Evidence on the Decision Usefulness of Fair Values in Business Combinations

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Abstract: Whether fair value measurement provides decision-useful information is one of the most debated accounting questions in recent history. Although ASC 805 requires that identifiable acquired assets and assumed liabilities in business combinations be measured at fair value, little is known about the decision usefulness of fair values in this context. In this study, we examine whether (and under what circumstances) fair values provide decision-useful information in business combinations, and whether users rely on this information in decision making. Our results suggest that fair values have predictive ability for post-deal cash flows beyond that of combined pre-deal book values and earnings. However, this finding only holds in horizontal (same-industry) deals, deals that do not involve intangibles-intensive targets, and deals in which managers have less incentive to inflate goodwill. We also find that analysts update their cash flow forecasts in a pattern that suggests they detect and rely on the signals that deal characteristics provide about limits on the decision usefulness of fair values. Our findings provide important insights about the decision usefulness of fair values in business combinations, the effectiveness of current accounting standards, and the limitations of fair value measurement for non-financial assets and liabilities.

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Data Availability: All data used are publicly available from sources cited in the text.

1. Introduction

Whether fair value accounting provides decision-useful information is one of the most debated questions in recent history among accounting standard setters, practitioners, and academics. Central to the debate are the concepts of relevance and faithful representation defined in the FASB's Conceptual Framework (Concepts Statement No. 8, FASB 2010). Although exit prices used to estimate fair values are often more relevant than historical costs, fair value measurement involves substantial uncertainty and discretion, and fair values are not always reliably estimable. U.S. GAAP uses a mixed-attribute measurement system under which subsequent measurement for most assets is based on historical cost (less cost recovery), while certain other assets and liabilities, including financial instruments, are measured at fair value. While prior research suggests that the fair values of financial instruments may provide incremental decision-useful information beyond costs, less is known about the relevance and representational faithfulness of the fair values of non-financial assets and liabilities.[1]

An important exception to the customary use of cost as a basis for the measurement of non-financial assets and liabilities under GAAP is in business combinations. Under SFAS 141 and 141R (ASC 805), the previously recognized assets and liabilities of an acquired entity are revalued from book value to fair value, and identifiable intangible assets that were previously unrecognized by the target are recorded on the acquirer's balance sheet at fair value. In large public mergers and acquisitions (M&As) this process involves complex estimates and judgments, and it can result in a substantial change in the mix of cost and fair value on firms' balance sheets.[2]

[1] Prior research on fair value accounting for non-financial assets and liabilities has focused mainly on revaluations of non-financial assets in international settings where fair value measurement is more commonplace outside of the context of financial instruments (see Cotter and Richardson (2002) for a summary). For a summary of prior research on fair value accounting for financial instruments under U.S. GAAP, see Song, Thomas, and Yi (2010).

[2] Throughout the paper, we use the more colloquial term "M&A" and the term "Business Combination" (as codified in ASC 805) interchangeably.

Although SFAS 141 explicitly states that fair value measurement in business combinations should provide additional decision-useful information about acquired assets and liabilities beyond that provided by book values, the standard was met with substantial resistance. Opponents of the standard questioned the reliability of fair value measurement for non-financial assets and the ability of fair values to provide relevant information about acquired assets and liabilities.[3] Consistent with those concerns, several characteristics of M&As could plausibly inhibit the decision usefulness of fair values. First, fair value estimation is atypically challenging because M&As involve inherent information asymmetry (Erickson, Wang, and Zhang 2012; Raman, Shivakumar, and Tamayo 2013), considerable uncertainty regarding asset values (Skaife and Wangerin 2013; McNichols and Stubben 2015; Wangerin 2019), and complex estimates that present challenges for managers and external auditors (Cannon and Bedard 2017). Further, outside of the M&A setting, international studies provide mixed evidence on the reliability of fair values for non-financial assets (Barth and Clinch 1998; Aboody, Barth, and Kasznik 1999; Muller and Riedl 2002). Finally, prior research suggests that managers have incentives to distort fair values in M&A purchase price allocations (PPAs) in order to over-allocate purchase price to goodwill (Shalev, Zhang, and Zhang 2013). Thus, although the stated intent of SFAS 141 was to improve the usefulness of financial reporting, whether, and if so, under what circumstances, fair values assigned to identifiable assets and liabilities provide decision-useful information in business combinations and whether users rely on this information in decision making are important, unanswered empirical questions.

We examine these two questions about the decision usefulness of fair values using a hand-collected sample of 650 M&As involving U.S. public companies between 2003 and 2017. Because

[3] Opponents of SFAS 141 questioned their ability to reliably measure the fair value of intangible assets and argued that the cost of measuring individual fair values would outweigh the benefit. (FASB 2001; Korb and Vermeer 2001).

most assets and liabilities acquired in business combinations are remeasured at fair value pursuant to ASC 805, and because of the magnitude of the U.S. M&A market, which according to Levine (2017) accounts for more than $1 trillion in investment annually, our analyses provide valuable insights regarding the usefulness of fair values in a context with clear economic importance. Although prior research provides evidence on the decision usefulness of goodwill in U.S. M&As (e.g., Henning, Lewis, and Shaw 2000, Shalev et al. 2013, Paugam, Astolfi, and Ramond 2015), our study is unique in that we focus on the fair value measurement decisions (regarding *identifiable* assets and liabilities) that determine the allocation of residual purchase price to goodwill.[4]

To examine the decision usefulness of fair values in business combinations, we begin by following a long line of research on the predictive ability of accounting information for future cash flows.[5] As discussed in Concepts Statement No. 8 (Con. 8), an important objective of financial reporting is to provide decision-useful information for assessing the amount, timing, and uncertainty of future cash flows. SFAS 141 references Con. 8 directly, stating that an important element of decision-useful information is the ability to predict future cash flows, and concluding that fair values in business combinations "reflect the expected future cash flows associated with acquired assets and assumed liabilities" (p. 45, FASB 2001). Considering that intention, we model post-deal cash flows as a function of the pre-deal income and book value of both the target and

[4] Goodwill is calculated as the excess of the purchase price over the fair value of net identifiable assets, and it is therefore an outcome of the process of allocating purchase price to identifiable assets and liabilities based on fair values. Because goodwill can represent potential synergies from business combinations or overpayment for target entities (Henning et al. 2000), its value is more reflective of managers' investment decisions than their accounting decisions. As such, we view our study of fair value accounting for identifiable assets and liabilities under ASC 805 as distinct from prior PPA research examining the resulting goodwill. However, we acknowledge that managers may have incentives to over-allocate purchase price to goodwill (Shalev et al. 2013), and as such we consider goodwill and goodwill-related incentives in designing our empirical tests and demonstrating the robustness of our results.

[5] Examples of papers examining the predictive ability of accounting information for future cash flows include Finger (1994), Dechow, Kothari, and Watts (1998), Aboody et al. (1999), Barth, Cram, and Nelson (2001), Doyle, Lundholm, and Soliman (2003), Kim and Kross (2005), Lee (2011), Atwood, Drake, and Myers (2011), Badertscher, Collins, and Lys (2012), and Evans, Hodder, and Hopkins (2014).

acquirer, and the "step-up" of the target's net assets to fair value. This approach allows us to isolate the predictive ability of fair value adjustments for post-deal cash flows, conditional on the book values that would have been combined under the predecessor pooling-of-interests method of accounting for business combinations.

Our empirical results provide several important insights into the predictive ability of fair values for post-M&A cash flows. First, we provide evidence that fair values, on average, have predictive ability for post-deal cash flows beyond that of combined pre-deal book value and net income. Specifically, fair values are a statistically significant predictor of post-deal cash flows for the first two full years following M&As. In addition, we identify three characteristics of business combinations that limit the decision usefulness of fair values. First, the relation is only observed in horizontal (i.e., own-industry) mergers, where information asymmetry between acquirers and targets is lower (Raman et al. 2013; Martin and Shalev 2017), asset complementarity is higher (Rhodes-Kropf and Robinson 2008), and management is likely to be better informed about exit values. Second, the relation is not observed in acquisitions of targets with high levels of unrecognized intangible assets, which are particularly challenging to value (Barth and Clinch 1998; EY 2018; PwC 2017).[6] Third, the relation is weaker when the acquirer's CEO receives earnings-based compensation, consistent with the wealth-based incentives for managers to distort fair values proposed by Shalev et al. (2013). Together, these findings suggest that, although the purchase method of accounting provides decision-useful information beyond that provided by the pooling-of-interests method, there are several important factors that limit the decision usefulness of fair values in business combinations.

[6] This evidence is timely because the FASB is currently considering changes to the recognition and measurement of acquired intangible assets in business combinations (FASB 2019). As noted by the FASB in an Invitation to Comment issued on July 9, 2019, equity investors have indicated that they ignore certain recognized intangible assets that are too subjective to value and unlikely to generate incremental cash flows.

Although the relations we observe *ex-post* suggest that fair values in business combinations exhibit characteristics of decision usefulness, it is possible that the predictive information contained in fair values could be inferred from other pieces of the financial information set. Therefore, we next turn our attention to whether the relations between fair values and future cash flows that we identify *ex-post* are anticipated and relied upon by sophisticated financial statement users *ex-ante* in their decision making. Specifically, because prior research suggests that sell-side analysts play an important role in information uncertainty and price discovery surrounding M&As, we examine whether analysts update their forecasts of future cash flows in response to the disclosure of fair values in PPAs.

