compustat "gdwl" + Calcbench "FiniteLivedIntangibleAssetsNet"/1000000).

FL_LIFE: Firm median of the gross finite-lived assets divided by amortization expense (Calcbench "FiniteLivedIntangibleAssetsNet" + "FiniteLivedIntangibleAssetsAccumulatedAmortization" divided by "AmortizationOfIntangibleAssets") measured at the beginning of the year. If "FiniteLivedIntangibleAssetsNet" is not available we use "FiniteLivedIntangibleAssetsGross" – "FiniteLivedIntangibleAssetsAccumulatedAmortization"

TABLE 4
Descriptive Statistics Based on Reporting Groups

Variables	Overall Sample	Single Segment/ Single Unit	Single Segment/ Multi Unit	Multi-Segment/ Limited Allocation	Multi-Segment/ Universal Allocation
B>M	8.0%	5.3%	8.9%	11.0%	5.3%
GWIMP_D	15.6%	6.2%	14.5%	17.7%	19.4%
FLIMP_D	8.5%	7.8%	8.3%	8.3%	9.4%
No FL_D	19.0%	19.6%	22.8%	22.2%	12.0%
$B>M_{CP}$	2.6%	1.2%	3.0%	4.2%	1.4%
$B>M_{AF}$	4.0%	2.0%	4.5%	5.5%	3.1%
$B_{OBS}>M$	27.5%	26.5%	30.3%	31.3%	21.3%
B<M & D(ΔMB <0)	38.5%	39.2%	39.3%	39.3%	36.5%
B<M & D(ΔMB >0)	53.5%	55.6%	51.8%	49.6%	58.2%
N (Firm-Year Observations)	15,713	2,662	2,804	5,786	4,461

Note: This table shows the means of the indicator variables in the expanded sample we used in Tables 5-7. The sample period ranges from 2011 to 2020. Single versus Multi-Segment is determined by whether firms report single or multiple operating/business segments based on Compustat. Single versus Multi-Unit is determined by firm discussion of single versus multiple reporting units or goodwill allocation among reporting segments in 10K/Q. Firms with segments explicitly assigned zero goodwill or total segments with explicit goodwill allocation fewer than Compustat segments are classified under "Limited Allocation", otherwise "Universal Allocation".

Variable Definitions:

B>M: An indicator for firms where lagged book equity (Compustat "ceq") is greater than lagged market equity (Compustat "prcc_f"* "csho").

GWIMP_D: An indicator equal to one for firms that impair goodwill (Calcbench "GoodwillImpairmentLoss" >0).

FLIMP_D: An indicator equal to one for firms that impair finite-lived intangibles (Calcbench "ImpairmentOfIntangibleAssetsExcludingGoodwill" minus "ImpairmentOfIntangibleAssetsIndefinitelivedExcludingGoodwill" or "ImpairmentOfIntangibleAssetsFinitelived">0).

No FL_D: An indicator equal to one for firms that do not have finite-lived intangibles (Calcbench "FiniteLivedIntangibleAssetsNet" is either missing or zero).

$B>M_{AF}$: An indicator for firms where lagged book equity (Compustat "ceq") is greater than inferred market equity calculated as the number of shares outstanding multiplied by analysts' median 12-month target price measured before the beginning of the fiscal year collected from IBES.

$B>M_{CP}$: An indicator for firms where lagged book equity (Compustat "ceq") is greater than adjusted market equity value by control premium (Compustat "prcc_f"* "csho"* (1+CP)). The control premium (CP) information is obtained from FactSet Mergerstat/BVR Control Premium Study that provides annual control premium for each industry inferred from acquisition price versus individual share trading price.

$B_{OBS}>M$: An indicator for firms where lagged book equity (Compustat "ceq") plus off-balance intangible assets (obtained from Peters and Taylor's "K_int_offBS" variable) is greater than market equity value.

D(ΔMB <0): An indicator equal to one for firms where the market value declines more than the book value of equity from last year. i.e., the change in "market-book difference" measured as market value minus book value of equity (Compustat "prcc_f"* "csho" minus "ceq") is <0.

D(ΔMB >0): An indicator equal to one for firms where the market value declines less than the book value of equity from last year. i.e., the change in "market-book difference" measured as market value minus book value of equity (Compustat "prcc_f"* "csho" minus "ceq") is >0.

