Regulation and investor processing costs: Evidence from the hyperlink mandate

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Abstract

We study whether the SEC's 2017 hyperlink mandate, which requires linking external exhibits to their underlying documents, reduces investors' processing costs as intended. Despite evidence showing that investors access linked Item 15 exhibits around 10-K filings, we find no change in market-based processing proxies on average. However, as expected, we find investors that theory predicts benefit more from lower acquisition costs (i.e., investors in firms with weak information environments) exhibit stronger post-mandate market responses. In contrast, we find unintended consequences for investors facing processing constraints (i.e., those trading on busier days or processing complex filings) with muted and slower market responses post-mandate, suggesting reduced costs of acquiring external documents increased the cost of processing the 10-K filing. Overall, our evidence indicates usability-focused regulation can generate heterogeneous effects, aiding some investors while inadvertently increasing processing costs for others.

Keywords: Disclosure processing costs; hyperlinks; SEC regulation; acquisition costs; integration costs

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1. Introduction

In recent decades, the Securities and Exchange Commission (SEC) has prioritized initiatives to reduce investor processing costs. Examples of these efforts include establishing the Electronic Data Gathering, Analysis, and Retrieval (EDGAR) system to improve the accessibility of SEC filings (SEC 1994); the *Plain English Handbook* to help firms improve the readability of financial disclosures (SEC 1998); and the eXtensible Business Reporting Language (XBRL) mandates to enhance comparability (SEC 2009; SEC 2018). We extend this literature by assessing whether an SEC usability mandate reduced investors' information-processing costs as intended, and whether the mandate may have created unintended increases in processing costs for some users.[1]

In 2017, the SEC began requiring hyperlinks to external documents ("links") referenced in the exhibit index of 10-Ks, 10-Qs, 8-Ks, and S-1s (SEC 2017). We examine this mandate in the context of Item 15 in 10-K disclosures specifically, as 10-Ks provide a strong setting with unique features to examine how this regulation may have influenced processing costs. For example, the average 10-K includes 57 links to external documents post-mandate, most are already public and relate to compensation or employment, debt or equity, and other material agreements.[2] We examine whether the 2017 link mandate impacted investors processing of 10-K filings.

Ex ante, it is unclear whether the mandate will help or hinder investors' information processing. Consistent with practitioner comment letters, the SEC expects external links to reduce processing costs by facilitating easier access to referenced documents, thus enabling readers to integrate their contents more efficiently into their broader assessment of the 10-K (SEC 2017). However, to the

[1] Investors face processing costs when becoming aware of, acquiring, and integrating information into their decisions (Blankespoor et al. 2019; Blankespoor et al. 2020).

[2] While some research suggests 10-Ks contain value-relevant information in certain circumstances (Li and Ramesh 2009; You and Zhang 2009), other research indicates 10-Ks impose integration costs on users as they are long and include substantial narrative disclosure (e.g., Dyer et al. 2017; Arif et al. 2019).

extent that lower acquisition costs prompt investors to access more external documents, theories from other fields suggest linking to those documents may increase information overload and mute or delay processing of the 10-K.

After retaining 10-Ks filed two years before and after the mandate, and excluding non-adopting smaller reporting companies, our sample includes 13,252 firm years with key variables and parseable 10-K files from EDGAR. The average number of links increases from virtually zero prior to the mandate to 57 afterwards. Importantly, we do not observe an increase in the length of Item 15 (where links reside) after the mandate, suggesting the increase in links is not due to an increase in the number of exhibits. Though some links are to recent documents (34% were filed within the prior year, including landing page links), the links we study often connect investors to stale filings already in the public domain, with 27% being publicly available for over five years.[3]

For the mandate to influence investors, at least two assumptions must hold: (1) investors must perceive the linked documents as providing useful insights for evaluating the focal filing, and (2) they must believe the expected benefits of acquiring these documents exceed the costs, prompting them to access the links. While Hodge (2001) documents that participants find links to unaudited financial information in financial reports useful in an experimental setting, and Cheng et al. (2025) find investors access 10-K landing page exhibits filed contemporaneously with 10-Ks in the pre-period, it remains unclear whether investors perceive the stale external links at the end of the 10-K to be useful in their overall assessment of the financial report. Therefore, we take several steps to validate these assumptions in our setting before testing our research question.

[3] The newest links are to those contemporaneously filed on the landing page; these represent a minority of the links (just over 15%). While the newest documents (< 1 year old) receive twice the views of older ones in the three days around the 10-K filing, there is little decay as documents age beyond two years. This evidence suggests even older exhibits can help investors complete the "mosaic" of information available (SEC 2000; Drake et al. 2016; Li et al. 2011), consistent with the SEC deeming the exhibits sufficiently important to mandate their inclusion and linkage in the filings.

First, we observe that comment letters about the mandate are largely positive, supporting the assumption that at least some investors expect linked documents to be useful. While we lack data on investor views of linked documents during our sample window, we provide additional evidence from the post-mandate period in which EDGAR download data is available.[4] Specifically, we document that views of linked documents spike in the three days' around the focal filing, consistent with the joint expectation that readers expect these documents to be useful and that the perceived benefits of accessing them exceed the perceived costs, at least for some users.

We also train a large language model to classify the documents into topics and find 55% of the links in our sample are to plausibly informative documents (e.g., equity, debt, compensation, and other firm-specific contracts). Readers are more likely to access linked documents that are more complex and more similar to the 10-K, and less likely to access documents that are longer and older, further suggesting that readers selectively view linked documents when they expect greater benefits. This is consistent with investors rationally accessing documents they expect to facilitate processing of the 10-K, even when those documents are stale and at the end of the filing.

After validating the underlying assumptions, we test the SEC's expectation that investors process 10-Ks more efficiently post-mandate using three market-based proxies. These measures are based on prior research showing EDGAR views impact processing costs and ultimately market outcomes (Drake et al. 2015; Drake et al. 2016; Blankespoor et al. 2020). Because we develop our predictions from human information processing theories, our first proxy is abnormal retail volume to identify human trading activities. We supplement this measure with total abnormal volume and absolute cumulative abnormal returns to capture overall market responses. These unsigned

[4] The SEC notes on their website that "EDGAR log file data for July 1, 2017 to May 18, 2020 is no longer available" (https://www.sec.gov/about/data/edgar-log-file-data-sets). As such, the data on views of the linked documents is constrained to the period after May 18, 2020 (i.e., the post-period).

measures reflect investors' willingness to trade (rather than reflecting any trading advantage).

We are unable to provide consistent evidence that the mandate is associated with the market measures, on average. As such, we next focus on a setting where theory predicts reduced acquisition costs will improve investor processing. Research shows investors in firms with weak information environments receive greater benefits to acquiring information (e.g., Verrecchia 1982; Diamond and Verrecchia 1991; Frankel and Li 2004). Thus, to the extent that lower acquisition costs (from the mandate) lead investors to access more external documents, the resulting increase in useful information should generate greater benefits in this setting. We proxy for a firm's information environment using the first principal component of firm size, age, growth, and analyst following. As expected, firms with weaker information environments experience stronger post-mandate 10-K responses, suggesting links help investors process 10-Ks when investors obtain greater benefits from acquiring additional information.

We next provide additional insight into the null on-average results, and investigate whether the mandate has unintended consequences in some circumstances. If reduced acquisition costs increase the number of documents investors access, studies in economics suggest "information overload" may diminish users' capacity to effectively integrate information (e.g., Tversky and Kahneman 1974; Hirshleifer and Teoh 2003), increasing investors' costs of processing the 10-K. Similarly, theories and evidence in computer science and psychology suggest including links increases readers' mental load (e.g., DeStefano and LeFevre 2007). When documents contain links, users expend cognitive resources to switch between documents and topics, resulting in reduced mental capacity to form conclusions (e.g., Boechler 2001; Conklin 1987).

Given processing constraints reduce investors' capacity to efficiently integrate information (e.g., Sims 2003; Hirshleifer et al. 2011), we expect investors already facing such constraints will

view acquiring linked information especially costly when processing 10-Ks. As expected, we find weaker market responses to 10-K filings in the post-period for more constrained investors (i.e., on busier days and for more complex 10-Ks). Importantly, the total effect for constrained investors is consistently negative. If constrained investors did not use the links or the linked documents did not contain useful information, we would not expect to observe this net effect. In contrast to prior findings that investors benefit from contemporaneous exhibits and internal links (Blankespoor 2018; Cheng et al. 2025), our evidence suggests reducing the cost of accessing stale documents external to the 10-K increases net processing costs for constrained investors.

We substantiate this interpretation with several additional analyses. First, we examine the speed of the 10-K price response. If constrained investors use linked information to process the 10-K but do so less efficiently (due to increased processing costs), we expect delays in price formation. Alternatively, if the constraints lower investors' propensity to view the linked documents, or the information is less helpful for these investors, we should observe muted price responses but no change in the *efficiency* (i.e., speed) of the price responses around the mandate. Using three price response measures (5-day intraperiod timeliness, 10-day intraperiod timeliness, and the fraction of longer-window returns that relates to the 10-K filing date), we provide evidence that the mandate resulted in a slower 10-K price response for constrained investors after the mandate, relative to unconstrained investors (four of six specifications are significantly negative). This finding is consistent with the reduction in acquisition costs for external documents ultimately increasing the number of documents accessed and increasing integration costs for constrained investors processing 10-K filings.

We next explore the relative impact of the link mandate on different types of investors. Following Gomez (2024), we use abnormal bid-ask spreads to assess whether including links in

10-Ks impacts information asymmetry. We find links increase abnormal spreads around 10-K filings on average as well as in weak information environments. These results suggest the adoption of links benefited relatively sophisticated investors more than unsophisticated investors in general, and when trading in firms with weaker information environments in particular. However, we do not find a significant effect on abnormal spreads in our investor constraint tests, suggesting that sophisticated and unsophisticated investors are similarly affected by links when constrained.

Our study faces several limitations. First, the mandate affected all firms at the same time, leading to concerns about contemporaneous events and macroeconomic trends underlying our findings.[5] To address these concerns, we replicate our primary results with calendar-year fixed effects to take advantage of the mid-year implementation, and are unable to find similar effects around placebo event dates. A related concern is whether our results arise from firm characteristics changing over time. While the calendar-year fixed effects help mitigate this concern, we also control for firm characteristics in all analyses and we confirm our results hold in fully interacted models and both for bundled and unbundled 10-Ks, but not for 10-Qs. Second, we face data constraints given the lack of SEC log files immediately surrounding the mandate. Nonetheless, we examine views of linked documents surrounding 10-Ks when the log files resumed after the mandate to provide evidence on whether users view stale, linked documents immediately surrounding the focal 10-K filing. Although we take steps to mitigate these issues, we acknowledge that the additional steps cannot fully rule out concerns about timing and endogeneity.

Despite these limitations, our study offers new evidence that SEC usability initiatives may yield benefits but also unintended costs for certain users. These insights are relevant to regulators

[5] Of particular concern are two regulations in similar calendar time - ASC 606 affected public firms' revenue recognition for reporting periods after December 15, 2017, and the Tax Cuts and Jobs Act made substantial changes to the U.S. tax code effective January 1, 2018. See Figure 2 and corresponding discussion for further details.

and academics. Beyond offering the first examination of the link mandate, our study informs the SEC as they "continue to consider the expanded use of hyperlinks" and other disclosure innovations (SEC 2017, page 17; SEC 2019; SEC 2020). Our findings contrast with evidence from other settings (e.g., XBRL) that document cross-sectional variation in the benefits of internally linked content. Although links to external documents can be useful in some circumstances, they appear to increase processing costs in others. As the SEC continues to prioritize filing usability, our study suggests heterogenous effects may warrant careful consideration, particularly when policies facilitate access to large quantities of stale information.

In addition, the mandate's distinguishing features allow us to contribute to research on how links affect information acquisition and decision-making. For example, using experiments, Hodge (2001) shows that links in audited financial statements prompt users to incorporate additional (unaudited) information. By extending this idea to information external to the focal document, we provide evidence on when such supplementary information may be helpful or harmful to users.

Finally, our study contributes to the disclosure processing literature, which often bundles processing costs together. Blankespoor et al. (2020) calls for research to examine how different types of costs interact and how new technologies affect those costs for different users. Our study addresses these issues by showing cost effects vary with firm and filing characteristics. Our cross-sectional evidence shows that new technologies can have heterogeneous effects across users. Importantly, while concurrent work finds investors perceive contemporaneous exhibits to be useful prior to the link mandate (Cheng et al. 2025), our evidence suggests reducing the cost of accessing stale, external exhibits may trigger information overload and ultimately increase processing costs.

2. Background and Setting

2.1 Regulatory usability initiatives

In recent decades, regulators have focused on improving the usability of financial documents with the underlying goal to reduce investor processing costs. For example, in 1998, the SEC published the *Plain English Handbook,* which is an 83-page document dedicated to helping firms write financial documents in language that can be easily understood by users (SEC 1998). The SEC followed this handbook with an interpretation of the MD&A guidance, to assist companies "in preparing MD&A disclosure that is easier to follow and understand" (SEC 2003).

As firms transitioned to electronic filing, the SEC's usability focus shifted to improving users' ability to access and process information in electronic documents. For example, in 1994, the SEC mandated electronic submission of public filings using EDGAR (SEC 1994). The SEC continued to focus on standardizing machine-readable financial data with the initial XBRL rule, followed by the updated Inline XBRL (iXBRL) rule (SEC 2009; 2018). While iXBRL facilitates efficient movement within a filing (across content within the same document), the 2017 link mandate requires firms to prepare SEC filings in HTML format and provide links to external exhibits to facilitate efficient movement across documents (across often stale filings, varying substantially in age and content) referenced in 10-Ks, 10-Qs, 8-Ks, and S-1s (SEC 2017).[6]

Prior studies assessing the effectiveness of the SEC's usability guidance include studies examining EDGAR adoption (e.g., Qi et al. 2000; Asthana and Balsam 2001; Asthana et al. 2004; Gao and Huang 2020; D'Souza et al. 2010) and the XBRL and iXBRL mandates (e.g., Blankespoor et al. 2014; Dong et al. 2016; Bhattacharya et al. 2018; Luo et al. 2023). In general, the SEC expects these mandates to have "one-size-fits-all" benefits for investors.[7] While prior research

[6] We discuss this mandate further in section 3. Importantly, most firms were already using HTML in their filings at the time of the mandate, reducing concerns of confounding effects. Of the 8,414 filings between 10/1/2015 – 9/30/2016, 8,348 (99.2%) were already using HTML (SEC 2017).

