The Effects of ASC 606 on Revenue Recognition

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February 2022

* Corresponding author. We thank Rick Antle, Daniel Bens, Oliver Binz, Matthias Breuer, Gavin Cassar, Frank Ecker, Jonathan Glover, Bob Herz, Gilles Hilary, Sehwa Kim, Allison Koester, Laurence van Lent, Pierre Liang, Doron Nissim, Shivaram Rajgopal, Jason Schloetzer, Shiwon Song, Robert Stoumbos, Xiaoli Tian, Yuan Zhang, and the workshop participants at Columbia University, Frankfurt School, Georgetown University, and INSEAD for their helpful comments. We also thank Yuanting Cheng, Mahesh Latnekar, Ruochen Liu, Zhuoyu Liu, and Wendy Qian for their research assistance. All errors are ours.

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ABSTRACT

Using 329 time-varying industry factors to capture heterogeneous revenue generation processes, we quantify the impact of ASC 606 on revenue recognition for US-listed firms. Before ASC 606, 100 cents of revenue are recognized in the next year per dollar of revenue recognized in the current year. After ASC 606, 56 cents of revenue are recognized in the next year per dollar of revenue recognized in the current year. This acceleration of current versus next year's revenue is consistent with ASC 606 requiring firms to recognize variable consideration in transaction price determination before uncertainty is resolved and to use granular performance obligations as the units for recognition. We further document that firms have increasingly used ASC 606 jargon in their sales contracts, potentially to ease their compliance with the standard. Our study informs users of accounting revenue on the specific impacts of ASC 606 and introduces a novel technique that relies on industry factors exogenous to individual member firms.

Keywords: revenue recognition, external factor, industry fluctuations, ASC 606, ASU 2014-09, ASU 2015-14, IFRS 15, sales contracts with customers

JEL Classification: M41

1. Introduction

Revenue is the largest recurring component of earnings and a pivotal input to firms' internal decisions and external capital providers' valuations. Despite abundant discussions among academics, standard boards, users, preparers, and capital market oversight agencies (Schipper, Schrand, Shevlin, and Wilks 2009; Marton and Wagenhofer 2010; Biondi, Bloomfield, Glover, Jamal, Ohlson, Penman, and Tsujiyama 2011; FASB 2014, IFRS Foundation 2014), limited empirical studies examine revenue recognition. In 2014, FASB and IASB issued ASC 606 and IFRS 15, respectively, which changed how firms recognize revenue starting from 2018. ASC 606 synthesizes more than 200 industry- or transaction-specific rules by mandating a sales-contract-based approach. Firms need to determine granular units of revenue recognition in their internal accounting systems if they previously did not identify distinct performance obligations from each sales contract (Deloitte 2016; Sheffield 2017). Our study attempts to document the first large-sample evidence, based on all US-listed adopting firms, of how ASC 606 affects revenue recognition for users who rely on accounting revenue as inputs to their decisions.[1]

The reported revenue numbers are influenced by both business fundamentals (e.g., demand, supply, or industry practices) and accounting rules. We introduce an empirical method that uses 329 time-varying industry factors to capture heterogeneous revenue generation processes related to business fundamentals. Unless business fundamentals suddenly shorten (extend) the revenue-generating cycles for most industries in 2018, we can attribute the acceleration (delay) in the mapping from industry shocks to revenue recognition to the adoption of ASC 606. We find that, before ASC 606, 100 cents of revenue are recognized in the next year per dollar of revenue recognized in the current year. After ASC 606, 56 cents of revenue are recognized in the next year

[1] We use the term "accounting revenue" to distinguish US GAAP revenue from non-GAAP measurements, such as taxable revenue or economic revenue.

per dollar of revenue recognized in the current year. Put differently, firms' revenue cycle significantly shortens from 24.0 months to 18.7 months. The acceleration is consistent with ASC 606 requiring firms to recognize variable consideration in transaction price determination before uncertainty is resolved;[2] and to use granular performance obligations as the units for recognition.[3]

Motivated by the theoretical framework in Antle and Demski (1989) and Dutta and Zhang (2002), we assume that a firm's revenue generating cycle spans two reporting periods and its manager observes the realization of a stochastic business shock before making production and sales decisions. The accounting standard governs how much revenue the manager recognizes in the current or next period. Therefore, recognized revenue incorporates two factors unobservable to researchers: underlying business fluctuations observed by managers during the ordinary course of operations, and how firms implement the revenue accounting rules to recognize revenue. Since firm-specific business shocks privately observed by managers are unavailable to researchers, we use industry shocks that are ex-post publicly available, such as consumption data from the Bureau of Economic Analysis, and rely on IBISWorld to collect industry factors from various public sources for five-digit NAICS industries from 2012-2019.

Since IBISWorld analysts identified the industry factors years before the announcement of ASC 606, we can reasonably attribute the change in firms' revenue recognition behavior after the adoption year to ASC 606. Whilst the industry factors are remote from individual member firms'

[2] Variable consideration under ASC 606 requires firms to estimate the transaction price for each sales contract and recognize revenue for the portion of the estimated price for which future reversal is unlikely to occur. For example, consider product returns or price concessions. Under the old standard, ASC 605 requires firms *not* to recognize revenue for sales to distributors until the distributor has sold the product "through" to the end-users, which is the point at which uncertainty around returns and concessions resolves. Under the new standard, ASC 606 requires firms to recognize revenue based on the estimated price when delivering goods to distributors. (BDO 2018)

[3] ASC 606 requires firms to separate bundled sales contracts into granular components that are 'distinct' performance obligations, such as physical goods, customer support, software maintenance updates, customer rights, etc. If some distinct performance obligations are satisfied before a bundled contract ends, such as physical goods delivered upfront, the adoption of ASC 606 would result in earlier revenue recognition, compared to the timing under ASC 605 when multiple performance obligations are bundled together for revenue recognition. (KPMG 2014; BDO 2018)

control, they are salient to their revenue generating processes. For example, average annual precipitation in inches is negatively related to the demand for NAICS 22131 water supply and irrigation systems, and per capita fruit and vegetable consumption in pounds is positively related to the demand for NAICS 31142 canned fruit and vegetable processing. Although firms could influence demand for their specific products or brands, they are unlikely to influence the overall industry demand or fluctuations. Therefore, industry fluctuations are plausibly exogenous to individual member firms.

We use an AR(1) process to extract shocks from industry factors' time series and validate that these industry shocks are indeed surprises to individual firms' managers by documenting an insignificant association between shocks that occurred in year t and revenues recognized in year t-1 before the shocks' occurrences. On the contrary, we confirm that these industry shocks are relevant for individual firms' revenue recognition by documenting a significant association between shocks occurring in year t and revenues recognized in year t. Related to the annual frequency of industry factors, we further confirm that next year's revenue (t+1) is significantly associated with shocks occurring in year t for only firms with a revenue-generating cycle that is longer than one year but not for firms with a shorter revenue-generating cycle.

After a battery of validation tests, we use the proposed method to evaluate the effects of ASC 606 on revenue recognition by separating our sample into a pre-606 period and a post-606 period based on firms' actual adoption years. Only 30 US-listed firms (out of 3,397 adopting firms) voluntarily adopted ASC 606 early in 2017, which suggests a lack of a staggered adoption. Therefore, rather than relying on the timing of adoption, we exploit 329 time-varying industry shocks, helping us better address the concern of confounding events. Unless a confounding economic event accelerates most firms' revenue generating processes around 2018, we can

attribute the change in the mapping from industry shocks to recognized revenues to the adoption of ASC 606.

In addition to documenting the impact of ASC 606 on revenue recognition by firms, we examine changes in sales contracts firms enter into with customers. Our anecdotal discussions with practitioners reveal that firms modified their sales contracts with customers to ease their implementations of ASC 606 contract-oriented revenue recognition rules. To validate this practice, in a sample of 758 material sales contracts from 2014-2020 by 109 distinct firms based on SEC filings, we document that firms increasingly use ASC 606 jargon, such as performance obligation, in sales contracts.

Our contribution to the practice and the literature is threefold. First, based on a large sample consisting of all US-listed firms, we inform standard setters that firms accelerate their revenue recognition upon adopting ASC 606 and quantify the magnitude of this acceleration. We highlight two key mandates in ASC 606 to explain this effect: recognition criteria being met early for newly determined granular performance obligations and measurement of transaction price featuring more estimates of variable consideration. We also highlight that firms change their customer contracting behavior to ease their compliance with the new revenue standard. As such, we present important measurement and real contracting outcomes of a revenue recognition approach unified by FASB and IASB across industries and transactions.

Second, our study cautions accounting revenue users of *not* attributing the 22 percent acceleration in revenue arising from firms' adoption of ASC 606 to organic growth when projecting future sales numbers.[4] Inappropriately assuming this acceleration to emanate from stronger demand from or higher prices charged to customers could lead to over-investments in

[4] The 22 percent acceleration is calculated as 24.0 months minus 18.7 months and then divided by 24.0 months.

internal capital decisions by managers or incorrect portfolio rebalancing decisions by investors. Relatedly, ASC 606 induced revenue acceleration across industries has implications for GDP users. To the extent that GDP is measured using the dollar value added by industries and incorporates adjustments for sales tax, our results highlight macroeconomic implications of revenue reporting in the economy.

Third, our study introduces a novel empirical method that relies on industry factors exogenous to individual member firms. Existing studies on accounting (revenue) standards often adopt a difference-in-difference design where treatment and control firms are identified based on the examined firms' disclosures, such as cumulative adjustments to retained earnings, discussions about material impacts and adoption complexity, or post-adoption presentations (Zhang 2005; Altamuro, Beatty, and Weber 2005; Lee and Lee 2020; Myers, Schmardebeck, Seidel, and Stuart 2021; Ahn, Hoitash, and Schmardebeck 2021; Hinson, Pundrich, and Zakota 2021; Tillet 2021). Similarly, studies rely on variations in firms' fiscal-end month choices to attribute capital market effects to ASC 606 (Chung and Chuwonganant 2019; Ferreira 2020; Glaze, Skinner, and Stephan 2021). However, firms do not always disclose material events, and determinants of their (disclosure) choices, e.g., the level of blame, could be correlated with the market consequences of interest (Schloetzer, Tseng, Yohn, and Yoon 2021). Studies utilizing industry-specific revenue accounting rules, e.g., SOP 91-1 and SOP 97-2 for the software industry in Zhang (2005) and Srivastava (2014a), are constrained by limited sample sizes and the lack of generalizability. Our method complements existing approaches by using 329 time-varying and plausibly exogenous industry factors to capture heterogeneous revenue generation processes, enabling researchers to assess the measurement impacts of accounting rule changes and validate firms' self-reported adoption effects.

Section 2 discusses the institutional background about ASC 606 and our empirical method, Section 3 describes data and empirical results, and Section 4 concludes.

2. ASC 606 and Empirical Method

2.1 ASC 606 Accounting for Revenue from Contracts with Customers

Revenue is the largest recurring component of earnings and the anchor for firms' internal cost management (Anderson, Banker, and Janakiraman 2003; Dichev and Tang 2008; Donelson, Jennings, and McInnis 2011; Rakash and Sinha 2013; Srivastava 2014b; Garrison, Noreen, and Brewer, 2017; Hwang, Jung, Lee, and Yang 2021) and capital providers' valuations (Davis 2002; Bowen, Davis, and Rajgopal 2002; Ertimur, Livnat, and Martikainen 2003; Jegadeesh and Livnat 2006; Chandra and Ro 2008; Stubben 2010). In May 2014, FASB issued ASU 2014-09 under ASC 606, Revenue from Contracts with Customers, parallel to IASB issuing IFRS 15. ASC 606 replaced ASC 605, Revenue Recognition, which comprised industry-specific rules-based guidelines.[5] Introducing a more principles-based five-step approach, ASC 606 requires firms to recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the firms expect to be entitled in exchange for those goods or services. The five steps are 1) identifying the contract with a customer, 2) identifying the separate performance obligations in the contract, 3) determining the transaction price, 4) allocating the transaction price to the separate performance obligations, and 5) recognizing revenue when each separate performance obligation is satisfied (FASB 2014).

[5] ASC 605 provided industry-specific guidelines for entities in the software industry, entities with construction-type or production-type contracts, and entities in the entertainment and financial services industries, among many others. Revenue under ASC 605 is recognized when it is realized or realizable and earned. In addition, ASC 605 provides guidance for (1) arrangements under which a vendor will provide multiple deliverables to a customer, (2) reporting revenue gross or net of certain amounts paid to others, (3) accounting for consideration given by a vendor to a customer, and (4) the use of the milestone method in arrangements that include research or development deliverables (Deloitte 2016).

Initially, under ASU 2014-09, ASC 606 was effective for publicly traded firms for fiscal years beginning after December 15, 2016. However, in August 2015, FASB deferred the effective date by one year in ASU 2015-14 to address concerns about implementation complexities (FASB 2015). Complexities arise from identifying detailed information from sales contracts with customers to comply with the five-step procedure. Anecdotal discussions with the affected firms reveal that firms may need to change their units for revenue recognition in their internal accounting systems if they previously did not collect distinct performance obligations from individual sales contracts (Sheffield 2017; Deloitte 2016). Reviewing all pending sales contracts to determine distinct performance obligations, designing a new automated information system to continue gathering distinct performance obligations from new contracts, and creating a new internal control system to verify the identified performance obligations are costly and time consuming. Expectedly, our collected adoption data from EDGAR show that only 30 listed firms voluntarily adopted ASC 606 early before 2018 (see Table 1, Panel C).[6]

Based on our reviews on accounting firms' reports and anecdotal discussions with practitioners, we summarize three major effects of ASC 606 on revenue recognition. First, ASC 606 requires firms to account for distinct performance obligations within a sales contract based on the estimated stand-alone selling prices (FASB 2014). If firms used less granular units than such performance obligations to recognize revenue before ASC 606, these firms would accelerate revenue recognition after adopting ASC 606 (Deloitte 2016; BDO 2017). For example, before ASC 606, a firm considered bundled sales of a mobile phone device and a two-year phone service as a single unit for revenue recognition. Under ASC 606, the firm identifies two performance

[6] Our collected adoption fiscal year data from Edgar is consistent with the observations from a consulting firm's report Centri (2019), available at https://centriconsulting.com/news/asc-606-implementation-services-observations-from-early-and-standard-adopters/.

obligations—the mobile device and the two-year service—and separately considers revenue recognition. When using finer units for recognizing revenue, firms accelerate recognition for physical goods upon deliveries without waiting until the end of the bundled service period.

Second, ASC 606 requires firms to estimate and recognize "variable consideration" revenue, previously prohibited under ASC 605 (FASB 2014; PwC 2017). The conceptual notion of variable consideration takes many forms across industries, such as price concessions, rebates, refunds, extra service costs, usage-based or volume-based charges (PwC 2017, BDO 2018).[7] Before ASC 606, firms could not recognize variable consideration revenue until uncertainty is resolved. After ASC 606, firms need to estimate and recognize the expected or most likely amount before uncertainty is fully resolved under the condition that the estimated amounts are unlikely to reverse later. Therefore, we expect that ASC 606 accelerates revenue recognition for firms contracting on variable considerations.

Third, ASC 606 unifies the "control transfer criteria" previously specified in various industry-specific guidelines (Marton and Wagenhofer 2010; Deloitte 2016). The ASC 606 control transfer criteria are, for example, customers receiving benefits as the seller performs services (e.g., annual gym memberships), partial control of the constructed asset transferred to customers (e.g., building constructed on the customer's land), or product or service having no alternative use other than its use by the customer (e.g., customized consulting service or machine). Such control transfer criteria impose a different threshold for firms previously using the percentage-of-completion method, which relies on estimated costs or output volume to recognize revenue (Dutta and Reichelstein 2005). Hence, firms using the percentage-of-completion method may delay their

[7] In a sample of 2,601 material sales contracts filed to the SEC from 2000-2020, no contracts mention "variable consideration."

revenue recognition after adopting ASC 606 if satisfying a performance obligation comes later than incurring costs or producing outputs.