To examine analysts' reliance on fair value information, we model changes in analysts' forecasts surrounding PPA disclosures as a function of changes in fair values (which are first disclosed in the PPA), book values, and income. Results of these tests indicate that fair values are incremental to changes in book value and income in explaining changes in analysts' forecasts after PPA disclosures. This finding provides important insight into the impact of SFAS 141, in that fair values assigned to assets and liabilities in business combinations appear to contain decision-useful information that analysts do not otherwise glean from other sources of information. We also find evidence that the extent to which fair values are reflected in analysts' forecasts varies based on the factors identified in our *ex-post* cross-sectional tests: (i) industry-overlap, (ii) the presence of unrecognized intangibles, and (iii) the use of earnings-based bonuses in CEO compensation packages. These findings suggest that analysts correctly interpret and rely on the signals that deal characteristics provide about the usefulness of fair values and, importantly, that this information was not previously inferred by analysts from other pieces of the information set.

Finally, we perform several important supplemental analyses. First, we explore the impact

of SFAS 141R, a revision to SFAS 141 that expanded the use of fair value measurement in business combinations with the goal of further enhancing decision usefulness. Our findings suggest that, on average, SFAS 141R improved the decision usefulness of business combination fair values. However, we also provide evidence that, in deals involving R&D-active targets, any benefits of SFAS 141R related to fair value appear to have been offset by a reduction in decision usefulness due to the requirement that in-process R&D assets be measured at fair value. Second, although an explicit goal of SFAS 141 (and SFAS 141R) was to provide information about future cash flows, we acknowledge that there are other attributes of fair value information that could be used in investment decision making. Thus, we follow prior fair value research and examine the extent to which post-M&A equity prices reflect the fair value of net identifiable assets. Results suggest that, on average, fair values in business combinations provide incremental value-relevant information. Finally, we consider several alternative specifications and robustness checks to demonstrate that our findings are not simply the product of specific design decisions. Specifically, we find that our results are robust to the inclusion to the use of alternative scalars, the use of different measures of target intangibles intensity, and the use of different definitions of horizontal mergers .

Our study provides several contributions to the literature. The bulk of prior research on fair value measurement has focused on financial assets and liabilities (e.g., Barth, Beaver, and Landsman 1996; Song, Thomas, and Yi 2010; Dechow, Myers, and Shakespeare 2010; Blankespoor, Linsmeier, Petroni, and Shakespeare 2013). Under GAAP, the widespread application of fair value measurement to non-financial assets and liabilities is exclusive to business combinations. Thus, our findings should be of interest to investors in understanding the decision usefulness of fair values, and to standard setters in assessing the effectiveness of current standards. For example, our evidence is timely as the FASB considers changes to the recognition of intangible

assets in business combinations. We shed light on several important factors that inhibit the ability of fair values to provide decision-useful information in M&As. Our findings suggest that, on average, fair values in M&As do provide incremental decision-useful information beyond historical costs, but only in transactions with characteristics that make fair values more reliable. This suggests that purchase-based methods of accounting may not be a one-size-fits-all approach to providing decision-useful information about M&As. We also provide evidence that sophisticated users do in fact rely on fair value information in decision making.

Our findings also have implications for research on the application of fair value measurement to non-financial assets and liabilities, which has previously focused mainly on international settings (e.g., Barth and Clinch 1998; Aboody et al. 1999; Muller and Riedl 2002). Building on the mixed international evidence about the decision usefulness of non-financial fair values, we demonstrate that fair values in business combinations provide decision-useful information and identify factors that inhibit the decision usefulness of entity-wide fair value measurement in M&As. Finally, we contribute to literature on the impact of deal characteristics on the information environment surrounding large public M&As. We complement the findings of Shalev et al. (2013), Raman et al. (2013), and McNichols and Stubben (2015) by identifying the types of M&As that involve lower quality fair value information, and providing evidence that analysts correctly interpret the signals that deal characteristics provide about information quality.

2. Background and Hypothesis Development

2.1 Background and Related Literature

The choice between fair value and historical cost has been the subject of a long-standing and vigorous debate among accounting standard setters, practitioners and academics. Although accounting measurement has traditionally been based on cost, the past three decades have seen a

shift toward fair value accounting both in the U.S. and abroad. U.S. GAAP currently employs a mixed measurement system in which historical cost is the primary basis for valuation, but fair value measurement is required for many financial assets and liabilities. In contrast, IFRS permits the widespread application of fair value measurement for non-financial items.

At the heart of the disagreement regarding fair value accounting is the trade-off between relevance and faithful representation (i.e., reliability), which are the two fundamental qualitative characteristics of accounting information defined in the FASB's Conceptual Framework for Financial Reporting (FASB 2010). Although fair values are potentially more relevant to financial statement users for investment and credit allocation decisions, fair value measurement often requires complex estimates, critical assumptions, and substantial managerial discretion, all of which can reduce reliability. Thus, opponents of fair value accounting argue that the cost (decreased reliability) of fair value measurement outweighs the benefit (increased relevance).

Beginning with SFAS 107, which required entities to disclose the fair values of financial instruments, various FASB pronouncements have expanded the use of fair value measurement for financial assets and liabilities (e.g., SFAS 115, 119, 157, 159). Prior research offers extensive evidence on the benefits and costs of fair value measurement under these standards. Most research of this nature focuses on equity investors' use of the fair values reported by financial institutions. Although many studies provide evidence that the fair values of financial instruments provide value-relevant information (e.g., Barth et al. 1996; Eccher, Ramesh, and Thiagarajan 1996; Song et al. 2010; Blankespoor et al. 2013; Altamuro and Zhang 2013), others suggest that these estimates are often unreliable (e.g., Nelson 1996; Christensen and Nikolaev 2013; Magnan, Menini, and Parbonetti 2015; Hanley, Jagolinzer, and Nikolova 2018), and that managers exercise discretion in measuring the fair values of financial instruments to manage earnings (Dechow et al. 2010).

On the other hand, less is known about fair value measurement for non-financial assets and liabilities. Because revaluation at fair value for these items is generally only permitted under IFRS, research on non-financial fair values has focused exclusively on international settings. As with financial instruments, evidence on the usefulness of fair values for non-financial assets is mixed. Although Barth and Clinch (1998) and Aboody et al. (1999) provide evidence that non-financial asset revaluations are positively associated with equity prices, they also suggest that investors' perceptions of the reliability of fair values differ depending on the types of assets being valued and the inputs used in valuation. Further, Muller and Riedl (2002) and Cotter and Richardson (2002) provide evidence that the reliability of fair values for non-financial assets depends on firm governance, the use of external appraisers in fair value estimation, and characteristics of firms' information environments. Overall, the results of these studies suggest that there are a variety of firm and asset characteristics that limit the reliability of fair values.

One important exception to the use of historical cost under GAAP is the purchase method of accounting under SFAS 141 and SFAS 141R (ASC 805).[7] Effective June 30, 2001, SFAS 141 abolished the predecessor pooling-of-interests method of accounting for business combinations, which relied exclusively on combined (i.e., pooled) book values and required no fair value adjustments and no recognition of unrecorded intangible assets. In contrast, the purchase method requires that assets and liabilities acquired in business combinations, including previously unrecorded intangible assets of the target company, be recorded at their fair values.[8]

To date, research on fair value measurement in M&As has focused mainly on goodwill.

[7] As we discuss in in Section 5, the FASB revised SFAS 141 in 2007 with the issuance of SFAS 141R which replaced the purchase method with the acquisition method. Although the two methods have fundamental differences, they are similar in that both methods require acquired assets and liabilities to be recorded at fair value.

[8] The purchase method was also permitted in the pre-SFAS 141 era; however, most firms opted in favor of the pooling method because it typically resulted in higher subsequent earnings (Ayers, Lefanowicz, and Robinson 2002).

Under the purchase method, goodwill is the excess of purchase price over the fair value of net identifiable assets. As such, goodwill is determined by the allocation of purchase price to individual classes of assets and liabilities. Shalev (2009) examines M&A disclosures in the post-SFAS 141 era and finds that firms disclose less information regarding business combinations when the proportion of purchase price allocated to goodwill is relatively high. He attributes this relation to the fact that abnormally high levels of goodwill can indicate overpayment for a target. Relatedly, Shalev et al. (2013) and Zhang and Zhang (2017) show that when managers' compensation is closely linked to earnings, they are more likely to over-allocate purchase price to goodwill in order to avoid cost recovery expenses in post-M&A income statements. Paugam et al. (2015) use PPAs to create a measure of expected goodwill and examine whether "abnormal" (i.e., larger than expected) goodwill is informative regarding the quality of acquisitions. Their results indicate that abnormal goodwill is negatively associated with cumulative abnormal returns surrounding PPA disclosures, and positively associated with future impairment losses and performance decreases. Finally, Lynch, Romney, Stomberg, and Wangerin (2019) show that managers face trade-offs between tax-related incentives to report low post-acquisition taxable income and financial reporting incentives to report high post-acquisition earnings in making PPA decisions in M&As involving tax-deductible goodwill. Although these studies provide important evidence regarding the informativeness of goodwill for assessing the quality of investment decisions, they offer little insight into whether (or when) the fair value measurements that determine the allocation of residual purchase price to goodwill are decision useful, as proposed by the FASB in SFAS 141.

Regarding identifiable assets acquired in post-SFAS 141 business combinations, two concurrent studies examine how characteristics of acquired assets affect the ability of their values to predict future earnings and stock returns. First, McInnis and Monsen (2019) examine the

operating returns to acquired intangible assets. Their results suggest that investments in intangibles yield higher operating returns than investments in tangible assets, and that this difference is driven by goodwill. Further, King, Linsmeier, and Wangerin (2019) show that equity investors consider the nature of acquired intangible assets in pricing decisions. Specifically, they find that wasting intangible assets, organically replaced intangible assets, and goodwill exhibit positive associations with post-acquisition equity prices, but that the relation is strongest for wasting intangible assets.[9]

2.2 Hypothesis Development

2.2.1 Decision Usefulness of Fair Values

The starting point for our inquiry is to determine whether purchase-based methods of accounting provide users with incremental information beyond that provided by pooled book values. The FASB argued in SFAS 141 that fair value measurement would provide additional decision-useful information, citing various benefits of the purchase method relative to the pooling method, including the ability to "provide users with a better understanding of the resources acquired and improve their ability to assess future profitability and cash flows" (FASB 2001, p. 7). Regarding fair value measurement, SFAS 141 proposes that, relative to carrying values, fair values better reflect the expected cash flows associated with assets and liabilities acquired in business combinations. Indeed, Concepts Statement No. 7 (FASB 2008) proposes that estimating fair value involves considering how an asset will contribute to future cash flows.

