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Business as Usual? GAAP Classification and Acquired Innovation

DISSERTATION

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by

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DEDICATION

soli Deo gloria

To my wife and my parents, for teaching me about resilience, hope, and faith

and for all the sacrifices they have endured to make this accomplishment possible

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VITA

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ABSTRACT OF THE DISSERTATION

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The definition of a business per U.S. GAAP is a key part of the accounting for acquisitions because it determines a transaction's classification between a business combination and an asset acquisition. This classification, in turn, determines the accounting treatment for acquired in-process research & development (IPR&D), capitalized in a business combination but immediately expensed in an asset acquisition. In this study, I examine the effect of a change in the definition of a business per Accounting Standards Update (ASU) No. 2017-01 on acquisition activity by firms that rely on acquired IPR&D as a core component of their innovation strategy. Consistent with a narrowed definition of a business increasing the likelihood of asset acquisition classification that lowers reported earnings through immediate expensing of IPR&D, I find these firms reduce their acquisition activity following the adoption of ASU 2017-01. Results of additional analyses suggest potentially economically inefficient implications for these firms' overall innovation strategy.

CHAPTER 1. INTRODUCTION

Corporate mergers and acquisitions (M&A) not only are an integral part of a firm's overall strategy but also can have an outsized impact on the economy, as global aggregate M&A deal value topped nearly $3.2 trillion in 2023 (Bain and Company 2024). Given the significance of M&A activity for firms, capital markets, and the economy, the accounting for these transactions is an important part of generally accepted accounting principles (GAAP), and the specific accounting standards for acquisitions have been subject to substantial scrutiny and controversy. Current U.S. GAAP for acquisitions follows the guidance in Statement of Financial Accounting Standards (SFAS) No. 141 issued in 2001, which was later revised and issued as SFAS 141R in 2007 and subsequently codified into *Topic 805—Business Combinations*. At its issuance, Statement No. 141 was a highly controversial change in GAAP for acquisitions due to its elimination of the pooling-of-interests method that drew considerable opposition from high-tech firms, banks, and accounting firms,[1] even prompting Congress to intervene in the Financial Accounting Standards Board's (FASB) standard-setting agenda (Anantharaman 2015). Since then, changes in accounting standards for acquisitions introduced by SFAS 141R and its specific provisions have been the subject of numerous academic studies (Chung, Hillegeist, Park, and Wynn 2019; Cadman, Carrizosa, and Faurel 2014; Johnson, Lopez, and Sorensen 2021; Kwon and Wang 2020).

As the M&A market has continued its growth and evolution, standards that govern the accounting and reporting for corporate acquisitions have likewise undergone changes, and it is

[1] These stakeholders vehemently opposed the proposed changes on the grounds that it would slow down acquisition activity by U.S. firms, while the FASB responded by arguing its standard-setting for acquisitions does not and should not explicitly consider how accounting standards may encourage or discourage real acquisition activity (Anantharaman 2015).

important to examine the impact of those changes given both the economic significance of acquisitions and implications for future standard setting activities. In this paper, I investigate the potential real effects of *Accounting Standards Update No. 2017-01: Clarifying the Definition of a Business* (ASU 2017-01), a recent amendment to U.S. GAAP for acquisitions that changes the definition of a business.

Under U.S. GAAP, the definition of a business is a crucial component of the accounting for acquisitions because whether an acquired set of assets and activities meets the definition of a business determines how a transaction is classified between a business combination and an asset acquisition. Following the implementation of SFAS 141R in 2007, however, stakeholders expressed that the definition of a business under SFAS 141R was overly broad (Financial Accounting Foundation 2013; FASB 2017). Because of an overly broad interpretation of which sets of assets and activities constitute a business, prior to ASU 2017-01, most transactions almost by default qualified as business combinations and were recorded as such, even if some of those transactions in economic substance were more akin to acquisitions of an asset or a group of assets. For instance, when a firm acquires a controlling interest in an early-stage legal entity that contains the rights to an intellectual property asset and no other inputs or processes are transferred in the acquisition, the substance of the transaction is arguably an acquisition of an asset; however, when applying the legacy definition of a business prior to the adoption of ASU 2017-01, the acquiring entity would have concluded the transaction qualifies as an acquisition of a business or a business combination.

In response to concerns from stakeholders regarding the definition of a business under SFAS 141R, the FASB issued ASU 2017-01 to clarify and narrow the definition of a business. The new definition of a business is intended to provide a more robust and consistent framework

for determining whether an acquired set constitutes a business. Based on its key provisions, ASU 2017-01 has been widely expected to raise the bar for what qualifies as a business and thus result in more transactions being classified as asset acquisitions instead of business combinations (KPMG LLP 2017).

The way U.S. GAAP distinguishes between a business combination and an asset acquisition is significant because of the differing rules for measurement, recognition, and disclosure of the transaction and the assets acquired. One such difference is the accounting treatment for acquired in-process research and development (IPR&D). In a business combination, IPR&D is capitalized as of acquisition date and does not affect earnings until it is either impaired or amortized in future periods. In contrast, in an asset acquisition, IPR&D is expensed immediately, similar to the accounting treatment for internal R&D.

Prior literature offers evidence that managers prefer capitalization to immediate expensing of internal R&D such that they are willing to adjust real spending on R&D depending on the applicable accounting standard. Horwitz and Kolodny (1980) show a decline in R&D investment by a small sample of U.S. firms following the adoption of FASB Statement No. 2 in 1975 that mandated the immediate expensing of R&D. Oswald, Simpson, and Zarowin (2022) find similar results for a broader sample of U.K. firms following the switch from U.K. GAAP to International Financial Reporting Standards (IFRS) that eliminated the option to defer R&D expenses. Both studies argue that such aversion to immediate expensing of R&D is driven by short-term financial reporting incentives to report higher earnings and the reduction in R&D reflects managers' willingness to take real action to present higher GAAP net income (Graham, Harvey, and Rajgopal 2005). In other words, since managers are conscious of how contractual outcomes and capital market outcomes are tied to reported earnings, accounting standards that

require immediate expensing of certain activities like R&D, which depresses short-term earnings, might deter them from engaging in such activities altogether.

Extending this logic for *internal* R&D to *acquired* R&D, I posit that firms that acquire IPR&D as a core part of their innovation strategy (IPR&D acquirers) may prefer the business combination classification to the asset acquisition classification because the asset acquisition classification places a downward pressure on reported earnings in the year of the acquisition by immediately expensing acquired IPR&D. Compared to the setting used in Horwitz and Kolodny (1980) and Oswald et al. (2022), ASU 2017-01 is unique in that it does not directly alter the measurement, recognition, and disclosure rules for acquired IPR&D. Instead, the ASU merely changes the *definition* of a business, and in doing so, it alters the way GAAP classifies transactions between business combinations and asset acquisitions, which in turn informs how the acquirer should account for an acquired IPR&D asset. As noted above, ASU 2017-01 effectively narrows the definition of a business such that fewer transactions qualify as business combinations. To the extent ASU 2017-01 constrains firms' ability to capitalize their IPR&D purchases by making it more difficult for acquisitions to qualify as business combinations, I hypothesize that IPR&D acquirers reduce their overall acquisition activity following the adoption of ASU 2017-01.

Whether IPR&D acquirers reduce their acquisition activity in response to a narrowed definition of a business under ASU 2017-01 is an empirical question for the following reasons. First, despite the FASB's intention to clarify and narrow the definition of a business, there may still be some room for judgment in applying the new framework-based definition of a business such that IPR&D acquirers can continue to exercise discretion and classify their transactions as business combinations. Second, some high-tech firms have used the immediate expensing of

IPR&D as a downward earnings management tool prior to SFAS 141R (Dowdell, Lim, and Press 2009), and the extent to which firms view ASU 2017-01 as an opportunity to return to this practice may offset concerns over the immediate expensing of IPR&D. Third, compared to choosing the level of internal R&D outlays, the decision to acquire innovation through M&A is more of a discrete choice with potentially larger short-term and long-term implications for a firm's overall innovation strategy, and thus the findings from prior literature on the expensing of *internal* R&D may not necessarily apply to *acquired* R&D.

To test my hypothesis, I use a difference-in-differences design to analyze the change in acquisition activity by IPR&D acquirers that are likely to see a change in the GAAP classification of their acquisitions under the new definition of a business per ASU 2017-01. I use a sample of firm-year observations from U.S. firms between 2015 and 2021 and identify the treatment group of IPR&D acquirers most likely affected by ASU 2017-01 based on the presence of certain IPR&D-related keywords in significant accounting policies disclosures and goodwill balances in the pre-treatment period. This treatment proxy allows me to capture IPR&D acquirers that are likely to have had their acquisitions historically classified as business combinations but now face an increased likelihood that their transactions are classified as asset acquisitions, since the acquisition method of accounting for business combinations allocates excess purchase price to goodwill while the cost accumulation model of accounting for asset acquisitions does not. Following prior literature, I measure acquisition activity based on the

number of deals and total deal value reported in Refinitiv SDC Platinum M&A database[2] (Blouin, Fich, Rice, and Tran 2021).

The results indicate that IPR&D acquirers reduce their acquisition activity following the adoption of ASU 2017-01 compared to the control group of firms that are less likely to be affected by the provisions of ASU 2017-01, consistent with my prediction that the higher frequency of classifying transactions as asset acquisitions, in which IPR&D is expensed immediately, deters them from engaging in acquisitions. Cross-sectional tests show the effect is concentrated among life sciences firms, consistent with expectations from practitioners and standard setters that acquisitions by innovative firms in that sector are most affected by ASU 2017-01 (KPMG LLP 2017).

To help attribute the decline in acquisition activity to firms' aversion to the asset acquisition treatment that results in immediate expensing of acquired IPR&D, I conduct additional tests designed to corroborate the higher frequency of asset acquisitions. First, since the accounting for asset acquisitions does not generate goodwill, I examine a subsample of firms that completed acquisitions during my sample period and find that IPR&D acquirers as a whole report significantly smaller increases in acquired goodwill following the adoption of ASU 2017-01, consistent with the identifying assumption that acquisitions by these firms are more likely to be classified as asset acquisitions under the narrowed definition of a business per ASU 2017-01. Second, in a transaction-level analysis following prior literature on earnouts (Cain, Denis, and

[2] SDC M&A database compiles and reports data on M&A transactions based on publicly available information, primarily from press releases but also from SEC filings and annual reports. As such, the data collection process is agnostic to the eventual accounting treatment of the transaction including the classification between a business combination and an asset acquisition. Though the dataset does not specifically report such GAAP classification, based on a manual inspection of the dataset, I am able to confirm that the SDC dataset includes both transactions treated as business combinations and those treated as asset acquisitions for U.S. GAAP purposes.

Denis 2011; Bates, Neyland, and Wang 2018), I find that acquisitions by IPR&D acquirers are more likely to include earnouts following the adoption of ASU 2017-01, consistent with ASU 2017-01 granting these firms greater flexibility to use earnouts since the asset acquisition treatment exempts them from obtaining a costly valuation of the earnout liability at acquisition date and also allows them to defer the recognition of the earnout liability until payment is both probable and reasonably estimable.

I also examine whether the decline in acquisitions by IPR&D acquirers has any short-term implications for their overall innovation strategy. Specifically, while I find a change in relative resource allocation between internal R&D and acquired technology towards internal R&D, this shift appears to be mechanically driven by a decline in acquired technology without a sufficient increase in internal R&D to substitute for it. Furthermore, I find that IPR&D acquirers experience a decline in innovative output as evidenced by fewer patents filed following the implementation of ASU 2017-01.

My study adds to the extensive literature on the real effects of accounting standards. Because managers are willing to take real action to achieve a desired accounting and reporting outcome even at the expense of long-term economic value (Graham et al. 2005; Dichev, Graham, Harvey, and Rajgopal 2016; Roychowdhury 2006), the anticipated accounting treatment plays a significant role in real operating and strategic decisions (Kanodia and Sapra 2016). Prior literature has documented that changing the measurement, recognition, and disclosure rules for certain activities can cause firms to make real changes around those activities, such as investments (Shroff 2017), bidding in acquisitions (Bartov, Cheng, and Wu 2021), foreign cash holdings (Graham, Hanlon, and Shevlin 2011), and pension plan asset allocations (Chuk 2013). I contribute to this stream of literature by documenting real changes in acquisition activity in

response to an accounting standard intended to change a GAAP definition and classification scheme *without* explicitly changing the measurement, recognition, and disclosure rules.