TABLE 5
Annual Incidence of Goodwill Impairments and Finite-Lived Intangible Asset Impairments Partitioned by Book to Market Equity and Reporting Segment and Unite Groups

Panel A: Incidence of Goodwill Impairments [and sample size]

Segments	Single Segment			Multi Segment		
Goodwill Allocation	Single Unit	Multi-Unit	Single= Multi (p-value)	Limited	Universal	Limited = Universal (p-value)
Overall	6.16% [2,662]	14.51% [2,804]	(<0.0001)	17.66% [5,786]	19.39% [4,461]	(0.0253)
B>M	30.71% [140]	32.13% [249]	(0.7776)	33.49% [639]	39.83% [236]	(0.0815)
B<M	4.80% [2,522]	12.80% [2,555]	(<0.0001)	15.7% [5,147]	18.25% [4,225]	(0.0010)
B>M – B<M (Z-statistic)	25.92% (12.41)***	19.33% (8.27)***	(0.0909)	17.79% (11.12)***	21.58% (8.16)***	(0.0436)

Panel B: Incidence of Finite-lived Intangible Asset Impairments [and sample size]

Segments	Single Segment			Multi Segment		
Goodwill Allocation	Single Unit	Multi-Unit	Single= Multi (p-value)	Limited	Universal	Limited = Universal (p-value)
Overall	7.69% [2,662]	8.27% [2,804]	(0.5093)	8.26% [5,786]	9.35% [4,461]	(0.0535)
B>M	9.29% [140]	8.43% [249]	(0.7967)	11.74% [639]	12.71% [236]	(0.6941)
B<M	7.69% [2,522]	8.26% [2,555]	(0.4641)	7.83% [5,147]	9.16% [4,225]	(0.0211)
B>M – B<M (Z-statistic)	1.59% (0.69)	0.18% (0.10)	(0.6415)	3.91% (3.38)***	3.55% (1.82)*	(0.6896)

Note: This table compares goodwill incidence based on B>M or B<M and reporting groups based on the expanded sample. The sample period ranges from 2011 to 2020. Single versus Multi-Segment is determined by whether firms report single or multiple operating/business segments based on Compustat. Single versus Multi-Unit is determined by firm discussion of single versus multiple reporting units or goodwill allocation among reporting segments in 10K/Q. Firms with segments explicitly assigned zero goodwill or total segments with explicit goodwill allocation fewer than Compustat segments are classified under "Limited Allocation", otherwise "Universal Allocation". B>M (B<M) represents firms where lagged book equity (Compustat "ceq") is greater (smaller) than lagged market equity (Compustat "prcc_f"* "csho"). ***, and * represent the 1% and 10% significance level, respectively.

TABLE 6
Goodwill Impairment Incidence Percentage across Alternative Market Valuation Metrics by Reporting Group (and sample size [N])

Panel A: Market equity calculated using traded share price adjusted for industry-year control Premium

Segments	Single Segment			Multi Segment		
Goodwill Allocation	Single Unit	Multi-Unit	Single =Multi (p-value)	Limited	Universal	Limited = Universal (p-value)
B>M	29.75% [121]	32.88% [219]	(0.5549)	33.56% [587]	39.35% [216]	(0.1277)
B>M & B>M_{CP}	35.48% [31]	33.77% [77]	(0.8664)	34.43% [212]	48.33% [60]	(0.0498)
B>M & B<M_{CP}	27.78% [90]	32.39% [142]	(0.4593)	33.07% [375]	35.90% [156]	(0.5311)
B>M_{CP} - B<M_{CP} (Z-Statistic)	7.71% (0.81)	1.37% (0.21)	(0.5909)	1.37% (1.01)	12.44% (1.67)*	(0.1840)

Panel B: Market equity calculated using analysts' median target price forecasts

Segments	Single Segment			Multi Segment		
Goodwill Allocation	Single Unit	Multi-Unit	Single =Multi (p-value)	Limited	Universal	Limited= Universal (p-value)
B>M	29.66% [118]	36.37% [176]	(0.2347)	33.94% [495]	38.91% [203]	(0.2123)
B>M & B>M_{AF}	32.43% [37]	46.27% [67]	(0.1734)	38.61% [202]	44.30% [79]	(0.3837)
B>M & B<M_{AF}	28.40% [81]	30.28% [109]	(0.7800)	30.72% [293]	35.48% [124]	(0.3419)
B>M_{AF} - B<M_{AF} (Z-Statistic)	4.04% (0.45)	15.99% (2.14)**	(0.3142)	7.90% (1.82)*	8.82% (1.25)	(0.9098)

Note: This table compares goodwill incidence based on alternative adjusted market valuations and reporting groups based on the expanded sample. The sample period ranges from 2011 to 2020. Single versus Multi-Segment is determined by whether firms report single or multiple operating/business segments based on Compustat. Single versus Multi-Unit is determined by firm discussion of single versus multiple reporting units or goodwill allocation among reporting segments in 10K/Q. Firms with segments explicitly assigned zero goodwill or total segments with explicit goodwill allocation fewer than Compustat segments are classified under "Limited Allocation", otherwise "Universal Allocation". B>M represents firms where lagged book equity (Compustat "ceq") is greater than lagged market equity (Compustat "prcc_f"* "csho"). B>M_{CP} (B<M_{CP}) represents firms where lagged book equity (Compustat "ceq") is greater (smaller) than adjusted market equity value by control premium (Compustat "prcc_f"* "csho"* (1+CP)). The control premium (CP) information is obtained from FactSet Mergerstat/BVR Control Premium Study that provides annual control premium for each industry inferred from acquisition price versus individual share trading price. B>M_{AF} (B<M_{AF}) represents firms where lagged book equity (Compustat "ceq") is greater (smaller) than inferred market equity calculated as the number of shares outstanding multiplied by analysts' median 12-month target price measured before the beginning of the fiscal year collected from IBES. **, and * represent the 5% and 10% significance level, respectively.