Despite these purported benefits, the standard was met with opposition by the practitioner and investment communities. Respondents to exposure drafts argued that it would not be possible to reliably estimate the fair value of non-financial assets and liabilities, and that the costs of

[9] While both of these studies provide insight into how asset characteristics affect the returns to M&A investments *ex-post*, they focus primarily on intangible assets. In contrast, our questions relate to both the carrying and fair values of all acquired assets and assumed liabilities in M&As. Additionally, our study differs in that we directly examine whether financial statement users (i.e., analysts) rely on fair values in business combinations *ex-ante*.

generating those estimates would outweigh the benefits (Korb and Vermeer 2001). Consistent with these concerns, there are several features of M&As that could reduce the reliability of fair values. First, although uncertainty is common in all fair value measurements, M&As involve inherent ambiguity regarding asset values (Officer, Poulsen, and Stegemoller 2008; McNichols and Stubben 2015; Marquardt and Zur 2015; PwC 2017; EY 2018). Second, M&As involve considerable information asymmetry between bidders and targets (Officer 2007; Erickson et al. 2012; McNichols and Stubben 2015; Martin and Shalev 2017). Third, fair value estimation in M&As can present unique challenges for external auditors (Cannon and Bedard 2017; Mercer Capital 2017). Finally, prior research argues that managers have incentives to manipulate the fair values of identifiable assets to over-allocate purchase price to goodwill (Shalev et al. 2013).[10]

Although the characteristics of the M&A reporting environment discussed above could plausibly inhibit the ability of fair values to enhance decision usefulness, we expect that, on average, fair value measurement in business combinations should provide incremental decision-useful information, in line with a stated goal of SFAS 141 and SFAS 141R. Therefore, we state our first hypothesis in the alternative form as follows:

> ***H1*****:** *Fair values in business combinations provide incremental decision-useful information beyond book values.*

2.2.2 Limitations on Decision Usefulness

Regardless of whether purchase-based methods of accounting do (on average) achieve the stated goal of providing incremental decision-useful information, the features of M&As discussed above suggest probable limitations on the usefulness of fair values. Therefore, we next examine whether certain attributes of M&As inhibit the decision usefulness of fair values in business

[10] We discuss these limitations in detail in Section 2.2.2 and develop cross-sectional hypotheses regarding characteristics of M&As that inhibit the decision-usefulness of fair values.

combinations. First, we expect that fair values are less decision-useful in cross-industry M&As, which involve high information asymmetry (Raman et al. 2013; Martin and Shalev 2017) and greater divergence in asset similarity (Rhodes-Kropf and Robinson 2008; Matvos, Seru, and Silva 2018). Information asymmetry between the reporting entities involved in M&As can exacerbate the challenges associated with complex estimates and managerial discretion that are inherent in fair value estimation. Further, in cross-industry M&As we expect that management is less likely to be well-informed about the fair values of dissimilar assets. Considering these potential constraints on reliable fair value measurement, we state our next hypothesis in the alternative form as follows:

H2a**:** *Fair values are less decision-useful in cross-industry business combinations.*

Second, prior research and practitioner-oriented literature suggests that intangibles are among the most challenging assets to fair value (Barth and Clinch 1998; EY 2018). As noted by PwC (2018), fair value estimates for intangible assets rely on significant assumptions and judgments because they are illiquid and lack observable market prices. PwC (2018) suggests that the fair values of intangible assets should typically be estimated using income-based approaches that require critical assumptions regarding expected future cash flows, discount rates, terminal values, and economic lives. As such, we expect that fair values are less likely to be useful when the target company has high levels of unrecognized intangible assets and state our next hypothesis in the alternative form as follows:

H2b**:** *Fair values are less decision-useful in business combinations involving high levels of unrecognized intangible assets.*

Third, as discussed above, the difference between the purchase price in a business combination and the estimated fair value of the net identifiable assets is allocated to goodwill, which is not amortized in the post-SFAS 142 era but rather tested annually for impairment at the

reporting unit level. In M&As involving public companies in the U.S., goodwill typically accounts for more than one third of the total purchase consideration. As proposed by Shalev et al. (2013) and Zhang and Zhang (2017), managers that receive variable performance-based compensation may have incentives to under-allocate purchase price to identifiable assets in order to limit the amount of cost recovery recorded in post-M&A income statements. Therefore, we expect that fair values will be less reliable when managers have compensation-based incentives to over-allocate purchase price to goodwill and state our next hypothesis as follows:

> ***H2c*****:** *Fair values in business combinations are less decision-useful when managers have incentives to over-allocate purchase price to goodwill.*

2.2.3 Users' Reliance on Fair Values

Although our previous hypotheses are important in light of the explicit goals of SFAS 141 and SFAS 141R, any *ex-post* relations that we observe cannot necessarily be used to infer that users *rely* on fair values in business combinations. For example, it is possible that the predictive information in fair values could already have been gleaned from other pieces of the information set, or that users are unaware of the extent to which the fair value information is decision-useful. Thus, we are also interested in understanding whether sophisticated financial statement users rely on fair values in decision making. More specifically, because prior research suggests that analysts play an important role in information uncertainty and price discovery surrounding M&As (Haushalter and Lowry 2011; Erickson et al. 2012; Duchin and Schmidt 2013), we are interested in whether sell-side financial analysts update their expectations of future performance in response to the disclosure of fair values in M&As. If fair values in business combinations, on average, provide decision-useful information that is incremental to other sources, we expect analysts should rely on that information in their forecasting decisions. We also expect that analysts should be able to recognize any characteristics of M&As that signal limitations on the decision usefulness of fair

values (e.g., industry-overlap, unrecognized intangibles, and earnings-based CEO compensation), and that they recognize these signals and respond to fair values in cases where they are likely to be decision-useful. We therefore state our final hypothesis in the alternative form as follows:

> ***H3*****:** *Analysts recognize and rely on decision-useful information provided by business combination fair values.*

3. Sample and Research Methodology

3.1 Sample Selection

To construct our sample of public M&As, we start by searching the SDC Domestic Mergers database for deals announced between 2003 and 2017 that involve the acquisition of one hundred percent of a public U.S. target by a public U.S. acquirer. To help ensure that a PPA will be available in the acquirer's filings with the SEC, we restrict our analysis to deals with a transaction value greater than $10 million and require that the target's size is at least one percent of the acquirer's size based on both total assets and market capitalization. We further require that both the acquirer and target appear in the CRSP and Compustat databases, and that data for each merged entity for the first full fiscal year following the transaction be available in Compustat. We drop transactions involving acquirers or targets in the financial services industries (SIC codes 6000-6999). Finally, we eliminate transactions for which we cannot identify a PPA in the acquirer's post-deal filings with the SEC. Panel A of Table 1 provides a detailed breakdown of our sample construction, which results in a final sample of 650 transactions.[11]

(Insert Table 1 here)

We hand-collect the fair value data used to calculate our test variables from PPAs disclosed in acquirers' post-deal filings with the SEC. Specifically, we use SEC EDGAR to manually

[11] Our sample size and exclusions are consistent with prior M&A research that relies on the same data sources. For example, Rabier (2018) uses a sample of 580 public deals between 1994-2012, and Wangerin (2019) uses a sample of 308 public deals between 2011-2016.

identify initial PPA disclosure dates, and we gather data on the purchase price, fair value of net identifiable assets, and goodwill for each transaction. Data used to calculate the other variables used in testing our hypotheses are drawn from Compustat, I/B/E/S, and CRSP. We use data from Execucomp for our cross-sectional tests involving CEO compensation. Additional data used in our supplemental market-based tests are drawn from Compustat.

3.2 Research Design and Variable Measurement

3.2.1 Tests of H1

SFAS 141 and SFAS 141R explicitly state that fair values in business combinations should be useful in predicting future cash flows. As such, we follow prior research that examines the predictive ability of accounting information for future cash flows (e.g., Dechow et al. 1998; Barth et al. 2001; Doyle et al. 2003; Badertscher et al. 2012; Evans et al. 2014) in order to examine whether fair values in business combinations are decision-useful. Specifically, we estimate the following model using ordinary least squares:

$$CashFlow_{t+k} = \alpha + \beta_0 FairValueStep\text{-}Up_t + \beta_1 Book\ Value_t + \beta_X Controls_t + Acquirer\ and\ Target\ Industry\ Fixed\ Effects + Year\ Fixed\ Effects + \varepsilon_{t+k} \quad (1)$$

The dependent variable in Equation (1) is *CashFlow*, which is defined as operating cash flows measured in either the first or second complete fiscal year following the effective date of each transaction. Our variable of interest, *FairValueStep-Up,* is calculated as the difference between the fair value of the acquired net identifiable assets at the effective date and the book value of the target at the end of the quarter preceding the effective date. Thus, *FairValueStep-Up* measures the adjustment of the target's net assets to fair value under ASC 805. Consistent with *H1*, we expect β_0 to be positive and significant. To ensure that our test variable captures the marginal effect of the fair value adjustment (conditional on the book values that would have been combined under the pooling method), we control for the combined book value (*BookValue*) of the

acquirer and target (measured at the end of the quarter preceding the deal). To mitigate concerns about scale effects, we deflate *FairValueStep-Up* and *BookValue* by the number of common shares outstanding at the end of the first fiscal year following the transaction.[12]