Our study attempts to validate these anecdotal discussions about the impacts of ASC 606 on revenue recognition by documenting the first large-sample average effects. Such evidence informs existing and future accounting revenue users when they use revenue as inputs to their decisions.

2.2 Empirical Method

We develop an empirical method to capture revenue recognition based on the theoretical framework in Antle and Demski (1989) and Dutta and Zhang (2002). We define a firm's revenue generation cycle (process) as starting from acquiring supplies and labor to delivering goods or services to customers. The revenue generation cycle is influenced by both business fundamentals (e.g., demand, supply, and industry practices) and accounting choices (due to regulations and discretions.) According to the accrual accounting principle, revenue recognition is independent of the cash collection process. Therefore, we attempt to model the mapping from business fluctuations to the recognized revenues and remain silent on the cash collection process.

Existing theoretical models often assume that a firm's revenue-generating cycle spans two reporting periods (t and t+1), so accounting rules govern whether revenue is recognized in period t or t+1. Specifically, managers observe the realization of the stochastic business shock $\widetilde{\theta_t}$ before deciding production quantity q_t and the unit selling price p_t.[8] The accounting choice in period t, ω_t, governs how much a firm recognizes revenue in period t or t+1 with respect to the business shock $\widetilde{\theta_t}$ observed in period t:

[8] The stochastic business shock is a common assumption in accounting research whereby researchers acknowledge that non-accounting information, such as product market shocks, is timelier than the reported accounting information (Amir and Lev 1996; Trueman, Wong, and Zhang 2000; Liang 2000; Blankespoor, Hendricks, Piotroski, and Synn 2021).

$$Rev_{t\ or\ t+1} = \omega_t(p_t \cdot \widetilde{\theta_t} \cdot q_t) \quad (1)$$

$(p_t \cdot \widetilde{\theta_t} \cdot q_t)$ represents the dollar value of shipments or services delivered to customers during a revenue generating cycle that spans across periods t and t+1. The accounting rule, φ_t, dictates what fraction of the delivered value is to be recognized as revenue in period t, Rev_t, or period t+1, Rev_{t+1}. For example, accounting rules may require revenue recognition when the product is ordered by the customer, when the product is produced by the supplier, or when the product is delivered to the customer (Glover 2004; Biondi, Bloomfield, Glover, Jamal, Ohlson, Penman, and Tsujiyama 2011). For simplicity, we assume that managers cannot delay selling goods or services beyond period t+1 due to the perishable or rapidly obsolete nature of goods or services.[9] Therefore, business shock, $\widetilde{\theta_t}$, observed by the manager in period t leads to up to two periods' recognized revenues, Rev_t and Rev_{t+1}. Each reporting period includes two overlapping revenue-generating cycles. The reported revenue does not follow a random walk because revenue recognized in period t corresponds to two realized business shocks, $\widetilde{\theta_{t-1}}$ and $\widetilde{\theta_t}$.

We capture revenue recognition (ω_t) as the fraction of revenue recognized in period t+1, relative to period t, corresponding to the business shock $\widetilde{\theta_t}$. Since firm-specific business shocks privately observed by managers are unavailable to researchers, we use industry shocks that are ex-post publicly available, such as consumption data from the Bureau of Economic Analysis, and rely on IBISWorld to collect factors from public sources for five-digit NAICS industries from 2012-2019 (see the complete list in Appendix A). For example, a canned fruit and vegetable processing

[9] In a robustness analysis, we expand the revenue generation cycle to t+2 and find consistent results. For long-cycle firms, 126 cents of revenue are recognized in year t+1 per dollar of revenue recognized in the current year, and only 6 cents of revenue are recognized in year t+2 per dollar of revenue recognized in the current year. The minor magnitude of revenue recognized in t+2 is consistent with a small group of firms having a revenue-generating cycle longer than two years (see the list of industries frequently using the percentage of completion in Appendix C.) The more years specified in our empirical model, the more severe survivorship bias we impose. Therefore, our primary model includes only two reporting years, t and t+1.

firm's manager observes a shock to per capita consumption in 2015 and decides how many cans to produce. Depending on production lead time and customer lead time (McKinsey 2020), the firm recognized revenue in the 2015 income statement or the 2016 income statement corresponding to the 2015 industry shock.

Besides the advantage of observable to researchers, industry shocks are remote from individual member firms' control. Although firms could influence demand for their specific products, e.g., Hunt's or Heinz canned tomatoes, firms are unlikely to influence the overall industry demand, e.g., all Americans suddenly consuming more canned tomatoes. Therefore, industry shocks serve as an exogenous variable for researchers to capture the endogenously recognized revenue based on different accounting rules.[10] Even though industry shocks are driven by many endogenous determinants, industry shocks are exogenous to individual member firms.

We further assume that industry shocks are relevant for member firms' sales decisions. For example, Heinz cannot influence how much cans of vegetables all American consume, but Heinz still closely monitors the aggregate consumption to make production and sales decisions. If our industry primary factor is too coarse, compared to the multiple firm-specific factors privately observed by managers, we are unlikely to document any contemporaneous associations between the industry shock and the member firms' revenues.

The above discussions warrant the following validation tests. First, we examine whether industry shocks are indeed unexpected by member firms. Specifically, we expect an insignificant association between business shocks and revenue recognized prior to the shock's occurrence:

[10] The inability of a member firm to influence the overall industry shocks is based on the perfect competition assumption. In a robustness test, we partition our sample industries based on the Census Herfindahl–Hirschman index. Surprisingly, our results do not become weaker for highly concentrated industries where individual member firms could partially influence the industry shocks. Conditional on highly concentrated industries, before ASC 606, 146 cents of revenue are recognized in the next year per dollar of revenue recognized in the current year. After ASC 606, 45 cents of revenue are recognized in the next year per dollar of revenue recognized in the current year.

$$REV_{i,t-1} = \varphi_1 + \varphi_2 \cdot \theta_{j,t} + \varepsilon_{i,t-1} \quad (2)$$

When regressing the revenue recognized in period t-1, Rev_{t-1} on the business shock occurred in period t, $\widetilde{\theta_t}$, we expect an insignificant coefficient, φ_2, in Equation (2). The lack of association validates that our business shock proxy is indeed a surprise to managers and helps distinguish overlapping revenue-generating cycles included in a period's accounting revenue.

Next, we examine whether our business shock proxy is relevant for the member firms' revenue recognition:

$$REV_{i,t} = \varphi_3 + \varphi_4 \cdot \theta_{j,t} + \varepsilon_{i,t} \quad (3)$$

When regressing the revenue recognized in period t, Rev_t on the business shock occurred in period t, $\widetilde{\theta_t}$, we expect a significant coefficient, φ_4, in Equation (3). After managers observe the realized business shock, they make production and sales decisions accordingly. Based on the accounting rule in period t, ω_t in Equation (1), some revenue is recognized in period t.

Our assumption of the revenue generating cycle spanning two reporting periods (t and t+1) suggests a potentially significant association between $\widetilde{\theta_t}$ and the revenue recognized in period t+1, i.e., a significant coefficient, φ_6, in Equation (4) below:

$$REV_{i,t+1} = \varphi_5 + \varphi_6 \cdot \theta_{j,t} + \varepsilon_{i,t+1} \quad (4)$$

Equations (2)-(4) examine the separate relationships between business shocks and three consecutive periods of recognized revenues. Subsequently, we use a Seemingly Unrelated Regressions model (Zellner 1962) that adjusts for the correlations of error terms across Equations (2)-(4) to estimate the coefficients: φ_2, φ_4, and φ_6. The ratio of φ_6 to φ_4 presents the fraction of revenue recognized in period t+1, relative to period t, corresponding to the business shock $\widetilde{\theta_t}$.

Constrained by the annual frequency of our industry data, our empirical model is sensitive to whether a firm's revenue generation process is longer than one year. In a validation test, we

relax our assumption that a firm's revenue-generating cycle spans two reporting periods (t and t+1). In particular, we distinguish long-cycle firms whose revenue cycle spans more than one period from short-cycle firms whose revenue cycle completes in one period. Accordingly, we expect a significant coefficient on $REV_{i,t+1}$ for long-cycle firms but not short-cycle firms and the ratio of φ_6 to φ_4 is significantly greater for long-cycle firms than short-cycle firms.

Although the revenue-generating cycle or process is commonly discussed by researchers, standard setters, and consultants (e.g., SFAS No. 5; Antle and Demski 1989; Liang 2000; Dutta and Zhang 2002; Schipper, Schrand, Shevlin, and Wilks 2009; McKinsey 2020), a formal definition does not exist. The challenge lies in heterogeneity across sales projects. Since the project-level data are unavailable to researchers, we rely on industry memberships as a coarse proxy for the differential lengths of revenue-generating cycles.

According to McKinsey (2020), a long revenue-generating cycle relates to a long production or customer lead time. For example, NAICS 515 cable and TV network providers, NAICS 517 telecom carriers, and NAICS 518 data processing and hosting services providers often have long-term contracts with customers. Energy, real estate, and automobile supply chains are long (e.g., from extracting, refining, transporting fuels to gas stations). A long (global) production lead time slows firms' responses to demand shocks, as evidenced in the 2020 shortages due to COVID-related demand rebounds (Forbes 2021). We rely on business practices to identify a list of long-cycle industries in Appendix B and acknowledge the limitation of our coarse approximation. If we incorrectly classify short-cycle industries as long-cycle ones, we are unlikely to find supporting evidence for our hypothesis.

The fraction of revenue recognized in period t+1, relative to period t, corresponding to the business shock $\widetilde{\theta_t}$, could be influenced by changing business fundamentals $\widetilde{\theta_t}$ (e.g., demand,

supply, and industry practices) and accounting choices ω_t. The time-varying industry shocks proxy for heterogeneous revenue generation processes, i.e., $\widetilde{\theta_t}$. Unless business fundamentals suddenly shorten (extend) the revenue-generating cycles for most industries in 2018, we can attribute the acceleration (delay) in the mapping from industry shocks to revenue recognition to the adoption of ASC 606, i.e., ω_t.

Our empirical method is distinct from the common approaches in studies examining accounting standards. First, we do not make statistical assumptions about the revenue time-series, e.g., a random walk process, but rather rely on the realized industry shocks to measure revenue recognition.[11] We assume an annual revenue is a linear combination of up-to-two realized business shocks, $\widetilde{\theta_{t-1}}$ and $\widetilde{\theta_t}$, and do not specify the stochastic business fluctuation processes.

Second, we do not rely on deferred revenue to measure revenue recognition. In general, deferred revenue reflects two types of transactions: customers paying cash in advance and, less often, a contractual term leading to the recognition of accounts receivable and deferred revenue. Relying on deferred revenue to infer the revenue recognition process requires researchers to assume homogeneous payment schedules or contracting practices across years for a firm and across firms (if we sort firms into portfolios for estimation). Without large-sample non-accounting data sources to validate this assumption, results may be attributable to the heterogeneous payment schedules or contracting practices, rather than the accounting recognition choices.[12]

[11] In an alternate test, we regress revenue in year t on revenue in year t-1, assuming firm revenue follows a random walk process. We find a significant and positive coefficient for long-cycle firms but not for short-cycle firms. However, the positive relationship becomes negative during the post-period, potentially due to the modified retrospective transition method. When a firm adopts the modified retrospective method, pre-606 periods' revenues are not restated based on the new standard. Firms make one-time cumulative adjustments to retained earnings after adopting ASC 606 without restating historical revenue numbers. Therefore, during the post-period, the year t-1 revenue measured based on the old standard, ASC 605, is negatively correlated with the year t revenue measured based on the new standard, ASC 606.

[12] In untabulated analyses, we examine the relationship between revenue (recognized in the income statement) and deferred revenue (a liability in the balance sheet) before and after ASC 606. Inconsistent with our acceleration results, we find more revenues are deferred after the adoption of ASC 606. Specifically, the contemporaneous relationship

Third, we do not rely on cash collected from customers to infer the revenue recognition process for a similar reason. According to the accrual accounting principle, revenue recognition is independent of the cash collection process. The lead-lag relationship between cash flow and accrual revenue cannot easily disentangle three unobservable processes: business fundamentals, revenue recognition choices, and payment schedules.[13]

Fourth, we do not use firms' self-reported cumulative effects of ASC 606 for the following reasons. Cumulative adjustments to retained earnings reflect the differences between the old and the new accounting standards for a *partial* revenue-generating cycle, cutoff by the fiscal year or period end. In contrast, we aim to capture the differences between the old and the new accounting standards for a *complete* revenue-generating cycle. Consider a firm that signs a twelve-month contract with customers. The contract requires the firm to deliver a physical good at the end of the 6th month and provide services throughout the twelve months. The physical good accounts for 90 percent of the contract revenue, and services account for the remaining 10 percent.

Under the old standard, the firm considered the bundled sales as one unit for revenue recognition and recognized an equal amount of revenue throughout the twelve months, i.e., 8.3 percent of the contract revenue per month. Under the new standard, the firm is required to recognize 90 percent of the revenue upon delivery (at the end of the 6th month) and 10 percent of the service revenue over the twelve-month contract period, i.e., 0.83 percent per month. Therefore,

between revenue and deferred revenue becomes stronger after ASC 606. Moreover, the correlation between deferred revenue in year t-1 and revenue in year t becomes more significant after ASC 606.

[13] When replacing our industry shocks with firm-level cash received from customers, following the calculation in Zhang (2005), we find several irregularities. First, revenue recognized in year t-1 is significantly associated with the cash received from customers in year t for both long- and short-cycle firms and across the pre- and post-ASC 606 periods. Second, revenue recognized in year t+1 is positively and significantly associated with the cash received from customers in year t regardless of the length of revenue cycles. Third, revenue recognized in year t+1 becomes *negatively* and significantly associated with the cash received from customers in year t irrespective of the length of revenue cycles.

the firm recognizes 90.83 percent of the contract revenue in the 6th month and 0.83 percent of the contract revenue in the rest of the eleven months.

When comparing the two standards over a complete revenue-generating cycle (i.e., the entire twelve-month contract period, the new standard accelerates revenue recognition relative to the old standard. However, if the fiscal year (period) ends before the 6th month, the new standard seems to delay revenue recognition relative to the old standard because the new standard recognizes a smaller fraction of the contract revenue (0.83 percent per month) than the old standard (8.3 percent per month). Therefore, acceleration/delay inferences drawn from cumulative adjustments are not necessarily consistent with those drawn from our method that aims to capture the differences in accounting rules over a complete revenue-generating cycle.

3. Sample and Empirical Results

3.1 Sample Description

Many industry factors are ex-post available to researchers. We rely on IBISWorld industry analyst reports to identify industry primary factors from various public data sources, such as the National Weather Service, Bureau of Economic Analysis, Federal Bureau of Investigation, etc. IBISWorld is a leading industry research and consulting firm, which data have been used in academia, e.g., Amiram, Kalay, and Sadka (2017), and practice. We provide a complete list of these industry indicators for 329 five-digit NAICS industries in Appendix A. When IBISWorld has multiple sub-industries for a five-digit NAICS industry, we use IBISWorld sub-industries annual revenues, based on the Census data, as weights to calculate a weighted average industry factor for each five-digit NAICS industry. All industry factors come from publicly available data sources. Only the selection of a primary factor for an industry is based on IBISWorld analysts' proprietary knowledge.

Table 1, Panel A, describes our sample construction process. We start with 62,891 Compustat firms without missing total asset values (Compustat: AT) from fiscal years 2012-2020. We require non-missing total asset values because we use total assets to scale revenue across firms. Nearly two thousand non-US firm-years adopt IFRS rather than US GAAP. Only 8,282 US firm-years do not have industry factors from IBISWorld. Table 1, Panel B, further presents the annual comparison between IBISWorld's coverage and Compustat's coverage. IBISWorld covers 329 five-digit NAICS industries from 2012-2019, representing 86 percent of US firms in Compustat. The remaining 14 percent of Compustat firms have incomplete five-digit NAICS industry codes (43%), are classified as NAICS 99999 that is not defined by the US Census (25%), or belong to industries that are not covered by IBISWorld (32%). Therefore, researchers can use Appendix A to measure revenue recognition for the vast majority of Compustat firms.