[7] For example, the SEC explains that XBRL will "enable investors, analysts, and the Commission staff to capture and analyze that information more quickly and at a lower cost" (SEC 2009, p. 124-125) and that "investors and financial markets benefit from the immediate access to information the [EDGAR] system provides" (SEC 1994). Similarly, the link mandate states "overall, we believe the amendments will reduce search costs for investors" (SEC 2017, Section

finds investors benefit from these initiatives, several studies find benefits differ across investors. For example, studies document differential effects based on trade size (e.g., Asthana et al. 2004; Blankespoor et al. 2014), institution size (e.g., Bhattacharya et al. 2018), and investment characteristics (e.g., Dong et al. 2016). Our study builds on this literature by examining variation in predicted benefits across investors of treated firms and whether a mandate expected to reduce processing costs may inadvertently have unintended consequences resulting in increased processing costs for some investors.

2.2 Setting

Consistent with the SEC's focus on improving financial statement usability, in 2017, the SEC issued a mandate requiring firms provide links to external documents listed as exhibits under Item 601 within 10-Ks, 10-Qs, 8-Ks, and S-1s filed on or after September 1, 2017 (SEC 2017).[8,9] The timeline in Figure 2 illustrates the mandate's implementation and other contemporaneous events.

Before the mandate, readers wanting to acquire *external documents* referenced in SEC filings had to manually search for and download the documents from EDGAR or perform other manual searches to find the information. Embedding a link in the focal filing reduces readers' costs of acquiring the external documents, as they can instantly connect to the referenced document with a

3.IV.B). These mandates generally do not make references to users who may not benefit from the initiatives or circumstances that may diminish the benefits.

[8] Firms can only provide links to documents contained in the EDGAR database. EDGAR will not accept a filing if it has links to non-EDGAR sources due to concerns about inactive links (SEC 2017). Although filings often include internal links (i.e., to locations within the filing; e.g., clicking a link in the Table of Contents of a 10-K to get to the Financial Statements section within the same 10-K filing) and external links (i.e., to documents outside the filing), the mandate only applies to the latter. As such, internal links are outside the scope of our study.

[9] While accelerated filers were required to meet this deadline, smaller reporting companies not already using HTML coding were not required to provide links until the following year (i.e., filings after September 1, 2018). Upon empirical investigation, it appears that 95% of smaller reporting companies adopted the standard with accelerated filers, consistent with the SEC's documentation that the vast majority of smaller reporting companies should be required to make the change (SEC 2017). We examined the smaller reporting companies with fewer than 15 links in the post-period and determined that 10-Ks with ten or more links generally appeared to have adopted the mandate; but those with fewer than 10 links did not. Therefore, we exclude smaller reporting companies filing 10-Ks with fewer links in the year following the mandate. We discuss this design choice in the context of Table 1 in section 3.1.

single click, adjusting their cost-benefit analysis of accessing the document. Appendix A provides an example of the list of Item 15 exhibits pre- and post-mandate. First, the user decides whether to view the linked content. If the user chooses not to view the document, they then consider the next link. If the user chooses to click, they are immediately taken to the external document. Then, the investor processes the document, which may entail reading, ascertaining whether it contains useful information, and, if so, integrating the information into their assessment of the 10-K filing. Finally, the user returns to the focal document, moving to the next link and repeating the process.

While the mandate applies to any SEC filing with an exhibit index, we focus on 10-Ks as they offer a strong setting to examine the mandate's processing benefits and unintended consequences. The 10-K is an important financial filing that research suggests is value-relevant and associated with market responses in some cases (Li and Ramesh 2009; You and Zhang 2009). Empirical evidence also suggests the 10-K, including the contemporaneous landing page exhibits filed in the pre-link period, is useful to investors in completing the mosaic (Drake et al. 2016; Li et al. 2011; Cheng et al. 2025).[10] Importantly, the average 10-K references a non-trivial number of external documents, increasing our ability to detect any impact of adding links on investors' ability to process the 10-K. In addition, the 10-K is long and getting longer (e.g., Dyer et al. 2017) and contains substantial narrative text. Related concerns about investor costs incurred to process 10-Ks (e.g., Arif et al. 2019) suggest links may be especially helpful.

There are also drawbacks to using the 10-K setting. For example, prior research shows the information extracted from 10-Ks is generally limited (Arif et al. 2019; Lev 2018). There is also cross-sectional variation in the concurrent information provided as firms increasingly release

[10] Consistent with Tetlock (2011), which suggests stale information can lead to overreaction, it is possible that accessing the linked information results in an overreaction to the 10-K. However, the results in our later price response tests are inconsistent with this interpretation. We discuss this test in section 5.

earnings and host conference calls concurrently with 10-K filings (see Arif et al. 2019).

While the mandate also affects 10-Q and 8-K filings, they are weaker settings than 10-Ks for several reasons. First, 10-Qs contain fewer links than 10-Ks (see Figure 1 Panel A), and the links connect readers to documents that are less likely to be useful to investors.[11] Second, 8-K filings have even fewer links, and the filing itself and the linked document(s) are generally about the same topic.[12] For example, 8-K filings covering Item 1.01 disclose a new or amended material contract outside normal business practice. Thus, most have only one link to the underlying contract. Moreover, because 8-Ks are event based, they are non-random and may correlate with changes in firm characteristics. We assess alternative filings in later falsification analyses.

2.3 Comparison to related settings

Examining external links under the SEC mandate offers a stark contrast to related settings. The two settings most closely related to the link mandate are iXBRL, as discussed above, and links to external, contemporaneously filed documents on the landing page of the 10-K in EDGAR.

Focusing purely on the mechanical differences, there are several key aspects of our setting that differ from iXBRL and landing page links. The first difference relates to the content of the links. While the information linked in the other two settings is current, most of the exhibits linked under the link mandate contain stale information already in the public domain. A second difference is the geography of the links under the new mandate. The links contained in the other settings are found earlier in the 10-K. The landing page links are found on the "filing" page on SEC.gov, and the iXBRL links are scattered throughout the 10-K. Alternatively, the exhibits that contain the links

[11] To substantiate this assertion, we also collect documents linked in 10-Qs over our post-period sample window and use the large language model (discussed in section 3) to classify the documents by topic. Sample 10-Qs have a mean (median) of 10 (7) linked external documents. 10-Qs filed in our sample period include an average of 1.03 compensation contracts, 3.19 certifications, 3.17 unclassified documents, and average less than one for each of the other contract categories.

[12] 8-K filings during our post-window have a mean (median) of 1.6 (0) links (untabulated).

under the new mandate are located at the very end of the 10-K filing. An additional difference regarding the content of the iXBRL links, specifically, and those under the new mandate is where the linked information is found – iXBRL links take the reader to information within the 10-K itself while the Item 15 links take the reader to documents outside the 10-K.

Together, these features of the link mandate suggest the information contained in the links may be less useful to readers, both due to the linked content and the location of the links themselves. Links to contemporaneously released information (under both iXBRL and landing pages links) should be plausibly more useful to investors processing 10-K filings, relative to stale information (under the link mandate). In addition, links to content within the focal filing (under iXBRL) should be less likely to slow down investor processing, as the content of the links should be more relevant to processing the focal filing relative to links that direct the reader outside the document (under landing page links and the link mandate).

One final key difference between the link mandate and iXBRL relates to investor processing costs. The link mandate is purely focused on facilitating easier and faster access to the documents referenced in the exhibits (i.e., reducing the cost of acquiring relevant external content). Given the stale nature and the volume of content linked, the mandate offers a strong setting to examine whether this will help investors better understand the firm-specific economics reported in the 10-K filing. Alternatively, iXBRL is focused on improving comparability across firms and over time (i.e., reducing both acquisition and integration costs), and is expected to help investors as a result.[13] Thus, the ex ante expectation for how these settings should affect processing costs differs.

[13] As our post-period ends with calendar year 2019 and iXBRL adoption began for fiscal years ending on or after June 15, 2019, there is limited overlap in our study. Moreover, a key difference is that the links ask more of the reader than iXBRL tags. While tags allow a reader to quickly access information directly related to the underlined data, links require the reader to decide whether to view the link and switch to a different document and context. Because the information provided in linked documents is less directly related to firms' current financial disclosures, it may exacerbate cognitive and information overload.

3. Sample, Links, and Validation

3.1 Sample

We begin with the universe of firms with Compustat data in the two calendar years before and after the mandate (46,954 firm-years, see Table 1). This approach minimizes confounding events while still ensuring we have sufficient power to detect any processing cost effects. We exclude firm-years missing permnos or accession numbers, and with missing or negative assets. Moreover, we exclude 46 firms (174 firm-years) that do not appear to have adopted the mandate (Smaller Reporting Companies filing with ASCII, see SEC 2017). After requiring parseable 10-Ks and sufficient data to calculate control variables, we have a final sample of 13,079 firm-years.

Table 2 Panel A provides descriptives of the linked documents' content. The 10-Ks include a mean of 57 links, of which 17% link to concurrently released documents also listed on the landing page.[14] 20% of linked documents are issued in the ninety days preceding the 10-K (including landing page exhibits), 31% within the prior year, and 71% within the last five years. Moreover, 22% are material contracts.[15] The links connect to several SEC filing types, with 33% linking to previously issued 8-Ks, while 16%, 14% and 9% link to prior 10-Qs, 10-Ks, and S-1s, respectively.

To further analyze the content, we classify the linked documents into topics using the link description. Specifically, we manually classified the link description from a sub-sample of 300 firms (17,675 links) to train a large language model to classify the full sample of links.[16] Table 2

[14] All linked exhibits in the 10-K are either already in the EDGAR database from prior public filings or are new and attached to the current 10-K. The new documents not already in the EDGAR database can be accessed on the "landing page" of the current 10-K as additional "Document Format Files" (as described in Reg S-K, rule 601). We note that the landing page itself did not change between the pre- and post-periods. The only change between the pre- and post- periods is the requirement to link the exhibits to the underlying source documents. Our measure of links includes all links within the 10-K to documents outside the 10-K (including new documents residing on the landing page and those already in the EDGAR database).

[15] We identify material contracts as linked 8-K filings containing Item 1.01.

[16] We randomly selected one 10-K from each of the 300 randomly selected firms in the post-period. We then manually classify these links (N=17,675) into categories and fine-tune a BERT-base-uncased model to distinguish across these categories. After training the model on 80% of the hand-coded links, we test the model on the remaining 20% and observe an accuracy rate of 96%. We then use this model to classify the full sample of links.

Panel A shows linked documents have an average (median) of 12,699 (11,381) words. The topics we expect to provide information useful for processing the 10-K include compensation and employment (*Topic_CompEmploy)*, other firm-specific contracts (e.g., tax sharing, M&A, or supplier agreements; *Topic_OtherContracts*), debt (*Topic_Debt)*, and equity (*Topic_Equity)*, averaging 15.1. 6.9, 5.7, and 3.2 links per 10-K, respectively. The topics we expect to be less helpful include CEO and CFO certifications (*Topic_Certifications)*, by-laws and articles of incorporation (*Topic_Bylaws)*, and auditor related items (*Topic_Auditor)*, averaging 3.2, 2.3, and 1.0 links per 10-K, respectively. The remaining links that either lack a meaningful description or do not fit into a category are labeled "unclassified" (e.g., ratio computations, codes of conduct, financial statements, powers of attorney; *Topic_Unclassified*).

3.2 Links – Measurement and validation

Our treatment variable is an indicator equal to one for 10-Ks filed after the mandate and zero otherwise (*Adopt_Links*).[17] This and all other variables are defined in Appendix C. Table 2 Panel B suggests we have a balanced sample, with 6,759 (or 51.7%) of our firm-years occurring in the post-period. Although some characteristics such as firm size (*MVE*) and document readability (*FOG*) exhibit significant differences between the pre- and post-periods, these differences are not economically large, and we control for these characteristics throughout our analyses.

We next validate that the link mandate significantly increased the number of links and that our measure (*Adopt_Links)* captures the increase. Appendix D discusses our detailed process for measuring links. Figure 1 Panel A shows a substantial increase in the number of links in the post-period. In untabulated analyses, we document that even after including firm fixed effects, calendar-

[17] We expect to observe the strongest effects at the extensive margin (i.e., turning links on) as opposed to the intensive margin (i.e., adding one additional link). Moreover, this variable is more likely to capture exogenous variation in link use than a continuous measure will capture. Nonetheless, we assess a measure of continuous links in later tests (see section 6).

year fixed effects, and controls, we continue to document an average increase of 54 links. Importantly, this increase does not appear to result from an increase in the number of exhibits in the post-period, as there appears to be a decrease in exhibit index length between the year immediately before and after the mandate (see Table 2 Panel B; *Item15_Length*).[18]

For the link mandate to have any impact on investor processing, investors must perceive the information in the linked documents to be useful in efficiently formulating investing decisions such that they choose to click. The results in Figure 1 Panels B and C and Table 3 Panel A support this assertion – we find significantly more views of newer (less than one year old) linked exhibits, and we find a substantially more views during the three days surrounding the 10-K filing than in either the pre or post windows.[19] Further, the results from the large language model provide convincing evidence that a nontrivial number of links are to documents that investors could plausibly view to be useful (Table 2 Panel A).