I also contribute to a subset of this real effects literature that examines the role of accounting in a firm's choice of investment in R&D and innovation (Horwitz and Kolodny 1980; Oswald et al. 2022; Williams and Williams 2021). I extend this literature by showing the aversion to immediate expensing of R&D investments also applies to acquisitions of IPR&D. Furthermore, I contribute evidence on the role of accounting classification in firms' resource allocation decisions between acquisitions of innovative technology and internal R&D (Xue 2007; Arora, Belenzon, and Rios 2014).

CHAPTER 2. RELEVANT INSTITUTIONAL BACKGROUND

Definition of a business under U.S. GAAP and ASU 2017-01

One of the first steps in the accounting for corporate acquisitions is to establish whether an acquired set of assets and activities meets the definition of a business. If an acquired set constitutes a business, then the transaction is classified as a business combination for which the acquirer applies the acquisition method of accounting. If the set does not constitute a business, then the transaction is classified as an asset acquisition for which the accounting treatment follows the cost accumulation model instead, which is significantly different from the purchase price allocation under the acquisition method of accounting. Appendix A provides a summary of the acquisition method for business combinations and key differences compared to the accounting treatment for asset acquisitions.

Before the FASB issued ASU 2017-01, firms applied the definition of a business according to the legacy guidance in SFAS 141R. Although the post-implementation review (PIR) of SFAS 141R by the Financial Accounting Foundation found that SFAS 141R largely achieved its intended purpose of improving the relevance, representational faithfulness, and comparability of reporting about business combinations, the PIR also found that the definition of a business was too broad, such that many transactions that were in substance more akin to acquisitions of assets were being classified as business combinations (Financial Accounting Foundation 2013). Standard setters believed that the overly broad application of the definition of a business under SFAS 141R undermined the informativeness and decision usefulness of financial reporting for business combinations (Financial Accounting Foundation 2013; FASB 2017).

One reason for the broad interpretation of what constituted a business under SFAS 141R was the lack of clarity as to which elements a set of assets and activities must include to be considered a business. A business ordinarily has three key elements—inputs, processes, and outputs. However, under the legacy definition of a business in SFAS 141R, a set could qualify as a business without having all of these elements. Part of this was due to language in the legacy guidance that stipulates a set constitutes a business even without all the inputs and processes that the seller used in operating it as a business as long as market participants can acquire the set and still continue to produce outputs, for example, by integrating it with their own existing inputs and processes (FASB 2017). This "market participant" criterion inadvertently led to broad interpretations whereby a transaction would be considered a business combination as long as the buyer could replace the inputs or processes missing from the acquired set without incurring significant additional costs.

As an illustrative example, suppose a firm acquires an early-stage entity that contains rights to certain intellectual property (e.g., patents) and no other inputs or processes (e.g., employees) are transferred in the acquisition. The transferred set includes only the inputs (i.e., the intellectual property), so in economic substance, the firm arguably acquires the intellectual property (asset) rather than a business even though the form of the transaction is an acquisition of a legal entity. However, under the legacy definition of a business, applying the market participant criterion would have led the acquiring firm to conclude that the acquired set is a business because a market participant could reasonably integrate the acquired input with the

firm's own processes (e.g., an existing assembled workforce capable of monetizing the intellectual property) and generate output.[3]

The FASB acknowledged views from stakeholders that the existing definition of a business was biased toward the outcome that nearly every transaction is a business combination (FASB 2017, Paragraph BC16). In addition, the FASB believed that analyzing transactions under the legacy definition was costly and inefficient (FASB 2017, Paragraph BC2). To address these concerns regarding the existing definition of a business under SFAS 141R, in January 2017, the FASB issued ASU 2017-01.[4] The intended purpose is to "narrow the definition of a business and provide a framework that gives entities a basis for making reasonable judgments about whether a transaction involves an asset or a business" (FASB 2017, Paragraph BC16).

Appendix B summarizes key provisions of ASU 2017-01 and highlights differences in how the definition of a business is applied before and after the adoption of ASU 2017-01. The two most prominent changes are (1) the addition of an initial screen to filter out transactions where substantially all of the value is concentrated in a single asset or a single group of similar assets, and (2) the explicit requirement that a business, at a minimum, include inputs and a *substantive* process that, when combined with the input, can generate outputs, while removing

[3] Another aspect of the legacy guidance that led to broad interpretations of a business was the definition of an output as the ability to provide any form of return or economic benefits, such as dividends and lower costs, even though a set that only consists of a single asset or a group of assets could yield such benefits (e.g., cost reduction from adding a new equipment).

[4] ASU 2017-01 was initially issued as Phase 1 of a three-phase project by the FASB to clarify the definition of a business and assist entities in selecting the appropriate accounting treatment between business combinations and asset acquisitions (FASB 2017). In Phase 3 of that project, FASB deliberated and sought feedback on narrowing the gap between the accounting treatments for those two classes of transactions, but it could not reach a consensus and ultimately removed Phase 3 from its technical agenda in June 2022. Some stakeholders (e.g., comment letter from IBM Corporation dated January 22, 2016) expressed concerns about conducting this project in phases, urging the FASB to defer adopting a new definition of a business until a consensus could be reached on other phases of the project including a reconciliation of the differences in accounting treatment between business combinations and asset acquisitions.

the market participant language discussed above. Overall, the bar for a transaction to qualify as a business combination is higher, and as such ASU 2017-01 has been widely expected to result in more transactions being classified and recorded as asset acquisitions instead of business combinations for affected firms (KPMG LLP 2017).

Accounting for acquired in-process research and development

Firms use acquisitions as a part of their innovation strategy to complement or substitute for in-house R&D (Xue 2007; Phillips and Zhdanov 2013; Khezri 2022). Such acquisitions in more research-intensive sectors sometimes involve the transfer of in-process research and development (IPR&D) projects. For example, in the pharmaceutical industry, a firm may acquire or merge with a smaller entity that is working on a new therapeutic undergoing clinical trial or awaiting regulatory approval.

As summarized in Appendix A, the accounting treatment for acquired IPR&D is one of the key differences between the business combination and asset acquisition treatment. In transactions classified as business combinations (i.e., the acquired set containing the IPR&D asset meets the definition of a business), SFAS 141R requires the acquirer to capitalize the fair value of acquired IPR&D as an indefinite-lived intangible asset until the project is complete and ready for utilization (e.g., regulatory approval and commercialization of a new therapeutic), at which point the acquirer begins amortization of the IPR&D asset over several years. The FASB introduced this requirement to capitalize acquired IPR&D in business combinations with the objective of improving the overall financial reporting quality around business combinations (FASB 2007). Whether the FASB has indeed achieved this stated objective with respect to acquired IPR&D remains to be seen. For instance, Chung et al. (2019) reports no economically

meaningful change in information asymmetry between IPR&D acquirers and their investors following the adoption of SFAS 141R in 2007.

On the other hand, in transactions classified as asset acquisitions, the purchase price allocated to IPR&D[5] is expensed immediately, similar to the accounting for in-house R&D, unless the assets attached to the project are deemed to have alternative future use (e.g., certain tangible assets that could be used for other R&D projects).[6] Thus, in contrast to the business combination treatment, there is an immediate charge to R&D in the year of the acquisition, though there is no post-acquisition amortization expense (or impairment charge in the event the R&D project is discontinued due to a lower-than-expected probability of success) to depress *future* earnings.

[5] As summarized in Appendix A, asset acquisitions do not create goodwill because the purchase price allocation follows a cost accumulation model rather than the acquisition method. Whereas in business combinations excess purchase price beyond the fair value of net assets is allocated to goodwill, in asset acquisitions it is allocated to the assets on a relative fair value basis.

[6] However, such circumstances wherein an asset attached to an IPR&D project has an alternative future use are expected to be limited (PwC 2020).

CHAPTER 3. HYPOTHESIS DEVELOPMENT

As Dye (2002) argues, "[financial] reporting is, at its roots, a process of classification" and can be described as "the production of a partition on some underlying state space." The accounting and financial reporting process, which translates a firm's economic activities and events into accounting information, begins with defining or classifying such activities and events as one way or another as provided by GAAP. On a broad level, the FASB's Conceptual Framework classifies economic items and events into fundamental elements of financial statements, such as assets, liabilities, revenues, and expenses.[7] On a more granular level, GAAP frequently imposes binary classification schemes with thresholds, screens, and criteria to sort economic transactions before applying the appropriate measurement, recognition, and disclosure rules. Some standards stipulate quantitative bright-line rules, such as how the legacy lease accounting guidance distinguished between operating and financial leases. Others require greater use of judgement and an evaluation of qualitative factors, such as whether a debt modification meets the criteria for a troubled debt restructuring (Accounting Standards Codification Topic 470), whether contingent consideration in a business combination is additional purchase price or compensation for services (Topic 805), and whether contingent losses meet the "probable and estimable" criteria for recognition and disclosure (Topic 450).

Managers might prefer some classifications to others because of accounting and reporting outcomes that help them either to achieve certain contracting outcomes, such as meeting debt covenants or performance targets for incentive compensation, or to generally portray a more favorable signal about their firms' performance and value to investors. For example, under the

[7] Refer to the exposure draft of *Concepts Statement No. 8—Conceptual Framework for Financial Reporting—Chapter 4, Elements of Financial Statements*, issued in December 2021.

legacy lease accounting standard, the operating lease classification might have been preferable to the capital lease classification as it kept the liabilities associated with future lease payments off the balance sheet. Managers might also prefer to label a contingent loss on a pending lawsuit as either improbable or inestimable because the contingency will have a downward effect on earnings only if it is deemed both probable and estimable. Overall, the way economic events and activities are labeled and classified in GAAP can have real implications for firms' and managers' welfare, and the notion that some classifications are more favorable than others may even incentivize managers to engage in "classification manipulation" (Dye 2002).

Defining whether an acquired set of assets and activities is a business is another important binary classification scheme in which the resulting partition has varying effects on reported earnings. Given the differential accounting treatment of acquired IPR&D between a business combination and an asset acquisition, whether the acquired set meets the definition of a business matters for the reported earnings of acquirers of IPR&D. Specifically, the immediate expensing of acquired IPR&D in asset acquisitions means that classifying an acquisition as an asset acquisition would have a larger immediate downward impact on the acquirer's immediate reported earnings compared to classifying it as a business combination when the acquired set meets the definition of a business.

The differential accounting treatment and effect on reported earnings could affect the actual decision to acquire IPR&D. An extensive stream of accounting research has documented the role of accounting standards on a wide range of strategic and operating decisions, such as investment (Shroff 2017), pension plan asset allocation (Chuk 2013), foreign cash holdings (Graham et al. 2011) and overbidding in acquisitions (Bartov et al. 2021). A subset of this "real effects" literature that examines the effect of accounting standards on innovation shows that

firms reduce R&D spending when accounting standards require immediate expensing of internal R&D (Horwitz and Kolodny 1980; Oswald et al. 2022). Firms prefer capitalization to immediate expensing of R&D because expensing R&D has an immediate downward impact on reported earnings—even though return on R&D investment may not be realized until in future periods—while capitalization defers such impact and spreads it out over a longer period. Insofar as this aversion to expensing of internal R&D extends to acquisitions of IPR&D, IPR&D acquirers would prefer the business combination treatment as an alternative way to defer the earnings impact of their R&D investment until its value is realized. In that case, the classification of a transaction between business combination and asset acquisition could be an important factor in the decision to acquire IPR&D.