We further restrict our sample to 26,812 firm-years affected by ASC 606, i.e., we delete firms that delisted before ASC 606's effective date. We collect firms' adoption fiscal year information from EDGAR filings during the summer of 2019, eighteen months after ASC 606 went effective. Table 1, Panel C, presents the number of firms by the ASC 606 adoption fiscal year-end month. Only 30 listed firms voluntarily adopted ASC 606 early in 2017.

We exclude 4,672 firm-years that do not have available revenue information (Compustat: REVT) in three consecutive years around an industry shock and remove 1,456 firms that do not have at least one year of revenue before ASC 606, i.e., requiring a constant sample. We further lose one year of data, 2012, after applying an AR(1) process to compute industry shocks (see Section 3.2). Lastly, we remove 3,520 financial institutions' firm-years based on the two-digit NAICS code 52. Our final sample includes 14,274 firm-years from 2013-2020, representing 2,226

distinct firms. Appendix A presents the breakdown of our sample firm-years by the five-digit NAICS industries.

3.2 Computating Industry Shocks

To address differential units and volatilities across industry factors (e.g., per capita fruit and vegetable consumption in pounds or average annual precipitation in inches), we standardize an industry factor's time series by the following transformation:

$$Standardized\ Industry\ Factor_{j,t} = \frac{Industry\ Factor_{j,t} - \mu_j}{\sigma_j} \quad (5)$$

where μ_j (σ_j) is the mean value (standard deviation) across years t for a five-digit NAICS industry j. This standardization process allows us to pool different industries' factors in a regression analysis.

We apply a negative sign to the following industry factors before the standardization because these factors are negatively correlated with revenue, e.g., substitutes or vacancy rates for properties: NAICS 11199, 22131, 23622A, 33621, 42411, 45321, and 53131.

As expected, consumer and other social behaviors persist over time. We run a time-series regression for each industry to gauge the serial correlation or autocorrelation of each standardized industry factor, following the model below:

$$SIF_{j,t} = \beta_{0,j} + \beta_{1,j} \cdot SIF_{j,t-1} + \varepsilon_j \quad (6)$$

where $SIF_{j,t}$ ($SIF_{j,t-1}$) is the standardized industry factor j from year t (t-1), based on the transformation in Equation (5). We estimate β_0 and β_1 for each industry j and report the cross-industry j distributions of the coefficient β_1 in Table 2, Panel A. Among 329 industries, the coefficient β_1 ranges from -0.43 to 1.31 with a mean value of 0.78, significantly different from zero (p-value<0.01).

After diagnosing the time-series properties of standardized industry factors, we propose an adjustment based on an AR(1) process as follows:

$$\theta_{j,t} = SIF_{j,t} - \widehat{\beta_{0,J}} - \widehat{\beta_{1,J}} \cdot SIF_{j,t-1} \quad (7)$$

where $\widehat{\beta_{0,J}}$ and $\widehat{\beta_{1,J}}$ are estimated from the industry time-series regression in Equation (6). After this adjustment, Table 2, Panel A, presents the serial correlation or autocorrelation of the adjusted standardized industry indicator, $\theta_{j,t}$, denoted as industry shocks. Specifically, the serial correlation is captured by the slope coefficient from the industry time-series regression:

$$\theta_{j,t} = \alpha_{0,j} + \alpha_{1,j} \cdot \theta_{j,t-1} + \varepsilon_j \quad (8)$$

where $\theta_{j,t}$ and $\theta_{j,t-1}$ are industry shocks for years t and t-1 respectively, adjusted based on an AR(1) process in Equation (7). In Table 2, Panel A, the cross-industry j distribution of the coefficient α_1 ranges from zero to zero with a mean value of zero, insignificantly different from zero (p-value=0.55). The close to zero serial correlation of industry shocks across all 329 sample industries suggests these shocks are plausible surprises to industry member firms.

Lastly, we report the serial correlation of 3,075 distinct member firms' annual revenue for completion. To address differential firm sizes, we deflate firm i's annual revenue (Compustat: REVT) in fiscal year t by the firm's previous fiscal year's total assets (Compustat: AT). We further winsorize the scaled revenue at the 1st and 99th percentile in each fiscal year to avoid potential Compustat data input errors. Table 2, Panel A, presents the serial correlation or autocorrelation of the winsorized scaled annual revenue, $REV_{i,t}$, based on the firm-level time-series regression:

$$REV_{i,t} = \gamma_{0,i} + \gamma_{1,i} \cdot REV_{i,t-1} + \varepsilon_i \quad (9)$$

We further winsorize $\gamma_{1,i}$ at the 1st and 99th percentile due to some firms' lack of time-series data. In Table 2, Panel A, the cross-firm i distribution of the coefficient γ_1 ranges from -1.13 to 2.84 with a mean value of 0.36, significantly different from zero (p-value=0.14). We do not

attempt to adjust for the serial correlation of revenue because our study aims to capture the endogenous fraction of revenue recognized in the next period, relative to the current period, corresponding to the industry shock.

3.3 Variable Distributions

We report the distributions of variables used in our analysis in Table 2, Panel B. Based on the final sample of 14,274 firm-years, firm revenue, $REV_{i,t}$, scaled by lagged total assets and winsorized at the 1st and 99th percentile in each fiscal year, has a mean value of 0.97, an interquartile ranging from 0.44 to 1.28, and a standard deviation of 0.76, consistent with prior studies (e.g., Zhang 2005; Srivastava 2014a). Industry shocks, $\theta_{j,t}$, based on an AR(1) adjustment in Equation (7), have a mean value of 0.01, a symmetric interquartile ranging from -0.12 to 0.13, and a standard deviation of 0.37, suggesting sufficient variations for the power of tests.

Based on the industry list in Appendix B, 27 percent of firm-years are classified as having a long revenue generating cycle and the remaining 73 percent as having a short cycle (captured by the dichotomous variable LONG.) Based on the collected adoption fiscal year data from EDGAR (see Table 1, Panel C), 28 percent of firm-years are classified as the post ASC 606 regime and the remaining 72 percent as the pre regime (captured by the dichotomous variable POST). Based on the industry list in Appendix C, 3 percent of firm-years are classified as frequently using the percentage-of-completion method, or 9 percent of long-cycle firms, i.e., conditional on LONG equal to one. Appendix D provides detailed variable definitions and data sources.

3.4 Validating the Revenue Recognition Method

Table 3 examines Equations (2)-(4) in Panels A-C using separate Ordinary Least Squares (OLS) regressions and presents the results from a Seemingly Unrelated Regressions (SUR) model in Panel D. In OLS regressions, we include fiscal year and firm fixed effects to capture

unobservable omitted correlated variables other than our industry shock proxies and cluster standard errors based on five-digit NAICS industry codes because our shocks are measured at the same industry level. In the SUR regression, we subtract the firm's long-run average and the annual average from each variable, analogous to firm and year fixed effects in the OLS regressions. SUR regression adjusts for the correlations among the error terms across Equations (2)-(4), a finer level than the industry clustering in the OLS regressions.

Four panels share the same columnar structure as follows: Model (1) is based on the sample of 14,274 firm-years excluding financial services and firms' primary industries' shocks from 2013-2019. Model (2) adds 1,791 financial services, except for commercial banks[14], to Model (1)'s sample. Model (3) replaces Model (1)'s primary industry shocks with segment industry weighted-average shocks using segment revenues as weights. Model (4) restricts Model (1)'s sample to only the firms whose fiscal years ended in December. Model (5) restricts Model (1)'s industry shocks to the period ended in 2019, so the Pandemic 2020 year's revenue is not examined.

Table 3, Panel A, Model (1) presents an insignificant association between the industry shock in year t, $\widetilde{\theta_t}$, and the revenue recognized in year t-1, Rev_{t-1} (p-value=0.88 for the coefficient φ_2.) The lack of association validates that our industry shock proxy is indeed a surprise to managers and industry shocks help distinguish overlapping revenue cycles included in a fiscal year's reported revenue. The high R^2, 0.86, is attributable to the year and firm fixed effects.

Based on the same sample and the empirical model in Equation (3), Table 3, Panel B, Model (1) presents a significant association between the industry shock in year t, $\widetilde{\theta_t}$, and the revenue recognized in year t, Rev_t (p-value=0.01 for the coefficient φ_4.) The significant result suggests that industry shocks based on IBISWorld reports are relevant for member firms' revenue

[14] We do not use the IBISWorld industry factor, the prime rate, for commercial banks (NAICS 52211) because commercial banks' interest revenue is likely driven by many factors other than the prime rate.

recognition. Furthermore, Table 3, Panel C, Model (1) presents a significant association between the industry shock in year t, $\widetilde{\theta_t}$, and the revenue recognized in year t+1, Rev_{t+1} (p-value=0.04 for the coefficient φ_6.) The significant yet weaker relationship is consistent with only some firms' revenue cycles extend beyond one year.

Panels A-C examine the separate relationships between industry shocks and three surrounding periods of recognized revenues. To gauge the relative relationships, we use a Seemingly Unrelated Regressions model to estimate three equations simultaneously and present the coefficients on Rev_{t-1}, Rev_t, and Rev_{t+1} in Panel D. Consistent with results in Panels A-C, we continue to document an insignificant association between the industry shock in year t, $\widetilde{\theta_t}$, and the revenue recognized in year t-1, Rev_{t-1} (p-value=0.57 for the coefficient φ_2 in Panel D, Model 1), a significant association between the industry shock in year t, $\widetilde{\theta_t}$, and the revenue recognized in year t, Rev_t (p-value<0.001 for the coefficient φ_4 in Panel D, Model 1), and a significant association between the industry shock in year t, $\widetilde{\theta_t}$, and the revenue recognized in year t+1, Rev_{t+1} (p-value<0.001 for the coefficient φ_6 in Panel D, Model 1), suggesting that our industry shocks are relevant for member firms' revenue recognition. The McElroys R^2 from the SUR model is much lower than the OLS R^2 statistics in Panels A-C because OLS R^2 reflect fixed effects but McElroys R^2 does not.

We use the ratio of the coefficient φ_6 to the coefficient φ_4 to capture how much revenue is recognized in year t+1 per dollar of revenue recognized in year t, corresponding to the industry shock in year t . Across five models in Panel D based on different samples and ways to measure shocks, we find that, on average, 72-87 cents of revenue are recognized in the next year per dollar of revenue recognized in the current year during the period from 2013-2020. The mean value and the standard deviation of the ratio of the coefficient φ_6 to the coefficient φ_4 across five estimates

in Panel D are 0.81 and 0.06. Put differently, an average firm's revenue cycle is 21.7 months, calculated as 12 months×(1+0.81). The three-standard-deviation around the mean ranges from 19.5 months to 24.0 months.

We further validate our method by separating firms into long and short revenue-generating cycles. Constrained by the annual frequency of industry factors, we expect that our industry shocks are sensitive to firms' revenue generating cycles shorter or longer than one year. Table 4 examines the same SUR model and shares the same columnar structure as those in Table 3, Panel D for two sub-samples: firms with a revenue cycle longer than a year (Long) and firms with a revenue cycle completing within a year (Short), based on the industry membership in Appendix B.

Consistent with our hypothesis, we find a significant association between shocks occurred in year t and revenues recognized in year t+1 for long-cycle firms (p-value<0.001 for the coefficient φ_6 in Table 4, Models with an odd number) but an insignificant association for short-cycle firms (Table 4, Models with an even number.) Consistent with the full-sample results, we continue to document an insignificant association between the industry shock in year t, $\widetilde{\theta_t}$, and the revenue recognized in year t-1, Rev_{t-1} and a significant association between the industry shock in year t, $\widetilde{\theta_t}$, and the revenue recognized in year t, Rev_t across long- and short-cycle firms.

For long-cycle firms, 98-129 cents of revenue are recognized in the next year per dollar of revenue recognized in the current year during the period from 2013-2020. The mean value and the standard deviation of the ratio of the coefficient φ_6 to the coefficient φ_4 across five estimates in Table 4, Models with an odd number, are 1.17 and 0.13. Put differently, an average firm's revenue cycle is 26.1 months, and the three-standard-deviation around the mean ranges from 21.2 months to 30.9 months. For short-cycle firms, 17-57 cents of revenue are recognized in the next year per dollar of revenue recognized in the current year during the period from 2013-2020. The mean value

and the standard deviation across five estimates in Table 4, Models with an even number, are 0.29 and 0.16. Put differently, an average firm's revenue cycle is 15.5 months, and the three-standard-deviation around the mean ranges from 9.7 months to 21.3 months. The estimates for long-cycle firms are significantly greater than those for short-cycle firms (p-value<0.01). Overall, the series of validation tests enable us to use the revenue recognition method to examine the effects of ASC 606.

3.5 Documenting the Effects of ASC 606

Table 5 documents the average effect of ASC 606 and shares the same SUR model and a similar columnar structure as those in Table 3, Panel D for two sub-periods: a pre-ASC 606 period and a post-ASC 606 period, based on firms' adoption fiscal year information from EDGAR (see Table 1, Panel C). Across five tests with different samples or ways to capture industry shocks, we consistently find an acceleration in revenue recognition after the adoption of ASC 606.

Before the adoption of ASC 606, 91-109 cents of revenue are recognized in the next year per dollar of revenue recognized in the current year during the period from 2013-2017. The mean value and the standard deviation of the ratio of the coefficient φ_6 to the coefficient φ_4 across five estimates in Table 5, Models with an odd number, are 1.00 and 0.09. Put differently, an average firm's revenue cycle is 24.0 months, and the three-standard-deviation around the mean ranges from 20.9 months to 27.2 months.

After the adoption of ASC 606, 33-73 cents of revenue are recognized in the next year per dollar of revenue recognized in the current year during the period from 2018-2020. The mean value and the standard deviation of the ratio of the coefficient φ_6 to the coefficient φ_4 across five estimates in Table 4, Models with an even number, are 0.56 and 0.16. Put differently, an average firm's revenue cycle is 18.7 months, and the three-standard-deviation around the mean ranges from

12.8 months to 24.6 months. The estimates for the post-period are significantly smaller than those for the pre-period (p-value<0.01), suggesting an acceleration in revenue recognition after ASC 606.

Consistent with the full-sample results, we continue to document a significant association between the industry shock in year t, $\widetilde{\theta_t}$, and the revenue recognized in year t, Rev_t across pre- and post-periods. However, the insignificant association between the industry shock in year t, $\widetilde{\theta_t}$, and the revenue recognized in year t-1, Rev_{t-1} becomes significant during the post-period, potentially due to the modified retrospective transition method. When a firm adopts the modified retrospective method, pre-606 periods' revenues are not restated based on the new standard. Firms make one-time cumulative adjustments to retained earnings after adopting ASC 606 without restating historical revenue numbers.

To shed light on the heterogeneous effects of ASC 606, we separate sample firms into long and short revenue generating cycles, based on the industry membership in Appendix B. Table 6 examines the same SUR model as in Table 3, Panel D for the two-by-two subsamples: Long-cycle firms' pre and post ASC 606 regimes and short-cycle firms' pre and post ASC 606 regimes. Models (1)-(4) are based on the sample of 14,274 firm-years excluding financial services and firms' primary industries' shocks from 2013-2019. Models (5)-(8) add 1,791 financial services, except for commercial banks. Models (9)-(12) replace primary industry shocks with segment industry weighted-average shocks using segment revenues as weights. Models (13)-(16) restrict samples to only firms whose fiscal years ended in December. Models (17)-(20) restrict shocks to the period ended in 2019, so the Pandemic 2020 year's revenue is not examined. Each set of models represent: a pre-ASC 606 period for long cycle firms, a post-ASC 606 period for long cycle firms, a pre-ASC 606 period for short cycle firms, and a post-ASC 606 period for short cycle firms.