We also control for firm and deal characteristics that could plausibly determine both PPAs and post-M&A cash flows.[13] First, we follow previous studies that examine the predictive ability of accounting information for future cash flows and control for earnings, because pre-deal operating performance is likely to be among the most important signals of future cash flows, and because prior research suggests that the income statement and balance sheet both provide distinct decision-useful information (Barth, Beaver, and Landsman 1998; Penman 2010; Lee 2011). We measure pre-deal earnings using the combined net income of the acquirer and target for the final complete fiscal year preceding the transaction (*Income*). [14] To address differences in firm size, growth opportunities, and capital structure, we control for the market capitalization (*MarketCap*), market-to-book ratio (*MarketToBook*), and leverage ratio (*Leverage*) of the combined entity at the end of the first quarter following the transaction. To capture characteristics of business combinations that could affect realized future cash flows, we control for the size of the target relative to the acquirer (*RelativeSize*) and the acquisition premium (*Premium*), and we include binary variables that are set equal to one to indicate all-cash deals (*AllCash*), diversifying (i.e., cross-industry) deals (*Diverse*), and deals involving R&D-active target companies (*R&D*). Where

[12] We use shares outstanding as our scalar following Barth and Clinch (2009), who find that the number of shares outstanding performs the best among alternative deflators in capturing scale effects in capital markets research. A share-deflated approach is particularly appropriate in our setting because other deflators such as total assets are highly correlated with the book and fair values of net assets, which are used as explanatory variables in our models. However, as we discuss in Section 5, we generally observe consistent results in both undeflated and sales-deflated specifications.
[13] We do not control for goodwill arising from the transaction because it is effectively an outcome of the measurement of the fair values of net identifiable assets. Nonetheless, we perform robustness tests to ensure our findings are not influenced by the inclusion of a goodwill control variable. See Section 5 for a more detailed discussion of these results.
[14] As discussed further in Section 5, our inferences are similar when we include separate variables for acquirer and target book values and income.

appropriate, we also include year fixed effects, and both acquirer and target industry fixed effects based on the Fama-French 12 industry classifications.

3.2.2 Tests of H2

We test *H2a*, *H2b*, and *H2c* by estimating comparative sub-sample regressions of Equation (1) and using Wald tests to examine differences in the coefficient estimates for *FairValueStep-Up* across the separate groups.[15] To test whether fair values are less decision-useful in cross-industry M&As, we follow prior M&A research and classify transactions as horizontal (diversifying) if the acquirer and target operate in the same (different) primary industries based on the Fama-French 48 industry classifications (*Diverse*) (e.g., Malmendier and Tate 2008; Ferris, Jayaraman, and Sabherwal 2013). Consistent with *H2a*, we expect that fair values provide more decision-useful information in own-industry M&As. To examine whether fair values are less useful when the target company has high levels of unrecognized intangible assets, we split our sample based on whether the target reported research and development expense in the last full fiscal year preceding the transaction (*R&D*).[16] In line with *H2b*, we expect fair values to be more useful in the absence of R&D expenditures. Finally, we test whether fair values are less useful when managers have compensation-based incentives to over-allocate purchase price to goodwill by splitting our sample based on whether the CEO of the acquirer received bonus compensation in the last full fiscal year preceding the transaction (*Bonus*) in line with Shalev et al. (2013). As stated in *H2c*, we expect fair values to be more decision-useful when the CEO of the acquirer did not receive bonus compensation in the prior year.

[15] As discussed in Section 5, our inferences are similar if we estimate cross-sectional effects using the full sample of transactions and include interaction terms to capture the moderating effects of deal characteristics.

[16] As discussed more fully in Section 5, our results are similar if we use advertising expense instead of research and development expense as a proxy for intangibles intensity.

3.2.3 Tests of H3

To examine analysts' use of fair value information in decision making, we model the monthly change in the consensus forecast of future cash flows surrounding the PPA disclosure. Specifically, we estimate the following model using ordinary least squares:

$$\Delta Forecast_t = \alpha + \lambda_0 FairValueStep\text{-}Up_t + \lambda_1 \Delta BookValue_t + \lambda_2 \Delta Income_t + Acquirer\ and\ Target\ Industry\ Fixed\ Effects + Year\ Fixed\ Effects + \varepsilon_t \quad (2)$$

The dependent variable, *ΔForecast*, measures the change in the mean analyst forecast of cash flows per share (for the first full year after the deal) surrounding the PPA disclosure date.[17] Because the fair values of target assets and liabilities are not publicly available prior to the PPA disclosure, our variable of interest, *FairValueStep-Up,* represents the change in fair values during this period. As predicted by *H3*, we expect λ_0 to be positive in instances where there is decision-useful information provided by fair values. We control for changes in combined book values (*ΔBookValue*) and combined profitability (*ΔIncome*) during the same period in order to better isolate the effect of the disclosure of fair values on analysts' forecasts.[18] We perform each of our tests of *H3* on those transactions where the PPA is disclosed after the effective date so that we can be confident that analysts' forecasts relate to the combined entity rather than the pre-merger acquirer. We identify these observations by manually searching for PPA disclosure dates using EDGAR. We first estimate Equation (2) using all available observations (consistent with our test of *H1*) and then perform three cross-sectional analyses that use comparative regressions and Wald

[17] We do not consider longer range forecasts in our primary tests because they are much less common. For example, our sample size is reduced to 159 observations if we calculate *ΔForecast* for the second full year after the transactions. Nonetheless, in untabulated tests we observe consistent results in all of our tests using this sample of 159 observations.

[18] We exclude the complete set of control variables from model (2) for two important reasons. First, because of the small sample sizes used in our comparative sub-sample regressions for tests of *H3*, the inclusion of many control variables and fixed effects raises concerns about model overfitting. Second, it is not possible to measure many of the market-based explanatory variables in model (1) using pre-deal to post-deal changes (as opposed to levels). Nevertheless, in untabulated tests we observe very similar results using various combinations of the fixed effects and controls (measured using levels) from model (1).

tests to assess the potential moderating effects of each of the three attributes considered in *H2*.

4. Empirical Results

4.1 Sample Distribution and Descriptive Statistics

Panel B of Table 1 provides the time distribution of our sample transactions. In general, M&As are well distributed throughout our sample period, with the highest volume of deals taking place between 2005 and 2007. The distribution of transactions by acquirer and target industry (Fama-French 12) is provided in Panel C of Table 1. Consistent with prior research using similar sample periods, the transactions in our sample are distributed across a variety of industries, with the Business Equipment and the Healthcare industries having the highest volumes of M&A activity (e.g., Shalev 2009; Wangerin 2019).

Table 2 reports descriptive statistics for the variables used in our models. In the full sample used to test *H1*, the median fair value adjustment to acquired net assets (*FairValueStep-Up*) is approximately 54.3 percent of outstanding common shares. The variables *BookValue*, *Income*, and *CashFlow*, are positive at the twenty-fifth percentile, suggesting that the majority of deals in our sample involve profitable and solvent entities. In the smaller sample of deals used to test *H3*, which are those observations with forecast data available in I/B/E/S and an initial PPA disclosure date after the effective date, the median change in the consensus analyst cash flow forecast is zero, and *FairValueStep-Up* follows a similar distribution as in the larger sample. We also find that the median values of both *ΔBookValue* and *ΔIncome* are negative, which could potentially be attributable to restructuring charges and asset impairments associated with M&As.

(Insert Table 2 here)

Table 2 also reports statistics regarding several deal characteristics. The median purchase price for the deals in our sample is $789 million, and the median relative size of the targets in our

sample is approximately 22.9 percent of acquirer market capitalization. Based on the Fama-French 48 industry classifications, 39.4 percent of our sample transactions are cross-industry M&As. Approximately 63.1 percent (43.8 percent) of targets report research and development (advertising) expense in the year preceding the transaction. With respect to purchase price allocation, the median percentage of purchase price allocated to net identifiable assets (goodwill) is 48.6 percent (51.4 percent).

4.2 Tests of H1

Table 3 presents results from the estimation of Equation (1). In columns 1 through 3, the dependent variable is calculated using operating cash flows for the first full year following the transaction. The first column presents results with *FairValueStep-Up* and year and industry fixed effects included as explanatory variables. The second column presents results that also include *BookValue* as an explanatory variable (to facilitate a simple comparison of the purchase and pooling methods), and the third column presents results including the complete set of explanatory variables from model (1). In each specification, the coefficient on *FairValueStep-Up* is positive and significant ($p < 0.05$, $p < 0.01$, and $p < 0.10$), consistent with *H1*. Columns 4 through 6 provide the results of similar estimations in which the dependent variable is calculated using operating cash flows for the second full year following the transaction. Consistent with the results from columns 1 through 3, the coefficient on *FairValueStep-Up* is again positive and significant in each of these three specifications ($p < 0.10$ in each). As expected, across both sets of results, the inclusion of fixed effects and additional explanatory variables substantially improves the predictive power of our models. Importantly, using either dependent variable, the coefficient on *FairValueStep-Up* remains significant both statistically and with respect to coefficient magnitude after *BookValue* is included as an explanatory variable. These findings suggest that fair values in

business combinations provide incremental decision-useful information beyond book values.

(Insert Table 3 here)

4.3 Tests of H2

Panel A of Table 4 presents the results of estimating Equation (1) for subsamples of own-industry and cross-industry M&As.[19,20] In columns 1 and 2 (columns 4 and 5), the dependent variable captures future cash flows for the first (second) full year following the transaction. As shown, although *BookValue* is positively associated with post-deal cash flows in both sub-samples, *FairValueStep-Up* is only significant among the own-industry M&As. Further, the p-values for the Chi-squared test statistics of coefficient differences in columns 3 and 6 are both less than 0.10, indicating the effects in columns 1 and 3 are each statistically larger than the effects in columns 2 and 4. These findings indicate that fair values are more decision-useful in horizontal acquisitions, which provides support for *H2a*.