ASU 2017-01, by clarifying and narrowing the definition of a business, alters the rules for classifying a transaction between a business combination and an asset acquisition without explicitly changing the recognition rules for acquired IPR&D. As discussed previously and summarized in Appendix B, ASU 2017-01 imposes a higher bar for a set of assets and activities to qualify as a business, resulting in more transactions being classified as asset acquisitions rather than business combinations (KPMG LLP 2017). In other words, following the adoption of ASU 2017-01, an acquisition that would have been treated as a business combination under the legacy guidance is now more likely to be treated as an asset acquisition. As a result, all else equal, IPR&D acquirers may be less inclined to engage in acquisitions following the adoption of ASU 2017-01 to avoid the downward impact of immediately expensing acquired IPR&D on reported earnings. Therefore, I predict that IPR&D acquirers that have frequently capitalized acquired IPR&D under a broader definition of a business prior to ASU 2017-01 (i.e., by

classifying their acquisitions as business combinations) reduce their acquisition activity after the adoption of ASU 2017-01. Formally, my main hypothesis is stated in the alternative form below:

> *H1: Following a change in GAAP classification scheme for acquisitions, acquirers of in-process research and development reduce their acquisition activity.*

There are plausible reasons that I might not observe the predicted change in acquisition activity by IPR&D acquirers affected by ASU 2017-01. First, IPR&D acquirers might not be sufficiently averse to the asset acquisition treatment to alter their acquisition decisions. Broadly, the strategic reasons for such acquisitions might outweigh incentives to report higher earnings such that the aversion to immediately expensing internal R&D does not apply to the same extent to acquired IPR&D. The decision whether to pursue an M&A deal is much more of a discrete choice than the decision to scale back levels of internal R&D spending.

Furthermore, more specifically, the history of standard setting for acquired IPR&D suggests that the identifying assumption for H1—that firms' preference for capitalization over immediate expensing of internal R&D also extends to acquired IPR&D—might not be applicable at least for a subset of IPR&D acquirers. Prior to SFAS 141R, IPR&D was expensed immediately in business combinations. Firms took advantage of this rule in purchase price allocations by overstating the value of acquired IPR&D projects to be written off, a practice resembling a "big bath" write-off that artificially depressed concurrent earnings in the year of the acquisition to create an illusion of stronger operating performance in post-acquisition periods (Dowdell et al. 2009).[8] The guidance for business combinations under SFAS 141R restricts such practices by requiring the capitalization of acquired IPR&D in business combinations, and this

[8] The U.S. Securities and Exchange Commission (SEC) recognized this practice and intervened to stem the aggressive write-offs of IPR&D (Dowdell and Press 2004).

may have been exacerbated by an overly broad definition of a business prior to ASU 2017-01 that limited the asset acquisition treatment. However, by allowing fewer transactions to be classified as business combinations, it is possible that ASU 2017-01 opened the door for firms to return to a familiar downward earnings management tactic with IPR&D acquisitions, which might incentivize them to maintain or even increase their acquisition activity. Therefore, the extent to which IPR&D acquirers favor the asset acquisition treatment for their acquisitions might counteract an overall decrease in acquisition activity driven by firms' general preference to capitalize rather than expense their R&D outlays.

Second, certain provisions in ASU 2017-01 could expand preparers' use of judgment in classifying a transaction as a business combination or an asset acquisition,[9] which in turn could afford IPR&D acquirers greater flexibility to engage in classification manipulation (Dye 2002) without making real changes to their acquisition activity. For instance, the initial screen under ASU 2017-01 requires entities to assess whether "substantially all" the fair value of gross assets is concentrated in a single identifiable asset or a group of similar assets. Applying this screen requires entities to assess not only whether a single asset represents "substantially all" of the fair value of gross assets (either from a quantitative or a qualitative standpoint) but also whether the nature of the assets acquired and risks associated with utilizing the assets to generate outputs are similar enough to be grouped together. In addition, the new definition of a business adds an explicit requirement that a business, at a minimum, have inputs and substantive processes that significantly contribute to the ability to create outputs. However, in the final issuance of ASU 2017-01, the FASB acknowledges that it would be impractical to define what a *substantive*

[9] Stakeholders have argued in comment letters (e.g., Comment Letter No. 5 from Ernst & Young LLP) that applying the definition of a business ASU 2017-01 requires significant use of judgment, which in turn might increase diversity in practice as well as the cost and complexity of applying the standard.

process is because it could vary across industries and transactions (FASB 2017, Paragraph BC36). Instead, ASU 2017-01 provides a framework that would allow entities to make reasonable judgments about whether a set includes a substantive process. Overall, ASU 2017-01 might not deter IPR&D acquirers from acquisition activity if the new framework-based definition inadvertently allows greater managerial discretion to continue to classify transactions as business combinations.[10]

[10] Even if ASU 2017-01 does not allow for such classification manipulation, managers might still be able to mitigate the impact of immediately expensing acquired IPR&D through non-GAAP reporting by adding it back to GAAP earnings as a discretionary adjusting item.

CHAPTER 4. RESEARCH DESIGN

Acquisition activity by IPR&D acquirers post-ASU 2017-01

To test my hypothesis on whether IPR&D acquirers change their acquisition activity relative to other firms following the adoption of ASU 2017-01, I estimate the following difference-in-differences model:

$$(1) \qquad Acq_{it} = \beta_1 Post_t + \beta_2 IPRD_i + \beta_3 Post_t \times IPRD_i + \sum Acquirer\ Controls_{it} + \epsilon_{it}$$

The dependent variable Acq_{it} measures overall acquisition activity by firms in my sample. Following the approach in Blouin et al. (2021), I use two proxies for overall acquisition activity for each firm-year observation, both of which are constructed using transactions data from SDC Platinum M&A database: $LnCntDeal_{it}$ is the natural log of one plus the number of M&A transactions announced by firm i in year t, and $LnSumTval_{it}$ is the natural log of one plus the sum of transaction value (in millions of dollars) of deals announced by firm i in year t. For the purpose of constructing these variables, I filter for completed deals by U.S. public acquirers and exclude deals in "Financials" and "Real Estate" as well as non-M&A transactions, such as recapitalizations, stock repurchases, restructurings, secondary buy-outs, spinoffs, split-offs, exchange offers, and acquisitions of partial or remaining interest, which are not in scope for the guidance in ASC Topic 805. If there is no acquisition activity associated with a firm-year observation, the value of the dependent variable is zero.

ASU 2017-01 is effective for all U.S. public issuers in fiscal years beginning after December 15, 2017. Thus, $Post_t$ is an indicator variable for whether the observation's fiscal year begins after the effective date. To identify firms whose accounting treatment for acquired

IPR&D is likely to be affected by ASU 2017-01, I construct the treatment proxy, $IPRD_i$, as follows. Using a Python program, I first extract the summary of significant accounting policies footnotes from 10-K filings and identify firms whose significant accounting policies disclosures contain IPR&D-related keywords.[11] Among these firms, I identify firms with significant historical acquisition activity classified as business combinations based on the amount of goodwill on the balance sheet in the pre-treatment period. Specifically, I select firms whose goodwill is at or above 10% of total assets at any point in the pre-treatment period.[12] I use these filters to identify IPR&D acquirers with significant historical acquisition activity classified as business combinations (in which IPR&D is capitalized and excess purchase price is allocated to goodwill) and thus are likely to be affected by the narrowed definition of a business per ASU 2017-01. Therefore, firms are assigned to the control group if either their significant accounting policies disclosures do not mention IPR&D or they do not have significant historical acquisition activity treated as business combinations prior to ASU 2017-01. The variable of interest is $Post_t \times IPRD_i$. A negative coefficient ($\beta_3 < 0$) would indicate that IPR&D acquirers decreased acquisition activity relative to the change in acquisition activity by control firms after adopting ASU 2017-01.

I control for firm-level characteristics that might affect overall acquisition activity and investment: firm size (natural log of market value of equity), growth opportunities (Tobin's Q Ratio), resource availability to pursue acquisitions (cash holdings and leverage), profitability (net income scaled by beginning-of-year total assets), age (natural log of the number of years covered

[11] Keywords include: "in-process research and development", "in-process research & development", "IPRD", "IPR&D", and "in-process technolog".
[12] I use 10% as the threshold to identify firms with significant historical activity because it approximates the pre-treatment sample median goodwill scaled by total assets. In untabulated robustness tests, I use 5% as the threshold and the results of my main analysis and cross-sectional tests are qualitatively consistent.

in Compustat), operating complexity (natural log of the number of business segments and the natural log of the number of geographic segments), and external monitoring to constrain value-destroying acquisitions for managers' private benefit (natural log of number of analysts that issued an earnings forecast). I lag all control variables to align at the beginning of each firm-year's fiscal year because acquisition activity itself can affect many of these variables. Appendix C contains a summary of the variables and proxies used and how they are constructed.

Prior literature has shown that a firm's acquisition activity can be driven by "M&A waves" within industries (Harford 2005). Thus, I include industry-year fixed effects to control for M&A waves as well as other time-varying industry characteristics that might affect acquisition activity. I also include firm fixed effects to control for time-invariant firm characteristics not captured by the treatment proxy $IPRD_i$ that might correlate with acquisition activity. I omit $Post_t$ and $IPRD_i$, respectively, from the regressions when year and firm effects are used.

Data and Sample

Panel A of Table 1 summarizes the sample construction procedure. I begin the construction of my firm-year observations using Compustat North America Fundamentals Annual dataset. I limit the sample of firm-year observations to be within six years centered on the effective date of ASU 2017-01, which for public companies is the first fiscal year beginning after December 15, 2017.[13] For example, for a December 31 fiscal-year-end firm, fiscal year

[13] The effective date of ASU 2017-01 for public companies in the U.S. coincides with the enactment of the Tax Cuts and Jobs Act (December 22, 2017). Some provisions of the tax reform, such as the lower statutory rate and limitations on using net operating losses to offset taxable income, may have indirectly made R&D tax credit more attractive as a tax planning tool, incentivizing research-intensive firms to allocate capital and resources away from M&A toward internal R&D instead. However, as discussed later in this paper, I do not find evidence that the

ended December 31, 2018 is the first year of adoption, and as such I include available observations between fiscal year ended December 31, 2015 (three years before adoption year) and fiscal year ended December 31, 2020 (three years after adoption including the first year of adoption). I include only U.S. firms in my analysis and exclude firms in financial services (Standard Industrial Classification (SIC) code 6000 through 6999) and regulated utilities (SIC code 4900 through 4999) as they face a different regulatory environment and financial reporting incentives relative to other firms. This results in 22,866 firm-year observations across 4,749 unique firms between 2015 to 2021 as a starting point.

Since PERMNO is required to match transactions in SDC to firm-year observations in Compustat, I require my Compustat firm-year observations to have non-missing PERMNO.[14] Furthermore, as described in the previous section, my treatment proxy requires significant accounting policies footnote extracted from 10-K filings to search for IPR&D-related keywords. Thus, I exclude firm-year observations with missing SEC Central Index Key (CIK) that is needed to match to extracted 10-K data. Finally, when I require each firm in my sample to have non-missing data to construct the requisite variables for all six years of the sample period, the final sample for estimating Equation (1) is 11,190 firm-year observations across 1,865 unique firms.[15]

treatment group of firms significantly increased their internal R&D expenditures, and thus it appears unlikely that the provisions of the tax reform is driving my results.

[14] SDC database uses acquirer historical CUSIP as the unique identifier. Thus, to match the dataset with Compustat identifier GVKEY, I convert acquirer CUSIP to CRSP permanent identifier (PERMNO), which is then matched to a corresponding GVKEY. Since Compustat coverage is more comprehensive than CRSP, there are firms in the Compustat universe that do not have a PERMNO necessary to match to either CRSP or SDC. To ensure proper comparison of acquisition activity pre- and post-ASU 2017-01, I exclude firm-year observations in Compustat without a corresponding PERMNO.

[15] Actual sample sizes for certain additional analyses may differ due to additional variable requirements or sample restrictions.

Table 2 presents summary statistics for the variables used in my main analysis.[16] I tabulate the univariate statistics for the full sample in Panel A and univariate statistics partitioned by treatment proxy $IPRD_i$ in Panel B.[17] Approximately 7.8% of observations belong to the treatment group. On average, IPR&D acquirers are larger, have more investment opportunities, hold more cash, and have greater analyst following. In addition, IPR&D acquirers have a greater number of geographical segments, potentially because it facilitates cross-border income shifting for tax planning purposes through transfer of intellectual property to low-tax jurisdictions (Griffith, Miller, and O'Connell 2014). As expected, IPR&D acquirers have a higher average $LnCntDeal$ and $LnSumTval$, consistent with acquisitions being more central to their strategic objectives.