For long-cycle firms, during the pre-period, 112-167 cents of revenue are recognized in the next year per dollar of revenue recognized in the current year during the period from 2013-2017, and during the post-period, up to 55 cents of revenue are recognized in the next year per dollar of revenue recognized in the current year during the period from 2018-2020. The mean value and the standard deviation of the ratio of the coefficient φ_6 to the coefficient φ_4 across three estimates for long-cycle firms' pre-period (post-period) are 1.40 and 0.21 (0.23 and 0.27). Put differently, long-cycle firms' revenue cycle significantly shortens from 28.8 months to 14.7 months (p-value<0.01).

For short-cycle firms, during the pre-period, 55-60 cents of revenue are recognized in the next year per dollar of revenue recognized in the current year during the period from 2013-2017, and during the post-period, 32-78 cents of revenue are recognized in the next year per dollar of revenue recognized in the current year during the period from 2018-2020. The mean value and the standard deviation of the ratio of the coefficient φ_6 to the coefficient φ_4 across three estimates for long-cycle firms' pre-period (post-period) are 0.59 and 0.02 (0.64 and 0.19). In particular, short-cycle firms' revenue cycle insignificantly shortens from 19.6 months to 19.1 months (p-value=0.30).

We further exploit the heterogeneous effects of ASC 606 among long-cycle firms. Specifically, we examine whether long-cycle firms frequently using the percentage-of-completion (POC) method experience differential effects from other long-cycle firms. We rely on business practices to identify construction and transportation equipment building industries as frequent POC users (see a complete list in Appendix C). We separate 3,848 long-cycle firm-years into 364 POC observations and 3,484 non-POC observations. Due to a small sample of only 96 POC firm-years during the post-606 period, we fail to document any significant differences in the effects of ASC

606 between POC and non-POC firms. Future research could re-examine this hypothesis as more years of data from the post-ASC 606 period become available.

Overall, we document robust evidence of accelerated revenue recognition after the adoption of ASC 606. We also find more pronounced acceleration for firms with a long revenue generating cycle.

3.6 Increasing Use of ASC 606 Jargon in Sales Contracts

ASC 606 changes revenue recognition's conceptual basis from revenue generating process (e.g., realizable and earned criteria) to a customer contract performance obligation approach (Schipper, Schrand, Shevlin, and Wilks 2009). The new contract-oriented rule is consistent with 78 percent of respondents ranking contract reviews as the most challenging task when implementing ASC 606 due to heterogeneous contractual terms (PwC 2017; Forbes 2017). Our anecdotal discussions with practitioners further reveal that firms modify their sales contracts to ease their implementations of ASC 606.

To examine this hypothesis, we identify all Exhibit 10 material contracts attached to any SEC filings from EDGAR from 2014-2020. Then we delete a contract in which the first 500 words contain at least one of the following terms: stock, employment, employee, incentive plan, change in control, pension, compensation plan, compensation policy, loan, debt, collateral, guarantee, debenture, borrower, lender, bond, bank, investor, lease, or rent, because these terms pertain to compensation, financing, or leasing contracts. Next, we manually review the remaining material contracts and identify nearly 2,000 sales contracts. After we merge the identified sales contracts with our sample firms and require a firm to have at least one contract during the pre-ASC 606 period and at least one contract during the post-ASC 606 period, i.e., a constant sample, our final sample includes 758 material sales contracts by 109 distinct firms.

We caution that our sample construction is highly selective because only contracts exceeding the securities laws' materiality threshold are required to be filed to the SEC. The constant sample requirement further imposes survivorship biases. For example, more than half of the 109 distinct firms are in NAICS 32541 pharmaceutical and medicine manufacturing industry, prohibiting us from using industry shocks to exploit differential revenue recognition processes.[15] Therefore, we view this sales contract analysis as an imperfect approach to examine whether firms modify their contracting practices in the wake of accounting measurement rule changes.

We use two proxies to capture whether firms modify sales contracts with customers to ease their implementations of ASC 606. First, for each contract, we compute cosine similarity with the text of ASC 606's five-step procedure (ASU 2014-09). We use a bigram or a trigram as our unit to calculate cosine similarity because ASC 606 jargon contain more than one word, such as performance obligation or standalone selling price. We choose the TFIDF weighting function due to its simplicity and popularity (Brown and Tucker, 2011). We multiply cosine similarity by 100 because of its low values and report its distribution in Table 2, Panel B. Cosine similarity has a mean value of 0.33, an interquartile ranging from 0.02 to 0.41, and a standard deviation of 0.44, suggesting sufficient variations for the power of tests.

Our second proxy is the frequency of the following ASC 606 jargon appearing in each contract: rights, obligations, commercial substance, performance obligation, probable, collectib, at a point in time, over time, variable consideration, noncash consideration, transaction price, and standalone selling price. We scale the frequency of ASC 606 jargon by the total words in each contract, named ASC 606 Jargon, and report the distribution across 758 sample contracts in Table

[15] The incomplete sample of sales contracts prevents us from examining more sophisticated hypothesis on contracting behavior based on cross-contract or cross-sectional analyses.

2, Panel B. ASC 606 Jargon has a mean value of 0.23, an interquartile ranging from 0.00 to 0.23, and a standard deviation of 0.31, suggesting sufficient variations for the power of tests.

We conduct the following regression model:

$$Cosine/Jargon_k = \tau_0 + \tau_1 \cdot Time_t + \sum \tau_{2,l} \cdot Control_{l,k} + \varepsilon_k \quad (10)$$

For each contract k, we calculate Cosine Similarity or the frequency of ASC 606 Jargon as the dependent variable. The variable of interest is $Time_t$ that equals one for 2014, two for 2015, etc. We expect a positive and significant coefficient τ_1 as evidence of the increasing use of ASC 606 jargon in sales contracts. We further include commonly used textual measures from each contract k to capture differential information content: Length is the number of words in a sales contract and transformed by a log function. Readability is based on the Gunning (1952) FOG Index and multiplied by a negative sign, so a higher value refers to more readable contracts. Specificity is the fraction of words overlapping with specific terms, e.g., locations, organizations, persons, money, percentages, times, dates, in the Stanford Named Entity Recognizer. Forward-looking is the fraction of sentences containing forward-looking terms (Muslu, Radhakrishnan, Subramanyam, and Lim 2015; Bozanic, Roulstone, and Van Buskirk, 2018). Uncertainty is the fraction of words overlapping with the uncertain terms in the Loughran and McDonald database. Tone is the number of positive words minus the number of negative words, divided by the total number of words, and Redaction is the frequency of redaction keywords (e.g., 24b, confidential treatment, ct order, redact, rule 406) deflated by total words. These textual control variables attempt to address the heterogeneity issue across sales contracts. Table 2, Panel B, reports the distributions of these variables.

Table 7 presents the regression results based on Equation (11). Models (1) and (2) examine cosine similarity and Models (3) and (4) examine the frequency of ASC 606 jargon. The unit of

analysis in Models (1) and (3) is at the contract level. The unit of analysis in Models (2) and (4) is at the firm-year level whereby we use total words as weights to aggregate contracts within a firm-year. Across the four models, we document a positive and significant coefficient τ_1 on $Time_t$, suggesting that these sample firms modify their sales contracts with customers to ease their implementations of ASC 606. Our results highlight that ASC 606 affects not only revenue recognition in financial statements but also firms' contracting practices with customers.

4. Conclusion

Our study highlights the endogenous nature of revenue recognition due to different accounting measurement rules. Managers use revenue to evaluate cost structures and make capital investment decisions. Capital providers use revenue to project future profitability, return to investments, and the likelihood of insolvency. Economists and regulators use revenue to gauge economic conditions and design policies. Our quantified acceleration in revenue recognition due to ASC 606 provides implications for various users of US GAAP revenue.

Our revenue recognition methodology further helps researchers break the circular loop in various analyses. For example, researchers use the revenue to estimate the matched costs/expenses, the expected earnings, accruals, or capital investments, but acknowledge that revenue is the most frequently manipulated line item in the financial statements according to SEC enforcement actions. Our time-varying shocks for 329 distinct industries enables researchers to identify the baseline model better and quantify the magnitude of opportunistic behavior, addressing the concern raised by Ball (2013).

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Appendix A IBISWorld Industry Factors and Sample Firm-Years Distribution

Compustat NAICS	IBISWorld NAICS	Industry Name	Industry Factor	Firm-Years
11199	11199	Hay & Crop Farming	Price of corn ($ per bushel)	7
11231	11231	Chicken Egg Production	Per capita egg consumption (pounds)	7
21211	21211	Coal Mining	World price of steaming coal ($ per metric ton)	31
21222	21222	Gold & Silver Ore Mining	Price of gold ($ per ounce)	56
21223	21223	Copper, Nickel, Lead & Zinc Mining	World price of copper ($ per ton)	21
21229	21229	Molybdenum & Metal Ore Mining	Price of molybdenum ($ per kilogram)	9
21231	21231	Stone Mining	Value of construction ($ million)	25
21232	21232	Sand & Gravel Mining	Sand and gravel production (million metric tons)	17
21239	21239	Mineral & Phosphate Mining	Industrial production index	20
21311	21311	Oil & Gas Field Services	World price of crude oil ($ per barrel)	192
22111	22111A	Coal & Natural Gas Power	Coal and natural gas power generation (billion kilowatt hours)	
22111	22111B	Nuclear Power	Nuclear power generation (million kilowatt hours)	182
22111	22111C	Hydroelectric Power	Hydropower generation (cents)	
22111	22111D	Wind Power	Wind power generation (million kilowatt hours)	
22111	22111E	Solar Power	Electric power consumption (billion kilowatt hours)	
22121	22121	Natural Gas Distribution	Henry Hub natural gas price ($ per MMBtu)	101
22131	22131	Water Supply & Irrigation Systems	Average annual precipitation (inches)	82
23611	23611A	Home Builders	Housing starts (thousands)	
23611	23611B	Apartment & Condominium Construction	Multi-unit housing starts (thousands)	107
23611	23611C	Housing Developers	Housing starts (thousands)	
23611	23611D	Remodeling	Private spending on home improvements ($ billion)	
23622	23622A	Commercial Building Construction	Office rental vacancy rate (%)	14
23622	23622B	Municipal Building Construction	Local and state government investment growth (%)	
23711	23711	Water & Sewer Line Construction	Value of utilities construction ($ billion)	7
23712	23712	Oil & Gas Pipeline Construction	World price of crude oil ($ per barrel)	28
23713	23713	Transmission Line Construction	Value of utilities construction ($ million)	27
23721	23721	Land Development	Housing starts (thousands)	42
23731	23731A	Road & Highway Construction	Government funding for highways ($ billion)	14
23731	23731B	Bridge & Elevated Highway Construction	Government funding for highways ($ billion)	
23799	23799	Heavy Engineering Construction	Federal funding for transportation ($ billion)	21
23821	23821	Electricians	Value of private non-residential construction ($ million)	21
23822	23822A	Heating & Air-Conditioning Contractors	Housing starts (thousands)	7
23822	23822B	Plumbers	Housing starts (thousands)	
23831	23831	Drywall & Insulation Installers	Housing starts (thousands)	8
31111	31111	Animal Food Production	Agricultural price index	5
31121	31121	Flour Milling	World price of wheat ($ per ton)	7
31122	31122	Margarine & Cooking Oil Processing	Price of oilseed ($ per hundredweight cwt)	14
31123	31123	Cereal Production	Price of coarse grains (index)	14
31134	31134	Candy Production	Price of sugar (cents per pound)	7
31135	31135	Chocolate Production	World price of cocoa ($ per kilogram)	7
31141	31141	Frozen Food Production	Per capita disposable income ($)	3
31142	31142	Canned Fruit & Vegetable Processing	Per capita fruit and vegetable consumption (pounds lb)	54
31151	31151	Dairy Product Production	Price of milk (billion pounds)	13
31161	31161	Meat, Beef & Poultry Processing	Per capita meat consumption (pounds lb)	42
31171	31171	Seafood Preparation	Per capita disposable income ($)	3
31181	31181	Bread Production	Per capita wheat flour consumption (pounds lb)	14
31182	31182	Cookie, Cracker & Pasta Production	Per capita wheat flour consumption (pounds lb)	7
31191	31191	Snack Food Production	Per capita disposable income ($)	7
31192	31192A	Coffee Production	World price of coffee (cents per pound (lb))	7
31192	31192B	Tea Production	Per capita tea consumption ($ million)	
31194	31194	Seasoning, Sauce and Condiment Production	Agricultural price index	14
31199	31199	Baking Mix & Prepared Food Production	World price of sugar (index)	21
31211	31211A	Soda Production	Per capita soft drink consumption (gallons)	
31211	31211B	Bottled Water Production	Per capita disposable income ($)	77
31211	31211C	Juice Production	Per capita fruit and vegetable consumption (pounds lb)	

Appendix A IBISWorld Industry Factors and Sample Firm-Years Distribution (Cont.)

Compustat NAICS	IBISWorld NAICS	Industry Name	Industry Factor	Firm-Years
31212	31212	Breweries	Per capita expenditure on alcohol ($)	27
31213	31213	Wineries	Per capita expenditure on alcohol ($)	7
31214	31214	Distilleries	Per capita expenditure on alcohol ($)	17
31411	31411	Carpet Mills	Housing starts (thousands)	21
31522	31522	Men's & Boys' Apparel Manufacturing	Import penetration into the manufacturing sector (%)	7
31524	31524	Women's, Girls' and Infants' Apparel Manufacturing	Trade-weighted index	7
31621	31621	Shoe & Footwear Manufacturing	Trade-weighted index	42
32111	32111	Sawmills & Wood Production	Private spending on home improvements ($ billion)	7
32121	32121	Wood Paneling Manufacturing	Housing starts (thousands)	14
32191	32191	Millwork	Housing starts (thousands)	10
32199	32199A	Prefabricated Home Manufacturing	House price index	21
32199	32199B	Wood Product Manufacturing	Housing starts (thousands)	
32211	32211	Wood Pulp Mills	World price of wood pulp ($ per ton)	7
32212	32212	Paper Mills	Price of paper (index)	56
32213	32213	Paperboard Mills	World price of wood pulp ($ per metric ton)	7
32221	32221	Cardboard Box & Container Manufacturing	Industrial production index	35
32222	32222	Coated & Laminated Paper Manufacturing	Price of paper (index)	18
32229	32229A	Sanitary Paper Product Manufacturing	Number of births (units)	7
32229	32229B	Paper Product Manufacturing	Consumer spending ($ billion)	
32311	32311	Printing	Print advertising expenditure ($ billion)	44
32411	32411	Petroleum Refining	World price of crude oil ($ per barrel)	77
32412	32412	Asphalt Manufacturing	Government funding for highways ($ billion)	7
32419	32419	Lubricant Oil Manufacturing	World price of crude oil ($ per barrel)	24
32512	32512	Oxygen & Hydrogen Gas Manufacturing	Industrial production index	14
32513	32513	Dye & Pigment Manufacturing	Industrial production index	26
32518	32518	Inorganic Chemical Manufacturing	Price of electric power (index)	75
32519	32519	Organic Chemical Manufacturing	Industrial production index	98
32521	32521	Plastic & Resin Manufacturing	World price of crude oil ($ per barrel)	39
32522	32522	Synthetic Fiber Manufacturing	Price of synthetic fiber (index)	10
32531	32531	Fertilizer Manufacturing	Demand from crop production ($ million)	7
32532	32532	Pesticide Manufacturing	Oil and natural gas price index	28
32541	32541A	Brand Name Pharmaceutical Manufacturing	Total health expenditure ($ trillion)	
32541	32541B	Generic Pharmaceutical Manufacturing	Total health expenditure ($ trillion)	1862
32541	32541D	Vitamin & Supplement Manufacturing	Consumer spending ($ billion)	
32551	32551	Paint Manufacturing	World price of crude oil ($ per barrel)	26
32552	32552	Adhesive Manufacturing	Price of resin (index)	21
32561	32561	Soap & Cleaning Compound Manufacturing	Number of households (million)	56
32562	32562	Cosmetic & Beauty Products Manufacturing	Per capita disposable income ($)	37
32599	32599	Chemical Product Manufacturing	World price of crude oil ($ per barrel)	35
32611	32611	Plastic Film, Sheet & Bag Manufacturing	Domestic price of plastic resin (index)	28
32612	32612	Plastic Pipe & Parts Manufacturing	Value of construction ($ million)	5
32614	32614	Polystyrene Foam Manufacturing	Consumer spending ($ billion)	7
32615	32615	Urethane Foam Manufacturing	Demand from furniture manufacturing ($ million)	5
32619	32619	Plastic Products Miscellaneous Manufacturing	Price of plastic resin (index)	41
32621	32621	Tire Manufacturing	World price of rubber (cents per pound lb)	21
32629	32629	Rubber Product Manufacturing	World price of rubber (cents per pound lb)	21
32712	32712	Clay Brick & Product Manufacturing	Industrial production index (thousands)	14
32721	32721	Glass Product Manufacturing	Consumer confidence index	19
32732	32732	Ready-Mix Concrete Manufacturing	Price of cement ($ per ton)	14
32733	32733	Concrete Pipe & Block Manufacturing	Housing starts (thousands)	3
32742	32742	Gypsum Product Manufacturing	Housing starts (thousands)	7
32799	32799	Mineral Product Manufacturing	Housing starts (thousands)	41
33111	33111	Iron & Steel Manufacturing	Price of steel (index)	77
33121	33121	Metal Pipe & Tube Manufacturing	Price of steel (index)	14

Appendix A IBISWorld Industry Factors and Sample Firm-Years Distribution (Cont.)