(Insert Table 4 here)

Panel B of Table 4 presents the results for subsamples constructed based on whether the target reported R&D expense in the last full fiscal year preceding the transaction. When we estimate Equation (1) across the R&D and non-R&D target groups, the coefficients on *FairValueStep-Up* are only significant among M&As in which targets do not report R&D expense.[21] Furthermore, the results of the Wald tests shown in columns 3 and 6 indicate that the

[19] We omit acquirer industry effects in these tests because they overlap perfectly with target industry fixed effects in the sub-sample of own-industry M&As. We observe similar results if we control for acquirer industry fixed effects instead of target industry fixed effects.

[20] We include the full set of explanatory variables in all tabulated tests of H2, however, all of our cross-sectional results are similar using the restricted set of controls that includes only *BookValue* and year and industry fixed effects. For ease of presentation, we present coefficient estimates in Table 4 for *FairValueStep-Up* and *BookValue*, but not for the other explanatory variables included in the models.

[21] Although it may seem puzzling at first glance that the coefficient on *FairValueStep-Up* is not larger in magnitude for the sub-sample of R&D-intensive targets that potentially have high levels of unrecognized assets (Column 2 of Table 4 Panel B), additional untabulated analyses offer several explanations for this result. First, when the dependent variable is calculated using cash flows for the *third* complete year following the transaction, the coefficient of

relation between fair value adjustments and future cash-flows is significantly weaker in acquisitions of R&D-active targets. This suggests that fair values are less decision-useful in M&As involving targets with high levels of unrecognized intangible assets, consistent with *H2b*.

Finally, Panel C of Table 4 presents the results of estimating Equation (1) for subsamples that are constructed based on whether the CEO of the acquirer received bonus compensation in the last full fiscal year preceding the transaction.[22] As anticipated, the coefficients on *FairValueStep-Up* are only significant for the group of M&As in which the CEO does not receive earnings-based compensation. In addition, consistent with *H2c*, the results of the Wald tests shown in columns 3 and 6 indicate that the effects statistically differ between the two subsamples. These findings suggest that fair values are less decision-useful when there are incentives to under-allocate purchase price to identifiable assets.

Overall, the findings of our tests of cross-sectional hypotheses provide important insight into the observable deal characteristics that can inhibit the ability of fair values to provide incremental decision-useful information about business combinations.

4.4 Tests of H3

Table 5 presents results from the estimation of Equation (2). Panel A presents results for the full available sample. Columns 1 through 3 present results without control variables or fixed effects, with fixed effects, and with both controls and fixed effects, respectively. In each specification, the coefficient on *FairValueStep-Up* is positive and significant ($p < 0.05$, $p < 0.01$,

interest increases in magnitude for this sub-sample, which could suggest that investments in R&D-intensive targets take longer to manifest in increased cash flows. Second, it is also possible that the information about future cash flows contained in the fair values of unrecognized target intangibles is also captured by other explanatory variables in our model such as target industry fixed effects, and target income (which includes R&D and advertising expense). Consistent with that conjecture, when we re-estimate our tests of H2b omitting controls for target income and industry the positive coefficient on *FairValueStep-Up* again increases in magnitude for the R&D-intensive subsample. Importantly, regardless of our design choices involving these variables, Wald tests of differences in coefficient estimates consistently provide evidence in support of H2b.

[22] The reduced sample size in these tests reflects the loss of observations for which data is not available in Execucomp.

and $p < 0.01$), indicating that the disclosed business combination fair values are positively associated with changes in analysts' forecasts of future cash flows. These findings suggest that analysts do in fact rely on fair values in business combinations in their decision making.

(Insert Table 5 here)

Panels A through C of Table 6 present the results of subsample estimations that consider the effects of industry-overlap, intangibles intensity, and CEO earnings-based compensation on the relation between fair values and changes in analyst forecasts of future cash flows. These analyses allow us to examine whether analysts detect and rely on the different signals that deal characteristics provide about the decision usefulness of fair value information in business combinations. In each Panel, column 3 presents the difference in the coefficient estimates on *FairValueStep-Up* between the two groups.

As shown in Panels A and B, the coefficients on *FairValueStep-Up* are only statistically significant in cases where our *ex-post* cash flow analyses suggest that fair values provide decision-useful information. Further, in cross-industry transactions and acquisitions of R&D-active targets, the estimated test coefficients are close to zero in magnitude, and Wald tests confirm that these estimated coefficients are statistically different from each other ($p < 0.05$ and $p < 0.01$). The results of testing the moderating effect of the presence of CEO bonus compensation in Panel C suggest a similar pattern in that the coefficient on *FairValueStep-Up* is approximately four times larger in transactions that do not involve CEO bonus compensation. However, the difference in coefficient estimates across these two groups is not statistically significant. Nonetheless, in aggregate these findings provide support for *H3*, indicating that analysts detect and correctly interpret the different signals that deal characteristics provide about the decision usefulness of fair value adjustments.

(Insert Table 6 here)

5. Additional Analyses and Robustness Tests

5.1 Revisions to SFAS 141

As discussed in Section 1, the FASB revised SFAS 141 in 2007 with the issuance of SFAS 141R, which replaced the purchase method of accounting for business combinations with the closely related acquisition method. Although both methods require that most acquired assets and assumed liabilities be measured at their acquisition date fair values, SFAS 141R, which was effective for fiscal years ending after December 15, 2008, involved several modifications to the original standard that were intended to improve the usefulness of financial reporting for business combinations. First, whereas costs related to acquired in-process research and development (IPR&D) were immediately expensed under SFAS 141, SFAS 141R requires that IPR&D assets be capitalized at their acquisition date fair values. Second, although SFAS 141 permitted deferred recognition of pre-acquisition contingencies (following the recognition criteria in SFAS 5), SFAS 141R requires that most contingencies be recorded on the acquirer's balance sheet at their acquisition date fair values (see Allee and Wangerin 2018). Third, under SFAS 141R, restructuring costs and acquisition-related expenditures must be recognized separately from the business combination, as opposed to being allocated to net identifiable assets under SFAS 141. Finally, whereas SFAS 141 permitted "negative goodwill" which was allocated as a *pro rata* reduction to acquired assets, SFAS 141R requires that any excess of purchase price over the fair value of net identifiable assets be recognized as a gain in the acquirer's income statement.

Considering these significant amendments to the standard, and the FASB's position that SFAS 141R would further improve the decision usefulness of financial reporting in business combinations, we are interested in whether the relations between fair values and cash flows that we observe in our main analyses are stronger in the post-SFAS 141R period. We examine this

question by estimating Equation (1) separately for sub-samples of transactions accounted for before and after the effective date of SFAS 141R. Panel A of Table 7 presents the results of sub-sample regressions and a Wald test of coefficient differences which indicate that the incremental predictive ability of fair values for future cash flows is much stronger in the post-SFAS 141R period, suggesting that the revision to the original standard improved the decision usefulness of fair value measurement in business combinations.

(Insert Table 7 here)

Because the results of cross-sectional tests discussed earlier suggest that the usefulness of fair values is diminished in acquisitions of targets that conduct R&D activities, we also examine whether any moderating effects of SFAS 141R adoption differ for R&D and non-R&D targets due to the SFAS 141R requirement that IPR&D assets be capitalized at their acquisition date fair values. To do so, we perform subsample regressions of R&D and non-R&D targets (similar to Panel B of Table 4), but also include an interaction term *FairValueStep-Up*Post* to isolate the moderating effect of SFAS 141R adoption on the decision usefulness of fair values between these two groups. The results of these analyses are presented in Panel B of Table 7.[23] The insignificant coefficient on *FairValueStep-Up* in each specification suggests that fair values, on average, were not predictive of future cash flow for either R&D targets or non-R&D targets in the pre-SFAS 141R period. However, the statistically significant coefficient on *FairValueStep-Up*Post* in column 1 indicates fair value became significantly more decision-useful following the introduction of SFAS 141R for firms without R&D expenses. As shown in column 2, there was no such improvement when targets do conduct R&D. Furthermore, a test of the difference in these coefficients (column 3) indicates that these two effects are statistically different. In untabulated

[23] We omit year fixed effects from these analyses so that we can interpret the coefficient on *Post* as the average effect for the post SFAS-141R period.

analyses, we confirm that our findings are driven by the SFAS 141R requirement that IPR&D be capitalized at fair value (rather than by unrecognized intangibles more generally) using advertising expense as an alternative to R&D. In these tests, we do not observe a statistically significant difference in the coefficient estimates for *FairValueStep-Up*Post* using this alternative definition of intangibles intensity. Together, these findings suggest that, although SFAS 141R improved the decision usefulness of business combination fair values, any benefits of SFAS 141R related to fair value measurement appear to have been offset by a reduction in decision usefulness due to the requirement that IPR&D assets be measured at fair value.

5.2 Value Relevance of Fair Values

While our previous analyses directly examine the decision usefulness of fair values in explaining future cash flows and analysts *ex-ante* estimates of future cash flows, prior research on the usefulness of accounting information often also considers the extent to which balance sheet amounts are reflected in equity market prices. Thus, in the spirit of prior value relevance research, we also examine whether fair values appear to be associated with stock market valuations surrounding M&As. First, we follow prior value relevance research (e.g., Barth et al. 1998; Henning, Lewis, and Shaw 2000; Evans et al. 2014) and regress post-deal stock price on *FairValueStep-Up* and various combinations of the control variables from Equation (1). Second, we follow Wangerin (2019) and examine the relation between changes in these explanatory variables and changes in stock prices surrounding the effective dates of the transactions in our sample. Results of these tests are presented in Table 8. In each specification the coefficient on *FairValueStep-Up* is positive and significant, suggesting that fair values provide incremental value-relevant information to equity market investors beyond that provided by carrying values.