Panel C presents the top five industry groups for IPR&D acquirers. While a large proportion of IPR&D acquirers belong to life sciences industry groups, as acquisition of rights to a new drug or medical device that is pending clinical trials or regulatory approval is one of the ways that these firms replenish their product pipeline, non-life sciences firms also acquire IPR&D. In cross-sectional tests below, I partition the sample by membership in the life sciences industries to see if the effect is concentrated among these firms.

[16] For presentation purposes, I drop firm and year subscripts in tables except for Table 5 wherein coefficients for separate year dummies are presented.
[17] In all of my analyses, all continuous variables are winsorized at the 1st and 99th percentile.

CHAPTER 5. RESULTS OF ANALYSES

Main difference-in-differences results

Table 3 presents the results from estimating Equation (1) as described above. I report robust standard errors clustered by firm to adjust for time-series dependence in acquisition activity and in the independent variables (Petersen 2009). Across all specifications, the coefficient on the difference-in-differences estimator $Post_t \times IPRD_i$ is significantly negative. These results are consistent with my hypothesis that IPR&D acquirers whose accounting for acquisitions were likely affected by the narrowed definition of a business per ASU 2017-01 were less inclined to engage in deals after adopting ASU 2017-01. To aid in interpreting the economic magnitude, in untabulated tests, I replace the dependent variable with unlogged number of deals ($CntDeal$) and total transaction value ($SumTval$), as the interpretation of the magnitude is not obvious with "log1plus" regressions and such specifications may even introduce bias (Cohn, Liu, and Wardlaw 2022). With all controls and firm and industry-year fixed effects, the coefficients on $CntDeal$ and $SumTval$, both statistically significant at conventional levels, are -0.13 and -127.5, respectively. Thus, compared to a firm unaffected by ASU 2017-01, on average an IPR&D acquirer completed 0.13 fewer deals and spent $127.5 million less on acquisitions following the adoption of ASU 2017-01,[18] an economically significant decline in acquisition activity considering the average total value of transactions ($SumTval$) by IPR&D acquirers in my sample is $344.8 million per Panel B of Table 2.

[18] In untabulated tests, I find that the results using number of deals as the outcome variable are robust to using Poisson maximum likelihood estimation, as suggested by Cohn, Liu, and Wardlaw (2022), which does not induce bias that might be introduced with linear regressions or log-linear regressions using count data as the outcome variable. I use Stata package *ppmlhdfe* (Correia, Guimarães, and Zylkin 2020) that allows for high-dimensional fixed effects similar to the *reghdfe* package used throughout my paper.

The direction of the coefficients on the control variables are generally consistent with expectations. In the full model with firm and industry-year fixed effects (Columns 3 and 4), acquisition activity is positively associated with growth potential and investment opportunities as evidenced by a positive coefficient on the Tobin's Q ratio. In addition, firms with more cash holdings, higher profitability, and lower leverage are more likely to engage in acquisitions, consistent with greater availability of capital giving firms more flexibility to pursue deals. Acquisition activity is also negatively associated with the number of business segments, consistent with firms using acquisitions for expansion of their business activities.

Cross-sectional tests

Following the issuance of ASU 2017-01, the consensus among practitioners has been that life sciences firms would be among those most affected by ASU 2017-01[19] (KPMG LLP 2017) as these firms frequently engage in those types of transactions that are treated as asset acquisitions under the new guidance. For instance, a comment letter by Pfizer Inc. in response to the initial exposure draft by the FASB notes:

> Given the stark differences in accounting for acquired in-process research and development assets in a business combination (capitalized as intangible asset) versus an asset acquisition (expensed in the income statement as R&D expense)… companies in research-intensive industries will need sufficient time to adequately educate and train their Finance and Business Development groups so that they can plan and incorporate these impacts into their decision-making, budgeting and reporting processes.

[19] Other industry groups that were widely expected to be affected by ASU 2017-01 include real estate, financials, energy, and utilities. Most of these firms are removed from my sample when I exclude financials and utilities firms.

The FASB's use of pharmaceutical firms as illustrative examples in the amended guidance also reflects this expectation (FASB 2017). Life sciences firms often acquire smaller legal entities with a single intellectual property asset under development, transactions that are likely to be classified differently under the new definition of a business per ASU 2017-01.[20]

I perform cross-sectional tests by partitioning the sample by membership in life sciences industries, defined as belonging to the following subset of high-tech SIC industry groups identified by Kile and Phillips (2009): Drugs (283), Surgical, Medical and Dental Instruments (384), and Research, Development, Testing Services (873). The results are presented in Table 4. While the coefficients on the difference-in-differences estimator are negative and significant for both the life sciences (Columns 1 and 3) and non-life sciences subsamples (Columns 2 and 4), the magnitudes and the statistical significance levels of the coefficients are stronger for the life sciences subsample and the differences across subsamples are statistically significant. Results appear consistent with the effect of ASU 2017-01 being concentrated in industries that engage in the types of IPR&D acquisitions that would be classified and treated differently under a narrowed definition of a business.

Test of parallel trends assumption

The key identifying assumption of a difference-in-differences design is that in the absence of treatment, the dependent variable for treated group and control group would have trended parallel to each other throughout the sample period, also known as the parallel trends

[20] Such transactions are likely to be classified as asset acquisitions under the revised definition of a business for two main reasons. First, substantially all of the value of these transactions may be concentrated in the IPR&D asset, which would meet the initial screen provided by ASU 2017-01. Second, such transactions may not involve the transfer of a substantive process, such as an organized workforce that can bring the IPR&D project to completion. ASU 2017-01 explicitly requires a set to include both inputs and a substantive process to be considered a business.

assumption (Meyer 1995; St. Clair and Cook 2015). To help rule out potential violations of the parallel trends assumption, I test whether there are notable changes in acquisition activity between IPR&D acquirers and other firms in the pre-treatment period. Following Chung et al. (2019)—a study that examines the effect of capitalized IPR&D on information asymmetry around the implementation of SFAS 141R—I estimate the following simple regressions for the pre-ASU 2017-01 subsample:

(2a) $$Acq_{it} = \beta_1 Year_{t-2} + \beta_2 IPRD_i + \beta_3 Year_{t-2} \times IPRD_i + \epsilon_{it}$$

(2b) $$Acq_{it} = \beta_1 Year_{t-1} + \beta_2 IPRD_i + \beta_3 Year_{t-1} \times IPRD_i + \epsilon_{it}$$

The dependent variable is the same as defined above. $Year_{t-2}$ ($Year_{t-1}$) is a dummy variable for two years (one year) prior to the first year of ASU 2017-01 implementation (i.e., first year where $Post_t$ equals one). Equation 2a (2b) is estimated using observations $t-3$ years and $t-2$ years ($t-2$ years and $t-1$ year) prior to the ASU 2017-01 adoption year. Results from estimating Equations (2a) and (2b) separately are presented in Table 5 Panel A. The coefficients on the interaction terms presented are all statistically insignificant, and there is no noteworthy movement in the coefficients from Column 1 to Column 2 and from Column 3 to Column 4 that seem to suggest the presence of pre-trends. These results help mitigate concerns over a violation of the parallel trends assumptions that might taint the results in Table 3.

As an alternative test of the parallel trends assumption, following the approach in Kausar, Shroff, and White (2016) I modify Equation (1) by replacing $Post_t$ with $Year_{t-1}$, $Year_t$, $Year_{t+1}$, and $Year_{t+2}$. Since I include year fixed effects, these dummies enter the regression only as interactions with $IPRD_i$. If there are no significant pre-trends in acquisition activity between the treatment and control group, the coefficient on $Year_{t-1}$ should be insignificant.

Table 5 Panel B reports the results for both proxies for acquisition activity. Neither of the coefficients are significant, Thus, I fail to find evidence of a significant pre-trend that would threaten the validity of the parallel trends assumption for my main difference-in-differences estimation of the effect of ASU 2017-01 on acquisition activity.

Additional robustness checks

Given that the size of the treatment group (IPR&D acquirers) is very small compared to the size of the control group, I use entropy balancing to mitigate concerns about differences in observable characteristics between treatment and control firms that remain after including them as covariates in a linear model. Entropy balancing accounts for potential non-linear relations between the covariates and the outcome variable by assigning continuous weights to each observation in the control sample such that the distributions of the covariates between treatment and control groups are balanced (Hainmueller 2012; McMullin and Schonberger 2020). I balance the treatment and control firms on all control variables used in Equation (1) such that the means, variances, and skewness (i.e., first, second, and third moments, respectively) are comparable, and I present the results of re-estimating Equation (1) on this entropy-balanced sample in Panel A of Table 6. The coefficient on the difference-in-differences estimator continues to be negative and significant, and these results help mitigate concerns that a covariate imbalance between treatment and control firms might be driving my main findings.

Next, I examine whether the observed decline in acquisition activity is mechanically driven by the construction of my treatment proxy. As described above, for firms to be included in the treatment group, they must (1) include IPR&D-related keywords in their significant accounting policies footnotes *and* (2) have had their acquisitions historically treated as business

combinations prior to ASU 2017-01 as evidenced by significant goodwill balance (greater than or equal to 10% of total assets) at any point in the pre-treatment period. These filters are intended identify firms that are most likely to have their accounting treatment for acquired IPR&D change from deferral under the business combination treatment to immediate expensing under the asset acquisition treatment following the adoption of ASU 2017-01. However, the use of goodwill balance in the pre-period might also capture significant historical acquisition activity prior to ASU 2017-01, and as such the reduction in acquisition activity that I observe might be driven by firms' choice to not engage in deals in periods following an acquisition.

To help mitigate this concern, I bifurcate the treatment proxy into two dummy variables that each capture the two aforementioned criteria for inclusion in the treatment group, namely, $IPRDSAP_i$ as an indicator for having an IPR&D-related keyword in the significant accounting policies footnote and $SigGdwl_i$ as an indicator for goodwill balance representing at least 10% of total assets at any point in the pretreatment period. I include these variables and interactions with the $Post_t$ dummy, as well as an additional triple-interaction term $Post_t \times IPRDSAP_i \times SigGdwl_i$. This triple-interaction term should capture the incremental effect of ASU 2017-01 for IPR&D acquirers that is distinct from a potentially mechanical reduction in acquisition activity by firms with significant goodwill balance in the pre-treatment period.

I report the results of this modified specification in Panel B of Table 6, which include firm fixed effects and thus omit $IPRDSAP_i$ and $SigGdwl_i$ dummies. In both columns, the coefficients on $Post_t \times IPRDSAP_i$ are not statistically significant. These results are consistent with my prediction since the predicted effect of ASU 2017-01 should be concentrated among those firms that conduct acquisitions treated as goodwill-creating business combinations under a

broader definition of a business prior to ASU 2017-01.[21] More importantly, while the coefficients on $Post_t \times SigGdwl_i$ are negative and significant, so are the coefficients on the triple interaction term $Post_t \times IPRDSAP_i \times SigGdwl_i$, albeit smaller in magnitude compared to the main difference-in-differences coefficients reported on Table 3. Taken together, these estimates show an incremental reduction in acquisition activity post-ASU 2017-01 by firms for which the accounting for IPR&D is a significant part of the financial reporting process beyond a general mechanical decline in acquisitions by firms with prior acquisition activity, which is consistent with my prediction in H1.

In an additional untabulated robustness test, I re-estimate Equation (1) after excluding oil and gas firms from my sample, defined as firms in three-digit Standard Industry Classification (SIC) Codes 131, 132, and 138. Commentaries by practitioners have noted that ASU 2017-01 could have a unique impact on the accounting for oil and gas transactions. For example, while ASU 2017-01 is broadly expected to result in fewer transactions being treated as business combinations, this may not necessarily be the case for transactions by oil and gas firms, as applying the new standard would require exercise of significant judgment and might introduce greater diversity in practice (Ernst & Young LLP 2018). To eliminate potential noise introduced by these firms, I repeat the main analysis after excluding them from my sample and find that the results are comparable to those reported in Table 3 both in statistical significance and economic magnitude.

[21] Another possible explanation is that, as discussed in my hypothesis development, a subset of IPR&D acquirers may be indifferent to the change in the definition of a business under ASU 2017-01 because they view it as an opportunity to use the immediate expensing of IPR&D akin to a big bath write-down, a popular earnings management tactic in the 1990s (Dowdell, Lim, and Press 2009).