TABLE 7
Goodwill Impairment Incidence across Alternative Book Valuation Metrics by Reporting Group (and sample size [N])

Panel A: Book value calculated with an adjustment for off-balance sheet intangible assets

Segments	Single Segment			Multi Segment		
Goodwill Allocation	Single Unit	Multi-Unit	Single = Multi (p-value)	Limited	Universal	Limited= Universal (p-value)
B<M	4.76% [2,521]	12.80% [2,555]	(<0.0001)	15.70% [5,147]	18.23% [4,224]	(0.0010)
B<M & B_{OBS}>M	9.93% [564]	21.33% [600]	(<0.0001)	21.97% [1,170]	26.99% [715]	(0.0130)
B<M & B_{OBS}<M	3.27% [1,957]	10.18% [1,955]	(<0.0001)	13.85% [3,977]	16.44% [3,509]	(0.0018)
B_{OBS}>M - B_{OBS}<M (Z-Statistic)	6.66% (6.54)***	11.15% (7.15)***	(0.0155)	8.11% (6.70)***	10.55% (6.66)***	(0.2150)

Panel B: Change in market to book ratio

Segments	Single Segment			Multi Segment		
Goodwill Allocation	Single Unit	Multi-Unit	Single = Multi (p-value)	Limited	Universal	Limited = Universal (p-value)
B<M	4.76% [2,522]	12.80% [2,555]	(<0.0001)	15.70% [5,147]	18.23% [4,225]	(0.0010)
B<M & D(ΔMB<0)	7.29% [1,043]	16.50% [1,103]	(<0.0001)	18.81% [2,275]	22.53% [1,629]	(0.0045)
B<M & D(ΔMB>0)	3.04% [1,479]	9.99% [1,452]	(<0.0001)	13.23% [2,872]	15.56% [2,596]	(0.0140)
D(ΔMB<0) – D(ΔMB>0) (Z-Statistic)	4.24% (4.91)***	6.51% (4.88)***	(0.1532)	5.58% (5.47)***	6.97% (5.71)***	(0.3797)

Note: This table compares goodwill incidence based on alternative book valuations and reporting groups based on the expanded sample. The sample period ranges from 2011 to 2020. Single versus Multi-Segment is determined by whether firms report single or multiple operating/business segments based on Compustat. Single versus Multi-Unit is determined by firm discussion of single versus multiple reporting units or goodwill allocation among reporting segments in 10K/Q. Firms with segments explicitly assigned zero goodwill or total segments with explicit goodwill allocation fewer than Compustat segments are classified under "Limited Allocation", otherwise "Universal Allocation". B<M represents firms where lagged book equity (Compustat "ceq") is smaller than lagged market equity (Compustat "prcc_f"* "csho"). B_{OBS} >M (B_{OBS}<M) represents firms where lagged book equity (Compustat "ceq") plus off-balance intangible assets (obtained from Peters and Taylor's "K_int_offBS" variable) is greater than market equity value. Among firms B<M, D(ΔMB <0 versus >0) represents firms where the market value declines more (versus less) than the book value of equity from last year. i.e., the change in "market-book difference" measured as market value minus book value of equity (Compustat "prcc_f"* "csho" minus "ceq") is <0 (versus >0). *** represents the 1% significance level.

Appendix A

Issued: January 3, 2025

Comments Due: June 30, 2025

Agenda Consultation

Comments should be addressed to:

Technical Director

File Reference No. 2025-ITC100

Goodwill

Entities are required to test the goodwill of a reporting unit for impairment at least annually or more frequently if certain conditions exist. If the carrying amount of the reporting unit exceeds its fair value, the entity must determine the extent of goodwill impairment and recognize the impairment loss in earnings. Private companies and NFPs may elect an accounting alternative to amortize goodwill.

Stakeholders provided feedback that the accounting for goodwill does not appropriately reflect the economics and is costly to apply. These stakeholders, who indicated that their proposed solutions would be most relevant in certain industries (such as banking), suggested allowing entities to (1) amortize goodwill or (2) expense goodwill on the acquisition date.

In June 2022, the Board removed a project from its technical agenda to revisit the subsequent accounting for goodwill. The objective of that project included identifying solutions to reduce the cost and complexity incurred by preparers to subsequently account for goodwill, while not significantly diminishing the decision usefulness of information for investors. The Board had provided leanings that it would prefer a model that required the amortization of goodwill with potential impairment triggers (the "amortization-with- impairment" approach) over the current impairment model. However, some Board members were concerned that the amortization-with-impairment approach did not sufficiently rebalance the expected benefits and expected costs in a way that created a compelling case for change.