In Table 3 Panel B, we provide additional insight into the views of the linked documents in the period in which click data is available (i.e., after the mandate goes into effect). We construct measures of several linked document characteristics including similarity to the focal 10-K, linguistic complexity, specificity, and document age relative to the focal 10-K document. In Table 3 Panel B, we show investors are more likely to view external linked documents that are more complex and more similar to the 10-K. Moreover, the evidence suggests investors are less likely

[18] Similarly, the increase does not appear to result from a change in the number of post-period landing page exhibits, as there is no statistical difference in the number the year prior to the mandate and the year of adoption (untabulated).
[19] These findings are consistent with experimental research that shows readers view linked information in audited financial statements (Hodge 2001). Due to data limitations, we are restricted to EDGAR views over the 2020-2023 window, post-mandate. The SEC notes on their website that "EDGAR log file data for July 1, 2017, to May 18, 2020, is no longer available" (https://www.sec.gov/about/data/edgar-log-file-data-sets). The 2020-2023 log files (available from 5/19/2020 – 6/30/2023) do not contain an IP address or other unique identifier, so we are unable to categorize users. However, as the 2020-2023 log files are after the mandate, they are sufficient for validation purposes. For exhibits that are on the landing page, we cannot separate views that originate from the exhibit link from those from the 10-K itself.

to view long and stale documents, consistent with investors rationally viewing documents that they perceive are more likely to provide insights helpful in processing the focal 10-K. Cumulatively, this evidence indicates at least some investors perceive acquiring these documents to be useful in processing the 10-K filing (e.g., Drake et al. 2015).[20]

4. The SEC's Perspective: Do links help investors?

4.1 Empirical Prediction #1

The SEC expects the mandate's benefits to arise from helping investors more efficiently acquire external documents relevant to the 10-K. As stated in the mandate, the "exhibit hyperlinks will help investors and other users to access a particular exhibit more efficiently," ultimately "reducing search costs" (SEC 2017). The SEC mandating both that firms reference the source documents as exhibits and subsequently provide links to the source documents (Item 601 of Regulation S-K and SEC 2017) indicates the SEC views the information within these documents to be useful to investors. This sentiment is supported by the positive comment letters the SEC received from practitioners regarding the mandate (see Appendix B for examples). To the extent the links help investors already acquiring these documents acquire them more efficiently, this will unambiguously reduce processing costs for those individuals using the documents to provide context to the 10-K.

Links may also reduce perceived processing costs for investors not already accessing linked documents or alter the cost-benefit tradeoff for those already doing so, increasing the number of exhibits accessed. To the extent that links lead investors to acquire additional documents that are

[20] Prior studies show that daily views of 10-Ks and 10-Qs are typically low, averaging 20 (median 8) per firm per day (Drake, Roulstone, and Thornock 2015). In contrast, our finding of an average (median) of 85 (18) views for a single historic filing on a single day is relatively high. Because our data is from the post-link mandate, these view counts may represent a lower bound on the increased attention triggered by the policy. We also note that the prior studies use the first iteration of log files which allows them to remove machine views, but we use the second iteration of log files which does not allow us to remove machine views.

useful for investment decisions and can be processed efficiently, this additional acquisition should also help investors process the 10-K. For these reasons, we expect that the link mandate will reduce processing costs, on average.

To the extent that either (1) there is minimal cost reduction from the more efficient acquisition process (e.g., the cost reduction per document is minimal, an insufficient number of documents were accessed, or an insufficient number of investors were acquiring the external exhibits in the pre-period) or (2) viewing additional documents increases investors' cost of processing the 10-K, we may not observe reduced processing costs on average. Whether the link mandate improved investor processing is an open question.

4.2 Net processing cost measures

As noted in Blankespoor et al. (2020), "processing costs […] affect the market's informational efficiency and ability to effectively allocate capital" (p. 8). To the extent processing costs affect investor perceptions of information asymmetry, they can influence investors' willingness to trade and, ultimately, market responses to firm disclosures. We draw inspiration from Blankespoor et al. (2020) and other studies that relate EDGAR views to market responses (Drake et al. 2015; Drake et al. 2016) in constructing our market-based measures of investor processing costs of the 10-K.

As the processing cost framework predominately characterizes costs incurred by human investors actively processing firm disclosures, our first processing cost proxy is abnormal retail volume. We conjecture that retail trading is more likely to capture processing cost effects borne by human investors than market-wide measures. In addition, analytical research suggests that abnormal volume can capture processing costs - when investors are uncertain about how to respond to news, they are hesitant to trade (Holthausen and Verrecchia 1990; Kim and Verrecchia 1991). Consistent with this argument, we expect decreases in processing costs to motivate retail investors

to trade, ultimately resulting in increased retail trading volume (and vice versa).[21]

We measure abnormal retail volume (*AbnRetailVol*) as the difference in average daily retail volume over days [0,+1] less days [-50, -5], scaled by the standard deviation of retail volume over days [-50, -5] (Arif et al. 2019; Bamber et al. 2011). For this and all other market proxies, we adjust day zero to be the next trading day for filings after 4PM EST. We identify trades likely to be retail following Boehmer et al. (2021) as this is more likely to capture human trading than overall market volume. However, we acknowledge that it is likely a lower bound on actual retail trading activity (Barardehi et al. 2023). Given the benefits of volume as a proxy for trading activity, our second measure is constructed using total volume (*AbnVol*) to supplement our retail volume measure.

Our final 10-K processing cost proxy is the absolute value of abnormal returns around the 10-K filing date, to facilitate comparison with recent studies examining processing costs (e.g., Yen and Wang, 2015; Arif et al. 2019; Glaze et al. 2023). This measure captures the information processed by investors immediately around the filing date, independent of the direction of news. If increased processing costs reduce investor willingness to trade, we expect a weaker price response to the 10-K. Our measure of abnormal returns (*AbsCAR*) is the absolute value of the difference in the firm's cumulative return less the CRSP value-weighted cumulative market return in the three days around the 10-K [-1,+1] . We observe a median *AbsCAR* of 2.4 percent around 10-Ks filed in our sample period (Table 2 Panel B).

4.3 Results – SEC's perspective (on-average effects)

We use the following model to estimate the relation between links and processing costs:

(1)

[21] Abnormal volume measures increased trading activity. Some studies suggest this activity is indicative of more informative disclosure leading to more trading, while other studies suggest abnormal volume is indicative of increased disagreement (suggestive of less informative disclosure). In our setting, irrespective of whether the additional views result in a convergence or divergence of beliefs, we expect any reduction in processing costs to be associated with more trading, which is the mechanism underlying both arguments. See Bamber et al. (2011) for further discussion.

$$Investor\ Response = \alpha + \beta_1 Adopt\_Links + \sum \delta\ Controls + \gamma_{Firm\ FE} + \varepsilon$$

Investor Response equals *AbnRetailVol, AbnVol,* or *AbsCAR,* as described above. If the links reduce investor processing costs, we expect a significantly positive coefficient on *Adopt_Links* (β_1). One benefit of the mandate is that it introduces plausibly exogenous variation in links. However, to further mitigate the concern that our results manifest from underlying time-invariant firm or document characteristics correlated with links, we include firm fixed effects in our analyses and cluster standard errors at the firm-level.

We also include controls for within-firm variation in document and firm characteristics that may be associated with links and market responses to 10-Ks (all variables are defined in Appendix C). First, we control for variation in the complexity of the 10-K with controls for document length (*Ln(Word_Count)*), readability (*FOG*), and the percents of negative and litigious words (%*Negative_Words* and %*Litigious_Words*, respectively). Second, we control for firm performance with *ROA*, a *Loss* indicator, and earnings surprise (*SUE*) and firm characteristics including size (*MVE*), book-to-market (*BTM*), *Leverage,* and property, plant, and equipment intensity (*PP&E*). Third, we control for information events that occur in our treatment period and may be associated with 10-K market responses. We include indicators if the 10-K is released on the day of or day following the earnings release (Arif et al. 2019; *Bundled*), the firm engaged in M&A activity during the year (*M&A*), and special items exceed 1% of assets (*Large_Sp_Items*). Finally, as the links often relate to debt or compensation contracts, we control for the change in leverage (*Change_Leverage*) and stock-based compensation (*Change_StockComp*).

We construct one final control variable to account for variation in external exhibit information that may not be captured by our other controls. Table 2 Panel B indicates 10-Ks have 437 (201) rows of text in the average (median) Item 15 section (*Item15_Length*), indicating the distribution

of this variable is highly skewed, and that there is likely non-trivial noise in the measure.[22] To the extent this is a firm-specific, time-invariant feature, including firm fixed effects should alleviate measurement concerns. Nonetheless, we include this variable to at least partially control for Item 15 length and thus the number of exhibits.

We present the results from estimating equation (1) in Table 4, columns 1-3. Columns 1 and 3 suggest no association exists between adding links within the 10-K to abnormal retail volume or returns. However, Column 2 provides some evidence that inclusion of the links is positively associated with total abnormal volume. This limited evidence is inconsistent with the SEC's expectation that linking exhibits to source documents meaningfully reduces investors' overall cost of processing the 10-K filing, on average.

4.4 Results – Weak information environment

Although we do not detect a consistent on-average effect, it is possible the mandate reduces processing costs for a subset of firms. Therefore, we examine a setting where investors are expected to receive greater benefits from reduced information acquisition costs for Item 15 exhibits. Theory and empirical research show investors acquire additional information when firms have weaker information environments, due to a greater opportunity to earn abnormal returns (e.g., Verrecchia 1982; Diamond and Verrecchia 1991; Luo et al. 2023; Cheng et al. 2025). As such, we expect investors in firms with weaker information environments to receive greater benefits from reduced acquisition costs post-mandate.

We measure information environment using the first principal component of firm size (*Ln(MVE)*), firm age (natural log of one plus the number of years with data in Compustat), sales growth (annual percent change in sales), and analyst following (natural log of one plus the number

[22] For example, because Item 15 is generally at the very end of the 10-K, there may be additional (superfluous) rows included in the calculation of *Item15_Length* for some firms.

of analysts). Sales growth loads negatively while the other inputs load positively on the first factor (eigenvalue = 1.81). To facilitate interpretation, we decile rank the resulting factor and transform the measure to range from 0 to 1, with the weakest information environments in the highest decile, which we denote with a superscript "R" (*Weak_Info;* e.g., Guay et al. 2016). A one unit increase in *Weak_Info* reflects a firm moving from the bottom to the top decile of weak information. To examine whether the relation between links and market outcomes varies with firm information environments, we estimate the following OLS regression:

$$Investor\ Response = \alpha + \beta_1 Adopt\_Links + \beta_2 Weak\_Info + \beta_3 Adopt\_Links * Weak\_Info + \sum \delta\ Controls + \gamma_{Firm\ FE} + \varepsilon \quad (2)$$

Investor Response and *Adopt_Links* are as previously described. The regression includes the same controls, fixed effects structures, and standard error clustering as equation (1) except that we no longer include *Ln_MVE* as a control, as it is an input to *Weak_Info*. If firms in weaker information environments gain greater benefits from the links, we expect to observe a positive β_3. We present the results from estimating equation (2) in Table 4 columns 4-6. Consistent with expectations, our evidence suggests firms with weaker information environments experience stronger post-mandate market responses. This evidence suggests the mandate was more helpful to investors who obtain greater benefits from more efficiently being able to acquire external linked documents.[23]

5. Unintended Consequences

5.1 Empirical Prediction #2

[23] Table 4 column 4 (column 5) suggests that going from the bottom to the top decile of *Weak_Info* leads to an increase of 25.2% (35.8%) of a standard deviation of control window retail (total) volume for the average 10-K in the post period. Table 4 column 6 suggests that going from the bottom to the top decile of *Weak_Info* leads to a nominal 1% increase in absolute returns, which is 22.4% of the average return for 10-Ks in the sample. We note that *Weak_Info* captures a firm characteristic, and that firm fixed effects may account for much of the variation in the measure.

In addition to the mandate simplifying access to documents already being retrieved, the lower acquisition costs could lead to more exhibits being acquired. Given users were presumably already accessing the most useful documents prior to the mandate, the newly accessed documents should be relatively less important. Studies in behavioral economics also suggest the additional exhibits may result in information overload for investors. For example, when faced with more information, individuals with inherent time and processing limitations may overlook relevant information or sub-optimally apply short-cuts and heuristics (e.g., Hirshleifer and Teoh 2003; Tversky and Kahneman 1974) resulting in delayed or incomplete processing of the focal document.

In addition, extensive literature in the psychology and computer science fields examines whether links constrain information processing. The studies examining links focus primarily on mental load and performance outcomes. Potentially important in our setting, studies show clicking on links can disorient (i.e., indirectly increase the mental load of) the reader by moving them to a less related text, impairing their ability to integrate information (DeStefano and LeFevre 2007). Similarly, studies show links can deteriorate performance outcomes by imposing demands on short-term memory, disorienting the reader, and interfering with existing knowledge (e.g., Foss 1989; Nielsen 1990; Charney 1994; Kim and Hirtle 1995; Miall and Dobson 2001).[24] This concern may also be relevant for our setting, where links direct readers outside the focal filing to documents about different time periods and events.

Ultimately, investors' costs of integrating information into their trading decisions around the 10-K filing may increase after the link mandate for several reasons. First, if the additional filings

[24] While the effects discussed in this paragraph describe *indirect effects,* studies also show links can *directly* increase mental load by requiring the reader to decide whether or not to view the linked document (i.e., decision fatigue). In this setting, these costs would primarily occur when investors decide to view. However, we do not expect decision fatigue to be first order given the placement of the links at the end of a long document. Further, if the information that is linked is relevant to readers, it is likely that they were already making a similar decision to seek out the document or not in the absence of a link resulting in little change around the mandate.

accessed are useful, but slow down investor processing or trigger shortcuts and heuristics due to the increased amount of information, we expect muted market responses (i.e., information overload). Second, if the additional filings accessed are not useful and distracting, perhaps due to the stale nature of the information and external location of the linked content, investors' processing of the 10-K may also be slower (e.g., disorientation or increased cognitive load).