Additional analyses: Increased frequency of asset acquisitions for treatment firms

The basis for my main prediction in H1 is that IPR&D acquirers reduce acquisition activity because under the new definition of a business their transactions are more likely to be treated as asset acquisitions, an accounting treatment that immediately expenses acquired IPR&D and thus depresses short-term reported earnings. To directly test this predicted channel for the change in acquisition activity by IPR&D acquirers post-ASU 2017-01, I examine whether transactions by treated firms were indeed more likely to be treated as asset acquisitions. To do so, I analyze a subsample of firms that announced acquisitions in the sample period according to SDC M&A database and examine whether treated firms were indeed less likely to report business combinations. I estimate the following model:

$$(3) \qquad \Delta GW_{it} = \beta_1 Post_t + \beta_2 IPRD_i + \beta_3 Post_t \times IPRD_i + \sum Controls_{it} + \epsilon_{it}$$

The dependent variable ΔGW_{it} is defined as acquired goodwill reported by Compustat (Compustat item *acqgdwl*) scaled by either (1) beginning-of-year total assets or (2) sum of transaction value. A negative coefficient ($\beta_2 < 0$) would indicate that IPR&D acquirers affected by ASU 2017-01 reported smaller increases in goodwill year-over-year relative to size or actual acquisition activity, consistent with the logic that if more transactions are treated as asset acquisitions, acquirers would be less likely to report additions to goodwill. In addition to the same control variables used in estimating Equation (1), I control for total acquisition activity ($LnCntDeal$ and $LnSumTval$) and the number of cross-industry acquisitions ($NCross$), as the ability to realize synergies as captured by goodwill (Clor-Proell et al. 2022) could be different in cross-industry acquisitions. The results are presented in Table 7. The coefficients on $Post_t \times IPRD_i$ are negative and statistically significant, consistent with IPR&D acquirers,

relative to unaffected firms, being less likely to report goodwill-increasing business combinations after adopting ASU 2017-01, which would deter these firms from engaging in acquisitions that would result in immediate expensing of acquired IPR&D.

As an additional test to corroborate the increased frequency of asset acquisition treatment, I examine changes in contingent consideration usage by IPR&D acquirers post-ASU 2017-01. Contingent consideration, commonly referred to as an earnout, is the portion of acquisition transaction price transferred to sellers when certain conditions are met, such as post-acquisition accounting performance or discrete outcomes like regulatory approval of a new drug. It is most often used to bridge the valuation gap between the buyer and the seller (Cain et al. 2011). As such, IPR&D acquirers should be frequent users of earnouts given the highly uncertain nature of assets acquired.

The accounting for earnout is different between business combinations and asset acquisitions. In a business combination, the acquirer must estimate the fair value of the earnout portion of purchase consideration as of the acquisition date and recognize it as a liability and revalue the earnout liability each subsequent reporting period with the changes in fair value recognized as gains and losses in earnings until the contingency is resolved and additional amounts, if any, are paid to the sellers. In contrast, in an asset acquisition, an earnout is treated as a contingent liability following the guidance in ASC Topic 450. This means the acquirer does not need to measure and record a liability for the earnout until it believes payment is probable and the amount can be reasonably estimated, which may occur years after the acquisition date and generally much closer to when the associated contingencies are resolved.

In other words, the asset acquisition treatment eliminates the need to go through a costly valuation of the earnout arrangement at acquisition date and also delays the immediate recognition of the earnout liability on the balance sheet until it is probable and estimable.[22] To the extent that allowing more transactions to be treated as asset acquisitions under ASU 2017-01 might have provided IPR&D acquirers, as frequent users of earnouts, greater flexibility to use earnouts in their transactions, I expect to observe an increase in earnout usage by IPR&D acquirers whose transactions are now more likely to be treated as asset acquisitions.[23] To estimate whether earnout usage increased or decreased after the adoption of ASU 2017-01, I estimate the following logistic regression for a sample of transactions announced between 2015 and 2021 per SDC M&A database:

$$(4) \qquad \Pr\left(Earnout = 1\right) = \beta_1 IPRD_i + \beta_2 Post_t \times IPRD_i + \sum Controls + \epsilon$$

The binary outcome variable $Earnout$ is equal to one if the transaction consideration includes an earnout or contingent value rights (CVR), a form of contingent consideration most often used by life sciences firms, as reported by SDC Platinum M&A dataset. Controls include both acquirer-level controls and target characteristics that prior literature has shown to affect earnout usage. In addition to the same acquirer-level control variables used in estimating Equation (1), I control for acquirer financial constraint using an indicator variable for whether the acquirer's Kaplan-Zingales (KZ) index (Lamont, Polk, and Saa-Requejo 2001) is above the

[22] Comment letter from BDO USA, LLP on the initial exposure draft of the ASU states, "… because the proposed guidance would result in fewer acquisitions being accounted for as business combinations, and more being accounted for as asset acquisitions… fewer valuations will be necessary to remeasure liability-classified contingent consideration agreements each period."

[23] The burden of obtaining valuations can be significant. For example, the post-implementation review for SFAS 141R found that the valuation requirements under the business combination guidance added undue costs for some firms with limited resources to seek out external valuation experts, so much that it affected the timing of some acquisitions (Financial Accounting Foundation 2013).

industry-year median ($HighFC$), as firms can use earnouts as an alternative financing tool when they face limited access to traditional means of capital (Bates et al. 2018). Following prior literature on earnouts (Kohers and Ang 2000; Cain et al. 2011; Cadman et al. 2014), I control for target valuation uncertainty with target firm's industry's median R&D intensity in the year of the acquisition, target's industry's median Tobin's Q ratio in the year of the acquisition, and an indicator for whether target firm is privately held. I also control for the natural log of transaction value and an indicator for cross-industry transaction where target manager effort is expected to be more important and earnouts are used as a retention mechanism (Cain et al. 2011; Cadman et al. 2014).

The results of the transaction-level regressions are presented in Table 8. Following prior literature (Kohers and Ang 2000; Bates et al. 2018), I separately estimate a logistic regression without fixed effects (Column 1) and a conditional logit regression[24] with target industry fixed effects and year dummies (Column 2). The coefficients on $Post_t \times IPRD_i$ are positive and significant, and the odds ratios suggest that IPR&D acquirers, compared to non-IPR&D acquirers, are nearly twice as likely to use earnouts following the adoption of ASU 2017-01.[25] These results are consistent with the expectation that these firms, as frequent users of earnouts, would have greater flexibility to use earnouts due to a change in the accounting classification of their transactions from business combinations to asset acquisitions. Collectively, the results in Tables 7 and 8 corroborate the predicted channel for reduced acquisition activity: the treated

[24] Stata command *xtlogit* automatically drops observations belonging to fixed effects groups with no variation in the outcome variable, hence the sample attrition from Column 1 to Column 2.
[25] Based on the coefficient in Column 2: $e^{0.662} = 1.939$

firms in my sample indeed face a higher likelihood of applying the asset acquisition treatment for their acquisitions following the adoption of ASU 2017-01.

Implications for innovation strategy

In a separate additional analysis, I explore whether ASU 2017-01 leads IPR&D acquirers to alter their innovation strategy between in-house R&D and acquired technology. There are two primary means by which firms invest in innovation (Xue 2007): "make" (internal R&D) or "buy" (acquired technologies). The resource allocation between acquisition and internal development of new technology is an important strategic decision that affects long-term value and growth and has been studied extensively in the strategy literature (Arora et al. 2014). To the extent that these two strategies are substitutes (Blonigen and Taylor 2000), a decrease in acquisition activity by IPR&D acquirers might lead to a relative increase in in-house R&D expenditures. To test this, I estimate the following model:

$$(5) \qquad RDAQ_{it} = \beta_1 Post + \beta_2 IPRD_i + \beta_3 Post_t \times IPRD_i + \sum Controls_{it} + \epsilon_{it}$$

Following Xue (2007), I define $RDAQ_{it}$ as the firm's R&D spending scaled by the sum of R&D and acquired intangible assets including goodwill. This measures a firm's investment in the "make" strategy relative to total funds available for investment in innovation (Xue 2007). A positive β_3 would be consistent with increase in internal R&D *relative to* total innovation investment. I replace missing R&D with zero and, in addition to the same control variables and fixed effects structure as described for Equation (1) above, I include a dummy for missing R&D ($MissingRD_i$) and an interaction term $Post_t \times MissingRD_i$ to control for the possible effect of heterogeneity between firms with missing and non-missing R&D data in Compustat (Koh and Reeb 2015).

The results are presented in Table 9. In Columns 1 and 2, using $RDAQ$ as the dependent variable, the coefficient on $Post \times IPRD$ is positive and significant. To further examine the extent to which this relative increase in "make" strategy is mainly driven by the reduced acquisition activity, I use R&D scaled by sales ($RDSale_{it}$) as the dependent variable in Columns 3 and 4, in which the coefficients are positive but insignificant. Overall, the results are in line with a decline in acquisition activity by IPR&D acquirers observed in Table 3, leading to a *relative* increase in resource allocation toward "make" strategy; however, I fail to find evidence consistent with an *absolute* increase in internal R&D to make up for the decrease in acquired innovation. In other words, there does not appear to be adequate substitution towards the "make" strategy in response to reduced incentives to engage in the "buy" strategy presented by ASU 2017-01.

Next, I examine whether the reduction in acquisition activity by IPR&D acquirers—and the lack of adequate substitution towards internal R&D suggested by results presented in Table 9—has any impact on their innovative output. Specifically, I examine whether these IPR&D acquirers file fewer patents post-ASU 2017-01. To do so, I estimate the following model:

$$(6) \qquad LnPatentsFiled_{it+k} = \beta_1 Post + \beta_2 IPRD_i + \beta_3 Post_t \times IPRD_i + \sum Controls_{it} + \epsilon_{it}$$

The dependent variable, $LnPatentsFiled_{it+k}$, is the natural log of one plus the number of patent applications filed by firm i in year $t + k$, where k equals 0 or 1.[26] I obtain data on patents filed

[26] Prior research (e.g., Li, Ma, and Shevlin 2021) allow for a three-year window from the measurement of the independent variable of interest to the patent filing date, while others (e.g., Hirshleifer, Low, and Teoh 2012) simply lag the independent variables by one year. In general, the process of innovation is lengthy and can take several years from the beginning of an R&D project to filing a patent application, which lends credence to a longer window.

with and granted by the U.S. Patent and Trademark Office (USPTO) following Kogan, Papanikolaou, Seru, and Stoffman (2017).[27] Given that the full dataset contains only those patents that were eventually granted and it takes approximately two years from patent filing date to issue date,[28] I follow prior literature (Hirshleifer, Low, and Teoh 2012; Li, Ma, and Shevlin 2021; Hall, Jaffe, and Trajtenberg 2001) and subset my sample such that the latest year of the sample period is 2019 to avoid potential bias from truncation of the sample. Accordingly, I start the sample period at 2016 so that the number of observations is approximately balanced between pre- and post-treatment years (i.e., plus or minus two years around adoption year). I include the same control variables as those used in my main regressions for Equation (1), plus an additional control variable for capital intensity, defined as the ratio of property, plant, and equipment to number of employees (Hirshleifer et al. 2012).

I present the results in Table 10. Columns 1 and 2 (3 and 4) show results for patents filed in year t ($t + 1$). As expected, IPR&D acquirers on average file a higher number of patents than others as evidenced by a positive and significant coefficient on $IPRD$ in Columns 1 and 3 without firm fixed effects. However, across all four columns, the coefficient on $Post_t \times IPRD_i$ is negative and significant, showing that IPR&D acquirers that reduce acquisition activity in response to ASU 2017-01 file fewer patents following the implementation of ASU 2017-01. In terms of economic magnitude, the coefficient estimate in Column 4 indicates a 20.1% decrease[29]

However, I expect this window to be shorter in my setting because IPR&D acquirers typically acquire technology that is closer to the final stage of the innovation process (e.g., undergoing clinical trials or awaiting regulatory approval), and as a result, I expect the effect of reduced acquisition activity by IPR&D acquirers to manifest itself in patent filings within a relatively short period of time.

[27] Data obtained from repository in https://github.com/KPSS2017/Technological-Innovation-Resource-Allocation-and-Growth-Extended-Data

[28] The exclusion of those patents that were filed but not granted is a potential limitation of the dataset. However, as a measure of innovative output, it is appropriate to only count patent applications that are eventually granted since rejected patent applications might be due to nontrivial overlap with existing technology.