Question 25: The FASB has previously encountered challenges in identifying improvements to the subsequent accounting for goodwill that are cost beneficial. If the FASB were to pursue a project on the subsequent accounting for goodwill, what improvements should be considered? Please provide specifics on how those improvements would be more cost beneficial than the current impairment model.

IFRS Accounting

March 2024

Exposure Draft

IFRS® Accounting Standard

Business Combinations—Disclosures, Goodwill and Impairment

Proposed amendments to IFRS 3 and IAS 36

Current stage

In March 2024, the International Accounting Standards Board (IASB) published the Exposure Draft *Business Combinations—Disclosures, Goodwill and Impairment*. The Exposure Draft proposed amendments to:

- IFRS 3 *Business Combinations*—in particular, to improve the information companies disclose about the performance of business combinations; and
- IAS 36 *Impairment of Assets*—in particular, amendments to the impairment test of cash-generating units containing goodwill.

The IASB is redeliberating the proposals.

The IASB met on 19 February 2025 to redeliberate the project's objective and its approach to achieving that objective.

The IASB tentatively decided:

a. to retain the project's objective but to adjust its wording to reflect the stage of the project; and
b. to retain its approach to achieving the project objective by continuing to only consider:
    i. requiring an entity to disclose information about the performance of a business combination and quantitative information about synergies expected from a business combination;
    ii. requiring some of the information described in (i) only for a subset of business combinations;
    iii. exempting an entity from disclosing some of the information described in (i) in some situations;
    iv. proceeding with the other amendments to the disclosure requirements in IFRS 3 *Business Combinations* that were proposed in the Exposure Draft *Business Combinations—Disclosures, Goodwill and Impairment*;
    v. making some targeted improvements to the impairment test in IAS 36 *Impairment of Assets* to help mitigate management over-optimism and shielding, and to reduce cost and complexity; and
    vi. making other amendments that might be necessary because of (i)–(v), for example, amendments to transition requirements in IFRS 3 and IAS 36 and to IFRS 19 *Subsidiaries without Public Accountability.*

All 14 IASB members agreed with these decisions.

The IASB met on 8 April 2025 to discuss its proposals to require an entity to disclose information about the performance of a business combination for only a subset of business combinations. The IASB also discussed evidence-based feedback on the proportion of business combinations that would be captured as part of that subset using the thresholds proposed in the Exposure Draft *Business Combinations—Disclosures, Goodwill and Impairment.*

The IASB was not asked to make any decisions.

Appendix B: Kendal Tau Trend Test (Coefficients and p-values) from 2011-2020 for the Overall Sample

	GDWL/ MVAT	INTANO/ MVAT	GDWL/ (GDWL+INTANO)	FL/ MVAT	GDWL/ (GDWL+FL)	N
Overall Constant Sample	0.000 (0.9323)	0.024 (<0.0001)	-0.028 (<0.0001)	-0.036 (<0.0001)	-0.020 (0.0009)	15,713
FL_LIFE>10 years	0.000 (0.9990)	0.030 (0.0006)	-0.025 (0.0043)	-0.023 (0.0098)	-0.026 (0.0035)	6,365
FL_LIFE<= 10 years	-0.028 (0.0001)	-0.010 (0.1765)	-0.013 (0.0772)	-0.042 (<0.0001)	-0.005 (0.5746)	9,348

Note: This table shows Kendal Tau Trend Test coefficients (and p-values) testing based on the overall sample from 2011 to 2020. For partitions by finite-lived intangible life, we cut the sample based on the firm's median life of finite-lived intangibles (FL_LIFE) defined below over the sample period, above versus below 10 years.

Variable Definitions:

GDWL/MVAT: Goodwill (Compustat "gdwl") divided by market value of total assets (Compustat "at" – "ceq" + "prcc_f"* "csho").

INTANO/MVAT: Intangibles other than goodwill (Compustat "intano") divided by market value of total assets (Compustat "at" – "ceq" + "prcc_f"* "csho").

FL/MVAT: Finite-lived intangibles (Calcbench "FiniteLivedIntangibleAssetsNet"/1000000) divided by market value of total assets (Compustat "at" – "ceq" + "prcc_f"* "csho").

GDWL/(GDWL+INTANO): Ratio of goodwill (Compustat "gdwl") over total intangibles (Compustat "gdwl" + "intano").

GDWL/(GDWL+FL): Ratio of goodwill (Compustat "gdwl") over sum of goodwill and finite-lived intangibles (Compustat "gdwl" + Calcbench "FiniteLivedIntangibleAssetsNet"/1000000).

FL_LIFE: Firm median of the gross finite-lived assets divided by amortization expense (Calcbench "FiniteLivedIntangibleAssetsNet" + "FiniteLivedIntangibleAssetsAccumulatedAmortization" divided by "AmortizationOfIntangibleAssets") measured at the beginning of the year. If "FiniteLivedIntangibleAssetsNet" is not available we use "FiniteLivedIntangibleAssetsGross" – "FiniteLivedIntangibleAssetsAccumulatedAmortization"

Appendix C

Excerpts from correspondence sent from NRG to the SEC, related to their 10-k filed 2/27/2015 (the correspondence is dated 7/10/2015 and the first three response items are omitted as they are unrelated to goodwill).