Compustat NAICS	IBISWorld NAICS	Industry Name	Industry Factor	Firm-Years
33122	33122	Steel Rolling & Drawing	World price of steel (index)	21
33131	33131	Aluminum Manufacturing	World price of aluminum ($ per ton)	21
33141	33141	Nonferrous Metal Refining	World price of copper ($ per metric ton)	14
33142	33142	Copper Rolling, Drawing & Extruding	World price of copper ($ per metric ton)	14
33149	33149	Nonferrous Metal Rolling & Alloying	Price of nonferrous metals (index)	7
33211	33211	Metal Stamping & Forging	Industrial production index	14
33221	33221	Hand Tool & Cutlery Manufacturing	Number of households (million)	42
33231	33231	Structural Metal Product Manufacturing	World price of steel (index)	21
33232	33232	Sheet Metal, Window & Door Manufacturing	World price of aluminum ($ per ton)	27
33241	33241	Boiler & Heat Exchanger Manufacturing	World price of steel (index)	7
33243	33243	Metal Can & Container Manufacturing	World price of aluminum ($ per ton)	21
33251	33251	Hardware Manufacturing	Value of residential construction ($ billion)	34
33261	33261	Wire & Spring Manufacturing	World price of steel (index)	14
33272	33272	Screw, Nut & Bolt Manufacturing	Industrial production index	7
33291	33291	Valve Manufacturing	Industrial production index	73
33299	33299A	Guns & Ammunition Manufacturing	Federal funding for defense ($ billion)	75
33299	33299B	Ball Bearing Manufacturing	Industrial production index	
33311	33311	Tractors & Agricultural Machinery Manufacturing	Agricultural price index	47
33312	33312	Construction Machinery Manufacturing	World price of steel ($ million)	21
33313	33313	Mining, Oil & Gas Machinery Manufacturing	Price of steel (index)	66
33331	33331	Copier & Optical Machinery Manufacturing	Aggregate private investment ($ billion)	144
33341	33341	Heating & Air Conditioning Equipment Manufacturing	Value of private non-residential construction ($ billion)	69
33351	33351	Metalworking Machinery Manufacturing	World price of steel (index)	7
33361	33361A	Engine & Turbine Manufacturing	Electric power consumption (billion kilowatt hours)	55
33361	33361B	Wind Turbine Manufacturing	Electric power consumption (billion kilowatt hours)	
33391	33391	Pump & Compressor Manufacturing	Trade-weighted index	56
33392	33392	Forklift & Conveyor Manufacturing	Industrial production index (index)	35
33399	33399	Power Tools & Other General Purpose Machinery Manufacturing	Trade-weighted index	68
33411	33411A	Computer Manufacturing	Percentage of households with at least one computer (index)	182
33411	33411B	Computer Peripheral Manufacturing	Consumer confidence index	
33421	33421	Telecommunication Networking Equipment Manufacturing	Percentage of Services Conducted Online (million)	102
33422	33422	Communication Equipment Manufacturing	Number of mobile internet connections (million)	190
33429	33429	Alarm, Horn & Traffic Control Equipment Manufacturing	Trade-weighted index ($ billion)	28
33431	33431	Audio & Video Equipment Manufacturing	Consumer price index	56
33441	33441A	Semiconductor & Circuit Manufacturing	Private investment in computers and software ($ billion)	
33441	33441B	Circuit Board & Electronic Component Manufacturing	Electric power consumption (index)	727
33441	33441C	Solar Panel Manufacturing	Electric power consumption (index)	
33451	33451A	Navigational Instrument Manufacturing	Research & development expenditure ($ billion)	699
33451	33451B	Medical Device Manufacturing	Number of physician visits (million)	
33512	33512	Lighting Fixtures Manufacturing	Trade-weighted index	35
33521	33521	Vacuum, Fan & Small Household Appliance Manufacturing	Import penetration into the manufacturing sector (%)	7
33522	33522	Major Household Appliance Manufacturing	Housing starts (thousands)	7
33531	33531	Electrical Equipment Manufacturing	Electric power consumption (billion kilowatt hours)	105
33591	33591	Battery Manufacturing	Electric power consumption ($ per ton)	25
33593	33593	Wiring Device Manufacturing	Industrial production index	17
33599	33599	Power Conversion Equipment Manufacturing	Demand from electrical equipment, appliance and component ma ($ million)	41
33611	33611A	Car & Automobile Manufacturing	New car sales (million)	25
33611	33611B	SUV & Light Truck Manufacturing	Consumer confidence index	

Appendix A IBISWorld Industry Factors and Sample Firm-Years Distribution (Cont.)

Compustat NAICS	IBISWorld NAICS	Industry Name	Industry Factor	Firm-Years
33612	33612	Truck & Bus Manufacturing	Freight transportation services index	35
33621	33621	Truck, Trailer & Motor Home Manufacturing	World price of crude oil ($ per barrel)	40
33631	33631	Automobile Engine & Parts Manufacturing	New car sales (million)	14
33632	33632	Automobile Electronics Manufacturing	Price of new cars ($)	49
33633	33633	Automobile Steering & Suspension Manufacturing	World price of steel (index)	14
33634	33634	Automobile Brakes Manufacturing	New car sales (million)	12
33635	33635	Automobile Transmission Manufacturing	New car sales (million)	21
33636	33636	Automobile Interior Manufacturing	Motor vehicle registrations (million)	10
33639	33639	Auto Parts Manufacturing	New car sales (million)	99
33641	33641A	Aircraft, Engine & Parts Manufacturing	Federal funding for defense ($ billion)	118
33641	33641B	Space Vehicle & Missile Manufacturing	Federal funding for defense ($ billion)	
33651	33651	Train, Subway & Transit Car Manufacturing	Federal funding for transportation ($ billion)	28
33661	33661A	Ship Building	Federal funding for defense ($ billion)	30
33661	33661B	Boat Building	Consumer spending ($ billion)	
33699	33699A	Motorcycle, Bike & Parts Manufacturing	Per capita disposable income ($)	
33699	33699B	Tank & Armored Vehicle Manufacturing	Federal funding for defense ($ billion)	27
33699	33699C	ATV, Golf Cart & Snowmobile Manufacturing	Consumer spending ($ billion)	
33711	33711	Cabinet & Vanity Manufacturing	Private spending on home improvements ($ billion)	14
33712	33712	Household Furniture Manufacturing	Housing starts (thousands)	48
33721	33721	Office Furniture Manufacturing	Corporate profit ($ billion)	28
33791	33791	Mattress Manufacturing	Value of residential construction ($ billion)	21
33911	33911A	Medical Instrument & Supply Manufacturing	Number of physician visits (million)	406
33911	33911B	Glasses & Contact Lens Manufacturing	Number of adults over 50 years old (million)	
33992	33992A	Athletic & Sporting Goods Manufacturing	Participation in sports (%)	31
33992	33992B	Gym & Exercise Equipment Manufacturing	Per capita disposable income ($)	
33993	33993	Toy, Doll & Game Manufacturing	Import penetration into the manufacturing sector (%)	14
33995	33995	Billboard & Sign Manufacturing	Total advertising expenditure ($ billion)	14
42312	42312	Auto Parts Wholesaling	Average age of vehicle fleet (years)	7
42314	42314	Used Car Parts Wholesaling	Registered motor vehicles (million)	7
42331	42331	Lumber Wholesaling	Price of sawmill lumber (index)	30
42333	42333	Roofing, Siding & Insulation Wholesaling	Private spending on home improvements ($ million)	7
42343	42343	Computer & Packaged Software Wholesaling	Private investment in computers and software ($ billion)	60
42345	42345	Medical Supplies Wholesaling	Number of physician visits (million)	28
42349	42349	Laboratory Supply Wholesaling	Research and development expenditure in the US ($ billion)	7
42351	42351	Metal Wholesaling	World price of steel (index)	40
42361	42361	Electrical Equipment Wholesaling	Electric power consumption (billion kilowatt hours)	14
42369	42369	Electronic Part & Equipment Wholesaling	Price of semiconductor and electronic components (index)	55
42371	42371	Tool & Hardware Wholesaling	Number of households (million)	14
42373	42373	Heating & Air Conditioning Wholesaling	Housing starts (thousands)	7
42374	42374	Refrigeration Equipment Wholesaling	Value of private non-residential construction ($ billion)	7
42382	42382	Farm, Lawn & Garden Equipment Wholesaling	Agricultural price index (index)	3
42383	42383	Industrial Machinery & Equipment Wholesaling	Industrial production index	33
42384	42384	Industrial Supplies Wholesaling	Industrial production index	7
42385	42385	Janitorial Equipment Supply Wholesaling	Corporate profit ($ billion)	7
42386	42386	Aircraft, Marine & Railroad Transportation Equipment Wholesaling	Total US commercial aircraft fleet (units)	7
42393	42393	Recyclable Material Wholesaling	Industrial production index	7
42411	42411	Paper Wholesaling	Services conducted online (%)	6
42421	42421	Drug, Cosmetic & Toiletry Wholesaling	Number of physician visits (billion)	47
42434	42434	Footwear Wholesaling	Per capita disposable income ($)	7
42441	42441	Grocery Wholesaling	Consumer spending ($ billion)	7

Appendix A IBISWorld Industry Factors and Sample Firm-Years Distribution (Cont.)

Compustat NAICS	IBISWorld NAICS	Industry Name	Industry Factor	Firm-Years
42448	42448	Fruit & Vegetable Wholesaling	Per capita fruit and vegetable consumption (pounds lb)	7
42449	42449	Soft Drink, Baked Goods & Other Grocery Wholesaling	Number of households (million)	7
42451	42451	Corn, Wheat & Soybean Wholesaling	World price of wheat ($ per bushel)	7
42469	42469	Chemical Wholesaling	Industrial production index	18
42472	42472	Gasoline & Petroleum Wholesaling	World price of crude oil ($ per barrel)	21
42492	42492	Book, Magazine & Newspaper Wholesaling	E-commerce sales ($ billion)	7
42494	42494	Cigarette & Tobacco Products Wholesaling	Percentage of smokers (%)	21
42512	42512	Wholesale Trade Agents and Brokers	Per capita disposable income ($)	7
44111	44111	New Car Dealers	New car sales (million)	49
44112	44112	Used Car Dealers	Per capita disposable income ($)	14
44121	44121	Recreational Vehicle Dealers	Consumer confidence index	5
44122	44122A	Motorcycle Dealership and Repair	Per capita disposable income ($)	
44122	44122B	Bicycle Dealership and Repair	Per capita disposable income ($)	14
44122	44122C	Boat Dealership and Repair	Time spent on leisure and sports (hours per day per capita)	
44131	44131	Auto Parts Stores	Number of motor vehicle registrations (million)	21
44211	44211	Furniture Stores	Consumer confidence index	14
44229	44229	Home Furnishings Stores	Private spending on home improvements ($ billion)	16
44411	44411	Home Improvement Stores	Private spending on home improvements ($ billion)	24
44511	44511	Supermarkets & Grocery Stores	Per capita disposable income ($)	38
44611	44611	Pharmacies & Drug Stores	Total health expenditure (trillion)	42
44612	44612	Beauty, Cosmetics & Fragrance Stores	Per capita disposable income ($)	14
44619	44619	Health Stores	Healthy eating index	13
44711	44711	Gas Stations with Convenience Stores	World price of crude oil ($ per barrel)	20
44719	44719	Gas Stations	World price of crude oil ($ per barrel)	7
44812	44812	Women's Clothing Stores	Consumer spending ($ billion)	17
44813	44813	Children's & Infants' Clothing Stores	Per capita disposable income ($)	7
44814	44814	Family Clothing Stores	Per capita disposable income ($)	70
44819	44819	Lingerie, Swimwear & Bridal Stores	Per capita disposable income ($)	7
44821	44821	Shoe Stores	Price of shoes (index)	33
44831	44831	Jewelry Stores	World price of gold ($ per troy ounce)	20
45112	45112	Hobby & Toy Stores	Consumer spending ($ billion)	14
45121	45121	Book Stores	E-commerce sales ($ billion)	5
45321	45321	Office Supply Stores	Percentage of services conducted online (%)	7
45399	45399	Small Specialty Retail Stores	E-commerce sales ($ billion)	21
45411	45411A	E-Commerce & Online Auctions	Per capita disposable income ($)	80
45411	45411B	Mail Order	Per capita disposable income ($)	
48111	48111A	International Airlines	International trips by US residents (million)	77
48111	48111B	Domestic Airlines	Domestic Trips by US Residents (million)	
48121	48121	Charter Flights	Per capita disposable income ($)	20
48211	48211	Rail Transportation	Total trade value ($ billion)	28
48311	48311	Ocean & Coastal Transportation	Total recreation expenditure ($ billion)	215
48321	48321	Inland Water Transportation	US oil and gas production index (index)	7
48411	48411	Local Freight Trucking	Industrial production index	7
48412	48412	Long-Distance Freight Trucking	Price of diesel ($ per gallon)	91
48423	48423	Tank & Refrigeration Trucking	World price of crude oil ($ per barrel)	11
48621	48621	Gas Pipeline Transportation	Oil and natural gas price index	26
48811	48811	Airport Operations	Domestic trips by US residents (million people)	7
48819	48819	Aircraft Maintenance, Repair & Overhaul	Domestic trips by US residents (million people)	7
48839	48839	Dry Docks & Cargo Inspection Services	Total trade value ($ billion)	20
48851	48851	Freight Forwarding Brokerages & Agencies	Freight transportation services index	21
51111	51111	Newspaper Publishing	Print advertising expenditure ($ billion)	43
51112	51112	Magazine & Periodical Publishing	Print advertising expenditure ($ billion)	14
51113	51113	Book Publishing	E-commerce sales ($ billion)	13
51119	51119	Greeting Cards & Other Publishing	Print advertising expenditure ($ billion)	6
51121	51121	Software Publishing	Number of mobile internet connections (million)	407

Appendix A IBISWorld Industry Factors and Sample Firm-Years Distribution (Cont.)