[29] $(e^{-0.225} - 1) \times 100 = -20.1$

in the number of patents filed by IPR&D acquirers in year $t + 1$ following the adoption of ASU 2017-01. These results are consistent with reduced innovative output by IPR&D acquirers following the implementation of ASU 2017-01 due to reduced acquisition activity, as these firms primarily innovate through acquisitions rather than internal R&D.

CHAPTER 6. CONCLUSION

In this study, I examine the effects of changing the GAAP definition of a business on acquisition activity by firms that invest in innovation through acquisitions of IPR&D. Based on a recent accounting standard update in ASU 2017-01 that narrowed the definition of a business, I predict and find that IPR&D acquirers reduce their acquisition activity following the adoption of ASU 2017-01 because more transactions are classified as asset acquisitions in which acquired IPR&D is immediately expensed. I conduct additional analyses to corroborate the higher frequency of asset acquisitions, and cross-sectional tests suggest that the effect is concentrated among life sciences firms, consistent with expectations from practitioners and standard-setters. I also examine the implications for innovation strategy and find that there may be inadequate substitution towards internal R&D to make up for reduced acquisition activity, further evidenced by reduced innovative output by IPR&D acquirers in the immediate aftermath of the implementation of ASU 2017-01.

For the financial reporting process to achieve representational faithfulness, it is important that it precisely translates and sorts economic events and activities within the accounting system's terminology. Thus, defining and classifying economic transactions is a prerequisite for applying the rules for measurement, recognition, and disclosure. As the economy evolves and incorporates new and innovative features, GAAP will also have to continuously evolve to ensure it is equipped to properly define what they are within its framework of terminology. For instance, the lack of explicit guidance on what cryptocurrencies are has led to inconsistencies and diversity in practice in the financial accounting and reporting for cryptocurrencies (Luo and Yu 2022). The FASB also currently has a research project to refine the definition of derivatives to ensure consistent application to relatively new types of arrangements such as financial instruments with

environmental, social, and governance-linked features.[30] My study underscores the importance of precise terminology and classification scheme in GAAP by showing the real consequences of ASU 2017-01 that corrected a flawed definition of a business under the existing guidance for the accounting for corporate acquisitions in SFAS 141R. Specifically, my study shows that an accounting standard change that changes only the definition of a financial statement element, while leaving intact the measurement, recognition, and disclosure rules for said element, can have real effects on firms' willingness to utilize an "innovation by acquisition" strategy.

[30] https://www.fasb.org/Page/ProjectPage?metadata=FASB_OBJECTIVESOFRESEARCHPROJECTS_022820221200

REFERENCES

Anantharaman, D. 2015. Understanding the evolution of SFAS 141 and 142: An analysis of comment letters. *Research in Accounting Regulation* 27 (2): 99–110.

Arora, A., S. Belenzon, and L. A. Rios. 2014. Make, buy, organize: The interplay between research, external knowledge, and firm structure. *Strategic Management Journal* 35 (3): 317–337.

Bain and Company. 2024. *Global M&A Report 2024*.

Bartov, E., C. S. A. Cheng, and H. Wu. 2021. Overbidding in Mergers and Acquisitions: An Accounting Perspective. *The Accounting Review* 96 (2): 55–79.

Bates, T. W., J. B. Neyland, and Y. Y. Wang. 2018. Financing acquisitions with earnouts. *Journal of Accounting and Economics* 66 (2–3): 374–395.

Blonigen, B. A., and C. T. Taylor. 2000. R&D Intensity and Acquisitions in High-Technology Industries: Evidence from the US Electronic and Electrical Equipment Industries. *The Journal of Industrial Economics* 48 (1): 47–70.

Blouin, J. L., E. M. Fich, E. M. Rice, and A. L. Tran. 2021. Corporate tax cuts, merger activity, and shareholder wealth. *Journal of Accounting and Economics* 71 (1): 101315.

Cadman, B., R. Carrizosa, and L. Faurel. 2014. Economic Determinants and Information Environment Effects of Earnouts: New Insights from SFAS 141(R). *Journal of Accounting Research* 52 (1): 37–74.

Cain, M. D., D. J. Denis, and D. K. Denis. 2011. Earnouts: A study of financial contracting in acquisition agreements. *Journal of Accounting and Economics* 51 (1–2): 151–170.

Chuk, E. C. 2013. Economic Consequences of Mandated Accounting Disclosures: Evidence from Pension Accounting Standards. *The Accounting Review* 88 (2): 395–427.

Chung, H. (Sally) H., S. A. Hillegeist, Y. (Chris) Park, and J. P. Wynn. 2019. Capitalization of In-Process Research and Development under SFAS 141R and Information Asymmetry. *Contemporary Accounting Research* 36 (4): 2379–2407.

Clor-Proell, S. M., N. Brown, S. R. Stubben, B. J. White, E. Blankespoor, E. A. Gordon, M. R. Gujarathi, E. Henry, and K. J. Merkley. 2022. Response by the Financial Reporting Policy Committee of the Financial Accounting and Reporting Section of the American Accounting Association to the FASB Invitation to Comment on *Identifiable Intangible Assets and Subsequent Accounting for Goodwill*. *Accounting Horizons* 36 (3): 1–19.

Cohn, J. B., Z. Liu, and M. I. Wardlaw. 2022. Count (and count-like) data in finance. *Journal of Financial Economics* 146 (2): 529–551.

Correia, S., P. Guimarães, and T. Zylkin. 2020. Fast Poisson estimation with high-dimensional fixed effects. *The Stata Journal: Promoting communications on statistics and Stata* 20 (1): 95–115.

Dichev, I., J. Graham, C. R. Harvey, and S. Rajgopal. 2016. The Misrepresentation of Earnings. *Financial Analysts Journal* 72 (1): 22–35.

Dowdell, T. D., S. C. Lim, and E. Press. 2009. Were In-Process Research and Development Charges Too Aggressive? *Journal of Business Finance & Accounting* 36 (5–6): 531–551.

Dowdell, T. D., and E. Press. 2004. The impact of SEC scrutiny on financial statement reporting of in-process research and development expense. *Journal of Accounting and Public Policy* 23 (3): 227–244.

Dye, R. A. 2002. Classifications Manipulation and Nash Accounting Standards. *Journal of Accounting Research* 40 (4): 1125–1162.

Ernst & Young LLP. 2018. *Applying the definition of a business to oil and gas transactions*. Technical Line. Ernst & Young LLP.

FASB. 2007. Statement of Financial Accounting Standards No. 141 (revised 2007): Business Combinations. Accounting Standards. Norwalk, CT.

FASB. 2017. Accounting Standards Update No. 2017-01: Clarifying the Definition of a Business. Norwalk, CT.

Financial Accounting Foundation. 2013. *Post-implementation review report on FASB Statement No. 141 (revised 2007), Business Combinations*. Norwalk, CT.

Graham, J. R., M. Hanlon, and T. Shevlin. 2011. Real Effects of Accounting Rules: Evidence from Multinational Firms' Investment Location and Profit Repatriation Decisions. *Journal of Accounting Research* 49 (1): 137–185.

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

Griffith, R., H. Miller, and M. O'Connell. 2014. Ownership of intellectual property and corporate taxation. *Journal of Public Economics* 112: 12–23.

Hainmueller, J. 2012. Entropy Balancing for Causal Effects: A Multivariate Reweighting Method to Produce Balanced Samples in Observational Studies. *Political Analysis* 20 (1): 25–46.

Hall, B., A. Jaffe, and M. Trajtenberg. 2001. *The NBER Patent Citation Data File: Lessons, Insights and Methodological Tools*. Cambridge, MA: National Bureau of Economic Research.

Harford, J. 2005. What drives merger waves? *Journal of Financial Economics* 77 (3): 529–560.

Hirshleifer, D., A. Low, and S. H. Teoh. 2012. Are Overconfident CEOs Better Innovators? *The Journal of Finance* 67 (4): 1457–1498.

Horwitz, B. N., and R. Kolodny. 1980. The Economic Effects of Involuntary Uniformity in the Financial Reporting of R&D Expenditures. *Journal of Accounting Research* 18: 38.

Johnson, P. M., T. J. Lopez, and T. L. Sorensen. 2021. Did SFAS 141/142 improve the market's understanding of net assets, goodwill, or other intangible assets? *Review of Quantitative Finance and Accounting* 56 (3): 891–915.

Kanodia, C., and H. Sapra. 2016. A Real Effects Perspective to Accounting Measurement and Disclosure: Implications and Insights for Future Research. *Journal of Accounting Research* 54 (2): 623–676.

Kausar, A., N. Shroff, and H. White. 2016. Real effects of the audit choice. *Journal of Accounting and Economics* 62 (1): 157–181.

Khezri, B. 2022. The Perils of Innovation by Acquisition. *Harvard Business Review*, September 21.

Kile, C. O., and M. E. Phillips. 2009. Using Industry Classification Codes to Sample High-Technology Firms: Analysis and Recommendations. *Journal of Accounting, Auditing & Finance* 24 (1): 35–58.

Kogan, L., D. Papanikolaou, A. Seru, and N. Stoffman. 2017. Technological Innovation, Resource Allocation, and Growth. *The Quarterly Journal of Economics* 132 (2): 665–712.

Koh, P.-S., and D. M. Reeb. 2015. Missing R&D. *Journal of Accounting and Economics* 60 (1): 73–94.

Kohers, N., and J. Ang. 2000. Earnouts in Mergers: Agreeing to Disagree and Agreeing to Stay. *The Journal of Business* 73 (3): 445–476.

KPMG LLP. 2017. *FASB Clarifies the Definition of a Business*. Defining Issues. KPMG LLP.

Kwon, S. H., and G. Wang. 2020. The change in the value relevance of accounting information after mergers and acquisitions: evidence from the adoption of SFAS 141(R). *Accounting & Finance* 60 (3): 2717–2757.

Lamont, O., C. Polk, and J. Saa-Requejo. 2001. Financial Constraints and Stock Returns. *The Review of Financial Studies* 14 (2).

Li, Q., M. (Shuai) Ma, and T. Shevlin. 2021. The effect of tax avoidance crackdown on corporate innovation. *Journal of Accounting and Economics* 71 (2–3): 101382.

Luo, M., and S. Yu. 2022. Financial reporting for cryptocurrency. *Review of Accounting Studies*.

McMullin, J. L., and B. Schonberger. 2020. Entropy-balanced accruals. *Review of Accounting Studies* 25 (1): 84–119.

Meyer, B. D. 1995. Natural and Quasi-Experiments in Economics. *Journal of Business & Economic Statistics* 13 (2). JBES Symposium on Program and Policy Evaluation: 151–161.

Oswald, D., A. Simpson, and P. Zarowin. 2022. Capitalization vs. expensing and the behavior of R&D expenditures. *Review of Accounting Studies* 27 (4): 1199–1232.

Petersen, M. A. 2009. Estimating Standard Errors in Finance Panel Data Sets: Comparing Approaches. *Review of Financial Studies* 22 (1): 435–480.

Phillips, G. M., and A. Zhdanov. 2013. R&D and the Incentives from Merger and Acquisition Activity. *Review of Financial Studies* 26 (1): 34–78.

Roychowdhury, S. 2006. Earnings management through real activities manipulation. *Journal of Accounting and Economics* 42 (3): 335–370.

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

St. Clair, T., and T. D. Cook. 2015. DIFFERENCE-IN-DIFFERENCES METHODS IN PUBLIC FINANCE. *National Tax Journal* 68 (2): 319–338.

Williams, B., and B. M. Williams. 2021. Real Effects of Financial Reporting on Innovation: Evidence from Tax Law and Accounting Standards. *The Accounting Review* 96 (6): 397–425.

Xue, Y. 2007. Make or buy new technology: The role of CEO compensation contract in a firm's route to innovation. *Review of Accounting Studies* 12 (4): 659–690.

APPENDIX A: OVERVIEW OF THE ACCOUNTING FOR BUSINESS COMBINATIONS AND ASSET ACQUISITIONS

The core objective of the acquisition method is to allocate the purchase price to the acquisition-date fair value of the net assets acquired, including liabilities assumed and identifiable intangible assets that meet certain criteria for separate recognition (the contractual-legal or separability criterion). Any excess purchase price that remains—including those intangible assets that do not meet the criteria for separate recognition apart from goodwill like assembled workforce—is assigned to goodwill.