4. We note you performed a quantitative assessment for your NRG Texas reporting unit which resulted in this reporting unit failing the first step of the goodwill impairment test but passing the second step of the goodwill impairment test such that you recorded no goodwill impairment. We have the following comments:

With respect to the most recent quantitative assessment you performed, please explain to us all significant assumptions you relied on in more detail than is disclosed in your filing. Your response should include but not be limited to explaining how you reflected in your quantitative assessment the significant drop in natural gas prices and resulting impact this has on setting the price of power.

We utilized a discounted cash flow analysis to determine the fair value of the Texas reporting unit, which was validated through comparisons to a valuation determined by applying a market-based multiple to earnings before interest, income taxes, depreciation and amortization (EBITDA). The primary inputs to the discounted cash flow analysis were as follows:

Gross margin was estimated utilizing market power prices driven by natural gas prices and heat rates for the first five years and NRG's fundamental view of market power prices for the sixth year (considered as "terminal year"). This reflected slightly decreasing near-term market natural gas prices offset by slightly increasing heat rates, which resulted in gradually increasing power and fuel prices over the first five years.

Heat rates remained relatively unchanged in the near-term, however began to rise slightly toward the end of the five-year curve and the terminal year driven primarily by microeconomic factors including the introduction of assumed carbon cost factors in the terminal year.

With respect to natural gas prices, most third party fundamental views agree that prevailing conditions suggest that demand will continue to lag supply, particularly over the next two years, due to the recent surge in shale production causing transformational regional shifts in supply, the proliferation of pipeline construction, and production innovation and efficiency showing no signs of slowing. However, a correction is likely to take place in the 2016-2018 window due to multiple demand side growth factors, including Mercury and Air Toxics Standard (MATS) and other regulatory retirements of coal assets and the resultant substitution of gas-fueled power generation, cumulative industrial demand growth, and increased exports. NRG believes that the above outlook is implicit in its five-year forecast and terminal view for the Texas reporting unit.

Generation economics, primarily driven by the coal facilities, became slightly unfavorable beginning in the terminal year. Due to a proposed EPA carbon rule that, if enacted as proposed, would create a wide range of possible outcomes, NRG framed potential carbon outcomes through a moderate nation-wide carbon price of $10/ton beginning in 2020, the terminal year. This represents the highest probable outcome between a more aggressive nation-wide carbon price of $20/ton including prevailing disruptive technologies and no Federal carbon regulations. NRG's assessment was of both Congressional and EPA activities on GHGs which includes federal carbon prices starting later and having a different shape and impact, specifically looking like tax without free allocations, as well as the Company's previous overall uncertainty surrounding the implementation and timing of carbon legislation on the five-year forecast period.

Operations and maintenance expenses and capital expenditures were estimated based on NRG's forecasted normal and major maintenance for the facilities for the initial five-year forecast period and normalized maintenance expenses and capital expenditures for the terminal year, representing an amount that can be grown at inflation through the life of the facility and reflects all projected expense.

With its complementary generation portfolio, the Texas reporting unit is a supplier of power to NRG's retail business in Texas, thereby creating a more stable, reliable and competitive business that benefits Texas consumers. By backing the load-serving requirements of the retail business with NRG's generation and risk management practices, the need to sell and buy power from other financial institutions and intermediaries that trade in the ERCOT market is reduced, resulting in reduced transaction costs and credit exposures. This combination of our generation and retail businesses allows for a reduction in collateral requirements by reducing the need to hedge the retail power supply through third parties. Synergies represent the eliminated collateral requirements of approximately $815 million, with an estimated annual savings of $50 - $90 million. Synergies also include supply cost synergies of approximately $25 million per year. The Company applies the highest and best use concept and combines the Texas business unit with the Texas retail business unit and the synergies associated with combining these businesses is considered to be a market participant view of the fair value of these business units.

The methodology for the terminal year and discount rate are disclosed in the NRG 10-K on page 100.

With respect to your sensitivity scenario, explain to us how you concluded using a hypothetical $0.50 per MMBtu drop in the natural gas market price for the first five-year period was reasonable.

A hypothetical $0.50 per MMBtu drop in natural gas market price represents 10% of NRG's terminal view for natural gas prices. The Company believes this drop represents a lowest case because, as discussed in our response to the first sub-question of question 4, most third-party fundamental views believe that a 2016-2018 market correction is likely based on the microeconomic factors detailed above. In addition, the hypothetical $0.50 drop in natural gas sensitivity is consistent with those used for the Company's quarterly earnings release sensitivities. Accordingly, we believe $0.50 per MMBtu represents a reasonable sensitivity scenario.

