Do Customer Disclosures Affect Suppliers' Internal Capital Allocation Decisions?

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Abstract

This study investigates whether suppliers' internal capital allocations are affected by increases in customers' public disclosures. Suppliers often hold private information about their customers, which provides a competitive advantage over potential suppliers. However, mandated disclosures of potentially proprietary information, e.g., SFAS 131, can attract new entrants to the supplier market. The findings suggest that suppliers strategically invest in production capacity in response to competitive threats spurred by greater customer disclosures. Furthermore, suppliers amend internal capital decisions to favor segments involving customers with increased disclosures, contrary to what growth signals would prescribe. Using segment-level data, I show that supplier segments significantly expand their capacities relative to growth signals when their customers have expanded disclosures. Additional analysis shows that my results are driven by strategic entry deterrence incentives rather than the resolution of the information asymmetry problem. This study provides novel insights into the spillover effects of SFAS 131.

Keywords: Spillover effects, investments, supply chain, proprietary costs, segment disclosures, SFAS 131

JEL classification: D22, D62, D83, L14, M41

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1 Introduction

Corporate disclosures play a crucial role in facilitating efficient capital allocation in financial markets by reducing information asymmetry and uncertainty. The impact of these disclosures extends beyond the disclosing company itself, with a growing body of literature documenting significant spillover effects on the investments of supply-chain partners. In particular, researchers show that customer disclosures can influence their suppliers' firm-level investments (Raman and Shahrur 2008; Afrin et al. 2025).

While these studies have established the spillover effects of disclosures on related firms' investments at the *firm level*, little is known about how these disclosures affect suppliers' *internal* capital allocations. In particular, we do not know how suppliers internally allocate resources across their business segments when changes in their customers' disclosures may increase the threat of competitive entry within the supplier industry. This competitive concern introduces a layer of strategic decision-making that has yet to be explored in the spillover effects literature. I examine the effect of customer disclosures on the internal capital allocations of suppliers, specifically when these disclosures are likely to intensify competition in the supplier industry. The primary contribution of this study is to provide novel insights about the impact of enhanced customer disclosures on the internal resource allocations and segment-level investments of supplier firms (collectively referred to as "internal investments" hereafter).

Current suppliers often hold private information about their customers, such as knowledge about customers' segment sales growth or future demand. This private information provides them with a competitive advantage over potential entrants by allowing them to better anticipate and respond to their customers' needs. Due to proprietary concerns, customer companies are likely to refrain from publicly disclosing such information. However, disclosure mandates requiring customers to release potentially proprietary information can erode the informational advantage of incumbent suppliers. By making proprietary information public, these customer disclosures allow potential competitors of current suppliers to identify profitable investment opportunities and enter the market, thereby altering the competitive landscape. This leveling of the information playing field can intensify competition among suppliers.

Industrial organization theory predicts that, in response to competitive threats, current suppliers may react by expanding their investments and increasing capacity. Expanding capacity makes the market less attractive to potential competitors and can deter entry (Spence 1977; Huisman and Kort 2015). This is because increased capacity serves as a credible commitment to maintain or increase output levels. This commitment to future output reduces the expected profitability of entry for potential competitors. Empirical evidence supports this strategy of committing to excessive capacity in response to anticipated, yet uncertain, threats of entry (e.g., see Smiley 1988; Cookson 2018). To sustain these increased investments in the affected segments, suppliers need to allocate more internal capital to segments facing a greater threat of entry and less to other segments. In my setting, the competitive threat for the incumbent supplier arises from mandated customer disclosures. Therefore, I test the prediction that customer disclosures affect suppliers' internal capital allocation decisions.

A key empirical challenge is to identify disclosures from customer companies that are likely to spur competition in the supplier industry. This paper addresses this challenge by using the implementation of SFAS 131 as a quasi-natural experiment. Effective for fiscal years beginning after December 15, 1997, SFAS 131 mandates companies to report segments based on management's internal decision-making structure. This change offers an exogenous shock to customer disclosures, allowing for a clear identification of causal effects on supplier investments. Importantly, these expanded disclosures may reveal proprietary information about customer companies' segment-level sales growth and operations. This increased transparency can intensify competition by leveling the information playing field between existing and potential suppliers, potentially influencing existing suppliers' strategic investment decisions and internal resource allocation.