Importantly, we expect any increased costs of integrating 10-K disclosures from processing (additional) documents discussed above to be exacerbated as investors are more constrained, potentially leading to muted market responses. Constraints limit investor resources, leading to a greater cognitive load (i.e., fewer resources available to process a given document) and increased use of heuristics and shortcuts for documents accessed. Processing constraint theories (e.g., Sims 2003; Hirshleifer et al. 2011) suggest there may be unintended consequences from the link mandate for more constrained investors. When processing disclosures, investors solve an "optimization problem in which investors allocate scarce processing resources across multiple disclosures" (Blankespoor et al. 2020). Constraints on investor processing capacity put pressure on the optimization problem, reducing investors' ability to efficiently and effectively integrate information. This may result in delayed information processing.

In our setting, if constrained investors perceive these documents to be useful, adding additional documents to process should incur greater processing costs as their available processing capabilities and cognitive loads are more limited. For this reason, we predict that the link mandate will increase processing costs for constrained investors.

5.2 Measurement – Investor constraints

We identify two situations where investors are likely to face greater constraints. First, when more 10-Ks are filed on the same day as the focal 10-K (*Busy_Day*), investors have fewer resources

available to process a given 10-K (e.g., Hirshleifer et al. 2009; deHaan et al. 2015; Blankespoor et al. 2020). Second, more complex 10-K filings (*Complex_10K*) require greater processing and are associated with reduced trading and less consensus (Miller 2010). *Complex_10K* is the first principal component of our four document complexity variables (*Ln(Word_Count), FOG, %Negative_Words* and *%Litigious_Words*).[25] All variables load positively on the first factor (eigenvalue = 1.82). Similar to *Weak_Info*, we decile rank both proxies (from 0 to 1, denoted with a superscript "R") to allow for a straightforward interpretation of moving from zero to one.

5.3 Results – Unintended consequences

To examine whether the relation between links and market outcomes varies with investor constraints, we re-estimate equation (2) in Table 5, replacing *Weak_Info* with *Busy_Day* or *Complex_10K*. We exclude document controls from the *Complex_10K* specification as they are inputs to our variable of interest. If constrained investors incur higher processing costs relative to unconstrained investors after the mandate, we expect β_3 to be negative.

We present the results in columns 1-3 (4-6) showing the results using *Busy_Day* (*Complex_10K*) to proxy for processing constraints. As expected, firms whose investors face higher processing constraints experience a muted market response post-mandate in all specifications (i.e., $\beta_3<0$).[26] Importantly, we also reject the null that *Adopt_Links* + *Adopt_Links*Constraint* = 0 in all specifications. This implies processing the 10-K became more

[25] We include negative words and litigious words as prior research indicates that bad news is likely inherently complex, and litigation outcomes are uncertain (e.g., Li 2008; Bloomfield 2008; Aghamolla and Smith 2023; Hennes 2014). We observe the same sign and significance when we exclude negative and litigious words from the PCA (untabulated).

[26] Table 5 column 1 (column 2) suggests that going from the bottom to the top decile of *Busy_Day* leads to a decrease of 56.0% (49.1%) of one standard deviation of control window retail (total) volume. Table 5 column 3 suggests that moving from the bottom to the top decile of *Busy_Day* leads to a decrease in absolute returns of 0.80%, which is 17.8% of the average return for 10-Ks in the sample. Column 4 (column 5) suggests that going from the bottom to the top decile of *Complex_10K* leads to a decrease of 36.7% (47.8%) of one standard deviation of control window retail (total) volume. Similarly, Table 5 column 6 suggests that going from the bottom to the top decile of *Complex_10K* leads to a decrease in absolute returns of 0.80%, which is 17.8% of the average return for 10-Ks in the sample.

costly for constrained investors in the post-period, indicating 10-K integration costs exceed any benefits from decreased costs of acquiring the external documents linked therein.

We perform two untabulated robustness tests on results documented in Table 5. First, although we decile rank variables globally across the sample to capture a firm's absolute position in the full distribution, our results are robust to decile ranking within calendar year. Second, while the positive coefficient on *Adopt_Links* aligns with prior studies, the negative coefficients on the constraint variables are less expected. To investigate this further, we re-estimate the regressions excluding firm fixed effects, controls, and the interaction term of interest. In this scaled-back specification, the coefficients on the constraint variables are negative and significant, consistent with findings from prior literature (e.g., Hirshleifer et al. 2009; Miller 2010).

5.4 Additional Analysis – Unintended consequences: Efficiency of price response

To further substantiate our interpretation that the lack of on-average results arises from the mandate increasing integration costs for some users, we examine the efficiency of the 10-K price response. If constrained investors incorporate information from the linked documents to process the focal 10-K but do so more slowly and less efficiently (i.e., consistent with increased integration costs from information overload or distraction from links), we expect to observe delays in price formation. Alternatively, if investor constraints simply reduce the likelihood that investors view linked documents, it should have no impact on the speed of the 10-K price response relative to the unconstrained group.

We use three measures of price efficiency to examine whether there is a delayed price response to 10-Ks for constrained investors. The first two measures are five-day and ten-day intraperiod timeliness (*IPT[5]* and *IPT[10]*), which measure the speed of price discovery around the 10-K filing date (e.g., Butler et al. 2007; Twedt 2016; Blankespoor et al. 2018). Specifically, we calculate

IPT as the cumulative daily return curve over the relevant trading window, adjusted for overreactions following Blankespoor et al. (2018). The third measure is the fraction of the 64-day ([0,+63]) post-10-K raw return realized in the first five days ([0,+4]), following Lee and Zhu (2022) (*RetFrac*).[27] This measure is agnostic to the direction of news and incorporates the relative magnitude of the immediate return to a longer window return, capturing price responsiveness.

In Table 6 we reperform the analyses in Table 5 but replace our measures with the price response variables. Columns 1-3 (4-6) measure investor constraints using *Busy_Day* (*Complex_10K*). We observe firms with constrained investors experience significant delays in the price response to 10-K filings after the mandate in four of six specifications. This finding further supports our interpretation that the mandate increased integration costs for some investors.

These results contrast with the finding in Tetlock (2011) that stale information can lead to market overreactions. The findings in Table 6 instead suggest that, in our setting, sufficiently stale information (i.e., much of the information in linked documents) can result in slower (less timely) response in the initial days in absolute terms and as a percentage of the total 64-day return. Thus, processing stale information has nuanced effects in different settings and for different investors.

6. Additional Analyses and Robustness Tests

6.1 Relative investor effect: Bid-ask spreads

We next examine abnormal bid-ask spreads to assess how including links in 10-Ks affects information asymmetry among investors, and to provide insight into the relative effect of links on unsophisticated and sophisticated investors in the spirit of Gomez (2024). *AbnSpreads* is calculated as the average daily bid-ask spread over days [0,+1] after the 10-K filing less the average daily

[27] Because the IPT and return fraction measures are inherently noisy (e.g., susceptible to issues related to both large and small denominator issues), we decile rank the *IPT[X]* and *RetFrac* variables (ranges from 0 to 1), consistent with prior work (e.g., Drake et al. 2017; Lee and Zhu 2022; Rawson et al. 2023).

bid-ask spreads over days [-50, -5] before the 10-K filing. For any 10-K filed after 4PM EST, we adjust day 0 to the next trading day. We then re-estimate equations 1 and 2 but replace the dependent variable with this alternative market proxy.

We report the results from this estimation in Table 7. The results in column 1 indicate that links increase abnormal spreads on average, suggesting that sophisticated investors benefit more than unsophisticated investors after the introduction of links in general. The results in column 2 suggest these benefits arise specifically for firms with weaker information environments. This evidence is consistent with sophisticated investors using the linked content in the pre period and benefiting from the decreased acquisition costs directly, and/or being most likely to efficiently incorporate the linked content into investing decisions around the 10-K.

Interestingly, we are unable to find any evidence of a significant effect on abnormal spreads in our investor constraint tests, suggesting that all investors—sophisticated and unsophisticated—appear to be similarly affected by links when faced with processing constraints.[28]

6.2 Robustness tests

We perform a series of robustness tests to mitigate concerns about contemporaneous events driving our results, correlated omitted variables, and alternate specifications of our proxy for links. The results of these tests are discussed below and shown in Table 8 Panel A.

First, the mandate affected all firms simultaneously, raising concerns that contemporaneous events or macroeconomic trends underlie our findings. Of particular concern are two regulations in similar calendar time: ASC 606 affected public firms' revenue recognition for reporting periods after December 15, 2017, and the Tax Cuts and Jobs Act made substantial changes to the U.S. tax

[28] We design the tests in Table 7 similarly to our other tests for consistency. However, in untabulated robustness, we confirm the results in Table 7 are robust to using (1) Gomez's variable definition of spreads which relies on median spreads instead of mean spreads, (2) inclusion of *CAR[-1, +1]* as a control and (3) interacting controls with *Adopt_Links* in columns 2-4.

code which was signed into law December 22, 2017 (Chen et al. 2023). Figure 2 illustrates the timeline of these regulatory events.

To mitigate these concerns, we exploit variation in firm fiscal year ends. Because links are required after September 1, 2017, some firms filed their 2017 10-Ks before the mandate while others filed after. We replicate our primary results with calendar-year fixed effects and report the results in columns 1-3. As this specification relies on variation in the 8% of our 2017 10-Ks filed after August 31, we include this test only for robustness. Nonetheless, the evidence is consistent with our main findings: firms with weaker information environments have stronger market responses in all specifications and constrained investors experience muted market responses in five of six specifications.

The TCJA's passage during the post-mandate period created a brief nine-day overlap with the link mandate (12/22/2017-12/31/2017), affecting 15 firm-year observations.[29] To ensure our findings are not driven by this overlap, we exclude these nine days and re-estimate our calendar-year fixed effects regressions. As reported in columns 4-6, our results remain unchanged, indicating that the TCJA cannot fully explain our findings.

Second, although we include control variables throughout our analyses, we acknowledge that shifts in these firm characteristics around the mandate could still contribute to the observed effects. Fully interacted models help mitigate these concerns but can introduce structural multicollinearity, complicating the interpretation of main effects (including *Adopt_Links*). As such, we restrict these tests to additional robustness analyses and report the results in columns 7-9. We observe coefficients with the expected sign and statistical significance in seven of nine specifications. The

[29] The TCJA was signed into law on 12/22/2017, and 10-Ks filed between 12/22/2017-12/31/2017 were required to recognize the effects of the TCJA in their year-end tax provision, primarily through the remeasurement of deferred tax assets and liabilities under ASC 740. However, most of the TCJA's provisions, including the reduction of the corporate tax rate to 21%, took effect on 1/1/2018 (Chen et al. 2023).

two remaining coefficients have the predicted sign but are insignificant. Overall, these findings suggest that our results are unlikely to be driven by trends in firm characteristics.

Third, we re-estimate our primary regressions by replacing the indicator *Adopt_Links* with a continuous measure of external links (*Ln(Links)*) in columns 10-12. We do not rely on the continuous measure in our main tables as the number of links is likely correlated with firm characteristics. Nonetheless, using the continuous measure, we find consistent results in ten of twelve specifications, suggesting processing costs vary with the extent of "treatment" (i.e., links).

Alternatively, we re-consider the continuous variation in link use as a proxy for variation in treatment and conduct a difference-in-differences analysis comparing high link to low link firms. Importantly, in these analyses, we match on firms' information environment characteristics (and for this reason, we do not consider the Table 4 results in these specifications). In columns 13-15, we consider firms with above median links to be treated and compare them to firms below median. In columns 16-18, we compare top tercile link firms to those in the bottom terciles. In both cases, we identify control firms as those in the same analyst, sales growth, and firm age quintiles as the treated firm, and the "nearest neighbor" in *MVE*. We observe similar results to those observed in Table 5 using each of these alternative specifications, which is inconsistent with differences in firms' information environments underlying our main results.

Finally, in untabulated analysis, we confirm our results generally hold for both bundled and unbundled 10-Ks. While we observe coefficients consistent with our results in each specification in the bundled sample, we observe consistent coefficients in 8/12 specifications in the unbundled sample. We note that the remaining 4 coefficients are the same sign as those in Tables 4 and 5, but not significant at conventional levels. This result is unsurprising, given that unbundled 10-Ks garner weaker responses on average (e.g., Li and Ramesh 2009). We also note the fully interacted

model includes an interaction with *Adopt_Links*Bundled*, which further helps mitigate the concern that our results manifest from changes in bundling activity over time.[30]

6.3 Falsification tests

In the next series of analyses, we further corroborate our main results by performing several falsification tests in Table 8 Panel B. We first examine links in 10-Qs (columns 1-3) and 8-K unbundled earnings announcements (columns 4-6). Because these filings were affected by the rule but include fewer links than 10-Ks (10-Qs and 8-Ks average 10 and two links in the post-period, respectively), typically to less informative documents (e.g., CEO and CFO certifications in 10-Qs), this test helps mitigate concerns about contemporaneous events or macroeconomic trends underlying our results. These tests also mitigate concerns that our results manifest from changes in investor processing or firm characteristics over time. Consistent with our expectations, we find limited evidence that market responses are stronger for firms with weak information environments or muted for constrained investors after the mandate. Specifically, we observe only one interaction term that is consistent with the variation we document in earlier tests. Overall, this analysis provides additional support that our results are driven by the 2017 link mandate.