Compustat NAICS	IBISWorld NAICS	Industry Name	Industry Factor	Firm-Years
51211	51211A	Movie & Video Production	Per capita disposable income ($)	20
51211	51211B	Television Production	Number of cable TV subscriptions (million)	
51212	51212	Movie & Video Distribution	Number of mobile internet connections (million)	7
51213	51213	Movie Theaters	Per capita disposable income ($)	26
51511	51511	Radio Broadcasting	Total advertising expenditure ($ billion)	67
51512	51512	Television Broadcasting	Number of cable TV subscriptions (million)	73
51521	51521	Cable Networks	Number of cable TV subscriptions (million)	53
51741	51741	Satellite Telecommunications Providers	Internet traffic volume (exabytes per month)	33
51791	51791A	Telecommunications Resellers	Number of mobile internet connections ($ million)	70
51791	51791B	Radar & Satellite Operations	Government consumption and investment ($ billion)	
51821	51821	Data Processing & Hosting Services	Percentage of services conducted online (%)	413
51913	51913A	Search Engines	Number of mobile internet connections (million)	551
51913	51913B	Internet Publishing and Broadcasting	Internet traffic volume (exabytes per month)	
52212	52212	Savings Banks & Thrifts	30-year conventional mortgage rate (%)	312
52221	52221	Credit Card Issuing	Per capita disposable income ($)	33
52222	52222	Auto Leasing, Loans & Sales Financing	Access to credit ($ billion)	49
52229	52229	Real Estate Loans & Collateralized Debt	Homeownership rate (%)	144
52231	52231	Loan Brokers	Housing starts (thousands)	7
52232	52232	Credit Card Processing & Money Transferring	E-Commerce Sales (%)	56
52239	52239	Loan Administration, Check Cashing & Other Services	Prime rate (%)	7
52311	52311	Investment Banking & Securities Dealing	Corporate profit ($ billion)	49
52312	52312	Securities Brokering	S&P 500 (index)	86
52321	52321	Stock & Commodity Exchanges	Corporate profit ($ billion)	28
52391	52391	Venture Capital & Principal Trading	S&P 500 index (index)	61
52392	52392	Portfolio Management	Per capita disposable income ($)	148
52393	52393	Financial Planning & Advice	S&P 500 (index)	118
52399	52399	Custody, Asset & Securities Services	S&P 500 (index)	40
52411	52411A	Life Insurance & Annuities	Median age of population (years)	149
52411	52411B	Health & Medical Insurance	Total Health Expenditure ($ trillion)	
52412	52412	Property, Casualty and Direct Insurance	Number of Motor Vehicle Registrations (million)	374
52413	52413	Reinsurance Carriers	S&P 500 (index)	41
52421	52421	Insurance Brokers & Agencies	Per capita disposable income ($)	47
52429	52429	Third-Party Administrators & Insurance Claims Adjusters	Number of people with private health insurance (units)	35
52599	52599	Private Equity, Hedge Funds & Investment Vehicles	S&P 500 (index)	7
53112	53112	Commercial Leasing	Corporate profit ($ billion)	115
53119	53119	Land Leasing	30-year conventional mortgage rate (%)	26
53121	53121	Real Estate Sales & Brokerage	Existing home sales (million)	33
53131	53131	Property Management	Rental vacancy rates (%)	9
53139	53139	Real Estate Asset Management & Consulting	Corporate profit ($ billion)	17
53211	53211	Car Rental	Domestic trips by US residents (million)	20
53212	53212	Truck Rental	Average age of vehicle fleet (years)	14
53241	53241	Heavy Equipment Rental	Value of private nonresidential construction ($ million)	90
53242	53242	Computer & Printer Leasing	Number of businesses (million)	7
53249	53249	Industrial Equipment Rental & Leasing	Industrial production index	13
53311	53311	Intellectual Property Licensing	Total US advertising expenditure ($ billion)	124
54111	54111	Law Firms	Number of businesses (million)	7
54121	54121B	Payroll & Bookkeeping Services	Corporate profit ($ billion)	41
54121	54121C	Accounting Services	Number of businesses (million)	
54121	54121D	Tax Preparation Services	Total employees in the US (million)	
54133	54133	Engineering Services	Value of private non-residential construction ($ billion)	59
54136	54136	Geophysical Services	World production of oil (million barrels per day)	10
54138	54138	Laboratory Testing Services	Research and development expense ($ billion)	7

Appendix A IBISWorld Industry Factors and Sample Firm-Years Distribution (Cont.)

Compustat NAICS	IBISWorld NAICS	Industry Name	Industry Indicator	Firm-Years
51211	51211A	Movie & Video Production	Per capita disposable income ($)	20
51211	51211B	Television Production	Number of cable TV subscriptions (Million)	
51212	51212	Movie & Video Distribution	Number of mobile internet connections (Million)	7
51213	51213	Movie Theaters	Per Capita Disposable Income ($)	26
51511	51511	Radio Broadcasting	Total advertising expenditure ($ billion)	67
51512	51512	Television Broadcasting	Number of Cable TV Subscriptions (Million)	73
51521	51521	Cable Networks	Number of cable TV subscriptions (Million)	53
51741	51741	Satellite Telecommunications Providers	Internet traffic volume (Exabytes per month)	33
51791	51791A	Telecommunications Resellers	Number of mobile internet connections ($ million)	70
51791	51791B	Radar & Satellite Operations	Government consumption and investment ($ billion)	
51821	51821	Data Processing & Hosting Services	Percentage of services conducted online (%)	413
51913	51913A	Search Engines	Number of mobile internet connections (Million)	551
51913	51913B	Internet Publishing and Broadcasting	Internet traffic volume (Exabytes per month)	
52212	52212	Savings Banks & Thrifts	30-year conventional mortgage rate (%)	312
52221	52221	Credit Card Issuing	Per Capita Disposable Income ($)	33
52222	52222	Auto Leasing, Loans & Sales Financing	Access to credit ($ billion)	49
52229	52229	Real Estate Loans & Collateralized Debt	Homeownership rate (%)	144
52231	52231	Loan Brokers	Housing starts (Thousands)	7
52232	52232	Credit Card Processing & Money Transferring	E-Commerce Sales (%)	56
52239	52239	Loan Administration, Check Cashing & Other Services	Prime rate (%)	7
52311	52311	Investment Banking & Securities Dealing	Corporate Profit ($ billion)	49
52312	52312	Securities Brokering	S&P 500 (Index)	86
52321	52321	Stock & Commodity Exchanges	Corporate Profit ($ billion)	28
52391	52391	Venture Capital & Principal Trading	S&P 500 index (Index)	61
52392	52392	Portfolio Management	Per capita disposable income ($)	148
52393	52393	Financial Planning & Advice	S&P 500 (Index)	118
52399	52399	Custody, Asset & Securities Services	S&P 500 (Index)	40
52411	52411A	Life Insurance & Annuities	Median age of population (Years)	149
52411	52411B	Health & Medical Insurance	Total Health Expenditure ($ trillion)	
52412	52412	Property, Casualty and Direct Insurance	Number of Motor Vehicle Registrations (Million)	374
52413	52413	Reinsurance Carriers	S&P 500 (Index)	41
52421	52421	Insurance Brokers & Agencies	Per Capita Disposable Income ($)	47
52429	52429	Third-Party Administrators & Insurance Claims Adjusters	Number of people with private health insurance (Units)	35
52599	52599	Private Equity, Hedge Funds & Investment Vehicles	S&P 500 Value (Index)	7
53112	53112	Commercial Leasing	Corporate profit ($ billion)	115
53119	53119	Land Leasing	30-year conventional mortgage rate (%)	26
53121	53121	Real Estate Sales & Brokerage	Existing Home Sales (Million)	33
53131	53131	Property Management	Rental vacancy rates (%)	9
53139	53139	Real Estate Asset Management & Consulting	Corporate profit ($ billion)	17
53211	53211	Car Rental	Domestic Trips by US Residents (Million)	20
53212	53212	Truck Rental	Average age of vehicle fleet (Years)	14
53241	53241	Heavy Equipment Rental	Value of private nonresidential construction ($ million)	90
53242	53242	Computer & Printer Leasing	Number of Businesses (Million)	7
53249	53249	Industrial Equipment Rental & Leasing	Industrial Production Index ( )	13
53311	53311	Intellectual Property Licensing	Total US advertising expenditure ($ billion)	124
54111	54111	Law Firms	Number of businesses (Million)	7
54121	54121B	Payroll & Bookkeeping Services	Corporate profit ($ billion)	41
54121	54121C	Accounting Services	Number of businesses (Million)	
54121	54121D	Tax Preparation Services	Total employees in the US (Million)	
54133	54133	Engineering Services	Value of private non-residential construction ($ billion)	59
54136	54136	Geophysical Services	World production of oil (Million barrels per day)	10
54138	54138	Laboratory Testing Services	Research and Development Expense ($ billion)	7

Appendix A IBISWorld Industry Factors and Sample Firm-Years Distribution (Cont.)

Compustat NAICS	IBISWorld NAICS	Industry Name	Industry Factor	Firm-Years
54151	54151	IT Consulting	Percentage of services conducted online ($ billion)	298
54161	54161	Management Consulting	Corporate profit ($ billion)	69
54162	54162	Environmental Consulting	Industrial production index (units)	7
54171	54171	Scientific Research & Development	Research and development expenditure ($ billion)	64
54181	54181	Advertising Agencies	Consumer spending ($ billion)	21
54184	54184	Media Representative Firms	Total advertising expenditure ($ billion)	7
54185	54185	Billboard & Outdoor Advertising	Total advertising expenditure ($ billion)	14
54186	54186	Direct Mail Advertising	Total US advertising expenditure ($ billion)	7
54189	54189	Promotional Products	Percentage of services conducted online ($ billion)	14
54191	54191	Market Research	Research and development expenditure ($ billion)	21
54199	54199	Credit Counselors, Surveyors & Appraisers	Aggregate household debt ($ trillion)	14
56111	56111	Human Resources & Benefits Administration	Corporate profit ($ billion)	25
56121	56121	Correctional Facilities	Incarceration rate (People)	5
56131	56131	Employment & Recruiting Agencies	Unemployment rate (%)	63
56132	56132	Office Staffing & Temp Agencies	National unemployment rate (%)	72
56145	56145	Credit Bureaus & Rating Agencies	Number of businesses (million)	25
56151	56151	Travel Agencies	Domestic trips by US residents (million)	13
56161	56161	Security Services	Crime rate (crimes per 100,000 people)	7
56171	56171	Pest Control	Per capita disposable income ($)	11
56172	56172	Janitorial Services	Number of businesses (million)	14
56192	56192	Trade Show and Conference Planning	Number of businesses (million)	7
56211	56211	Waste Collection Services	Number of businesses (million)	44
56221	56221	Waste Treatment & Disposal Services	Consumer spending ($ billion)	49
61111	61111A	Public Schools	Number of K-12 Students (million people)	7
61111	61111B	Private Schools	Number of K-12 Students (million people)	
61121	61121	Community Colleges	Government funding for universities ($ billion)	14
61131	61131A	Colleges & Universities	Number of college students (million people)	54
61131	61131B	For-Profit Universities	National unemployment rate (%)	
61143	61143	Business Coaching	Number of employees (million)	14
61169	61169	Tutoring & Driving Schools	Per capita disposable income ($)	7
62111	62111A	Primary Care Doctors	Number of people with private health insurance (million)	11
62111	62111B	Specialist Doctors	Total health expenditure ($ trillion)	
62134	62134	Physical Therapists	Number of people with private health insurance (million)	7
62149	62149	Emergency & Other Outpatient Care Centers	Number of people with private health insurance (million)	23
62151	62151	Diagnostic & Medical Laboratories	Number of people with private health insurance (million)	90
62161	62161	Home Care Providers	Adults 65 years and over (million)	28
62199	62199	Blood & Organ Banks	Research and development expenditure ($ billion)	42
62211	62211	Hospitals	Number of people with private health insurance (million)	30
62221	62221	Psychiatric Hospitals	Number of people with private health insurance (million)	14
62231	62231	Specialty Hospitals	Federal funding for Medicare and Medicaid ($ billion)	14
62331	62331	Retirement Communities	House price index (index)	21
62441	62441	Day Care	Per capita disposable income ($)	7
71121	71121A	Sports Franchises	Time spent on leisure and sports (hours per day per capita)	7
71121	71121B	Racing & Individual Sports	Total advertising expenditure ($ billion)	
71141	71141	Celebrity & Sports Agents	Consumer spending ($ billion)	7
71311	71311	Amusement Parks	Consumer spending ($ billion)	13
71321	71321	Non-Hotel Casinos	Consumer spending ($ billion)	24
71329	71329	Lotteries & Native American Casinos	Consumer spending ($ billion)	14
71395	71395	Bowling Centers	Urban population (million people)	7
72111	72111	Hotels & Motels	Domestic trips by US residents (million)	60
72112	72112	Casino Hotels	Domestic trips by US residents (million)	51
72119	72119	Bed & Breakfast & Hostel Accommodations	Domestic trips by US residents (million)	3
72232	72232	Caterers	Consumer spending ($)	5
72241	72241	Bars & Nightclubs	Per capita expenditure on alcohol ($)	7
81211	81211	Hair & Nail Salons	Consumer spending ($ billion)	7
81219	81219A	Weight Loss Services	Healthy eating index (%)	7
81219	81219B	Hair Loss Treatment & Removal	Number of adults aged 50 and over (million people)	
81219	81219C	Tanning Salons	Consumer spending ($ billion)	
81221	81221	Funeral Homes	Deaths (million people)	14
81233	81233	Industrial Laundry & Linen Supply	Number of businesses (million)	7
81293	81293	Parking Lots & Garages	Number of businesses (million)	7

Appendix B Industries with a Long Revenue Generating Cycle

NAICS	Industry Name
21	Mining, Quarrying, and Oil and Gas Extraction
23	Construction
312	Beverage and Tobacco Product Manufacturing
315	Apparel Manufacturing
324	Petroleum and Coal Products Manufacturing
326	Plastics and Rubber Products Manufacturing
331	Primary Metal Manufacturing
335	Electrical Equipment, Appliance, and Component Manufacturing
336	Transportation Equipment Manufacturing
441	Motor Vehicle and Parts Dealers
442	Furniture and Home Furnishings Stores
444	Building Material and Garden Equipment and Supplies Dealers
447	Gasoline Stations
481	Air Transportation
486	Pipeline Transportation
515	Broadcasting (except Internet)
517	Telecommunications
518	Data Processing, Hosting, and Related Services
523	Securities, Commodity Contracts, and Other Financial Investments
524	Insurance Carriers
525	Funds, Trusts, and Other Financial Vehicles
531	Real Estate
541	Professional, Scientific, and Technical Services

Appendix C Industries Frequently Using the Percentage-of-Completion Method

NAICS	Industry Name
23611	Residential Building Construction
23622	Commercial and Institutional Building Construction
23711	Water and Sewer Line and Related Structures Construction
23712	Oil and Gas Pipeline and Related Structures Construction
23713	Power and Communication Line and Related Structures Construction
23731	Highway, Street, and Bridge Construction
23799	Other Heavy and Civil Engineering Construction
33641	Aerospace Product and Parts Manufacturing
33651	Railroad Rolling Stock Manufacturing

Appendix D Variable Definitions and Data Sources

Variable	Definition	Source
$\theta_{j,t}$	industry shock in year t captured by industry j's adjusted factor (see Appendix A for a complete list and Table 2, Panel A, for the adjustment procedure)	IBISWorld
$Rev_{i,t-1}$	firm i's years t-1 revenue (Compustat: REVT), scaled by beginning total assets (Compustat: AT)	Compustat
$Rev_{i,t}$	firm i's years t revenue (Compustat: REVT), scaled by beginning total assets (Compustat: AT)	Compustat
$Rev_{i,t+1}$	firm i's years t+1 revenue (Compustat: REVT), scaled by beginning total assets (Compustat: AT)	Compustat
LONG	equals one for firms with a revenue earning cycle longer than one year, based on Appendix B's industry membership, and zero otherwise	Appendix B
POST	equals one for firm-years after adopting ASC 606, based on the adoption information in Table 2, Panel C, and zero otherwise	EDGAR
Cosine Similarity	for each contract, we compute cosine similarity with the text of ASC 606's five-step procedure (ASU 2014-09). We use a bigram or a trigram as our unit to calculate cosine similarity because many ASC 606 jargons contain more than one word, such as performance obligation or standalone selling price. We choose the TFIDF weighting function due to its simplicity and popularity (Brown and Tucker, 2011). We multiply cosine similarity by 100 because of its low values	EDGAR, FASB
ASC 606 Jargons	the frequency of the following ASC 606 jargons appeared in each contract: rights, obligations, commercial substance, performance obligation, probable, collectib, at a point in time, over time, variable consideration, noncash consideration, transaction price, and standalone selling price. We scale the frequency of ASC 606 jargons by the total words in each contract	EDGAR, FASB
Length	the number of words in a sales contract and transformed by a log function	EDGAR
Readability	the Gunning (1952) FOG Index and multiplied by a negative sign, so a higher value refers to more readable contracts	EDGAR
Specificity	the fraction of words overlapping with specific terms, e.g., locations, organizations, persons, money, percentages, times, dates, in the Stanford Named Entity Recognizer	EDGAR
Forward-looking	the fraction of sentences containing forward-looking terms (Muslu, Radhakrishnan, Subramanyam, and Lim 2015; Bozanic, Roulstone, and Van Buskirk, 2018)	EDGAR
Uncertainty	the fraction of words overlapping with the uncertain terms in the Loughran and McDonald database. We multiply uncertainty by 100 because of its low values	EDGAR
Tone	the number of positive words minus the number of negative words, divided by the total number of words	EDGAR
Redaction	the frequency of redaction keywords (e.g., 24b, confidential treatment, ct order, redact, rule 406) deflated by total words. We multiply redaction by 100 because of its low values	EDGAR

Table 1 Sample Description

Panel A describes the steps in constructing our final sample of 14,274 firm-years from 2013-2020. Panel B describes the annual number of US-listed firms between 52,616 firm-years after merging Compustat with IBISWorld by NAICS 5-digit industry codes and 60,898 firm-years before merging.