Prior literature supports the use of SFAS 131 as a setting for this study, showing that it led to increased proprietary disclosures by firms that changed their segment reporting (hereafter "change firms"). Under the previous SFAS 14 regime, firms often disclosed fewer segments due to proprietary concerns (e.g., Harris 1998; Botosan and Stanford 2005).[1] This concern was evident in the significant resistance to the Exposure Draft of SFAS 131, with companies worried about revealing sensitive information that could benefit competitors (Ettredge et al. 2002; Zhou 2022). Despite this evidence of increased proprietary disclosures, prior studies have not thoroughly examined their spillover effects on related firms, particularly suppliers.

To examine the spillover effect of SFAS 131 on suppliers, I construct a sample covering the period from 1996 to 2000, centered around the mandate's adoption in 1998. This sample period is chosen for two reasons: (a) change firms typically restated their pre-adoption segment disclosures for up to two years, and (b) limiting the post-adoption period to two years helps avoid comparability issues that could arise from subsequent corporate restructuring or M&A activities. Following the mandate, 43% of customer companies in the sample changed their segment disclosures.[2] Notably, about 92% of these change firms reported more segments post-SFAS 131 compared with the previous SFAS 14 standard.[3] This study focuses on these change firms, using their expanded disclosures as an exogenous shock to customer disclosures. To ensure comparability between the pre- and post-SFAS 131 periods, I use restated segment data from firms' first annual report following SFAS 131 implementation. This approach allows for a precise evaluation of the effects of increased disclosures, because segment data

1. The old standard, SFAS 14, required companies to report their business segments based on industry groupings. A major complaint about SFAS 14 was its excessive flexibility in segment grouping (Herrmann and Thomas 2000). SFAS 131 aimed to increase the transparency of business segment disclosures by limiting the level of discretion allowed under the prior, industry-based reporting framework of SFAS 14 (Berger and Hann 2007).

2. The remaining 57% of customer companies did not change their segment disclosures because (a) they were single-segment companies or (b) they voluntarily disclosed their segments consistent with SFAS 131.

3. The remaining 8% of the change firms either maintained the number of segments reported but reconfigured the segments, or shrunk the number of segments reported. These change firms are not used as a shock to customer disclosures.

for both pre- and post-periods are consistently based on disclosures per SFAS 131.[4]

I begin by validating that increased customer disclosures intensify competition in supplier industries by examining two text-based measures of competition (Hoberg and Phillips 2010, 2016). First, suppliers with a higher proportion of disclosing customers in their major customer base experience a significant increase in the number of rivals compared to other suppliers.[5] Second, the 10-K product descriptions of these suppliers become more similar to those of their rivals. These findings collectively imply that rivals reposition themselves in the product market close to existing suppliers, offering similar products to those of the suppliers. Thus, customer disclosures have substantial spillover effects by reshaping the competitive dynamics of supplier industries.

Next, I identify the effect of customer disclosures on suppliers' internal capital allocation using an internal capital allocation efficiency measure from Cho (2015). This measure captures the extent to which managers allocate capital expenditures among segments relative to the respective segment's growth opportunities (proxied by the segment's sales and industry Tobin's q). For instance, consider a company that has two segments, segment A and segment B. If segment A has a higher growth opportunity than segment B and segment A makes more capital expenditures (scaled by total capital expenditures), then this measure identifies it as an "efficient" allocation. Conversely, if segment A has a lower growth opportunity but makes more capital expenditures than segment B, then the measure identifies this as an "inefficient" allocation.

To examine the effect of customer disclosures on suppliers' internal capital allocation, I conduct a difference-in-differences (DiD) analysis. The treated suppliers are firms whose customers have increased their segment disclosures per SFAS 131. The treatment variable is defined as a continuous variable, namely, the ratio of disclosing major customers to total ma-

4. To mitigate concerns that real operational changes might drive changes in supplier investments, suppliers experiencing such changes (e.g., mergers and acquisitions, divestitures, or restructuring) are excluded, following the approach of Berger and Hann (2003) and Cho (2015).