Explain to us in more detail, and tell us how you considered disclosing, the factors that that allowed you to pass step two of the impairment test despite the fact that you failed step one.

The factors that allowed the Texas reporting unit to pass step two of the impairment test include the application of the Gordon Growth Model to the terminal value under the assumption that the cash flows for the Texas reporting unit continue in perpetuity for step one, while the assets within the Texas reporting unit have a finite life and related cash flows under the hypothetical acquisition method accounting that is required to be applied for step two, which results in higher residual goodwill balances. In addition, the synergies associated with the combination of NRG's wholesale generation business and retail business in Texas, as discussed in the first sub-question to question 4 above, also contribute to the Texas reporting unit passing step two. We disclose both of these factors within our disclosures on page 100 of NRG's 10-K.

Also tell us the percentage by which the implied fair value of your goodwill exceeded the carrying amount when you performed step two. Please consider disclosing this information to provide your investors with a greater ability to assess the likelihood of a significant impairment charge.

The implied fair value of the Texas goodwill exceeded its carrying value by 44%, or $756 million. We will consider disclosing this information in future filings.

We also note you reconciled the fair value of your NRG Texas reporting unit determined under the income approach with NRG's market capitalization. Please provide us with the reconciliation of the fair value of this reporting unit to your market capitalization, and explain the underlying reasons for the difference. Please be detailed in your response.

($ in thousands)	As of Valuation Date	Analyst Target Price
Stock price	$ 26.95	$ 34.50
Shares outstanding	338,109,000	338,109,000
Equity value	$ 9,112,028	$ 11,664,748
Preferred stock	$ 249,000	$ 249,000
Debt	$ 20,374,000	$ 20,374,000
Business Enterprise Value	$ 29,735,028	$ 32,287,748
Business Enterprise Value with 20% control premium	$ 31,557,433	$ 34,620,697
Texas Business Enterprise Value	$ 5,235,760	$ 5,235,760
Texas as % of NRG	17.6%	16.2 %
Texas as % of NRG with control premium.	16.6%	15.1 %

Comparison to % of Adjusted EBITDA:		Value	% of NRG
NRG Adjusted EBITDA — 2013 (Actual)	$	2,646,000	
NRG Adjusted EBITDA — 2014 (Actual)	$	3,128,000	
NRG Adjusted EBITDA — 2015 (Mid-point of Guidance)	$	3,300,000	
Texas Adjusted EBITDA — 2013 (Actual)	$	502,139	19.0 %
Texas Adjusted EBITDA - 2014 (Actual)	$	291,577	9.3 %
Texas Adjusted EBITDA - 2015 (Forecast)	$	447,000	13.6 %

As per the above table, we reconciled the enterprise value of our Texas reporting unit to the total NRG business enterprise value, which was calculated using our market capitalization as of the valuation date and noted it ranged from 16.6% - 17.6% depending on the use of a reasonable control premium. We then compared the Adjusted EBITDA of our Texas reporting unit to the total NRG Adjusted EBITDA for historical periods and our 2015 guidance (which is detailed in the table above) and noted it ranged from 9.3% to 19.0%, which is reasonable. We did not note any significant reconciling differences