However, if an acquired set does not constitute a business as defined by Topic 805, then the preparer accounts for the transaction as an asset acquisition, which follows a cost accumulation model rather than the acquisition method. The following table summarizes some of the key accounting and reporting implications of the differences between a business combination and an asset acquisition.

Item	Business Combination	Asset Acquisition
Purchase price in excess of fair value of net assets acquired	Assigned to goodwill	No goodwill is created; excess is allocated to net assets acquired on a relative fair value basis
Acquired in-process R&D (with no alternative future use)	Capitalized as indefinite-lived intangible asset	Immediately expensed
Contingent consideration	Recognized immediately at acquisition-date fair value and included in purchase price. Any changes in fair value are recognized as gains or losses in earnings.[31]	Treated as contingent loss, i.e., not recognized as a liability until probable and reasonably estimable.
Transaction costs	Expensed as incurred	Capitalized as part of purchase price
Measurement period	Up to a year to make measurement-period adjustments to initial preliminary purchase price allocations	None
Bargain purchase price	Preparer recognizes a gain to the extent the fair value of net assets acquired exceeds purchase price.	None

[31] However, if contingent consideration is deemed compensation for services rendered in the post-acquisition period (e.g., contingent consideration is tied to the retention of certain key employees of the target entity), then it is not a part of purchase price and is instead accounted for as compensation expense. This distinction does not matter for asset acquisitions.

APPENDIX B: SUMMARY OF KEY PROVISIONS OF ASU 2017-01

The following table shows a comparison of how the definition of a business was applied under the legacy implementation guidance (SFAS 141R, or Pre-ASU 2017-01) and is now applied under the amended implementation guidance in ASU 2017-01 (effective for fiscal years beginning after December 15, 2017).

Old definition	New definition (ASU 2017-01)
One-step process based on whether an acquired set has inputs, processes, and/or outputs	A two-step process with an initial screen for transactions where "substantially all" of the fair value of gross assets acquired is concentrated in a single identifiable asset or a group of similar assets. If this initial screen is met, then the acquired set is not a business.
No minimum requirement for what qualifies as a business	For transactions that do not meet the initial screen (i.e., substantially all of the fair value is *not* concentrated in a single asset group), imposes a minimum requirement that a business should include both *inputs* and a *substantive process* that together significantly contribute to the ability to create output.
A set could be considered a "business" without all of its inputs and processes if a market participant can acquire the set and continue to produce outputs, such as by integrating the acquired set with their own inputs and processes.	Removes this evaluation of whether a market participant could replace missing elements.
Definition of "output" is broad; includes items such as cost reductions	Narrows the definition of "outputs" to align with the new revenue recognition standard (ASC Topic 606)

APPENDIX C: SUMMARY OF VARIABLES AND DATA SOURCES

Variable Name	Description	Data Source
Dependent variables		
CntDeal	Number of completed deals announced by a firm in a given year (0 if no deals announced)	SDC
LnCntDeal	Natural log of one plus Cnt_Deal	SDC
SumTval	Total value (rankval) of transactions completed by a firm in a given year (0 if no deals announced)	SDC
LnSumTval	Natural log of one plus Sum_Tval	SDC
ΔGW	Acquired goodwill (acqgdwl)	Compustat Annual & SDC
RDAQ	R&D expense (xrd) scaled by the sum of R&D expense and purchased technology (acqintano + acqgdwl) (Xue 2007)	Compustat Annual
RD	R&D expense scaled by total sales	Compustat Annual
Earnout	Indicator for whether a deal consideration includes an earnout or contingent value rights as reported by SDC	SDC
LnPatentsFiled	Natural log of one plus total number of patents filed that were eventually granted	Kogan et al. (2017)
Difference-in-differences estimator		
IPRD	Indicator for presence of IPR&D-related keyword in significant accounting policies disclosure and goodwill balance greater than or equal to 10% of total assets at any point in the pre-treatment period	EDGAR 10-K filings & Compustat Annual
IPRDSAP	Indicator for presence of IPRD-related keyword in significant accounting policies disclosure in the pre-treatment period	EDGAR 10-K filings & Compustat Annual
SigGdwl	Indicator for goodwill balance greater than or equal to 10% of total assets at any point in the pre-treatment period	Compustat Annual
Post	Indicator for fiscal period beginning after December 15, 2017 (effective date of ASU 2017-01)	Compustat Annual
$Year_{t-2}$	Indicator for t-2 years prior to adoption of ASU 2017-01	Compustat Annual
$Year_{t-1}$	Indicator for t-1 years prior to adoption of ASU 2017-01	Compustat Annual
Covariates - Firm- or acquirer-level		
Size	Natural log of beginning-of-year market value of equity	Compustat Annual
Q	Beginning-of-year Tobin's Q ratio	Compustat Annual

Cash	Beginning-of-year cash holdings scaled by total assets	Compustat Annual
Leverage	Beginning-of-year debt-to-equity ratio	Compustat Annual
ROA	Prior year net income scaled by total assets	Compustat Annual
LnAge	Natural log of the number of years a firm is covered in Compustat	Compustat Annual
LnAnaFol	Natural log of one plus the number of analysts issuing EPS forecasts	IBES Detail
LnBusSeg	Natural log of one plus the number of business segments	Compustat Segments
LnGeoSeg	Natural log of one plus the number of geographic segments	Compustat Segments
LifeSci	Indicator that equals one if a firm belongs to a life sciences industry, zero otherwise	Compustat Annual; Kile and Phillips (2009)
MissingRD	Indicator for missing R&D (xrd) in Compustat (Koh and Reeb 2015)	Compustat Annual
Ncross	Number of targets acquired in a different three-digit SIC code from the acquirer	SDC
HighFC	Indicator for whether the acquirer's KZ-index for financial constraint was above the industry-year median. KZ index is constructed following Lamont, Polk, and Saa-Requejo (2001): -1.001909*((ib+dp)/beginning-of-year ppent)+0.2826389*((at + (csho*prcc_f) - ceq - txdb)/at)+3.139193*((dltt + dlc)/(dltt+dlc+seq)) - 39.3678*((dvc + dvp)/beginning-of-year ppent) - 1.314759*(che/beginning-of-year ppent)	Compustat Annual
Cap	Total property, plant, and equipment (ppent) scaled by number of employees (emp)	Compustat Annual
Covariates - Target or transaction-level		
Cross	Indicator that equals one if a firm engaged in at least one cross-industry transaction, defined as different SIC3 between the target firm and the acquirer	SDC
LnTval	Natural log of transaction value	SDC
Tpriv	Indicator for privately held target	SDC
TargetQ	Target firm's industry median Tobin's Q ratio for public companies in Compustat	SDC; Compustat
TargetRD	Target firm's industry median R&D to sales ratio for public companies in Compustat	SDC; Compustat

Table 1
Data and sample selection

	Firm-years	Firms
U.S. firm-year observations within three years pre- and post-adoption of ASU 2017-01, excluding financials and utilities	22,866	4,749
Require PERMNO for matching with SDC Platinum M&A Database	(5,935)	(818)
Require CIK for matching to EDGAR 10-K data	(5,110)	(1,827)
Require non-missing control variables for all six years (balanced panel)	(631)	(239)
Final sample of firm-year observations for test of H1	11,190	1,865

This table summarizes the construction of firm-year observations from Compustat Fundamentals Annual that is used for estimating Equation (1) and related cross-sectional tests and robustness tests. Actual sample sizes may differ for additional analyses that require additional variables.

Table 2
Descriptive statistics

Panel A: Summary statistics

	N	Mean	SD	Min	P25	P50	P75	Max
IPRD	11,190	0.078	0.268	0.000	0.000	0.000	0.000	1.000
Size	11,190	6.879	2.229	1.948	5.353	6.966	8.392	12.090
Q	11,190	2.342	1.798	0.617	1.234	1.723	2.737	10.820
Cash	11,190	0.225	0.248	0.001	0.043	0.129	0.309	0.965
Leverage	11,190	0.254	0.232	0.000	0.043	0.224	0.384	1.107
ROA	11,190	-0.062	0.317	-1.812	-0.058	0.033	0.079	0.336
LnAge	11,190	3.031	0.764	1.099	2.485	3.135	3.584	4.248
LnAnaFol	11,190	1.950	1.009	0.000	1.386	2.079	2.708	3.714
LnBusSeg	11,190	0.538	0.658	0.000	0.000	0.000	1.099	1.946
LnGeoSeg	11,190	0.759	0.731	0.000	0.000	0.693	1.386	2.485
CntDeal	11,190	0.193	0.467	0.000	0.000	0.000	0.000	2.000
LnCntDeal	11,190	0.124	0.291	0.000	0.000	0.000	0.000	1.099
SumTval	11,190	135.200	663.100	0.000	0.000	0.000	0.000	5484.000
LnSumTval	11,190	0.854	2.088	0.000	0.000	0.000	0.000	8.610

(continued on next page)

Table 2 (cont.)
Descriptive statistics

Panel B: Difference in means across treatment and control observations

	IPRD = 0			IPRD = 1			Difference in means	
	(1)	(2)	(3)	(4)	(5)	(6)	(5) - (2)	
	N	Mean	SD	N	Mean	SD	Difference	t-stat
Size	10,320	6.796	2.204	870	7.865	2.292	1.069	13.694
Q	10,320	2.332	1.826	870	2.469	1.422	0.137	2.166
Cash	10,320	0.224	0.252	870	0.243	0.200	0.019	2.151
Leverage	10,320	0.255	0.235	870	0.247	0.196	-0.008	-0.923
ROA	10,320	-0.063	0.320	870	-0.053	0.279	0.009	0.818
LnAge	10,320	3.027	0.770	870	3.079	0.685	0.052	1.904
LnAnaFol	10,320	1.913	1.016	870	2.394	0.798	0.481	13.623
LnBusSeg	10,320	0.541	0.659	870	0.508	0.651	-0.033	-1.387
LnGeoSeg	10,320	0.721	0.721	870	1.213	0.686	0.492	19.403
CntDeal	10,320	0.178	0.449	870	0.367	0.616	0.189	11.517
LnCntDeal	10,320	0.115	0.281	870	0.233	0.374	0.118	11.516
SumTval	10,320	117.500	610.700	870	344.800	1089.000	227.300	9.750
LnSumTval	10,320	0.783	1.999	870	1.695	2.814	0.912	12.455

Panel C: Top 5 industry membership for treatment group

Three-digit SIC	Industry Description	# Firms	# Obs
283	Drugs	39	231
384	Surgical, Medical, and Dental Instruments and Supplies	22	123
737	Computer Programming, Data Processing, and other Computer Related Services	17	102
367	Electronic Components and Accessories	16	96
382	Laboratory Apparatus and Analytical, Optical, Measuring, and Controlling Instruments	13	78

This table summarizes some key descriptive statistics for the sample. Panel A shows summary statistics for the full sample used for my main regressions. For all of my analyses, all continuous variables are winsorized at the 1st and 99th percentile. Panel B compares the means for the same variables between treatment (IPR&D acquirers) and control groups and presents both the raw difference in the means and t-statistic of each difference. Panel C summarizes the top five industries for the treatment group by three-digit SIC code.