5. I measure the major customer base as the number of major customers disclosed by supplier companies in their 10-Ks. The SEC requires that companies disclose customers that account for more than 10% of total sales (Regulation S-K).

jor customers, where disclosing customers are those that expanded their segment disclosures post-SFAS 131.

This paper finds that, in response to customer disclosures, supplier companies allocate internal capital in a manner that *appears* to diverge from what traditional investment efficiency metrics based on sales and Tobin's q would suggest. Such an allocation might appear "less efficient" when evaluated solely on these traditional grounds. A cursory interpretation of this capital allocation might suggest an "inefficient" outcome, using conventional investment efficiency framework (which does not incorporate the competitive dynamics introduced by customer disclosures, e.g., Biddle et al. 2009). It seemingly contradicts prior literature on the positive spillover effects of disclosure on investment efficiency (Badertscher et al. 2013; Shroff et al. 2014; Chiu et al. 2019; Durnev and Mangen 2020).

However, this apparent contradiction is resolved by recognizing that traditional investment efficiency models are incomplete in this context. That is, they do not incorporate the strategic responses to heightened competition that customer disclosures trigger. My findings indicate that suppliers strategically direct more internal capital to segments facing competitive threats (even those with lower growth opportunities) as a strategic move to maintain their market position. Therefore, what appears as "inefficiency" under standard assumptions is, in fact, a rational competitive response.

To provide further insights into the suppliers' strategic internal capital allocation, I employ a novel approach to analyze segment-level investments by using rich segment data. I adapt the firm-level sales growth model of investment (Biddle et al. 2009) to the segment level. Biddle et al. (2009) estimate the firm-specific expected level of investment by regressing future investment (at $t + 1$) on current sales growth (from $t - 1$ to t) by industry and year. I extend this model to estimate the expected level of *segment*-level investment relative to its own segment sales growth and that of the related customer segment.[6] The deviation

6. The link between a supplier segment and a customer segment is established by leveraging Input-Output data from the Bureau of Economic Analysis, in addition to the traditional customer-supplier relationship based on the Compustat Supply Chain database. More details are provided in Section 3.1.

from the expected level of investment is measured by the residuals from regressing future segment investment on its own sales growth and the related customer segment's sales growth. This measure captures how much segment-level investment deviates from the two signals of growth opportunities (its own sales growth and the related customer segment's sales growth). This segment-level deviation measure provides crucial insights into the underlying drivers of the apparent inefficiencies observed in firm-level internal capital allocations.

To investigate the effect of customer disclosures on suppliers' segment-level investments, I perform a segment-level DiD analysis. The treatment variable is an indicator variable of whether a supplier segment has a linked customer segment and the customer has increased their segment disclosures subsequent to SFAS 131. The analysis shows that segment-level investment deviates more from what the sales growth signals suggest for treated segments, compared with control segments. Importantly, these results are mainly driven by segments that undertake strategic capacity expansions (investing significantly more than what the sales growth model would dictate) in the post-SFAS 131 period. These findings are consistent with the argument that supplier segments strategically enhance their investments to maintain their competitive positions and to preserve existing customer relationships. By identifying this strategic capacity expansion, the segment-level analysis complements and extends the insights from the firm-level analysis, providing a more nuanced understanding of suppliers' strategic responses to customer disclosures.

An alternative explanation for my findings is that the increase in supplier segment investments is driven by the resolution of information asymmetry between suppliers and customers. This hypothesis suggests that enhanced customer disclosures might mitigate suppliers' underinvestment problems by providing more accurate information about customer demand and market conditions. To address this alternative explanation, I conduct a series of additional analyses.