Appendix D: Regression Analyses

Sample	Single-Segment	Multi-Segment	Single-Segment	Multi-Segment	Single-Segment & B>M	Multi-Segment & B>M	Single-Segment & B>M	Multi-Segment & B>M	Single-Segment & B<M	Multi-Segment & B<M	Single-Segment & B<M	Multi-Segment & B<M
Dependent Variable	Goodwill Impairment	Goodwill Impairment	FL Asset Impairment	FL Impairment	Goodwill Impairment	Goodwill Impairment	Goodwill Impairment	Goodwill Impairment	Goodwill Impairment	Goodwill Impairment	Goodwill Impairment	Goodwill Impairment
Criteria	B>M	B>M	B>M	B>M	B>M_CP	B>M_CP	B>M_AF	B>M_AF	B_OBS>M	B_OBS>M	D(DMB<0)	D(DMB<0)
SingleRU	-0.080***		-0.004		0.0269		0.068		-0.066***		-0.071***	
	(0.009)		(0.014)		(0.043)		(0.045)		(0.010)		(0.014)	
Criteria* SingleRU	0.261***		0.0281		-0.004		-0.008		0.059**		0.048***	
	(0.046)		(0.022)		(0.073)		(0.073)		(0.020)		(0.013)	
Criteria* MultiRU	0.176***		0.0138		-0.0248		0.175*		0.103***		0.066**	
	(0.027)		(0.015)		(0.055)		(0.086)		(0.020)		(0.024)	
Limited		-0.034**		-0.007		-0.011		-0.047		-0.029*		-0.031*
		(0.012)		(0.009)		(0.049)		(0.052)		(0.013)		(0.016)
Criteria* Limited		0.151***		0.037**		0.026		0.079		0.061***		0.058***
		(0.023)		(0.013)		(0.045)		(0.049)		(0.014)		(0.015)
Criteria* Universal		0.176***		0.028		0.124		0.064		0.093***		0.069***
		(0.042)		(0.024)		(0.077)		(0.095)		(0.024)		(0.015)
#Segment		0.024***		-0.001		-0.002		-0.001		0.024***		-0.001
		(0.005)		(0.004)		(0.020)		(0.021)		(0.005)		(0.021)
Size	0.011**	0.011**	0.012**	0.006	0.027	0.022	0.007	0.008	0.010**	0.014***	0.010**	0.012**
	(0.005)	(0.004)	(0.004)	(0.003)	(0.023)	(0.018)	(0.035)	(0.022)	(0.004)	(0.004)	(0.004)	(0.004)
ROA	-0.109**	-0.357***	-0.046	-0.187***	0.165	-0.477	0.527	-0.297	-0.075*	-0.255***	-0.122***	-0.349***
	(0.035)	(0.060)	(0.054)	(0.058)	(0.488)	(0.403)	(0.491)	(0.373)	(0.038)	(0.071)	(0.037)	(0.062)
Market Value	-0.002***	-0.001**	-0.000	-0.000	-0.308***	0.044	-0.290***	0.008	-0.001**	-0.001**	-0.002***	-0.001**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.072)	(0.030)	(0.064)	(0.032)	(0.001)	(0.001)	(0.001)	(0.001)
Book Value	0.006*	0.002	-0.001	0.000	0.276***	-0.041	0.269***	-0.005	0.004	0.001	0.005	0.001
	(0.003)	(0.002)	(0.002)	(0.002)	(0.067)	(0.024)	(0.061)	(0.031)	(0.003)	(0.001)	(0.003)	(0.001)
Complexity	0.034	0.040	0.056	0.038	-0.017	-0.123	0.068	-0.055	0.024	0.039	0.042	0.043
	(0.040)	(0.030)	(0.031)	(0.028)	(0.193)	(0.130)	(0.198)	(0.128)	(0.036)	(0.030)	(0.038)	(0.031)
Constant	0.047	0.050	-0.023	0.048	0.130	0.281*	0.162	0.336**	0.028	-0.006	0.0212	0.004
	(0.028)	(0.033)	(0.027)	(0.027)	(0.175)	(0.133)	(0.256)	(0.137)	(0.027)	(0.039)	(0.031)	(0.039)
Industry and Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	5,466	10,247	5,466	10,247	340	803	294	698	5,076	9,371	5,077	9,372
Adj. R-squared	0.079	0.056	0.019	0.022	0.175	0.109	0.215	0.12	0.061	0.044	0.056	0.045

***, **, and * represent the 1%, 5%, and 10% significance, respectively.

Variable Definitions:

Criteria:

B>M: An indicator for firms where lagged book equity (Compustat "ceq") is greater (smaller) than lagged market equity (Compustat "prcc_f"* "csho"), and zero otherwise.

B>M_CP: An indicator for firms where lagged book equity (Compustat "ceq") is greater (smaller) than adjusted market equity value by control premium (Compustat "prcc_f"* "csho"* (1+CP)). The control premium (CP) information is obtained from FactSet Mergerstat/BVR Control Premium Study that provides annual control premium for each industry inferred from acquisition price versus individual share trading price, and zero otherwise.

B>M_AF: An indicator for firms where lagged book equity (Compustat "ceq") is greater (smaller) than inferred market equity calculated as the number of shares outstanding multiplied by analysts' median 12-month target price measured before the beginning of the fiscal year collected from IBES, and zero otherwise.

B_OBS >M: An indicator for firms where lagged book equity (Compustat "ceq") plus off-balance intangible assets (obtained from Peters and Taylor's "K_int_offBS" variable) is greater than market equity value, and zero otherwise.

D(ΔMB <0): An indicator for firms where the market value declines more (versus less) than the book value of equity from last year. i.e., the change in "market-book difference" measured as market value minus book value of equity (Compustat "prcc_f"* "csho" minus "ceq") is <0, and zero otherwise.

SingleRU: An indicator variable equal to one for single-segment firms with only one reporting unit, and zero otherwise.

MultiRU: An indicator variable equal to one for single-segment firms with multiple reporting units, and zero otherwise.

Limited: An indicator variable equal to one for multi-segment firms where goodwill is not allocated to all segments, and zero otherwise.

Universal: An indicator variable equal to one for multi-segment firms where goodwill is allocated to all segments, and zero otherwise.

#Segment: The number of segments obtained from Compustat Segment data.

Size: The natural log of firm total assets (Compustat "at") measured at the beginning of the year.

ROA: Lagged operating income (Compustat "oiadp") divided by averaged total assets (Compustat "at").

Market Value: Lagged market value of equity ("prcc_f"* "csho"*)*1000.

Book Value: Lagged book value of equity (Compustat "ceq")*1000.

Complexity: Firm complexity measured provided by Loughran and McDonald (2024): https://sraf.nd.edu/complexity/.