(Insert Table 8 here)

5.3 Alternative Design Choices

5.3.1 Inclusion of a Goodwill Control Variable

As we discussed earlier, we do not include goodwill as an explanatory variable in our tests because it is a mechanical outcome of fair value measurement for identifiable assets in business combinations. However, we acknowledge that prior research has also considered the predictive ability of goodwill for future performance (e.g., Lee 2011), and as such we consider alternative versions of our tests in which we include the goodwill arising from each transaction (*Goodwill*) as an additional explanatory variable in our tests involving future cash flows.

Results of these tests are presented in Table 9. As can be seen from the *FairValueStep-Up* coefficient estimates and Wald tests of coefficient differences, our inferences regarding *H1* and *H2* are very similar. In untabulated analyses we also observe similar results if *Goodwill* is included as an explanatory variable in our tests of *H3* and related cross-sections; however, we elect not tabulate these results in the interest of brevity.

(Insert Table 9 here)

5.3.2 Alternative Measure of Intangibles Intensity

Prior research has also considered advertising expense as a proxy for unrecognized intangibles. Because these brand-related intangibles, like technology-related intangibles generated through R&D, are likely to be difficult to measure at fair value, we consider whether our earlier inferences differ when we use the presence of advertising expense as an alternative proxy for unrecognized intangibles. Results of these tests are provided in Table 10. Panel A presents the results of future cash flow regressions and Panel B presents the results of regressions involving changes in analyst forecasts. Across both Panels, we observe results that are generally consistent with those presented earlier in Panel B of in Tables 4 and 6. This provides comfort that our

observed effects are not the product of using R&D to proxy for unrecognized intangible assets.

(Insert Table 10 here)

5.3.3 Additional Robustness Tests

We consider several additional tests and specifications in untabulated analyses to demonstrate the robustness of our results. First, although Barth and Clinch (2009) propose that share-deflated variable measurement is an ideal approach to addressing scale effects in capital markets research, we note that prior research on the predictive ability of accounting information for future cash flows often considers undeflated and sales-deflated approaches to variable measurement (e.g., Barth et al. 2001; Lee 2011). In untabulated tests, we re-estimate our models using undeflated and sales-deflated variables and generally observe consistent results. Second, we confirm that our results are robust to measuring pre-deal book values and income separately for the acquirer and target. Third, we confirm that our inferences regarding industry-overlap are robust to alternative definitions of horizontal mergers, including two-digit SIC codes and the Hoberg and Phillips (2010) industry classifications. Regarding our cross-sectional tests, we draw similar inferences if we use an interaction approach to estimate moderating effects.

Finally, we perform tests to ensure that our results are not sensitive to the presence of influential observations. First, as suggested by Leone, Minutti-Meza, and Wasley (2019) we re-estimate all of our primary tests using robust regression methods as an alternative to OLS and observe consistent results. Second, we winsorize the variables used in these models at the 1st and 99th percentiles and find that our results and inferences are similar. Overall, the results of these tests provide additional comfort that our inferences are not solely the product of our empirical design decisions nor are they due to the presence of influential observations in our sample.

6. Conclusion

This study examines the decision usefulness of fair values in business combinations. Although the FASB explicitly states that purchase-based methods of accounting for M&As, which have been required by accounting standards since the effective date of SFAS 141 in 2001, should provide incremental decision-useful information, prior research on SFAS 141 has focused almost exclusively on goodwill. Considering the mixed evidence on the usefulness of fair values in other contexts and the economic importance of the U.S. M&A market, whether fair values in business combinations in fact provide incremental decision-useful information, whether financial statement users rely on these fair values, and what factors inhibit the decision usefulness of fair values in business combinations are important, unanswered empirical questions.

Using a sample of 650 U.S. business combinations involving publicly-traded acquirers and targets, we show that fair value adjustments are a statistically significant predictor of post-deal cash flows for the first two complete fiscal years following the transactions. However, we find that this relation is not observed in cross-industry deals, deals involving targets with high levels of unrecognized intangible assets, and deals in which the acquirer's managers have incentives to over-allocate purchase price to goodwill. In addition, we show that sell-side analysts update their forecasts of future cash flows in response to the disclosure of M&A fair values in a pattern consistent with them detecting and relying on the different signals that deal characteristics provide about decision usefulness.

Overall, our findings provide insight into the determinants of decision-useful fair value measurement in business combinations. We also demonstrate that the information provided by fair values in business combinations was not previously inferred by analysts from other pieces of the information set. Our findings should be of interest to investors in understanding the decision

usefulness of fair values, to standard setters in assessing the effectiveness of current accounting standards, and to researchers interested in the limitations of fair value measurement for non-financial assets and liabilities.

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Appendix A – Variable Definitions

Variable	Definition
Adv	Indicator variable equal to one if the target company reported advertising expense in the year preceding the transaction, zero otherwise.
AllCash	Indicator variable equal to one if the deal did not involve the use of acquirer stock as consideration, zero otherwise.
BookValue	Sum of the pre-deal net book values of the acquirer and target, scaled by the number of shares outstanding after deal completion.
BV_Mkt	Combined entity's net book value per share at the end of the quarter after the deal.
Bonus	Indicator variable equal to one if the acquirer's CEO received bonus compensation in the year preceding the transaction, zero otherwise.
CashFlow	Operating cash flows for the combined entity, scaled by number of shares outstanding after deal completion.
Diverse	Indicator variable equal to one if the acquirer and target operate in different primary Fama-French 48 industries, zero otherwise.
FairValueStep-Up	Fair value of the net identifiable assets minus the target's pre-deal book value, scaled by number of shares outstanding after deal completion.
Goodwill	Goodwill arising from the transaction, scaled by number of shares outstanding after deal completion.
Income	Sum of the pre-deal net income of the acquirer and target, scaled by number of shares outstanding after deal completion.
Income_Mkt	Combined entity's net income per share at the end of the quarter after the deal.
Leverage	Total liabilities divided by total assets calculated at the end of the first quarter following the deal.
MarketCap	The natural log of market capitalization at the end of the first quarter following the deal.
MarketToBook	Market value of equity divided by book value of equity calculated at the end of the first quarter following the deal
Post	Indicator variable equal to one if the deal was accounted for after the SFAS 141R effective date (December 15, 2008), zero otherwise.
Premium	The percentage difference between the purchase price per share and the target's trading price four calendar weeks prior to the deal announcement.
Price	Combined entity's stock price per share at the end of the quarter after the deal.

R&D	Indicator variable equal to one if the target company reported R&D expense in the year preceding the transaction, zero otherwise.
RelativeSize	Deal value divided by acquirer market capitalization at the end of the last quarter preceding the deal.
ΔBookValue	Change in combined net book values surrounding the PPA disclosure, scaled by the number of shares outstanding after deal completion.
ΔBV_Mkt	Change in combined entity's net book value per share from the end of the quarter preceding the deal to the end of the quarter after the deal.
ΔForecast	Monthly change (surrounding the PPA disclosure) in the mean analyst forecast of future cash flows per share for the first complete fiscal year following the deal.
ΔIncome	Change in combined quarterly income surrounding the PPA disclosure, scaled by number of shares outstanding after deal completion.
ΔIncome_Mkt	Change in combined entity's net income per share from the end of the quarter preceding the deal to the end of the quarter after the deal.
ΔPrice	Change in acquirer stock price per share from the end of the quarter preceding the deal to the end of the quarter after the deal.

Table 1: Sample Selection and Distribution

Panel A: Sample Selection

U.S. public M&As of at least $10 million in SDC during 2003-2017	2,301
Acquirer or target not appearing in CRSP/Compustat	-777
Acquirer or target in financial services (SIC 6000-6999)	-718
Targets with market cap. <1% of acquirer market cap.	-62
Transactions without a clean purchase price allocation in EDGAR	-94
Final sample of transactions	650

Panel B: Distribution by Year

Year	N	%
2003	33	5.08
2004	44	6.77
2005	55	8.46
2006	60	9.23
2007	66	10.15
2008	48	7.38
2009	28	4.31
2010	50	7.69
2011	33	5.08
2012	30	4.62
2013	36	5.54
2014	33	5.08
2015	52	8.00
2016	43	6.62
2017	39	6.00
All	650	100.00

Panel C: Distribution by Industry

	Acquirer		Target	
Fama-French 12 Industry	N	%	N	%
1 (Consumer Non-Durables)	28	4.31	26	4.00
2 (Consumer Durables)	13	2.00	6	0.92
3 (Manufacturing)	60	9.23	62	9.54
4 (Energy)	35	5.38	37	5.69
5 (Chemicals)	13	2.00	13	2.00
6 (Business Equipment)	237	36.46	246	37.85
7 (Telecommunications)	34	5.23	28	4.31
8 (Utilities)	13	2.00	13	2.00
9 (Wholesale, Retail, & Services)	53	8.15	51	7.85
10 (Healthcare)	100	15.38	103	15.85
11 (Money)	0	0.00	0	0.00
12 (Other)	64	9.85	65	10.00
All	650	100.00	650	100.00

Table 2: Descriptive Statistics

Table 2 presents descriptive statistics for our sample. We separately tabulate statistics for the full future cash flows (*H1*) sample and the full analyst (*H3*) sample. *Purchase Price* is the purchase price of the target (in billions of dollars). *FVNIA %* is the percentage of the purchase price allocated to net identifiable assets, and *Goodwill %* is the percentage of the purchase price allocated to goodwill. All other variables are formally defined in Appendix A.