First, I perform two cross-sectional tests to pin down the supplier-competition channel: (a) customer size and (b) supplier segment industry concentration (Herfindahl index). I show that the deviation from the expected level of segment investments and the segment-level "over-investment" results are more pronounced for (a) supplier segments that are connected with large customers and for (b) supplier segments within highly concentrated industries in the pre-SFAS 131 period. Second, I examine the future Return on Assets (ROA) of supplier segments. I find that supplier segments experience a decline in ROA in the years following the over-investment period if they significantly exceed the investment levels suggested by the sales growth model following enhanced disclosures by their customers. Collectively, these findings are more consistent with suppliers' strategic entry deterrence incentives, rather than with the resolution of the information asymmetry problem.

Another alternative explanation for my findings is that mandated segment disclosures intensify the competitive environment of customer companies, leading supplier companies to increase production capacity to meet heightened customer demands. Under this scenario, suppliers would be allocating resources towards segments linked to customers facing increased competition, rather than to deter entry by their own rivals. To address this possibility, I examine whether the competitive environment of customer companies changed following their segment disclosures. I find no significant change in the competitive environment of customers that expanded segment disclosures. The results show that increases in the number of rivals and textual similarities are not statistically significant. These findings suggest that the observed changes in supplier investments are not driven by increased competition among their customers, further supporting the interpretation that suppliers are responding to potential entry threats in their own markets.

To strengthen my inferences, I address two critical concerns regarding the validity of the Difference-in-Differences (DiD) test. First, I examine the parallel trends assumption, a crucial identifying assumption of the DiD research design. This assumption posits that in the absence of treatment, the treated and control groups would have followed parallel trends in the outcome variable. To assess this, I analyze both firm-level and segment-level results, demonstrating that the DiD coefficients are not significantly different from zero before the adoption of SFAS 131. This provides evidence that the trends in investment measures were indeed parallel between treated and control groups in the pre-treatment period.

Second, I further address the potential concern of selection bias, which could arise if the treated and control groups are inherently different in ways that could affect both the treatment assignment and the outcome variables (internal investments). To mitigate this concern, I show that there are no significant differences in the mean-level investment measures between the treated and control suppliers (and supplier segments) prior to SFAS 131. This analysis helps to rule out a concern that systematic differences between the groups could confound the treatment effect. Importantly, for any remaining unobserved confounding factor to threaten the inferences, it would need to (a) affect the investments differently in the pre-period compared to the post-period, and (b) correlate with the treatment variable, which is unlikely given the evidence of no significant differences in trends and mean levels.

This paper advances our understanding across several streams of literature. First, it contributes to the research on the spillover effects of disclosures on related firms' investments. While prior studies have established the spillover effect of disclosures on peer companies' *firm-level* investments (Badertscher et al. 2013; Shroff et al. 2014; Chiu et al. 2019; Durnev and Mangen 2020), there is a dearth of research on how such disclosures influence the *internal investment* decisions of peer firms. My study provides novel evidence on how disclosures shape the internal dynamics of economically related firms, addressing the call by Roychowdhury et al. (2019) and Ferracuti and Stubben (2019) for research on the effects of peer companies' disclosures on corporate investments.

In addition, this work contributes to the literature on disclosure and competition. Many papers exploring the relationship between disclosure and competition center on a firm's disclosure and its *own* competitive environment (Verrecchia 1983; Vives 1984; Dye 1985; Gal-Or 1985, 1986; Darrough 1993; Hwang and Kirby 2000; Li 2010; Bernard 2016; Burks et al. 2018; Badia et al. 2021). This paper adds novel evidence that companies strategically adjust their real investment decisions in response to heightened competition triggered by customers' disclosures. Recent work by Afrin et al. (2025) shows that the competitive pressures faced by customers in their product markets influence suppliers' *external* investment decisions (i.e., M&A). My study extends this literature by demonstrating that customer disclosures affect suppliers' *internal* investment decisions.

Lastly, this study contributes to the literature on segment disclosure. Earlier studies have demonstrated that detailed segment disclosures, mandated by SFAS 131, enhance the monitoring environment (Berger and Hann 2003; Botosan and Stanford 2005; Ettredge et al. 2005; Berger and Hann 2007). Cho (2015) documents that companies that changed their segment disclosure achieved more efficient internal capital allocation. Building upon these foundations, this study explores how segment disclosure impacts an essential group of stakeholders: supply-chain partners. In doing so, it bridges the gap between segment disclosure literature and supply chain research.