Table 3
Acquisition activity by IPR&D acquirers after adoption of ASU 2017-01

	(1) *LnCntDeal*	(2) *LnSumTval*	(3) *LnCntDeal*	(4) *LnSumTval*
IPRD	0.123***	0.860***		
	(0.023)	(0.154)		
Post × IPRD	**-0.099*** **	**-0.672*** **	**-0.101*** **	**-0.663*** **
	(0.024)	**(0.172)**	**(0.024)**	**(0.170)**
Size	0.020***	0.227***	-0.003	-0.026
	(0.003)	(0.024)	(0.007)	(0.045)
Q	-0.007***	-0.066***	0.013***	0.111***
	(0.002)	(0.014)	(0.003)	(0.021)
Cash	-0.073***	-0.495***	0.256***	1.590***
	(0.020)	(0.137)	(0.037)	(0.240)
Leverage	-0.014	-0.036	-0.143***	-0.996***
	(0.016)	(0.108)	(0.029)	(0.204)
ROA	0.014	0.013	0.041***	0.309***
	(0.011)	(0.067)	(0.015)	(0.090)
LnAnaFol	0.013**	0.069*	-0.015	-0.021
	(0.006)	(0.038)	(0.010)	(0.060)
LnAge	-0.004	0.002	-0.014	0.104
	(0.006)	(0.038)	(0.032)	(0.225)
LnGeoSeg	0.002	-0.007	-0.020	-0.197*
	(0.006)	(0.041)	(0.017)	(0.117)
LnBusSeg	0.017***	0.091**	-0.044***	-0.269**
	(0.006)	(0.043)	(0.015)	(0.105)
Observations	11,610	11,610	11,610	11,610
Adjusted R-squared	0.074	0.109	0.181	0.182
Fixed Effects	Industry-Year	Industry-Year	Firm & Industry-Year	Firm & Industry-Year

This table reports the main difference-in-differences regression results in Equation (1) to analyze the effect of ASU 2017-01 on acquisition activity by IPR&D acquirers. Acquisition activity is measured by log of one plus the number of transactions (*LnCntDeal*) and log of one plus total transaction value (*LnSumTval*). Detailed variable definitions are in Appendix C. Robust standard errors clustered by firm are presented in parentheses, and statistical significance at the 10%, 5%, and 1% levels are denoted by *, **, and ***, respectively.

Table 4
Partition by membership in life sciences industry

	(1) *LnCntDeal*	(2) *LnCntDeal*	(3) *LnSumTval*	(4) *LnSumTval*
Post × IPRD	-0.164***	-0.057*	-1.041***	-0.409*
	(0.033)	(0.032)	(0.239)	(0.225)
	Difference across groups (t-stat)		**Difference across groups (t-stat)**	
	-0.107 (-2.29)**		**-0.629 (-1.87)***	
Observations	1,964	9,226	1,964	9,226
Adjusted R-squared	0.299	0.169	0.337	0.159
Controls	Yes	Yes	Yes	Yes
Fixed Effects	Firm & Industry-Year	Firm & Industry-Year	Firm & Industry-Year	Firm & Industry-Year

This table reports the results of the cross-sectional test partitioning my main sample by membership in the life sciences group, defined as firms belonging to three-digit SIC codes 283, 382, and 873. Each column reports the results of estimating Equation (1) with identical dependent variables and control variables used in the main regressions as reported in Table 3. The difference in the coefficients across the partitions and the t-statistic of the difference are presented for each dependent variable of interest (*LnCntDeal* and *LnSumTval*). Robust standard errors clustered by firm are presented in parentheses, and statistical significance at the 10%, 5%, and 1% levels are denoted by *, **, and ***, respectively.

Table 5
Test of pre-trends (parallel trends assumption)

Panel A: Separate regressions for each pre-treatment interval

	(1) $t-3$ and $t-2$ *LnCntDeal*	(2) $t-2$ and $t-1$ *LnCntDeal*	(3) $t-3$ and $t-2$ *LnSumTval*	(4) $t-2$ and $t-1$ *LnSumTval*
$Year_{t-2}$	-0.003		-0.006	
	(0.010)		(0.068)	
$IPRD$	0.162***	0.132***	1.125***	0.918***
	(0.034)	(0.033)	(0.244)	(0.239)
$Year_{t-2} \times IPRD$	**-0.027**		**-0.180**	
	(0.047)		**(0.340)**	
$Year_{t-1}$		-0.007		-0.053
		(0.010)		(0.067)
$Year_{t-1} \times IPRD$		**-0.020**		**-0.204**
		(0.046)		**(0.329)**
Observations	3,730	3,730	3,730	3,730
Adjusted R-squared	0.069	0.064	0.106	0.103
Controls	Yes	Yes	Yes	Yes
Fixed Effects	No	No	No	No

(continued on next page)

Table 5 (cont.)
Test of pre-trends (parallel trends assumption)

Panel B: Full sample replacing Post dummy with separate year dummies

	(1) $LnCntDeal$	(2) $LnSumTval$
$Year_{t-1} \times IPRD$	**-0.039**	**-0.292**
	(0.038)	**(0.285)**
$Year_{t} \times IPRD$	-0.133***	-0.856***
	(0.034)	(0.263)
$Year_{t+1} \times IPRD$	-0.053	-0.380
	(0.038)	(0.262)
$Year_{t+2} \times IPRD$	-0.158***	-1.074***
	(0.038)	(0.273)
Observations	11,190	11,190
Adjusted R-squared	0.193	0.191
Controls	Yes	Yes
Fixed Effects	Firm & Industry-Year	Firm & Industry-Year

This table reports the results of tests for pre-trends that indicate a violation of the parallel trends assumption for my main difference-in-differences analysis reported in Table 3. Each variable $Year_{t+k}$ (where k equals -2, -1, 0, 1, and 2) is an indicator variable for k years from the first year of the post-ASU 2017-01 period (e.g., $Year_{t-1}$ is an indicator for one year immediately prior to the mandatory adoption of ASU 2017-01). Panel A reports the results from separately estimating the trend coefficient ($Year_{t+k} \times IPRD$) for each pre-treatment interval, following the approach by Chung et al. (2019). Heteroskedasticity-robust standard errors are reported in parentheses. Panel B reports the results from estimating a modified version of Equation (1) replacing the $Post$ dummy with the four dummies $Year_{t-1}$, $Year_{t}$, $Year_{t+1}$, and $Year_{t+2}$. Robust standard errors clustered by firm are reported in parentheses. Statistical significance at the 10%, 5%, and 1% levels are denoted by *, **, and ***, respectively.

Table 6
Additional robustness tests

Panel A: Entropy-balanced sample

	(1) *LnCntDeal*	(2) *LnSumTval*
Post × IPRD	**-0.091*** **	**-0.576** **
	(0.030)	**(0.245)**
Observations	11,190	11,190
Adjusted R-squared	0.216	0.229
Controls	Yes	Yes
Fixed Effects	Firm & Industry-Year	Firm & Industry-Year

Panel B: Bifurcated treatment proxy

	(1) *LnCntDeal*	(2) *LnSumTval*
Post × IPRDSAP	0.021	0.099
	(0.018)	(0.127)
Post × SigGdwl	-0.076***	-0.551***
	(0.012)	(0.091)
Post × IPRDSAP × SigGdwl	**-0.011*** **	**-0.063** **
	(0.004)	**(0.025)**
Observations	11,190	11,190
Adjusted R-squared	0.194	0.192
Controls	Yes	Yes
Fixed Effects	Firm & Industry-Year	Firm & Industry-Year

This table reports the results of additional robustness tests for my main results. In Panel A, I re-estimate Equation (1) with an entropy-balanced sample, which assigns a weight to every control group observation such that the distributions of the covariates other than the difference-in-differences estimator are balanced across treatment and control observations. Specifically, I balance the covariates such that the mean, variance, and skewness are identical. In Panel B, I bifurcate the main treatment proxy IPRD into two separate dummies: IPRDSAP is a dummy for the inclusion of IPR&D keywords in the significant accounting policies footnote, and SigGdwl is a dummy for having goodwill balance of at least 10% of total assets at any point during the pre-treatment period. The variable of interest is the triple interaction term Post × IPRDSAP × SigGdwl. Robust standard errors clustered by firm are reported in parentheses. Statistical significance at 10%, 5%, and 1% levels are denoted with *, **, and ***, respectively.

Table 7
Reported goodwill increases after adoption of ASU 2017-01

	(1)	(2)
	ΔGW	
	Scaled by total transaction value	Scaled by lagged total assets
IPRD	0.292**	0.043**
	(0.136)	(0.018)
Post × IPRD	**-0.266***	**-0.044****
	(0.154)	**(0.021)**
Observations	1,831	1,831
Adjusted R-squared	0.134	0.234
Controls	Yes	Yes
Fixed Effects	Industry & Year	Industry & Year

This table reports results of an additional analysis examining the impact of ASU 2017-01 on goodwill changes reported by IPR&D acquirers by estimating Equation (3). The regression is limited to firm-year observations of firms that announced at least one transaction in the sample period centered around the effective date of ASU 2017-01. The variable of interest is $Post \times IPRD$, same as the main regressions in Table 3. Column 1 reports results using year-over-year change in goodwill balance reported by the acquiring firm scaled by total value of transactions announced by the firm in the same year. Column 2 reports results using change in goodwill scaled by beginning-of-year total assets. Robust standard errors clustered at the firm level are reported in parentheses. Statistical significance at the 10%, 5%, and 1% levels are denoted by *, **, and ***, respectively.

Table 8
Earnout usage after adoption of ASU 2017-01

	(1)	(2)
	$\Pr(Earnout = 1)$	
Post	0.331**	
	(0.168)	
IPRD	0.262	-0.103
	(0.263)	(0.276)
Post × IPRD	**0.704***	**0.662***
	(0.364)	**(0.377)**
Observations	2,123	1,602
Pseudo R-squared	0.138	0.099
Acquirer controls	Yes	Yes
Target controls	Yes	Yes
Fixed Effects	No	Target Industry & Year

This table reports the result of additional analysis examining the impact of ASU 2017-01 on the frequency of earnout usage by estimating Equation (4). The dependent variable is an indicator for whether a transaction included an earnout or contingent value rights as reported by SDC. Logistic regression is used to estimate the coefficient on the difference-in-differences estimator $Post \times IPRD$. In addition to the same control variables used in the main regressions reported on Table 3, the model controls for target valuation uncertainty ($Tpriv$, $TargetQ$, and $TargetRD$) following prior literature on earnouts (e.g., Cain et al. 2011) as well as transaction-level characteristics (log of transaction value, $LnTval$, and indicator for cross-industry deal, $Cross$). Statistical significance at the 10%, 5%, and 1% levels are denoted by *, **, and ***, respectively.

Table 9
Change in innovation strategy

	(1) $RDAQ$	(2) $RDAQ$	(3) $RD/Sale$	(4) $RD/Sale$
IPRD	-0.068***		-1.294**	
	(0.020)		(0.573)	
Post × IPRD	**0.047****	**0.044****	**0.766**	**0.684**
	(0.021)	**(0.022)**	**(0.584)**	**(0.546)**
Observations	7,269	7,269	7,269	7,269
Adjusted R-squared	0.566	0.648	0.091	0.470
Controls	Yes	Yes	Yes	Yes
Fixed Effects	Industry-Year	Firm and Industry-Year	Industry-Year	Firm and Industry-Year

This table reports the results of estimating the effect of ASU 2017-01 on resource allocation between "make" and "buy" innovation strategies by IPR&D acquirers. $RDAQ$ is the ratio of internal R&D to the sum of internal R&D and acquired technology following Xue (2007). $RD/Sale$ is R&D expense scaled ty total sales. Robust standard errors clustered by firm are reported in parentheses. Statistical significance at the 10%, 5%, and 1% levels are denoted by *, **, and ***, respectively.

Table 10
Impact on innovative output

	(1)	(2)	(3)	(4)
		LnPatentsFiled		
	t	t	$t+1$	$t+1$
IPRD	0.622***		0.583***	
	(0.143)		(0.151)	
Post × IPRD	**-0.141***	**-0.155****	**-0.214****	**-0.225*****
	(0.083)	**(0.062)**	**(0.087)**	**(0.061)**
Observations	7,146	7,146	7,146	7,146
Adjusted R-squared	0.422	0.952	0.401	0.947
Controls	Yes	Yes	Yes	Yes
Fixed Effects	Industry-Year	Firm and Industry-Year	Industry-Year	Firm and Industry-Year

This table reports changes in innovative output, namely, patent filings, by IPR&D acquirers following the implementation of ASU 2017-01. *LnPatentsFiled* is the natural log of one plus the number of patents filed that were eventually granted. Given that there is typically a two-year lag between patent filing date and issue date and the dataset covers patents granted through 2022, I restrict the end of my sample period to 2019 following prior literature (Hirshleifer et al. 2012; Li et al. 2021) and accordingly set the beginning of the sample period at 2016 so that the number of firm-year observations across pre- and post-treatment are balanced. Results in Columns 1 and 2 are based on patents filed in year t, and results in Columns 3 and 4 are based on patents filed in year $t+1$. Robust standard errors clustered by firm are reported in parentheses. Statistical significance at 10%, 5%, and 1% levels are denoted with *, **, and ***, respectively.