We perform a third falsification test using a placebo event date two years prior (September 1, 2015) and report the evidence in columns 7-9. Here, we observe only one of twelve coefficients that is consistent with our main results, helping to further mitigate concerns that our results are driven by time trends or spurious correlations in the data.[31]

[30] We expect firms that report unbundled 10-K filings likely differ systematically from those that bundle their 10-Ks with their earnings announcements, which results in a non-representative sample. As such, retaining all observations increases our study's generalizability and external validity. In addition, we expect regulators to be concerned with the effects of links even when the 10-K is released alongside earnings, since that is a common scenario for many firms (Arif et al. 2019). Thus, our study is likely to be more relevant to policymakers with the inclusion of both bundled and unbundled observations. Finally, we note both bundled and unbundled observations significantly increase our sample size and enhance statistical power to detect effects.

[31] In untabulated analysis we also re-estimate our equations using a placebo date two years later – September 1, 2019. While we again observe two coefficients consistent with our main results, several coefficients load in all directions.

7. Conclusion

This study examines the SEC's 2017 link mandate within the broader context of their long-standing efforts to reduce investor processing costs and improve disclosure usability. Where prior initiatives such as EDGAR and iXBRL focused on improving accessibility, clarity, or comparability, the link mandate sought to make it easier for investors to acquire external documents referenced in filings. Our study evaluates whether this usability intervention achieved its intended goals and whether it also introduced unintended frictions in the processing of 10-Ks.

We begin by validating that the mandate meaningfully altered investors' acquisition environment. Consistent with the mandate's objectives, investors access linked documents around 10-K filings, and they do so selectively, favoring exhibits that are more complex, more similar to the 10-K, and more informative. These patterns indicate investors perceive at least some of the linked documents as valuable inputs into their broader assessment of the filing.

Despite this evidence, we find no improvement in our market proxies for investor processing post-mandate, on average. This absence of an overall effect motivates examining a cross-sectional setting where theory predicts reduced acquisition costs should be more beneficial. Consistent with this prediction, firms with weaker information environments (i.e., those where additional information is more valuable) exhibit stronger post-mandate market responses.

At the same time, the mandate also creates conditions under which processing could become more difficult. When investors face processing constraints, such as busier days or more complex 10-K filings, easier access to a large volume of external documents appears to increase information overload and cognitive burdens, impeding integration. These investors exhibit muted price

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The evidence in Table 8 Panel B, together with current research suggesting COVID-19 brought structural changes in investing and capital markets (e.g., Aggarwal et al. 2022; Packin and Bagby 2024), suggests the overlap with the COVID-19 pandemic makes this evidence challenging to interpret and we exclude from the manuscript accordingly.

reactions following the mandate, indicating integration costs can outweigh any reduction in acquisition costs. This pattern contrasts with prior evidence that contemporaneous or internally linked content improves processing, highlighting that the usefulness of linking depends critically on the nature and location of the underlying information.

Overall, this evidence broadens our understanding of how usability mandates affect information processing. While external links can reduce acquisition costs and aid processing in some circumstances, they may also introduce information overload and increase processing costs, particularly for constrained users. These results highlight the importance of considering heterogeneous investor capacities and the nature of linked information when designing disclosure policies intended to improve usability.

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During the preparation of this work, the authors used ChatGPT to assist in the creation of code to extract the links from 10-K (and 10-Q) text files, as well as cross-checking references and aiding in minor proofreading. After using this tool, the authors reviewed and edited the content as appropriate and take full responsibility for the content of the publication

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Appendix A: Item 15 pre- and post-mandate

Panel A: Pre-mandate Item 15

Exhibit Number	Document Description	Incorporated by Reference		
		Form	Exhibit	Filing Date
2.1	Agreement, dated as of April 3, 2012, by and among Molson Coors Brewing Company, Molson Coors Holdco - 2 Inc. and Starbev L.P.	8-K	2.1	April 3, 2012
2.2	Amendment and Novation Agreement, dated as of June 14, 2012, by and among Molson Coors Holdco 2 LLC, Molson Coors Netherlands B.V., Molson Coors Brewing Company, Starbev L.P. and the other individuals thereto.	8-K	10.4	June 18, 2012
2.3	Management Warranty Deed, dated as of April 3, 2012, by and among the management warrantors named therein, Starbev L.P. and Molson Coors Holdco - 2 Inc.	8-K	2.2	April 3, 2012
2.4.1	Purchase Agreement, dated as of November 11, 2015, by and between Anheuser-Busch InBev SA/NV and Molson Coors Brewing Company.	8-K	2.1	November 12, 2015
2.4.2	Amendment No. 1 to Purchase Agreement, dated as of March 25, 2016, by and between Anheuser-Busch InBev SA/NV and Molson Coors Brewing Company.	10-Q	2.1	May 3, 2016
2.4.3	Amendment No. 2 to Purchase Agreement, dated as of October 3, 2016, by and between Anheuser-Busch InBev SA/NV and Molson Coors Brewing Company.	8-K	2.1	October 4, 2016
3.1.1	Restated Certificate of Incorporation of Molson Coors Brewing Company.	Schedule 14A	Annex G	December 10, 2004
3.1.2	Amendment No.1 to Restated Certificate of Incorporation of Molson Coors Brewing Company.	10-Q	3.1	August 6, 2013
3.2	Third Amended and Restated Bylaws of Molson Coors Brewing Company.	10-Q	3.1	August 4, 2009

Panel B: Post-mandate Item 15

Exhibit Number	Document Description	Incorporated by Reference		
		Form	Exhibit	Filing Date
2.1.1	Purchase Agreement, dated as of November 11, 2015, by and between Anheuser-Busch InBev SA/NV and Molson Coors Brewing Company.	8-K	2.1	November 12, 2015
2.1.2	Amendment No. 1 to Purchase Agreement, dated as of March 25, 2016, by and between Anheuser-Busch InBev SA/NV and Molson Coors Brewing Company.	10-Q	2.1	May 3, 2016
2.1.3	Amendment No. 2 to Purchase Agreement, dated as of October 3, 2016, by and between Anheuser-Busch InBev SA/NV and Molson Coors Brewing Company.	8-K	2.1	October 4, 2016
3.1.1	Restated Certificate of Incorporation of Molson Coors Brewing Company.	Schedule 14A	Annex G	December 10, 2004
3.1.2	Amendment to Restated Certificate of Incorporation of Molson Coors Brewing Company.	10-Q	3.1	August 6, 2013
3.2	Third Amended and Restated Bylaws of Molson Coors Brewing Company.	10-Q	3.1	August 4, 2009
4.1.1	Indenture, dated as of May 3, 2012, by and among Molson Coors Brewing Company, the guarantors named therein and Deutsche Bank Trust Company Americas, as trustee.	8-K	4.1	May 3, 2012
4.1.2	First Supplemental Indenture, dated as of May 3, 2012, to the Indenture dated May 3, 2012, by and among Molson Coors Brewing Company, the guarantors named therein and Deutsche Bank Trust Company Americas, as trustee.	8-K	4.2	May 3, 2012

Appendix B: Excerpts from comments to SEC in support of the 2017 hyperlink mandate

Panel A: Davis Polk and Wardwell, LLP

"The Commission aptly describes the process of locating and accessing an exhibit to SEC filings as time consuming and cumbersome. The exhibit index can be lengthy and unwieldy. The numbering convention for exhibits that are in the same item number category is not consistent across issuers, which adds to the difficulty of finding a document in the exhibit index. For exhibits that are incorporated by reference, a user often needs to consult a numbered footnote or a symbol for the listed exhibit to find the prior filing or submission where the sought-after exhibit is located. Then the user must locate the prior filing of the registrant to access the exhibit. Sometimes, the exhibit that is incorporated by reference is located in a filing or submission of different registrant, such as a subsidiary or other affiliate. The time savings afforded by hyper-linking exhibits, in particular, those incorporated by reference, will benefit all users of EDGAR, including retail investors and institutional investors. We note that EDGAR has long had the ability to support hyperlinks to exhibits in the exhibit index and the proposed amendments will leverage this feature. We concur with the Commission that the compliance cost of adopting the rule is minimal compared to the benefits to investors."

Panel B: Kenneth Bertsch Executive - Director Council of Institutional Investors

"Ease of access to the exhibits provided in the exhibit table is important to investors. CII commends the SEC for advancing reforms to ensure that market participants are equipped to quickly and inexpensively retrieve the information they seek."

Panel C: Cynthia M. Fornelli - Executive Director Center for Audit Quality

"We applaud the Commission's efforts to enhance the functionality of the EDGAR filing system by requiring registrants to provide a hyperlink for each exhibit listed in a filing's exhibit index. We agree that requiring registrants to provide hyperlinks to the actual filed documents would facilitate easier access to these exhibits. By eliminating the cumbersome need to search through the registrant's EDGAR file to locate the actual exhibit, this requirement will provide investors and users with a more efficient and effective means of locating documents attached to company filings. We believe this requirement would further the objectives of the Commission's Disclosure Effectiveness Initiative by improving the navigability of disclosures provided by registrants, thereby enhancing the ability of investors to access and use important information."

Appendix C: Variable definitions

Aggregated Link variables:

Note: These variables are calculated at the link-level and then aggregated to the 10-K level.

LandingPage	The number of links to exhibits that are filed concurrently with the 10-K and that appear on the landing page of a company's 10-K
NonLandingPage	The number of links to exhibits that were previously filed on EDGAR
Links	The number of hyperlinks to external documents. This is the sum of *LandingPage* and *NonLandingPage*.
Pct<90 Days	The percentage of links that are to documents filed within 90 days prior to the 10-K filing date
Pct<1 Year	The percentage of links that are to documents filed within one year prior to the 10-K filing date
Pct<5 Year	The percentage of links that are to documents filed within five years prior to the 10-K filing date
Pct>5 Year	The percentage of links that are to documents filed more than 5 years prior to the 10-K filing date
Pct Mtl Contracts	The percentage of links that are to material contracts, defined as links to 8-K filings containing Item 1.01.
Pct 8K	The percentage of links that are to 8-K documents
Pct 10Q	The percentage of links that are to 10-Q documents
Pct 10K	The percentage of links that are to 10-K documents
Pct S4	The percentage of links that are to S-4 documents
Pct S1	The percentage of links that are to S-1 documents
Pct Other	The percentage of links that are to other documents (i.e., not 8-K, 10-Q, 10-K, S-4, or S-1)
Topic_CompEmploy	The number of linked document titles that are classified as related to compensation and employees by the large language model. See section 3.1.
Topic_Debt	The number of linked document titles that are classified as debt contracts by the large language model. See section 3.1.
Topic_Equity	The number of linked document titles that are classified as equity contracts by the large language model. See section 3.1.
Topic_OtherContracts	The number of linked document titles that are classified as other firm-specific contracts by the large language model. See section 3.1. These are contracts that do not belong in the other contract categories.
Topic_Auditor	The number of linked document titles that are classified as auditor-related documents by the large language model. See section 3.1.
Topic_ByLaws	The number of linked document titles that are classified as related to bylaws or articles of incorporation by the large language model. See section 3.1.
Topic_Certifications	The number of linked document titles that are classified as related to CEO and CFO certifications by the large language model. See section 3.1.
Topic_Unclassified	The number of linked document titles that are identifiable but do not fall within the broad topics identified, or where the linked document title lacks enough detail to properly categorize into one of our topics. See section 3.1.
Doc_Words	The average number of words in the linked documents for a given 10-K.
Doc_Specificity	The average count of "named entities" in the linked documents for a given 10-K. We identify named entities using the named entity nltk package in python.

Doc_Numbers	The average number of numbers in the linked documents for a given 10-K.
Doc_FOG	The average FOG score for the linked documents for a given 10-K.

Linked Document variables:

Note: These variables are calculated at the link-level. These variables are used in Table 3 Panel B.

Words	The number of words in the linked document.
Scaled_Specificity	The count of "named entities" in the linked document, scaled by the total number of words in the document. We identify named entities using the named entity nltk package in python.
Scaled_Numbers	The number of numbers in the linked document, scaled by the total number of words in the document.
FOG	The FOG score for the linked documents for a given 10-K.
SimScore	The similarity between a focal 10-K document and a linked document, calculated as the cosine similarity score of the linked document and the 10-K filing.
AgeDays	The difference in the number of days from when a linked document is filed to when the focal 10-K is filed.

Independent variables:

Adopt_ Links	An indicator variable that equals one for 10-Ks filed between 9/1/2017-12/31/2019, and zero for 10-Ks filed between 1/1/2016-8/30/2017.
Item15_Length	The number of rows listed in Item 15 (Exhibits and Financial Statements Schedules) of the 10-K.
Weak_Info	Negative one times the first principal component of: sales growth, firm age, analyst following, and firm age.
Busy_Day	The number of additional 10-Ks filed on the same day as the firm-year observation's 10-K.
Complex_10K	The first principal component of: Ln(*Word_Count), FOG, %Negative_Words,* and *%Litigious_Words*, measured using the focal 10-K.

Dependent variables:

AbnRetailVol	The average daily retail volume over days [0, +1] less the average daily retail volume over days [-50, -5], and scaled by the standard deviation of retail volume during the control period [-50, -5]. The daily retail volume is from the TAQM_Common file on WRDS (total_vol_retail). For any 10-K filed after 4PM EST, we adjust day 0 to be the next trading day.
AbnSpreads	The average daily bid-ask spread over days [0,+1] less the average daily bid-ask spreads over days [-50, -5]. For any 10-K filed after 4PM EST, we adjust day 0 to be the next trading day.
AbnVol	The average daily volume over days [0, +1] less the average daily volume over days [-50, -5], and scaled by the standard deviation of volume during the control period [-50, -5]. The daily volume is from CRSP. For any 10-K filed after 4PM EST, we adjust day 0 to be the next trading day.
AbsCAR	The absolute value of the difference between the firm's cumulative stock return over the period [-1,+1] relative to the 10-K filing date less the CRSP value-weighted cumulative market return over the same period. For any 10-K filed after 4PM EST, we adjust day 0 to be the next trading day.