Variables	(1) N	(2) Mean	(3) St. Dev.	(4) P25	(5) P50	(6) P75
Full Sample						
$CashFlow_{t+1}$	650	4.101	6.192	1.188	2.690	5.217
$CashFlow_{t+2}$	581	4.349	6.312	1.291	2.864	5.386
$FairValueStep\text{-}Up_t$	650	1.679	5.628	0.021	0.543	1.882
$BookValue_t$	650	15.974	17.416	6.160	11.930	20.463
$Income_{t-1}$	650	1.694	3.105	0.256	1.197	2.647
$MarketCap_t$	650	8.397	1.844	7.130	8.221	9.691
$MarketToBook_t$	650	3.082	8.807	1.509	2.279	3.439
$Leverage_t$	650	0.543	0.206	0.416	0.553	0.678
$RelativeSize_t$	650	0.419	0.561	0.079	0.224	0.578
$Premium_t$	650	0.712	1.041	0.272	0.466	0.775
$Diverse_t$	650	0.394	0.456	0.000	0.000	1.000
$R\&D_t$	650	0.631	0.483	0.000	1.000	1.000
$Bonus_t$	495	0.404	0.491	0.000	0.000	1.000
$Post_t$	650	0.531	0.499	0.000	1.000	1.000
$Price_t$	650	43.747	73.291	16.670	32.030	51.680
$\Delta Price_t$	650	5.044	13.335	-0.282	2.650	7.840
$Goodwill_t$	650	5.327	8.658	0.704	2.279	5.800
Adv_t	650	0.438	0.497	0.000	0.000	1.000
Purchase Price	650	2.808	6.869	0.249	0.789	6.203
FVNIA %	650	0.490	0.250	0.324	0.486	0.648
Goodwill %	650	0.510	0.250	0.352	0.514	0.676
Analyst Sample						
$\Delta Forecast_t$	220	0.083	0.711	-0.050	0.000	0.100
$FairValueStep\text{-}Up_t$	220	1.173	2.938	0.075	0.416	1.161
$\Delta BookValue_t$	220	-1.935	4.574	-2.293	-0.805	-0.087
$\Delta Income_t$	220	-0.025	1.053	-0.205	-0.009	0.130

Table 3: Fair Value and Future Cash Flows

Table 3 presents the results of our OLS estimation of Equation (1). Dependent variables are listed above their respective columns. Year and industry fixed effects are excluded for brevity. Huber-White *t*-statistics are presented in parentheses below the corresponding coefficients. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively. All variables are formally defined in Appendix A.

	(1)	(2)	(3)	(4)	(5)	(6)
	$DV = CashFlow_{t+1}$			$DV = CashFlow_{t+2}$		
FairValueStep-Up$_t$	***0.247****	***0.259*****	***0.188****	***0.289****	***0.300*****	***0.209****
	(1.797)	***(3.023)***	***(1.728)***	***(2.090)***	***(3.253)***	***(1.802)***
BookValue$_t$		0.242***	0.192***		0.232***	0.164***
		(9.241)	(6.939)		(5.080)	(9.995)
Income$_{t-1}$			0.513***			0.752***
			(3.559)			(3.679)
MarketCap$_t$			0.373***			0.243**
			(3.443)			(2.144)
MarketToBook$_t$			0.014			0.000
			(0.639)			(0.034)
Leverage$_t$			2.984***			2.687**
			(3.291)			(2.335)
RelativeSize$_t$			-0.471			-0.612*
			(-1.611)			(-1.662)
Premium$_t$			0.525			0.371
			(1.471)			(0.960)
AllCash$_t$			-1.006***			-1.689***
			(-2.774)			(-3.581)
Diverse$_t$			-0.869***			-0.451
			(-2.856)			(-1.244)
R&D$_t$			-0.111			0.034
			(-0.208)			(0.051)
Constant	1.531*	-2.135**	-5.637***	1.389	-2.350**	-4.345***
	(1.797)	(-2.421)	(-4.703)	(1.539)	(-1.974)	(-3.434)
Observations	650	650	650	581	581	581
R-squared	0.167	0.560	0.651	0.190	0.560	0.684
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 4: Cross-Sectional Effects on Fair Value and Future Cash Flows

Table 4 presents the results of our OLS estimation of estimations of Equation (1) with partitioned samples. Panels A, B, and C partition the sample on *Diverse, R&D,* and *Bonus,* respectively. Columns 3 and 6 of each Panel presents coefficient differences and p-values for the related Wald tests. Dependent variables are listed above their respective columns. Year and industry fixed effects are excluded for brevity. Huber-White *t*-statistics are presented in parentheses below the corresponding coefficients. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively. All variables are formally defined in Appendix A.

Panel A: Subsamples Based on Industry-Overlap

	(1)	(2)	(3)	(4)	(5)	(6)
	Diverse = 0	*Diverse* = 1	Test of	*Diverse* = 0	*Diverse* = 1	Test of
	$DV = CashFlow_{t+1}$		Difference	$DV = CashFlow_{t+2}$		Difference
FairValueStep-Up$_t$	***0.234*****	***0.058***	***0.176****	***0.254*****	***0.041***	***0.213****
	(2.018)	***(0.898)***	***[0.082]***	***(1.998)***	***(0.523)***	***[0.064]***
BookValue$_t$	0.212***	0.125***		0.168***	0.189***	
	(8.585)	(2.957)		(11.117)	(2.770)	
Constant	-6.306***	-3.471**		-4.788***	-2.802	
	(-4.644)	(-2.337)		(-3.756)	(-1.141)	
Observations	459	191		407	174	
R-squared	0.634	0.789		0.649	0.803	
Controls	Yes	Yes		Yes	Yes	
Industry FE	Yes	Yes		Yes	Yes	
Year FE	Yes	Yes		Yes	Yes	

Panel B: Subsamples Based on Intangibles Intensity

	(1)	(2)	(3)	(4)	(5)	(6)
	R&D = 0	*R&D* = 1	Test of	*R&D* = 0	*R&D* = 1	Test of
	$DV = CashFlow_{t+1}$		Difference	$DV = CashFlow_{t+2}$		Difference
FairValueStep-Up$_t$	***0.230*****	***0.004***	***0.226****	***0.269****	***0.019***	***0.250****
	(2.016)	***(0.079)***	***[0.024]***	***(2.335)***	***(0.259)***	***[0.022]***
BookValue$_t$	0.231***	0.092***		0.190***	0.095***	
	(10.155)	(3.641)		(13.683)	(2.761)	
Constant	-14.136***	-1.621		-4.790**	-1.979	
	(-3.482)	(-1.437)		(-2.230)	(-1.163)	
Observations	240	410		215	366	
R-squared	0.736	0.632		0.783	0.577	
Controls	Yes	Yes		Yes	Yes	
Industry FE	Yes	Yes		Yes	Yes	
Year FE	Yes	Yes		Yes	Yes	

Panel C: Subsamples Based on CEO Compensation

	(1)	(2)	(3)	(4)	(5)	(6)
	Bonus = 0	*Bonus* = 1	Test of	*Bonus* = 0	*Bonus* = 1	Test of
	DV = $CashFlow_{t+1}$		Difference	*DV* = $CashFlow_{t+2}$		Difference
FairValueStep-Up$_t$	***0.280*****	***0.044***	***0.236*****	***0.322******	***0.043***	***0.279******
	(2.724)	***(0.453)***	***[0.033]***	***(3.059)***	***(0.781)***	***[0.005]***
BookValue$_t$	0.226***	0.075**		0.179***	0.089**	
	(10.723)	(2.382)		(11.874)	(2.047)	
Constant	-5.705**	-5.475***		-6.776**	-3.846**	
	(-2.334)	(-3.910)		(-2.303)	(-2.396)	
Observations	295	200		254	189	
R-squared	0.717	0.672		0.789	0.704	
Controls	Yes	Yes		Yes	Yes	
Industry FE	Yes	Yes		Yes	Yes	
Year FE	Yes	Yes		Yes	Yes	

Table 5: Fair Value and Analyst Cash Flow Forecasts

Table 5 presents the results of our OLS estimation of Equation (2). Dependent variables are listed above their respective columns. Variables are formally defined in Appendix A. Year and industry fixed effects are excluded for brevity. Huber-White *t*-statistics are presented in parentheses below the corresponding coefficients. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively. All variables are formally defined in Appendix A.

	(1)	(2)	(3)
		$DV = \Delta Forecast_t$	
FairValueStep-Up$_t$	***0.040****	***0.061*****	***0.071*****
	(2.238)	***(2.894)***	***(2.885)***
$\Delta BookValue_t$			0.006
			(0.474)
$\Delta Income_t$			-0.071
			(-0.557)
Constant	0.037	0.170	0.195
	(0.809)	(0.741)	(0.790)
Observations	220	220	220
R-squared	0.027	0.230	0.238
Industry FE	No	Yes	Yes
Year FE	No	Yes	Yes

Table 6: Cross-Sectional Effects on Fair Value and Analyst Cash Flow Forecasts

Table 6 presents the results of our OLS estimation of estimations of Equation (1) with partitioned samples. Panels A, B, and C partition the sample on *Diverse, R&D,* and *Bonus,* respectively. Column 3 of each Panel presents coefficient differences and p-values for the related Wald tests. Dependent variables are listed above their respective columns. Year and industry fixed effects are excluded for brevity. Huber-White *t*-statistics are presented in parentheses below the corresponding coefficients. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively. All variables are formally defined in Appendix A.