Panel A Sample Construction

	Firm-years
Compustat firms without missing total asset values from fiscal years 2012-2020	62,891
Less: IFRS firm-years	-1,993
Less: Firm-years outside of the IBISWorld NAICS 5-digit industries	-8,282
Less: Firms delisted before ASC 606 became effective or firms without ASC 606 adoption info	-25,804
Less: Firms with missing current year's revenue values from Compustat	-677
Less: Firms with missing last year's revenue values from Compustat	-809
Less: Firms with missing next year's revenue values from Compustat	-3,186
Less: Firms without at least one year of pre-606 revenue observation	-1,456
Less: One year of data dropped as a result of the AR(1) procedure on industry indicators	-2,890
Less: NAICS 52 financial institutions	-3,520
Final sample	**14,274**

Panel B IBISWorld and Compustat Coverages

	Number of U.S. Listed Firms	
Fiscal Year	After Merged with IBISWorld	Compsutat Universe
2012	6,345	7,279
2013	6,426	7,380
2014	6,211	7,137
2015	5,976	6,888
2016	5,822	6,720
2017	5,701	6,615
2018	5,613	6,549
2019	5,370	6,290
2020	5,152	6,040
	8,583 unique firms	10,140 unique firms

Table 1 Sample Description (Cont.)

Panel C presents the number of US-listed firms by ASC 606 adoption fiscal year-end month. We collect firms' adoption fiscal year information from EDGAR filings during the summer of 2019, eighteen months after ASC 606 went effective.

Panel C Number of Firms by ASC 606 Adoption Fiscal Year-End Month

ASC 606 Adoption Fiscal Year-End Month	Number of firms
2017-12	30
2018-01	2
2018-03	3
2018-06	6
2018-07	2
2018-08	1
2018-09	6
2018-10	2
2018-11	6
2018-12	2547
2019-01	41
2019-02	80
2019-03	109
2019-04	31
2019-05	23
2019-06	152
2019-07	20
2019-08	30
2019-09	149
2019-10	30
2019-11	19
2019-12	108

Table 2 Variable Description

Panel A Serial Correlations

To address differential units and volatilities across 329 industry indicators, we first standardize an industry's IBISWorld factor: $Standardized\ Industry\ Factor_{j,t} = \frac{Indistruy\ Factor_{j,t} - \mu_j}{\sigma_j}$ where μ_j (σ_j) is the mean value (standard deviation) across years t for a five-digit NAICS industry j. Next, we run a time-series regression for each industry to gauge the serial correlation or autocorrelation of each standardized industry factor: $SIF_{j,t} = \beta_{0,j} + \beta_{1,j} \cdot SIF_{j,t-1} + \varepsilon_j$ where $SIF_{j,t}$ ($SIF_{j,t-1}$) is the standardized industry factor j from year t (t-1). We report the cross-industry j distributions of the coefficient $\beta_{1,j}$ below, i.e., the serial correlation of pre-adjusted annual standardized industry factors. We adjust standardized industry factors based on an AR(1) process: $\theta_{j,t} = SIF_{j,t} - \widehat{\beta_{0,J}} - \widehat{\beta_{1,J}} \cdot SIF_{j,t-1}$ where $\widehat{\beta_{0,J}}$ and $\widehat{\beta_{1,J}}$ are estimated from the industry time-series regression in Equation (6). We report $\alpha_{1,j}$, the serial correlation of post-adjusted annual standardized industry factors, i.e., industry shocks, from the industry time-series regression: $\theta_{j,t} = \alpha_{0,j} + \alpha_{1,j} \cdot \theta_{j,t-1} + \varepsilon_j$ where $\theta_{j,t}$ and $\theta_{j,t-1}$ are industry shocks for years t and t-1 respectively. Lastly, we report the serial correlation of 3,075 distinct member firms' annual revenue, $\gamma_{1,i}$ from $REV_{i,t} = \gamma_{0,i} + \gamma_{1,i} \cdot REV_{i,t-1} + \varepsilon_i$. To address differential firm sizes, we deflate firm i's annual revenue (Compustat: REVT) in fiscal year t by the firm's previous fiscal year's total assets (Compustat: AT). We winsorize the scaled revenue at the 1st and 99th percentile in each fiscal year to avoid potential Compustat data input errors. We further winsorize $\gamma_{1,i}$ at the 1st and 99th percentile due to a lack of time-series data for some firms.

	N	Mean	p-value for Mean=0	Min	P25	P50	P75	Max
$\beta_{1,j}$	329	0.78	<0.01	-0.43	0.62	0.85	1.03	1.31
$\alpha_{1,j}$	329	0.00	0.55	0.00	0.00	0.00	0.00	0.00
$\gamma_{1,i}$	3,075	0.36	0.14	-1.13	0.04	0.38	0.64	2.84

Panel B Variable Distributions

Panel B reports the distributions of variables used in empirical analyses for the sample of 14,274 firm-years from 2013-2020 or the sample of 758 sales contracts from 2014-2020. Please refer to Appendix D for variable definitions.

Variables in Tables 3-6	N	Mean	Min	P25	P50	P75	Max	Std
$REV_{i,t}$	14,274	0.97	0.00	0.44	0.79	1.28	4.30	0.76
$\theta_{j,t}$	14,274	0.01	-1.72	-0.12	0.02	0.13	1.81	0.37
LONG	14,274	0.27	0.00	0.00	0.00	1.00	1.00	0.44
POST	14,274	0.28	0.00	0.00	0.00	1.00	1.00	0.45
Variables in Table 7	N	Mean	Min	P25	P50	P75	Max	Std
Cosine Similarity	758	0.33	0.02	0.02	0.21	0.41	2.96	0.44
ASC 606 Jargons	758	0.23	0.00	0.00	0.07	0.23	0.39	0.31
Length	758	7,122	518	926	2,336	8,861	45,645	9,607
Readability	758	-3.21	-5.04	-3.47	-3.13	-2.84	-2.36	0.53
Specificity	758	0.45	0.25	0.38	0.44	0.50	0.78	0.11
Forward-looking	758	0.10	0.00	0.04	0.09	0.13	0.44	0.08
Uncertainty	758	0.64	0.00	0.42	0.64	0.64	1.53	0.28
Tone	758	-0.44	-0.96	-0.67	-0.51	-0.27	0.59	0.31
Redaction	758	0.14	0.00	0.00	0.00	0.29	0.92	0.24

Table 3 Validating the Revenue Recognition Method

This table examines Equations (2)-(4) in Panels A-C, respectively, and presents the results from a Seemingly Unrelated Regressions (SUR) model in Panel D. $\widetilde{\theta_{J,t}}$ is industry shock in year t (see Appendix A for a complete list and Table 2, Panel A, for the shock computation procedure). $Rev_{i,t-1}$, $Rev_{i,t}$, and $Rev_{i,t+1}$ are firm i's years t-1, t, and t+1 revenue, scaled by beginning total assets. We winsorize the scaled revenue at the 1st and 99th percentile in each fiscal year. In OLS regressions, we include fiscal year and firm fixed effects and cluster standard errors based on the five-digit NAICS industry codes. In SUR regressions, we subtract the firm's long-run average and the annual average from each variable, analogous to firm and year fixed effects in the OLS regressions. Intercepts are not reported (due to a large number of fixed effects.) Four Panels share the same columnar structure as follows: Model (1) is based on the sample of 14,274 firm-years excluding financial services and firms' primary industries' demand shocks from 2013-2019. Model (2) adds 1,791 financial services, except for commercial banks, to Model (1)'s sample. Model (3) replaces Model (1)'s primary industry demand shocks with segment industry weighted-average demand shocks using segment revenues as weights. Model (4) restricts Model (1)'s sample to only firms whose fiscal years ended in December. Model (5) restricts Model (1)'s demand shocks to the period ended in 2019, so the Pandemic 2020 year's revenue is not examined.

Panel A Industry Shock and Last Year's Revenue

Equation (2): $REV_{i,t-1} = \varphi_1 + \varphi_2 \cdot \theta_{j,t} + \varepsilon_{i,t-1}$

Model:	(1)	(2)	(3)	(4)	(5)
Exclud. Financial Services?	Y	N	Y	Y	Y
Demand Shock Measured at	Primary Industry	Primary Industry	Segment Industry	Primary Industry	Primary Industry
Restrict to Dec. End Firms?	N	N	N	Y	N
Demand Shock Years	2013-2019	2013-2019	2013-2019	2013-2019	2013-2018
φ_2	-0.002	0.000	0.001	-0.006	-0.002
p-value	0.880	0.989	0.972	0.756	0.888
N	14,274	16,065	14,274	10,629	12,168
R^2	0.860	0.867	0.857	0.825	0.872

Panel B Industry Shock and Current Year's Revenue

Equation (3): $REV_{i,t} = \varphi_3 + \varphi_4 \cdot \theta_{j,t} + \varepsilon_{i,t}$

Model:	(1)	(2)	(3)	(4)	(5)
Exclud. Financial Services?	Y	N	Y	Y	Y
Demand Shock Measured at	Primary Industry	Primary Industry	Segment Industry	Primary Industry	Primary Industry
Restrict to Dec. End Firms?	N	N	N	Y	N
Demand Shock Years	2013-2019	2013-2019	2013-2019	2013-2019	2013-2018
φ_4	0.035	0.031	0.044	0.041	0.032
p-value	0.011	0.009	0.013	0.016	0.020
N	14,274	16,065	14,274	10,629	12,168
R^2	0.876	0.882	0.876	0.846	0.888

Panel C Industry Shock and Next Year's Revenue

Equation (4): $REV_{i,t+1} = \varphi_5 + \varphi_6 \cdot \theta_{j,t} + \varepsilon_{i,t+1}$

Model:	(1)	(2)	(3)	(4)	(5)
Exclud. Financial Services?	Y	N	Y	Y	Y
Demand Shock Measured at	Primary Industry	Primary Industry	Segment Industry	Primary Industry	Primary Industry
Restrict to Dec. End Firms?	N	N	N	Y	N
Demand Shock Years	2013-2019	2013-2019	2013-2019	2013-2019	2013-2018
φ_6	0.027	0.024	0.026	0.035	0.027
p-value	0.038	0.054	0.100	0.052	0.083
N	14,274	16,065	14,274	10,629	12,168
R^2	0.869	0.875	0.874	0.839	0.887

Table 3 Validating the Revenue Recognition Method (Cont.)

This table examines Equations (2)-(4) in Panels A-C, respectively, and presents the results from a Seemingly Unrelated Regressions (SUR) model in Panel D. $\widetilde{\theta_{J,t}}$ is industry shock in year t (see Appendix A for a complete list and Table 2, Panel A, for the shock computation procedure). $Rev_{i,t-1}$, $Rev_{i,t}$, and $Rev_{i,t+1}$ are firm i's years t-1, t, and t+1 revenue, scaled by beginning total assets. We winsorize the scaled revenue at the 1st and 99th percentile in each fiscal year. In OLS regressions, we include fiscal year and firm fixed effects and cluster standard errors based on the five-digit NAICS industry codes. In SUR regressions, we subtract the firm's long-run average and the annual average from each variable, analogous to firm and year fixed effects in the OLS regressions. Intercepts are not reported (due to a large number of fixed effects.) Four Panels share the same columnar structure as follows: Model (1) is based on the sample of 14,274 firm-years excluding financial services and firms' primary industries' shocks from 2013-2019. Model (2) adds 1,791 financial services, except for commercial banks, to Model (1)'s sample. Model (3) replaces Model (1)'s primary industry shocks with segment industry weighted-average shocks using segment revenues as weights. Model (4) restricts Model (1)'s sample to only firms whose fiscal years ended in December. Model (5) restricts Model (1)'s demand shocks to the period ended in 2019, so the Pandemic 2020 year's revenue is not examined.

Panel D Seemingly Unrelated Regressions

Equation (2): $REV_{i,t-1} = \varphi_1 + \varphi_2 \cdot \theta_{j,t} + \varepsilon_{i,t-1}$

Equation (3): $REV_{i,t} = \varphi_3 + \varphi_4 \cdot \theta_{j,t} + \varepsilon_{i,t}$

Equation (4): $REV_{i,t+1} = \varphi_5 + \varphi_6 \cdot \theta_{j,t} + \varepsilon_{i,t+1}$

Model:	(1)	(2)	(3)	(4)	(5)
Exclud. Financial Services?	Y	N	Y	Y	Y
Shock Measured at:	Primary Industry	Primary Industry	Segment Industry	Primary Industry	Primary Industry
Restrict to Dec. End Firms?	N	N	N	Y	N
Shock Years:	2013-2019	2013-2019	2013-2019	2013-2019	2013-2018
$\varphi_{2,i}$	-0.004	-0.001	-0.003	-0.007	-0.005
p-value	0.571	0.825	0.665	0.438	0.524
$\varphi_{4,i}$	0.034	0.030	0.039	0.040	0.031
p-value	<0.001	<0.001	<0.001	<0.001	<0.001
$\varphi_{6,i}$	0.027	0.024	0.028	0.034	0.027
p-value	<0.001	<0.001	<0.001	<0.001	<0.001
N	14,274	16,065	14,274	10,629	12,168
McElroys R^2	0.0009	0.0007	0.0010	0.0014	0.0009
$\varphi_{6,i}$ / $\varphi_{4,i}$	81%	80%	72%	86%	87%

Table 4 Further Valuation: Long and Short Revenue Generating Cycles

This table examines Equations (2)-(4) in a Seemingly Unrelated Regressions (SUR) model. $\widetilde{\theta_{J,t}}$ is industry shock in year t (see Appendix A for a complete list and Table 2, Panel A, for the shock computation procedure). $Rev_{i,t-1}$, $Rev_{i,t}$, and $Rev_{i,t+1}$ are firm i's years t-1, t, and t+1 revenue, scaled by beginning total assets. We winsorize the scaled revenue at the 1st and 99th percentile in each fiscal year. We subtract the firm's long-run average and the annual average from each variable, analogous to firm and year fixed effects in the OLS regressions. Intercepts are not reported. Models (1)-(2) are based on the sample of 14,274 firm-years excluding financial services and firms' primary industries' shocks from 2013-2019. Models (3)-(4) add 1,791 financial services, except for commercial banks. Models (5)-(6) replace primary industry shocks with segment industry weighted-average shocks using segment revenues as weights. Models (7)-(8) restrict samples to only firms whose fiscal years ended in December. Models (9)-(10) restrict shocks to the period ended in 2019, so the Pandemic 2020 year's revenue is not examined. Each pair of models represent firms with a revenue cycle longer than a year (Long) and firms with a revenue cycle completing in a year (Short), according to the industry membership in Appendix B.