RetFrac	The fraction of the [0,+63] post-10-K raw returns realized in the [0,+4] period following the 10-K, following Lee and Zhu (2022).
IPT[X]	IPT is the cumulative daily return curve over the relevant trading window, where X is equal to 5 (10) if the trading window is over days 0-4 (0-9), respectively. The measure is adjusted for overreactions following Blankespoor et al. (2018)

Document characteristics:

Word_Count	The number of words in the 10-K.
FOG	The Gunning Fog Index for the 10-K.
%Negative_Words	The percentage of negative words in the 10-K using the Loughran-McDonald (2011) dictionary.
%Litigious_Words	The percentage of litigious words in the 10-K using the Loughran-McDonald (2011) dictionary.

Firm characteristics:

ROA	Income before extraordinary items divided by total assets.
Loss	An indicator variable that equals one if a firm's income before extraordinary items is negative, and zero otherwise.
SUE	Standardized unexpected earnings for the current fiscal year defined using a seasonal random walk model, calculated using basic EPS (excluding extraordinary items) less the same amount for the prior year, scaled by price (adjusted for stock splits).
MVE	Market value of equity.
BTM	The ratio of book value of equity to market value of equity, where market value of equity is calculated as price times common shares outstanding.
Leverage	Debt divided by total assets.
PP&E	Property, plant, and equipment, scaled by total assets.

Information events:

Bundled	An indicator variable equal to one if a firm's 10-K filing date is the same day or one day after the earnings announcement date, and zero otherwise.
M&A	An indicator variable equal to one if a firm had any cash outflow for M&A (i.e., AQC in Compustat>0), and zero otherwise.
Large_Sp_Item	An indicator variable equal to one if a firm's special items is larger than 1% of a firm's assets and zero otherwise.
Change_Leverage	Leverage (debt divided by total assets) this year less the same amount from the prior year.
Change_StockComp	Stock-based compensation (scaled by assets) this year less the same amount from the prior year.

Appendix D: Measuring links

1. We first use SEC Analytics Suite on WRDS to compile a comprehensive list of URLs to 10-K text files on EDGAR from 1996-2023. We require that the firm-year observations are also in Compustat. This leads to 144,825 10-K text files. We ignore amended 10-Ks.

2. We then write a python script that visits and downloads each of the 144,825 text files. While it is common in the accounting literature to clean text files on EDGAR of HTML (typically with the BeautifulSoup library on python), we retain HTML elements for the purposes of our study to identify external links (which is the HTML attribute "href").

3. We then use another python script to count the total number of links in each 10-K. Specifically, we count the number of occurrences of "href" tags using the *a_tag.get* package in pyhton. "Href" denotes a hyperlink. We use case-insensitive matching. We used ChatGPT to assist in the creation of code to extract the links from 10-K (and 10-Q) text files. The output from ChatGPT was carefully reviewed, tested, and modified. We take full accountability for the final code used to compile the links.

4. We then classify each occurrence of "href" into one of the following two categories (mutually exclusive):

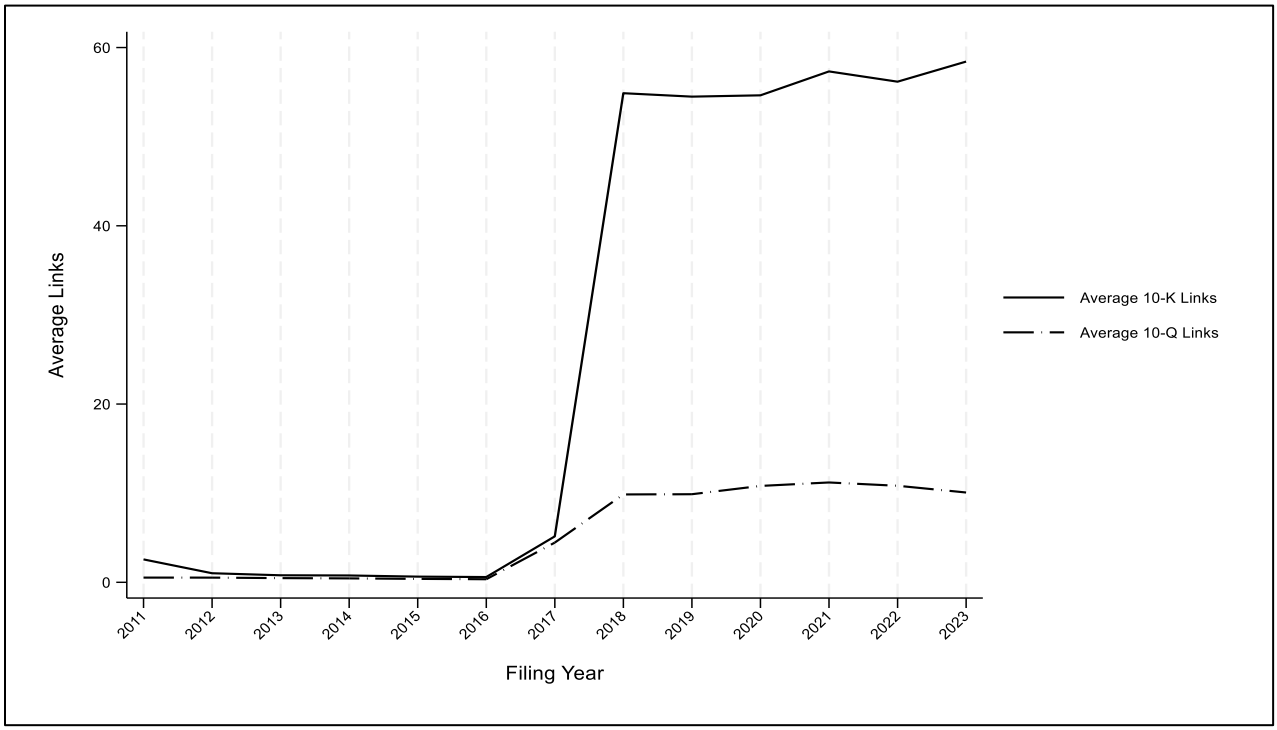
(1) **Landing page links**, which are links to exhibits that are filed as part of the 10-K package. The landing page exhibits do not have a URL in the "href" tag, as the exhibits are filed concurrently with the 10-K.

(2) **Non-landing page links**, which are links to documents that were previously filed on EDGAR. We calculate this as the number of atags where the *href* begins with "http" which denotes a URL.

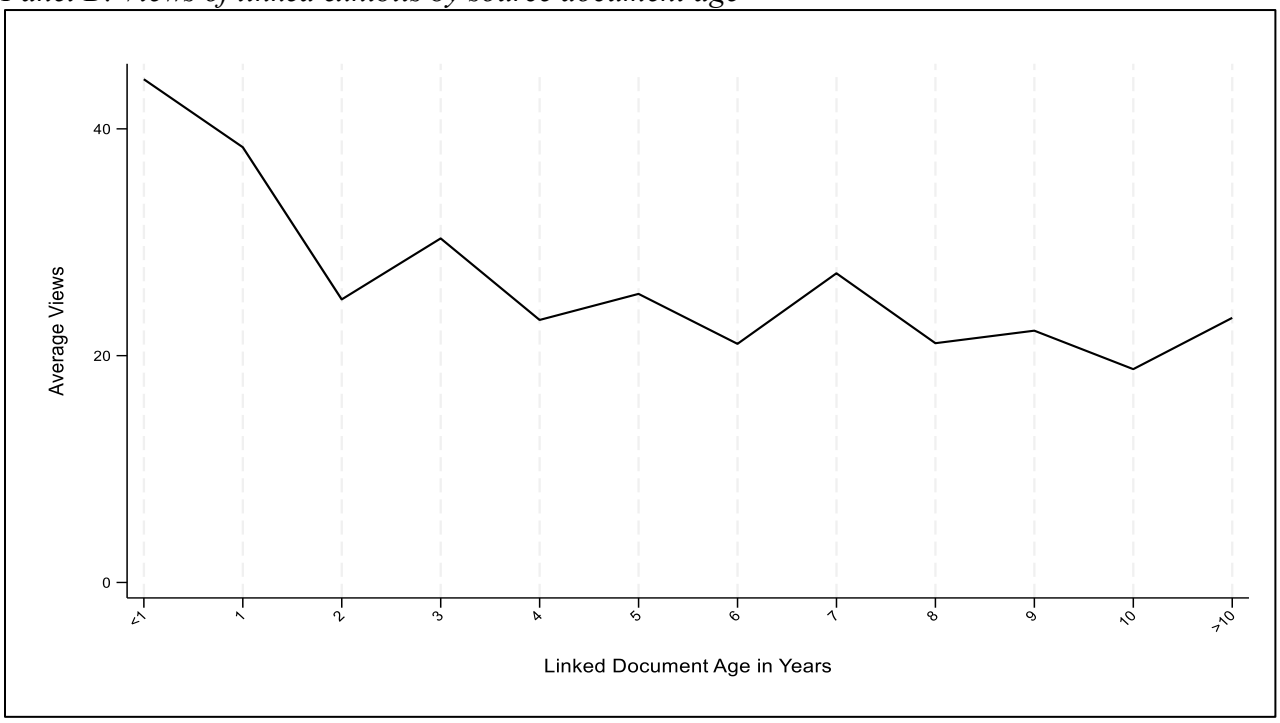
5. We take the sum of the links in category 1 (landing page links) and category 2 (non-landing page links) to arrive out our main variable of interest: *Links.* We present the distribution of *LandingPage* and *NonLandingPage* links in Table 2 Panel A. Note, the landing page itself has not changed from the pre- to the post-period. However, similar to the non-landing page documents, the landing page filings are now linked in the exhibit index in the post-period.

Figure 1: Link use and document views

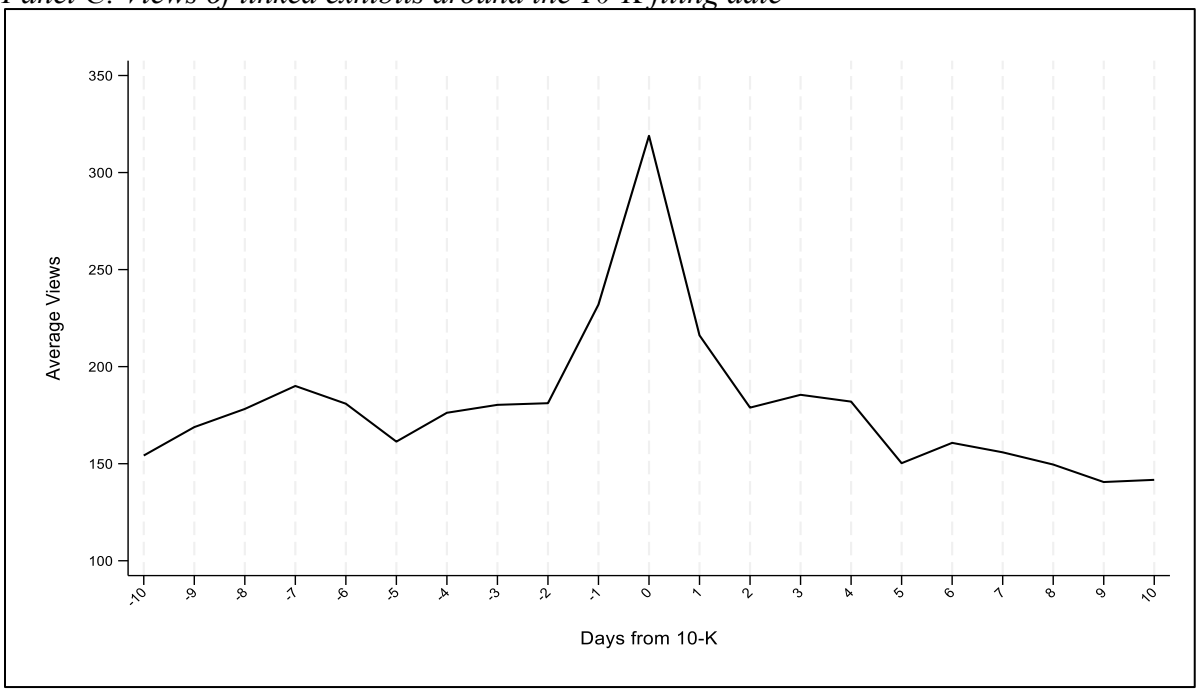
Panel A: Time trends in links to external exhibits



Panel B: Views of linked exhibits by source document age

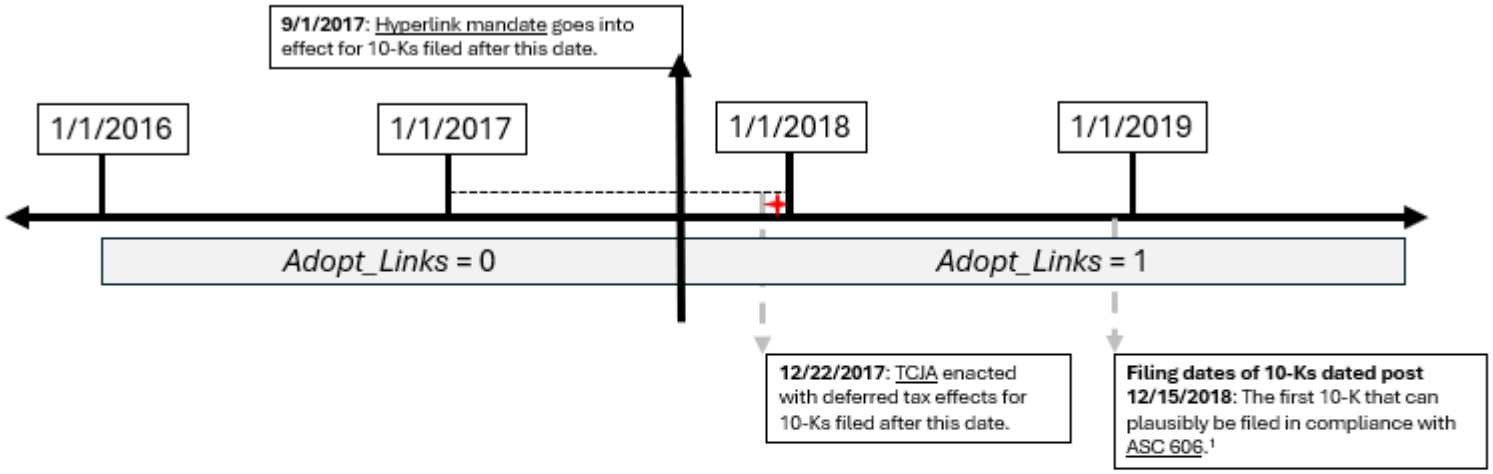


Panel C: Views of linked exhibits around the 10-K filing date



Panel A presents the trend in the average number of links by filing year. The solid line presents the links in 10-Ks and the dashed line presents the links in 10-Qs. The figure includes all external links (i.e., links to documents already in the EDGAR database and links to newly filed documents that appear on the filing's landing page). Panel B presents the average number of views on a given non-landing page 10-K exhibit by source document age. The number of views are accumulated over the [-1, +1] day window, where day 0 is the 10-K filing date. We use the EDGAR log files from 5/19/2020 – 6/30/2023 to calculate the daily views. Panel C presents the average number of views on all linked non-landing page documents in a 10-K. We present the average views for the 21 days surrounding the 10-K filing date.