Panel A: Subsamples Based on Industry-Overlap

	(1)	(2)	(3)
	Diverse = 0	*Diverse* = 1	Test of
	$DV = \Delta Forecast_t$		Difference
FairValueStep-Up$_t$	***0.081****	***0.002***	***0.079****
	(1.995)	***(0.066)***	***[0.037]***
$\Delta BookValue_t$	-0.000	-0.012	
	(-0.012)	(-0.616)	
$\Delta Income_t$	-0.053	-0.040	
	(-0.360)	(-0.499)	
Constant	0.224	0.646	
	(0.784)	(1.198)	
Observations	151	69	
R-squared	0.238	0.507	
Industry FE	Yes	Yes	
Year FE	Yes	Yes	

Panel B: Subsamples Based on Intangibles Intensity

	(1)	(2)	(3)
	R&D = 0	*R&D* = 1	Test of
	$DV = \Delta Forecast_t$		Difference
FairValueStep-Up$_t$	***0.087****	***-0.001***	***0.088*****
	(2.023)	***(-0.028)***	***[0.008]***
$\Delta BookValue_t$	0.041	-0.010	
	(1.177)	(-0.664)	
$\Delta Income_t$	0.004	-0.227*	
	(0.015)	(-1.703)	
Constant	0.540*	-0.238	
	(1.830)	(-1.012)	
Observations	61	159	
R-squared	0.603	0.473	
Industry FE	Yes	Yes	
Year FE	Yes	Yes	

Panel C: Subsamples Based on CEO Compensation

	(1)	(2)	(3)
	Bonus = 0	*Bonus* = 1	Test of Difference
	DV = ΔForecast$_t$		
FairValueStep-Up$_t$	***0.086***	***0.021***	***0.065***
	(1.220)	***(1.012)***	***[0.147]***
ΔBookValue$_t$	-0.006	-0.010	
	(-0.227)	(-0.537)	
ΔIncome$_t$	-0.046	-0.220*	
	(-0.260)	(-1.898)	
Constant	0.235	0.328	
	(0.590)	(0.965)	
Observations	123	75	
R-squared	0.254	0.630	
Industry FE	Yes	Yes	
Year FE	Yes	Yes	

Table 7: Revisions to SFAS 141 (SFAS 141R)

Table 7 presents the results of analyses examining the introduction of SFAS 141R. Panel A partitions the sample on *Post*, and Panel B partitions the sample on *R&D*. Column 3 of each Panel presents coefficient differences and p-values for the related Wald tests. Dependent variables are listed above their respective columns. Year and industry fixed effects are excluded for brevity. Huber-White *t*-statistics are presented in parentheses below the corresponding coefficients. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively. All variables are formally defined in Appendix A.

Panel A: Pre- and Post-SFAS 141R

	(1)	(2)	(3)
	Post = 0	*Post* = 1	Test of
	DV = CashFlow$_{t+1}$		Difference
FairValueStep-Up$_t$	***0.063***	***0.272******	***0.209****
	(1.028)	***(2.657)***	***[0.031]***
BookValue$_t$	0.124***	0.208***	
	(5.024)	(8.271)	
Constant	-4.799***	-5.715*	
	(-4.328)	(-1.757)	
Observations	309	341	
R-squared	0.632	0.700	
Controls	Yes	Yes	
Industry FE	Yes	Yes	
Year FE	Yes	Yes	

Panel B: Intangibles Intensity with Post 141R Interaction

	(1)	(2)	(3)
	R&D = 0	*R&D* = 1	Test of
	DV = CashFlow$_{t+1}$		Difference
FairValueStep-Up$_t$ *Post	***0.324****	***-0.077***	***0.401*****
	(2.182)	***(-0.930)***	***[0.005]***
FairValueStep-Up$_t$	-0.010	0.046	
	(-0.085)	(0.845)	
Post	4.346	0.122	
	(1.024)	(0.230)	
BookValue$_t$	0.238***	0.093***	
	(10.477)	(3.641)	
Constant	-16.439***	-2.168*	
	(-3.428)	(-1.839)	
Observations	240	410	
R-squared	0.750	0.633	
Controls	Yes	Yes	
Industry FE	Yes	Yes	
Year FE	No	No	

Table 8: Value Relevance of Fair Values

Table 8 presents the results of our OLS estimations using market price variables. Dependent variables are listed above their respective columns. Year and industry fixed effects are excluded for brevity. Huber-White *t*-statistics are presented in parentheses below the corresponding coefficients. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively. All variables are formally defined in Appendix A.

Panel A: Value-Relevance

	(1)	(2)	(3)
		$DV = Price_t$	
FairValueStep-Up$_t$	***2.127****	***4.005*****	***2.103*****
	(2.310)	***(3.143)***	***(3.387)***
BV_Mkt$_t$		2.525***	1.385***
		(2.880)	(2.950)
Constant	12.583	-6.755	-51.858**
	(1.646)	(-0.535)	(-2.343)
Observations	650	649	641
R-squared	0.110	0.360	0.533
Controls	No	No	Yes
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

Panel B: Change in Price

	(1)	(2)	(3)
		$DV = \Delta Price_t$	
FairValueStep-Up$_t$	***0.954*****	***1.235*****	***1.013*****
	(3.282)	***(5.140)***	***(3.693)***
ΔBV_Mkt$_t$		0.521***	0.499***
		(4.397)	(3.722)
Constant	-3.632*	0.682	-13.493***
	(-1.776)	(0.295)	(-3.479)
Observations	650	649	640
R-squared	0.237	0.303	0.460
Controls	No	No	Yes
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

Table 9: Inclusion of a Goodwill Control Variable

Table 9 presents the results of our OLS estimation of Equation (1) with the inclusion of *Goodwill* as an additional control variable. Dependent variables are listed above their respective columns. Column 1 is the baseline model, and columns 2-3, 5-6. and 8-9 partition the sample on *Diverse, R&D,* and *Bonus,* respectively. Columns 4, 7, and 10 present coefficient differences and p-values for the related Wald tests. Year and industry fixed effects are excluded for brevity. Huber-White *t*-statistics are presented in parentheses below the corresponding coefficients. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively. All variables are formally defined in Appendix A.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	All	*Diverse*=0	*Diverse*=1	Test of	*R&D*=0	*R&D*=1	Test of	*Bonus*=0	*Bonus*=1	Test of
	DV = CashFlow$_{t+1}$			Difference	*DV = CashFlow$_{t+1}$*		Difference	*DV = CashFlow$_{t+1}$*		Difference
FairValueStep-Up$_t$	***0.151****	***0.170****	***0.070***	***0.100***	***0.150****	***0.016***	***0.134****	***0.212*****	***0.066***	***0.146****
	(1.967)	***(2.396)***	***(1.064)***	***[0.135]***	***(1.946)***	***(0.351)***	***[0.050]***	***(3.543)***	***(0.620)***	***[0.089]***
Goodwill$_t$	***0.106****	***0.176*****	***-0.074***	***0.250*****	***0.171****	***0.070****	***0.101****	***0.167*****	***0.071***	***0.096****
	(2.182)	***(3.509)***	***(-1.352)***	***[0.002]***	***(2.545)***	***(1.692)***	***[0.081]***	***(3.062)***	***(1.390)***	***[0.076]***
BookValue$_t$	0.178***	0.190***	0.140***		0.211***	0.075***		0.209***	0.059*	
	(5.719)	(7.052)	(3.149)		(8.602)	(2.714)		(10.306)	(1.740)	
Constant	-6.339***	-6.920***	-3.388**		-15.479***	-2.046*		-7.368**	-5.322***	
	(-4.938)	(-4.517)	(-2.594)		(-3.364)	(-1.800)		(-2.592)	(-4.108)	
Observations	650	459	191		240	410		295	200	
R-squared	0.662	0.660	0.795		0.752	0.644		0.737	0.676	
Controls	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Industry FE	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Year FE	Yes	Yes	Yes		Yes	Yes		Yes	Yes	

Table 10: Alternative Intangibles Proxy

Table 10 presents the results of tests using an alternative intangibles proxy, *Adv,* to partition the sample. Columns 3 and 6 in Panel A and column 3 in Panel B present coefficient differences and p-values for the related Wald tests. Dependent variables are listed above their respective columns. Year and industry intercepts are excluded for brevity. Huber-White *t*-statistics are presented in parentheses below the corresponding coefficients. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively. All variables are formally defined in Appendix A.

Panel A: Future Cash Flows

	(1)	(2)	(3)	(4)	(5)	(6)
	Adv = 0	*Adv* = 1	Test of	*Adv* = 0	*Adv* = 1	Test of
	$CashFlow_{t+1}$		Difference	$CashFlow_{t+2}$		Difference
FairValueStep-Up$_t$	***0.238****	***0.019***	***0.219****	***0.254****	***0.024***	***0.230****
	(2.549)	***(0.147)***	***[0.066]***	***(2.536)***	***(0.203)***	***[0.051]***
$BookValue_t$	0.123***	0.214***		0.123***	0.170***	
	(4.977)	(11.947)		(3.666)	(9.541)	
Constant	-3.900**	-7.872***		-2.976	-5.786***	
	(-2.174)	(-3.206)		(-1.484)	(-3.078)	
Observations	365	285		330	251	
R-squared	0.707	0.687		0.678	0.778	
Controls	Yes	Yes		Yes	Yes	
Industry FE	Yes	Yes		Yes	Yes	
Year FE	Yes	Yes		Yes	Yes	

Panel B: Analyst Cash Flow Forecasts

	(1)	(2)	(3)
	Adv = 0	*Adv* = 1	Test of
	$\Delta Forecast_t$		Difference
FairValueStep-Up$_t$	***0.051*****	***0.085***	***-0.034***
	(2.847)	***(0.976)***	***[0.676]***
$\Delta BookValue_t$	0.012	-0.027	
	(0.845)	(-0.299)	
$\Delta Income_t$	-0.140	-0.052	
	(-1.343)	(-0.210)	
Constant	0.307	0.305	
	(1.246)	(0.619)	
Observations	115	105	
R-squared	0.426	0.336	
Industry FE	Yes	Yes	
Year FE	Yes	Yes	