Seemingly Unrelated Regressions

Equation (2): $REV_{i,t-1} = \varphi_1 + \varphi_2 \cdot \theta_{j,t} + \varepsilon_{i,t-1}$

Equation (3): $REV_{i,t} = \varphi_3 + \varphi_4 \cdot \theta_{j,t} + \varepsilon_{i,t}$

Equation (4): $REV_{i,t+1} = \varphi_5 + \varphi_6 \cdot \theta_{j,t} + \varepsilon_{i,t+1}$

Exclud. Financial Services?	Y		N		Y		Y		Y	
Shock Measured at:	Primary Industry		Primary Industry		Segment Industry		Primary Industry		Primary Industry	
Restrict to Dec. End Firms?	N		N		N		Y		N	
Shock Years:	2013-2019		2013-2019		2013-2019		2013-2019		2013-2018	
Revenue cycle:	Long	Short	Long	Short	Long	Short	Long	Short	Long	Short
Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$\varphi_{2,i}$	-0.013	0.002	-0.007	0.002	-0.009	0.001	-0.017	0.001	-0.017	0.004
p-value	0.291	0.823	0.483	0.823	0.479	0.918	0.222	0.904	0.171	0.710
$\varphi_{4,i}$	0.052	0.022	0.037	0.022	0.059	0.026	0.070	0.018	0.052	0.016
p-value	<0.001	0.010	<0.001	0.010	<0.001	0.004	<0.001	0.064	<0.001	0.057
$\varphi_{6,i}$	0.064	0.005	0.048	0.005	0.064	0.006	0.068	0.011	0.066	0.003
p-value	<0.001	0.534	<0.001	0.534	<0.001	0.485	<0.001	0.277	<0.001	0.740
N	3,848	10,426	5,639	10,426	3,848	10,426	3,015	7,614	3,279	8,889
McElroys R^2	0.0047	0.0002	0.0027	0.0002	0.0046	0.0003	0.0069	0.0002	0.0060	0.0001
$\varphi_{6,i}$ / $\varphi_{4,i}$	123%	24%	129%	24%	109%	24%	98%	57%	127%	17%

Table 5 Average Effects of ASC 606

This table examines Equations (2)-(4) in a Seemingly Unrelated Regressions (SUR) model. $\widetilde{\theta_{J,t}}$ is industry shock in year t (see Appendix A for a complete list and Table 2, Panel A, for the shock computation procedure). $Rev_{i,t-1}$, $Rev_{i,t}$, and $Rev_{i,t+1}$ are firm i's years t-1, t, and t+1 revenue, scaled by beginning total assets. We winsorize the scaled revenue at the 1st and 99th percentile in each fiscal year. We subtract the firm's long-run average and the annual average from each variable, analogous to firm and year fixed effects in the OLS regressions. Intercepts are not reported. Models (1)-(2) are based on the sample of 14,274 firm-years excluding financial services and firms' primary industries' shocks from 2013-2019. Models (3)-(4) add 1,791 financial services, except for commercial banks. Models (5)-(6) replace primary industry shocks with segment industry weighted-average shocks using segment revenues as weights. Models (7)-(8) restrict samples to only firms whose fiscal years ended in December. Models (9)-(10) restrict shocks to the period ended in 2019, so the Pandemic 2020 year's revenue is not examined. Each pair of models represent a pre-ASC 606 period and a post-ASC 606 period. We collect firms' adoption fiscal year information from EDGAR (see Table 1, Panel C).

Seemingly Unrelated Regressions

Equation (2): $REV_{i,t-1} = \varphi_1 + \varphi_2 \cdot \theta_{j,t} + \varepsilon_{i,t-1}$

Equation (3): $REV_{i,t} = \varphi_3 + \varphi_4 \cdot \theta_{j,t} + \varepsilon_{i,t}$

Equation (4): $REV_{i,t+1} = \varphi_5 + \varphi_6 \cdot \theta_{j,t} + \varepsilon_{i,t+1}$

Exclud. Financial Services?	Y		N		Y		Y		Y	
Shock Measured at:	Primary Industry		Primary Industry		Segment Industry		Primary Industry		Primary Industry	
Restrict to Dec. End Firms?	N		N		N		Y		N	
Shock Years:	2013-2019		2013-2019		2013-2019		2013-2019		2013-2018	
Accounting Regime:	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$\varphi_{2,i}$	-0.003	-0.029	0.001	-0.031	-0.001	-0.034	-0.008	-0.014	-0.003	0.642
p-value	0.709	0.018	0.945	0.006	0.922	0.009	0.404	0.305	0.709	<0.001
$\varphi_{4,i}$	0.035	0.046	0.031	0.034	0.042	0.047	0.045	0.056	0.035	0.780
p-value	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
$\varphi_{6,i}$	0.036	0.034	0.034	0.019	0.038	0.032	0.041	0.026	0.036	0.259
p-value	<0.001	0.005	<0.001	0.068	<0.001	0.011	<0.001	0.048	<0.001	<0.001
N	10,308	3,966	11,598	4,467	10,308	3,966	7,379	3,250	10,308	1,860
McElroys R^2	0.001	0.003	0.001	0.001	0.002	0.003	0.002	0.003	0.001	0.197
$\varphi_{6,i}$ / $\varphi_{4,i}$	105%	73%	109%	58%	91%	68%	91%	46%	105%	33%

Table 6 Differential Effects of ASC 606 between Long and Short Revenue Cycles

This table examines Equations (2)-(4) in a Seemingly Unrelated Regressions (SUR) model. $\widetilde{\theta_{J,t}}$ is industry shock in year t (see Appendix A for a complete list and Table 2, Panel A, for the shock computation procedure). $Rev_{i,t-1}$, $Rev_{i,t}$, and $Rev_{i,t+1}$ are firm i's years t-1, t, and t+1 revenue, scaled by beginning total assets. We winsorize the scaled revenue at the 1st and 99th percentile in each fiscal year. We subtract the firm's long-run average and the annual average from each variable, analogous to firm and year fixed effects in the OLS regressions. Intercepts are not reported. Models (1)-(4) are based on the sample of 14,274 firm-years excluding financial services and firms' primary industries' shocks from 2013-2019. Models (5)-(8) add 1,791 financial services, except for commercial banks. Models (9)-(12) replace primary industry shocks with segment industry weighted-average shocks using segment revenues as weights. Models (13)-(16) restrict samples to only firms whose fiscal years ended in December. Models (17)-(20) restrict shocks to the period ended in 2019, so the Pandemic 2020 year's revenue is not examined. Each set of models represent: a pre-ASC 606 period for long cycle firms, a post-ASC 606 period for long cycle firms, a pre-ASC 606 period for short cycle firms, and a post-ASC 606 period for short cycle firms. Long and short cycles are based on the industry membership in Appendix B. We collect firms' adoption fiscal year information from EDGAR (see Table 1, Panel C).

Seemingly Unrelated Regressions

Equation (2): $REV_{i,t-1} = \varphi_1 + \varphi_2 \cdot \theta_{j,t} + \varepsilon_{i,t-1}$

Equation (3): $REV_{i,t} = \varphi_3 + \varphi_4 \cdot \theta_{j,t} + \varepsilon_{i,t}$

Equation (4): $REV_{i,t+1} = \varphi_5 + \varphi_6 \cdot \theta_{j,t} + \varepsilon_{i,t+1}$

Exclud. Financial Services?	Y				N				Y			
Shock Measured at:	Primary Industry				Primary Industry				Segment Industry			
Restrict to Dec. End Firms?	N				N				N			
Shock Years:	2013-2019				2013-2019				2013-2019			
Revenue cycle:	Long	Long	Short	Short	Long	Long	Short	Short	Long	Long	Short	Short
Accounting Regime:	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$\varphi_{2,i}$	-0.023	-0.040	0.010	-0.022	-0.016	-0.034	0.010	-0.022	-0.020	-0.047	0.011	-0.027
p-value	0.086	0.019	0.363	0.168	0.129	0.024	0.363	0.168	0.148	0.010	0.312	0.112
$\varphi_{4,i}$	0.049	0.039	0.023	0.049	0.036	0.016	0.023	0.049	0.055	0.042	0.032	0.048
p-value	<0.001	0.016	0.013	0.001	<0.001	0.306	0.013	0.001	<0.001	0.013	0.001	0.001
$\varphi_{6,i}$	0.071	0.021	0.014	0.036	0.059	-0.001	0.014	0.036	0.071	0.015	0.017	0.037
p-value	<0.001	0.289	0.129	0.015	<0.001	0.944	0.129	0.015	<0.001	0.485	0.072	0.015
N	2,763	1,085	7,545	2,881	4,053	1,586	7,545	2,881	2,763	1,085	7,545	2,881
McElroys R^2	0.0068	0.0037	0.0003	0.0027	0.0045	0.0012	0.0003	0.0027	0.0064	0.0039	0.0005	0.0025
$\varphi_{6,i}$ / $\varphi_{4,i}$	146%	55%	60%	74%	167%	-7%	60%	74%	129%	35%	55%	78%

Table 6 Differential Effects of ASC 606 between Long and Short Revenue Cycles (Cont.)

This table examines Equations (2)-(4) in a Seemingly Unrelated Regressions (SUR) model. $\widetilde{\theta_{J,t}}$ is industry shock in year t (see Appendix A for a complete list and Table 2, Panel A, for the shock computation procedure). $Rev_{i,t-1}$, $Rev_{i,t}$, and $Rev_{i,t+1}$ are firm i's years t-1, t, and t+1 revenue, scaled by beginning total assets. We winsorize the scaled revenue at the 1st and 99th percentile in each fiscal year. We subtract the firm's long-run average and the annual average from each variable, analogous to firm and year fixed effects in the OLS regressions. Intercepts are not reported. Models (1)-(4) are based on the sample of 14,274 firm-years excluding financial services and firms' primary industries' shocks from 2013-2019. Models (5)-(8) add 1,791 financial services, except for commercial banks. Models (9)-(12) replace primary industry shocks with segment industry weighted-average shocks using segment revenues as weights. Models (13)-(16) restrict samples to only firms whose fiscal years ended in December. Models (17)-(20) restrict shocks to the period ended in 2019, so the Pandemic 2020 year's revenue is not examined. Each set of models represent: a pre-ASC 606 period for long cycle firms, a post-ASC 606 period for long cycle firms, a pre-ASC 606 period for short cycle firms, and a post-ASC 606 period for short cycle firms. Long and short cycles are based on the industry membership in Appendix B. We collect firms' adoption fiscal year information from EDGAR (see Table 1, Panel C).

Seemingly Unrelated Regressions

Equation (2): $REV_{i,t-1} = \varphi_1 + \varphi_2 \cdot \theta_{j,t} + \varepsilon_{i,t-1}$

Equation (3): $REV_{i,t} = \varphi_3 + \varphi_4 \cdot \theta_{j,t} + \varepsilon_{i,t}$

Equation (4): $REV_{i,t+1} = \varphi_5 + \varphi_6 \cdot \theta_{j,t} + \varepsilon_{i,t+1}$

Exclud. Financial Services?	Y				Y			
Shock Measured at:	Primary Industry				Primary Industry			
Restrict to Dec. End Firms?	Y				N			
Shock Years:	2013-2019				2013-2018			
Revenue cycle:	Long	Long	Short	Short	Long	Long	Short	Short
Accounting Regime:	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Model:	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
$\varphi_{2,i}$	-0.030	-0.035	0.008	0.000	-0.023	0.143	0.010	0.987
p-value	0.051	0.048	0.540	0.980	0.086	<0.001	0.363	<0.001
$\varphi_{4,i}$	0.068	0.048	0.026	0.060	0.049	0.244	0.023	1.070
p-value	0.000	0.006	0.022	0.000	<0.001	<0.001	0.013	<0.001
$\varphi_{6,i}$	0.076	-0.002	0.015	0.037	0.071	0.080	0.014	0.347
p-value	0.000	0.935	0.168	0.026	<0.001	<0.001	0.129	<0.001
N	2,100	915	5,279	2,335	2,763	516	7,545	1,344
McElroys R^2	0.0098	0.0039	0.0004	0.0042	0.0068	0.4272	0.0003	0.3181
$\varphi_{6,i}$ / $\varphi_{4,i}$	112%	-4%	59%	61%	146%	33%	60%	32%

Table 7 Increasing Use of ASC 606 Jargon in Sales Contracts

This table examines Equation (10): $Cosine/Jargon_k = \tau_0 + \tau_1 \cdot Time_t + \sum \tau_{2,l} \cdot Control_{l,k} + \varepsilon_k$ in a sample of 758 material sales contracts filed by 109 distinct firms to the SEC from 2014-2020. For each contract, we compute Cosine Similarity with the text of ASC 606's five-step procedure (ASU 2014-09) or the frequency of the following ASC 606 jargon: rights, obligations, commercial substance, performance obligation, probable, collectib, at a point in time, over time, variable consideration, noncash consideration, transaction price, and standalone selling price. We scale the frequency of ASC 606 jargon by the total words in each contract. We use a bigram or a trigram as our unit to calculate cosine similarity because many ASC 606 jargon contain more than one word, such as performance obligation or standalone selling price. Models (1) and (2) examine Cosine Similarity, and Models (3) and (4) examine the frequency of ASC 606 jargon. The unit of analysis in Models (1) and (3) is at the contract level. The unit of analysis in Models (2) and (4) is at the firm-year level when we use total words as weights to aggregate contracts within a firm-year. The variable of interest is Time that equals one for 2014, two for 2015, etc. Seven control variables based on each contract's texts are: Length is the number of words in a sales contract and transformed by a log function. Readability is based on the Gunning (1952) FOG Index and multiplied by a negative sign, so a higher value refers to more readable contracts, Specificity is the fraction of words overlapping with specific terms, e.g., locations, organizations, persons, money, percentages, times, dates, in the Stanford Named Entity Recognizer, Forward-looking is the fraction of sentences containing forward-looking terms (Muslu, Radhakrishnan, Subramanyam, and Lim 2015; Bozanic, Roulstone, and Van Buskirk, 2018), Uncertainty is the fraction of words overlapping with the uncertain terms in the Loughran and McDonald database, Tone is the number of positive words minus the number of negative words, divided by the total number of words, and Redaction is the frequency of redaction keywords (e.g., 24b, confidential treatment, ct order, redact, rule 406) deflated by total words. We include firm fixed effects and cluster standard errors based on the five-digit NAICS industry codes. Intercepts are not reported due to a large number of fixed effects.

Model:	(1)	(2)	(3)	(4)
Dependent variable:	Cosine Similarity	Cosine Similarity	ASC 606 Jargon	ASC 606 Jargon
Unit of Analysis:	Sales Contracts	Firm-years	Sales Contracts	Firm-years
Time	**0.02**	**0.03**	**0.02**	**0.03**
p-value	**0.04**	**<0.01**	**<0.01**	**<0.01**
Length	0.13	0.16	0.03	0.06
p-value	<0.01	<0.01	<0.01	<0.01
Readability	-0.01	0.04	-0.11	-0.10
p-value	0.86	0.58	<0.01	0.02
Specificity	-0.10	-0.50	-0.05	-0.19
p-value	0.63	0.07	0.78	0.35
Forward-looking	-0.42	-0.51	-0.16	-0.40
p-value	0.25	0.10	0.48	0.17
Uncertainty	0.21	0.09	0.05	0.06
p-value	0.02	0.19	0.19	0.51
Tone	-0.13	-0.17	-0.06	0.03
p-value	0.02	0.06	0.13	0.77
Redaction	-0.09	-0.09	0.30	0.46
p-value	0.07	0.31	<0.01	<0.01
N	758	365	758	365
R^2	0.41	0.56	0.49	0.61