Figure 2: Timeline of Hyperlink Mandate and Other Events



The symbol ---- marks the variation in hyperlink adoption status that we use for the calendar year fixed effects test.

The symbol + marks the 9 filing days in the 2017 calendar year from 12/22/17-12/31/17 where firms were affected by both the hyperlink mandate and TCJA. There are 15 observations in our sample that filed their 10-K in those 9 days.

[1] ASC 606 goes into effect for reporting periods beginning after 12/15/2017. The first 10-K in compliance with ASC 606 would be after 12/15/2018. However, for a 12/31 fiscal year end (covering fiscal year 2018) the earliest plausible filing date would be in early 2019.

This figure represents an illustration of the timing of the SEC's 2017 link mandate in the context of other contemporaneous events.

Table 1: Sample selection

		Remaining N
Compustat firm-year universe 2015-2019		46,954
Drop if missing permno	(11,280)	35,674
Drop if missing accession	(17,124)	18,550
Drop if filing year <2016 or >2019	(3,780)	14,770
Drop if non-adopter	(174)	14,596
Drop if missing or negative assets	(134)	14,462
Drop if missing necessary variables	(587)	13,875
Drop if singleton	(796)	13,079
Final Sample		**13,079**

This table presents the sample selection procedures.

Table 2: Descriptive statistics

Panel A: Descriptives – 10-K links (post-mandate period)

	N	Mean	StDev	P1	P25	P50	P75	P99
Link Characteristics								
LandingPage	6,651	9.409	5.126	4	6	8	11	30
NonLandingPage	6,651	47.277	30.424	0	26	39	61	133
Links	6,651	56.783	33.243	8	34	48	72	152
Pct Mtl Contracts	6,651	0.222	0.162	0	0.095	0.196	0.327	0.656
Pct < 90 Days	6,651	0.196	0.144	0	0.114	0.170	0.237	1
Pct < 1 Year	6,651	0.313	0.179	0	0.203	0.281	0.385	1
Pct < 5 Year	6,651	0.711	0.224	0	0.568	0.711	0.903	1
Pct > 5 Year	6,651	0.272	0.207	0	0.074	0.278	0.419	0.766
Pct 8K	6,651	0.325	0.193	0	0.175	0.318	0.463	0.777
Pct 10Q	6,651	0.158	0.128	0	0.056	0.136	0.235	0.531
Pct 10K	6,651	0.141	0.119	0	0.049	0.119	0.211	0.506
Pct S4	6,651	0.017	0.085	0	0.000	0.000	0.000	0.495
Pct S1	6,651	0.085	0.165	0	0.000	0.000	0.082	0.715
Pct Other	6,651	0.078	0.106	0	0.000	0.045	0.103	0.529
Large Language Model Classifications								
Topic_CompEmploy	6,651	15.1	11.5	0	6	14	22	39
Topic_Debt	6,651	5.7	7.3	0	0	3	8	27
Topic_Equity	6,651	3.2	3.9	0	0	2	4	15
Topic_OtherContracts	6,651	6.9	7.7	0	1	4	10	27
Topic_Auditor	6,651	1.0	0.7	0	1	1	1	3
Topic_ByLaws	6,651	2.3	1.7	0	2	2	3	7
Topic_Certifications	6,651	3.2	1.4	0	3	4	4	6
Topic_Unclassified	6,651	2.4	2.13	0	1	2	3	9
Linked Document Characteristics								
Doc_Words	6,552	12,699	6,563	2,871	8,244	11,381	15,715	36,730
Doc_Specificity	6,552	551.49	153.98	192.92	450.63	546.51	643.27	978.58
Doc_Numbers	6,552	387.10	277.76	69.81	214.94	318.71	460.37	1,671.33
Doc_FOG	6,552	16.62	1.58	11.84	15.73	16.67	17.58	20.56

Table 2 (continued)

Panel B: Descriptives – variables

	Full Sample			Adopt_Links = 0			Adopt_Links = 1			Diff	
	N	Mean	P50	N	Mean	P50	N	Mean	P50		
Independent Vars:											
Item15_Length	13,079	437	201	6,320	448	213	6,759	426	193	-21	**
Weak_Info	12,535	0.000	-0.028	6,067	0.018	-0.001	6,468	-0.016	-0.054	-0.034	
Busy_Day	13,079	140	116	6,320	153	122	6,759	128	102	-25	***
Complex_10K	13,079	0.000	-0.047	6,320	0.015	-0.028	6,759	-0.014	-0.065	-0.029	
Dependent Vars:											
AbnRetailVol	10,905	0.949	0.059	5,584	0.878	0.059	5,321	1.023	0.058	0.144	***
AbnVol	13,079	0.895	0.161	6,320	0.793	0.111	6,759	0.990	0.218	0.197	***
AbsCAR	13,079	0.045	0.024	6,320	0.044	0.024	6,759	0.045	0.024	0.001	
Document Characteristics:											
Word_Count	13,079	254264	235789	6,320	253260	234268	6,759	255203	237423	1943	
FOG	13,079	25.014	24.965	6,320	25.051	25.001	6,759	24.980	24.935	-0.071	***
%Negative_Words	13,079	0.015	0.015	6,320	0.015	0.015	6,759	0.015	0.015	0.000	*
%Litigious_Words	13,079	0.015	0.015	6,320	0.015	0.015	6,759	0.015	0.015	0.000	
Firm Characteristics:											
ROA	13,079	-0.094	0.011	6,320	-0.096	0.010	6,759	-0.092	0.012	0.004	
Loss	13,079	0.360	0.000	6,320	0.367	0.000	6,759	0.352	0.000	-0.015	*
SUE	13,079	0.071	0.004	6,320	0.041	0.003	6,759	0.100	0.006	0.060	***
MVE	13,079	6.666	6.719	6,320	6.623	6.646	6,759	6.707	6.776	0.085	**
BTM	13,079	0.548	0.467	6,320	0.553	0.465	6,759	0.542	0.470	-0.011	
Leverage	13,079	0.267	0.212	6,320	0.268	0.211	6,759	0.266	0.213	-0.002	
PP&E	13,079	0.190	0.068	6,320	0.193	0.068	6,759	0.187	0.068	-0.006	
Information Events:											
Bundled	13,079	0.439	0.000	6,320	0.418	0.000	6,759	0.458	0.000	0.041	***
M&A	13,079	0.303	0.000	6,320	0.307	0.000	6,759	0.300	0.000	-0.006	
Large_Sp_Item	13,079	0.293	0.000	6,320	0.288	0.000	6,759	0.297	0.000	0.009	
Change_Leverage	13,079	0.009	0.000	6,320	0.014	0.000	6,759	0.004	0.000	-0.010	***
Change_StockComp	13,079	-0.003	0.000	6,320	-0.002	0.000	6,759	-0.004	0.000	-0.001	***

Panel A presents descriptive statistics related to the 10-K links in the post-period (*Adopt_Links* = 1). We calculate these variables using a link-level dataset. We then aggregate the variables at the 10-K level. Panel B presents the summary statistics of independent, dependent, and control variables for the full sample, pre-period (*Adopt_Links* = 0), and post-period (*Adopt_Links* = 1). Means are tested using t-tests. All continuous variables in Panel B are winsorized at the 1st/99th percentiles. Variable definitions are in Appendix C.

Table 3: Linked document characteristics

Panel A: EDGAR Views

Average Daily Views:	N	Mean	P25	P50	P75
Pre Window [-10,-2]	94,614	174.692	18	49	126
10-K Window [-1,1]	26,804	253.792	22	65	175
Post Window[2,10]	67,969	160.521	16	45	116

Differences Across Windows	Mean		P50	
10-K Window - Pre Window	79.100	***	16	***
10-K Window - Post Window	93.270	***	20	***

Panel B: Characteristics of linked documents and views

	(1)	(2)
Dep. Vars.	*Ln(Views[0,+1])*	
SimScore	0.586***	1.015***
	(3.23)	(5.68)
Ln(Words)	-0.035***	-0.036***
	(-14.02)	(-14.51)
Scaled_Numbers	0.069	0.124*
	(1.02)	(1.85)
Scaled_Specificity	-0.382***	-0.266*
	(-2.59)	(-1.84)
FOG	0.005***	0.006***
	(5.48)	(6.73)
Ln(Age_Days)	-0.118***	-0.129***
	(-32.67)	(-36.08)
Observations	212,543	212,543
R-squared	0.262	0.312
Firm FE	Yes	Yes
Cal Year FE	No	Yes
Cluster Firm	Yes	Yes
Adjusted R-squared	0.245	0.297

This table presents analyses related to linked document characteristics. Panel A presents descriptives statistics on the number of views of linked documents both before the 10-K filing date (pre window), in the three days surrounding the 10-K filing date (10-K window), and after the 10-K filing date (post window). Panel A also presents t-tests for the difference in means and Wilcoxon rank-sum test for differences in medians between the 10-K window and the pre- and post-windows. Panel B presents regressions using the link-level dataset from 5/19/2020-6/30/2023, where the dependent variable is the natural logarithm of the number of views on a linked document on the [0, +1] days after the focal 10-K filing date. Standard errors are clustered by firm and t-statistics are in paratheses. ***, **, * denotes statistical significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are in Appendix C.

Table 4: Link adoption and investor response

Dep. Vars.	(1) *AbnRetailVol*	(2) *AbnVol*	(3) *AbsCAR*	(4) *AbnRetailVol*	(5) *AbnVol*	(6) *AbsCAR*
Adopt Links	0.011	0.080**	0.001	-0.119	-0.103*	-0.004***
	(0.241)	(2.301)	(1.008)	(-1.544)	(-1.954)	(-3.519)
Weak_Info^{R}				-1.197**	-0.817**	0.019**
				(-2.575)	(-2.513)	(1.972)
*Adopt_Links * Weak_Info*^{R}				0.252*	0.358***	0.010***
				(1.805)	(3.352)	(3.431)
Ln(Item15 Length)	0.130	0.109	0.002	0.122	0.089	0.002
	(0.963)	(1.343)	(0.732)	(0.891)	(1.071)	(0.673)
Ln(Word_Count)	0.088	0.351*	-0.001	0.036	0.340*	-0.002
	(0.331)	(1.870)	(-0.222)	(0.134)	(1.790)	(-0.461)
FOG	-0.041	0.029	0.001	-0.049	0.018	0.001
	(-0.763)	(0.717)	(0.755)	(-0.929)	(0.460)	(0.736)
%Negative_Words	-5.133	26.037	0.571	-9.995	18.830	0.672
	(-0.195)	(1.453)	(1.156)	(-0.375)	(1.044)	(1.328)
%Litigious_Words	27.059	-3.849	-0.157	32.159*	1.791	-0.004
	(1.637)	(-0.313)	(-0.485)	(1.908)	(0.143)	(-0.012)
ROA	0.147	0.146*	-0.002	0.247	0.221**	-0.005
	(1.311)	(1.779)	(-0.612)	(1.590)	(2.035)	(-1.196)
Loss	-0.147	-0.135*	-0.000	-0.173*	-0.158**	0.001
	(-1.407)	(-1.787)	(-0.198)	(-1.658)	(-2.072)	(0.328)
SUE	0.018	-0.002	-0.003***	0.005	-0.007	-0.003**
	(0.334)	(-0.075)	(-2.700)	(0.080)	(-0.206)	(-2.431)
Ln(MVE)	0.201***	0.149***	-0.010***			
	(2.674)	(2.813)	(-5.590)			
BTM	0.078	-0.003	-0.000	0.046	-0.010	0.001
	(1.280)	(-0.070)	(-0.154)	(0.744)	(-0.191)	(0.532)
Leverage	0.055	0.131	0.006	-0.034	0.081	0.009
	(0.177)	(0.602)	(0.873)	(-0.112)	(0.355)	(1.160)
PP&E	-1.240	0.049	-0.014	-1.464*	-0.133	-0.010
	(-1.592)	(0.095)	(-0.918)	(-1.778)	(-0.241)	(-0.609)
Bundled	1.582***	1.149***	0.028***	1.608***	1.168***	0.029***
	(12.937)	(13.637)	(12.592)	(12.920)	(13.787)	(12.494)
M&A	-0.102	-0.075	0.000	-0.091	-0.068	-0.000
	(-1.278)	(-1.335)	(0.025)	(-1.135)	(-1.218)	(-0.288)
Large Sp Item	0.057	-0.035	0.000	0.048	-0.052	0.000
	(0.772)	(-0.669)	(0.178)	(0.634)	(-0.968)	(0.156)
Change_Leverage	0.164	0.165	0.000	0.222	0.270	-0.002
	(0.498)	(0.844)	(0.049)	(0.646)	(1.255)	(-0.321)
Change_StockComp	4.696**	1.640	-0.084**	3.147	0.701	-0.045
	(2.290)	(1.304)	(-2.283)	(1.329)	(0.456)	(-0.988)
Observations	10,830	13,079	13,079	10,525	12,497	12,497
R-squared	0.479	0.465	0.500	0.485	0.474	0.502
Adjusted R-squared	0.282	0.258	0.306	0.289	0.271	0.309
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Cluster Firm	Yes	Yes	Yes	Yes	Yes	Yes

The sample period includes filing years 2016-2019. Columns 1-3 present the main effect of link adoption on market outcomes. Columns 4-6 present the interaction of link adoption and weak information environment on market outcomes. We exclude *Ln(MVE)* as a control variable in columns 4-6 as that is a variable used in the PCA for *Weak_Info*. A superscript "R" denotes that the variable is decile ranked (from 0 to 1). Standard errors are clustered by firm and t-statistics are in parentheses. ***, **, * denotes statistical significance at the 1%, 5%, and 10% levels, respectively. All continuous variables are winsorized at the 1st and 99th percentiles. Variable definitions are in Appendix C.