Appendix E-1: Shapley Value (without Fixed Effects)

Sample	Single-Segment	Multi-Segment	Single-Segment	Multi-Segment	Single-Segment & B>M	Multi-Segment & B>M	Single-Segment & B>M	Multi-Segment & B>M	Single-Segment & B<M	Multi-Segment & B<M	Single-Segment & B<M	Multi-Segment & B<M
Dependent Variable	Goodwill Impairment	Goodwill Impairment	FL Asset Impairment	FL Impairment	Goodwill Impairment	Goodwill Impairment	Goodwill Impairment	Goodwill Impairment	Goodwill Impairment	Goodwill Impairment	Goodwill Impairment	Goodwill Impairment
Criteria	B>M	B>M	B>M	B>M	B>M_CP	B>M_CP	B>M_AF	B>M_AF	B_OBS>M	B_OBS>M	D(DMB<0)	D(DMB<0)
SingleRU Criteria*	25.60%		2.23%		0.79%		2.15%		32.63%		35.00%	
SingleRU Criteria*	26.3%		3.64%		2.09%		4.43%		5.62%		5.12%	
MultiRU	30.26%		4.32%		1.09%		35.25%		44.30%		33.71%	
Limited Criteria*		3.35%		1.72%		13.46%		23.22%		4.72%		4.64%
Limited Criteria*		26.51%		15.10%		2.80%		36.23%		10.35%		8.97%
Universal		17.56%		5.79%		54.21%		24.63%		20.93%		17.11%
#Segment		16.06%		0.35%		0.57%		0.88%		26.12%		25.60%
Size	1.95%	3.43%	50.83%	9.42%	14.99%	6.04%	7.22%	2.22%	2.67%	8.34%	2.89%	6.92%
ROA	3.13%	21.70%	3.42%	47.12%	1.27%	24.34%	3.34%	19.58%	2.80%	16.14%	5.68%	21.50%
Market Value	5.26%	6.71%	3.40%	1.94%	37.16%	4.90%	22.41%	0.62%	4.22%	7.38%	6.48%	7.95%
Book Value	2.66%	1.61%	3.19%	1.63%	37.64%	6.10%	23.37%	0.60%	2.37%	1.89%	3.32%	2.02%
Complexity	4.83%	3.08%	28.97%	16.92%	4.98%	-12.40%	1.83%	-7.97%	5.38%	4.13%	7.80%	5.29%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Appendix: E-2: Shapley Value (with Fixed Effects)

Sample	Single-Segment	Multi-Segment	Single-Segment	Multi-Segment	Single-Segment & B>M	Multi-Segment & B>M	Single-Segment & B>M	Multi-Segment & B>M	Single-Segment & B<M	Multi-Segment & B<M	Single-Segment & B<M	Multi-Segment & B<M
Dependent Variable	Goodwill Impairment	Goodwill Impairment	FL Asset Impairment	FL Impairment	Goodwill Impairment	Goodwill Impairment	Goodwill Impairment	Goodwill Impairment	Goodwill Impairment	Goodwill Impairment	Goodwill Impairment	Goodwill Impairment
Criteria	B>M	B>M	B>M	B>M	B>M_CP	B>M_CP	B>M_AF	B>M_AF	B_OBS>M	B_OBS>M	D(DMB<0)	D(DMB<0)
SingleRU Criteria*	20.27%		0.39%		0.20%		0.66%		23.53%		23.88%	
SingleRU Criteria*	18.49%		0.76%		1.81%		2.94%		3.77%		3.16%	
MultiRU	23.50%		0.54%		1.72%		11.71%		30.10%		22.57%	
Limited Criteria*		2.09%		1.25%		1.40%		1.79%		3.07%		3.01%
Limited Criteria*		15.88%		3.89%		-0.42%		3.22%		6.09%		4.78%
Universal		10.18%		1.47%		3.51%		2.82%		11.40%		9.70%
#Segment		7.86%		0.13%		0.42%		0.30%		11.83%		11.76%
Size	2.53%	2.02%	9.81%	1.74%	8.75%	2.06%	5.66%	0.96%	2.90%	4.62%	2.90%	3.75%
ROA	1.94%	12.74%	1.88%	11.58%	0.98%	1.43%	1.40%	1.12%	1.44%	9.58%	2.89%	12.53%
Market Value	4.01%	2.81%	1.04%	0.34%	10.88%	0.60%	9.39%	0.27%	2.99%	2.90%	4.29%	3.24%
Book Value	2.02%	0.70%	0.80%	0.34%	11.72%	0.73%	10.30%	0.32%	1.70%	0.81%	2.16%	0.87%
Complexity	3.27%	2.62%	10.07%	8.30%	3.34%	3.30%	1.34%	3.15%	4.28%	2.76%	5.73%	3.45%
Fixed Effects	25.04%	43.10%	74.68%	70.95%	61.69%	86.96%	58.64%	86.05%	28.68%	46.94%	32.03%	46.91%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%