Table 5: Cross-sectional analyses related to investor processing constraints

Dep. Vars.	(1) *AbnRetailVol*	(2) *AbnVol*	(3) *AbsCAR*	(4) *AbnRetailVol*	(5) *AbnVol*	(6) *AbsCAR*
Adopt_Links	0.293***	0.328***	0.005***	0.205**	0.331***	0.005***
	(3.008)	(4.632)	(2.712)	(2.367)	(4.799)	(2.740)
Busy_Day^R	0.067	-0.008	0.004			
	(0.442)	(-0.072)	(1.188)			
*Adopt_Links * Busy_Day*^{R}	-0.560***	-0.498***	-0.008***			
	(-3.698)	(-4.502)	(-2.768)			
Complex_10K^R				0.339*	0.543***	0.005
				(1.665)	(3.758)	(1.349)
*Adopt_Links * Complex_10K*^{R}				-0.367***	-0.478***	-0.008***
				(-2.588)	(-4.291)	(-2.793)
Ln(Item15_Length)	0.134	0.116	0.002	0.123	0.120	0.002
	(0.992)	(1.441)	(0.761)	(0.922)	(1.484)	(0.671)
Ln(Word_Count)	0.098	0.372**	-0.001			
	(0.366)	(1.971)	(-0.187)			
FOG	-0.038	0.031	0.001			
	(-0.701)	(0.791)	(0.800)			
%Negative_Words	-2.342	28.142	0.602			
	(-0.089)	(1.568)	(1.216)			
%Litigious Words	25.651	-5.340	-0.176			
	(1.552)	(-0.434)	(-0.543)			
ROA	0.159	0.152*	-0.002	0.154	0.147*	-0.002
	(1.418)	(1.856)	(-0.596)	(1.386)	(1.793)	(-0.625)
Loss	-0.144	-0.133*	-0.000	-0.150	-0.121	-0.000
	(-1.373)	(-1.764)	(-0.208)	(-1.438)	(-1.614)	(-0.054)
SUE	0.017	-0.002	-0.003***	0.013	-0.006	-0.003***
	(0.312)	(-0.067)	(-2.681)	(0.247)	(-0.197)	(-2.759)
Ln(MVE)	0.199***	0.154***	-0.010***	0.194***	0.148***	-0.010***
	(2.647)	(2.894)	(-5.595)	(2.605)	(2.810)	(-5.738)
BTM	0.081	0.002	-0.000	0.075	-0.003	-0.000
	(1.335)	(0.043)	(-0.103)	(1.216)	(-0.066)	(-0.179)
Leverage	0.069	0.147	0.006	0.038	0.147	0.006
	(0.224)	(0.670)	(0.899)	(0.124)	(0.682)	(0.872)
PP&E	-1.277*	0.024	-0.015	-1.259	0.048	-0.015
	(-1.649)	(0.047)	(-0.956)	(-1.614)	(0.092)	(-0.931)
Bundled	1.576***	1.147***	0.028***	1.580***	1.147***	0.028***
	(12.890)	(13.625)	(12.574)	(12.989)	(13.686)	(12.653)
M&A	-0.104	-0.074	-0.000	-0.105	-0.072	-0.000
	(-1.301)	(-1.327)	(-0.000)	(-1.316)	(-1.299)	(-0.100)
Large Sp Item	0.059	-0.036	0.000	0.058	-0.029	0.000
	(0.792)	(-0.681)	(0.158)	(0.785)	(-0.561)	(0.216)
Change_Leverage	0.162	0.164	0.000	0.176	0.159	0.000
	(0.489)	(0.834)	(0.049)	(0.536)	(0.807)	(0.014)
Change_StockComp	4.746**	1.716	-0.083**	4.800**	1.651	-0.083**
	(2.311)	(1.365)	(-2.251)	(2.337)	(1.315)	(-2.257)
F-stat Adopt+Adopt*Constraint	11.00***	8.12***	3.69*	3.87**	5.65**	3.64*
Observations	10,821	13,079	13,079	10,821	13,079	13,079
R-squared	0.480	0.467	0.500	0.480	0.466	0.500
Adjusted R-squared	0.284	0.260	0.306	0.283	0.259	0.306

Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Cluster Firm	Yes	Yes	Yes	Yes	Yes	Yes

This table presents the impact of link adoption and investor processing constraints on investor response. The sample period is filing years 2016-2019. Columns 1-3 (4-6) present the interaction of link adoption and busy days (complex 10-Ks) on market outcomes. We exclude document controls in columns 4-6 as those are the variables used in the PCA for *Complex_10K*. A superscript "R" denotes that the variable is decile ranked (from 0 to 1). Standard errors are clustered by firm and t-statistics are in parentheses. ***, **, * denotes statistical significance at the 1%, 5%, and 10% levels, respectively. All continuous variables are winsorized at the 1st and 99th percentiles. Variable definitions are in Appendix C.

Table 6: Speed of price discovery

Dep. Vars.	(1) $IPT[5]^R$	(2) $IPT[10]^R$	(3) $RetFract^R$	(4) $IPT[5]^R$	(5) $IPT[10]^R$	(6) $RetFract^R$
Adopt_Links	0.014	0.026**	0.003	0.029***	0.030***	-0.016
	(1.249)	(2.334)	(0.221)	(2.621)	(2.689)	(-1.444)
$Busy\_Day^R$	-0.107***	0.071***	0.090***			
	(-5.645)	(3.811)	(4.665)			
$Adopt\_Links * Busy\_Day^R$	-0.009	-0.039**	-0.038**			
	(-0.484)	(-2.010)	(-1.967)			
$Complex\_10K^R$				0.041*	0.031	-0.016
				(1.779)	(1.289)	(-0.683)
$Adopt\_Links * Complex\_10K^R$				-0.036*	-0.046**	-0.001
				(-1.960)	(-2.433)	(-0.037)
Ln(Item15_Length)	0.005	0.010	0.005	0.003	0.010	0.009
	(0.384)	(0.717)	(0.351)	(0.201)	(0.725)	(0.617)
Observations	12,918	12,918	12,918	12,918	12,918	12,918
R-squared	0.323	0.310	0.295	0.319	0.309	0.294
Firm Controls	Yes	Yes	Yes	Yes	Yes	Yes
Document Controls	Yes	Yes	Yes	No	No	No
Info Event Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Cluster Firm	Yes	Yes	Yes	Yes	Yes	Yes

This table presents analyses using three price response dependent variables: $IPT[5]^R$, $IPT[10]^R$, and $RetFrac^R$. The sample period is filing years 2016-2019. Columns 1-3 (4-6) relate to busy days (complex 10-Ks). We use the same control variables tabulated in Table 5. A superscript "R" denotes that the variable is decile ranked (from 0 to 1). Standard errors are clustered by firm and t-statistics are in parentheses. ***, **, * denotes statistical significance at the 1%, 5%, and 10% levels, respectively. All continuous variables are winsorized at the 1st and 99th percentiles. Variable definitions are in Appendix C.

Table 7: Abnormal spreads and users

	(1)	(2)	(3)	(4)
Dep. Var.		*AbnSpreads*		
Adopt_Links	0.021*	-0.033**	0.009	0.037
	(1.82)	(-2.25)	(0.34)	(1.41)
Weak_Info^{R}		-0.075		
		(-0.93)		
*Adopt_Links * Weak_Info*^{R}		0.113**		
		(2.13)		
Busy_Day^{R}			0.000	
			(0.00)	
*Adopt_Links * Busy_Day*^{R}			0.025	
			(0.70)	
Complex_10K^{R}				0.020
				(0.44)
*Adopt_Links * Complex_10K*^{R}				-0.031
				(-0.86)
Ln(Item15_Length)	-0.021	-0.028	-0.022	-0.020
	(-0.76)	(-0.96)	(-0.77)	(-0.71)
Observations	13,079	12,497	13,079	13,079
R-squared	0.315	0.314	0.315	0.315
Firm Controls	Yes	Yes (no MVE)	Yes	Yes
Document Controls	Yes	Yes	Yes	No
Info Event Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Cluster Firm	Yes	Yes	Yes	Yes

This table presents our main regressions using abnormal spreads as the dependent variable. The sample period is filing years 2016-2019. A superscript "R" denotes that the variable is decile ranked (from 0 to 1). Standard errors are clustered by firm and t-statistics are in parentheses. ***, **, * denotes statistical significance at the 1%, 5%, and 10% levels, respectively. All continuous variables are winsorized at the 1st and 99th percentiles. Variable definitions are in Appendix C.

Table 8: Additional analyses

Panel A: Robustness tests

Dep. Vars.	Pred.	(1) *AbnRetailVol*	(2) *AbnVol*	(3) *AbsCAR*	(4) *AbnRetailVol*	(5) *AbnVol*	(6) *AbsCAR*
Specification		Calendar-Year Fixed Effects			Removing 9 TCJA Days		
Adopt_Links		-0.064	-0.001	0.003	-0.067	0.023	0.003
*Adopt_Links * Weak_Info*^{R}	*(+)*	0.250*	0.354***	0.010***	0.245*	0.351***	0.010***
*Adopt_Links * Busy_Day*^{R}	*(-)*	-0.579***	-0.333	-0.009***	-0.578***	-0.474***	-0.009***
*Adopt_Links * Complex_10K*^{R}	*(-)*	-0.386***	-0.442***	-0.009***	-0.379***	-0.438***	-0.009***
Controls		Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects		Firm, Year	Firm, Year	Firm, Year	Firm, Year	Firm, Year	Firm, Year

Dep. Vars.	Pred.	(7) *AbnRetailVol*	(8) *AbnVol*	(9) *AbsCAR*	(10) *AbnRetailVol*	(11) *AbnVol*	(12) *AbsCAR*
Specification		Fully Interacted Model			Continuous Links		
Adopt_Links					-0.000	0.015*	0.000
*Adopt_Links * Weak_Info*^{R}	*(+)*	0.085	0.295**	0.008**	0.052	0.078***	0.002***
*Adopt_Links * Busy_Day*^{R}	*(-)*	-0.512***	-0.425***	-0.006**	-0.128***	-0.110***	-0.002**
*Adopt_Links * Complex_10K*^{R}	*(-)*	-0.145	-0.375***	-0.006**	-0.098***	-0.125***	-0.002**
Controls		Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects		Firm	Firm	Firm	Firm	Firm	Firm

Table 8 (continued)

Dep. Vars.	Pred.	(13) *AbnRetailVol*	(14) *AbnVol*	(15) *AbsCAR*	(16) *AbnRetailVol*	(17) *AbnVol*	(18) *AbsCAR*
Specification		Matched Diff in diff - Median Split			Matched Diff in diff - High/Low Terciles		
*Treat_Firm * Busy_Day*^{R}	*(-)*	-0.665**	-0.518***	-0.013***	-0.467**	-0.537***	-0.008*
*Treat_Firm * Complex_10K*^{R}	*(-)*	-0.742***	-0.574***	-0.008*	-0.555***	-0.396***	-0.010**
Controls		Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects		Firm	Firm	Firm	Firm	Firm	Firm

Panel B: Falsification tests

Dep. Vars.	(1) *AbnRetailVol*	(2) *AbnVol*	(3) *AbsCAR*	(4) *AbnRetailVol*	(5) *AbnVol*	(6) *AbsCAR*	(7) *AbnRetailVol*	(8) *AbnVol*	(9) *AbsCAR*
Specification		10-Q			EA			Placebo Event Window (2014-2017)	
Adopt_Links	0.001	**0.025***	0.003***	0.439	-0.005	0.006***	0.087*	**0.084****	0.007***
*Adopt Links * Weak Info*^{R}	-0.009	-0.111***	0.003	-1.437***	-0.622	0.001	-0.194	-0.078	-0.004
*Adopt Links * Busy Day*^{R}	0.003	**-0.197*****	-0.001	-0.838	-0.165	-0.001	0.107	0.024	0.006**
*Adopt Links * Complex 10K*^{R}	0.004	-0.017	0.003	0.559	0.590*	-0.004	0.094	0.257**	0.006**
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm	Firm

Panel A includes robustness tests: each column contains the coefficients of interest for each of the main results in Tables 4 and 5. In Panel A, columns 1-3 include calendar year fixed effects, 4-6 include calendar year fixed effects after removing nine filing days that overlap with TCJA (12/22/2017-12/31/2017), 7-9 include the fully interacted model, 10-12 include the continuous links test, and 13-18 include matched sample difference-in-differences tests. In Panel B, columns 1-3 include a 10-Q falsification test, 4-6 include an EA falsification test, and 7-9 include a falsification test using a window two years prior. Coefficients consistent with our main result are bolded. Standard errors are clustered by firm and t-statistics are in parentheses. ***, **, * denotes statistical significance at the 1%, 5%, and 10% levels, respectively. All continuous variables are winsorized at the 1st and 99th percentiles. Variable definitions are in Appendix C.