The remainder of the paper proceeds as follows. Section 2 provides background information on SFAS 131 and develops testable hypotheses. Section 3 describes data collection and sample selection. Section 4 discusses research design. Section 5 presents the main results. Section 6 concludes.

2 Background and Hypothesis Development

2.1 Segment Disclosure Standard, SFAS 131, and Related Literature

The goal of adopting SFAS 131 was to improve the transparency and relevance of segment disclosure. Critics of the previous standard, SFAS 14, argued that its definition of segments based on industry groupings ("industry approach") granted managers excessive flexibility in aggregating segments, thereby concealing important information from investors and analysts (FASB 1997; Herrmann and Thomas 2000). SFAS 131 sought to address these concerns by requiring public companies to report both financial and descriptive details about their business segments using the "management approach." This approach directs companies to report segment information in a manner consistent with internal management for making operating decisions and performance evaluation. The overarching goal of SFAS 131 was to provide the capital markets with segment data that are more transparent, detailed, and closely aligned with a company's operational realities, improving the quality of segment information available to investors for informed decision-making (FASB 1997; Berger and Hann 2007). One notable example of the change brought about by the segment disclosure mandate is IBM. Whereas IBM reported only a single segment under SFAS 14, it began disclosing seven segments following the transition to SFAS 131 (for a detailed illustration of such changes in segment reporting, refer to the Navistar example in Appendix C.1).

It is important to consider why the unraveling full-disclosure equilibrium (Grossman 1981; Milgrom 1981) did not emerge under the old standard, SFAS 14. Several studies suggest that proprietary cost concerns motivated companies to report fewer segments in the pre-SFAS 131 period (Hayes and Lundholm 1996; Harris 1998; Botosan and Stanford 2005). Firms often aggregated segments to avoid revealing proprietary information that could benefit competitors. The significant opposition to the Exposure Draft of SFAS 131 further indicates that the new standard, SFAS 131, was expected to increase proprietary disclosures (Ettredge et al. 2002; Zhou 2022). These factors collectively suggest that SFAS 131 led to a meaningful increase in the disclosure of proprietary information among reporting companies.

2.2 Hypothesis Development: Effects of Customer Disclosures on Suppliers' Internal Investments

Existing suppliers often possess private information about their customers and corresponding customer segments that potential entrants lack, such as insights into customers' segment sales growth or future demand. For instance, suppliers and customers may directly share demand and inventory data using integrated information technology systems (Cachon and Fisher 2000; Gutierrez et al. 2020) or collaborate on new product development (Handfield et al. 1999). Even in the absence of explicit data sharing, current suppliers can infer customers' segment sales growth or future demand from past transaction patterns and order trends. This private information provides them with a competitive advantage. For example, compared with potential entrants, existing suppliers can more accurately forecast inventory requirements, optimize production schedules, and tailor product development to meet emerging customer demands.

Proprietary concerns typically prevent customer companies from disclosing such information publicly (Graham et al. 2005). However, if a disclosure mandate requires that customers disclose the information, it diminishes the private information advantage of the existing suppliers. Potential competitors may identify profitable growth opportunities from the disclosures and enter the supplier market (Yang 2019; Glaeser and Omartian 2022). Thus, the disclosure mandate may alter the competitive environment of existing suppliers. I hypothesize that suppliers with expanded customer disclosures are likely to experience increased competition compared to those without such customers. I state the hypothesis (in the null form) as follows:

H1. Suppliers with expanded customer disclosures experience no significant change in their competitive environment.

Given this shift in the competitive landscape, I expect that suppliers significantly increase their investments, specifically in segments tied to their customer with enhanced disclosures in order to deter competitive threats. Industrial organization theories predict that companies build up capacity to deter potential entrants by making it less profitable to enter the market (Spence 1977; Huisman and Kort 2015). Prior empirical work supports the idea that companies commit to excessive capacity in response to entry threats from potential competitors (Smiley 1988; Cookson 2018). To sustain the increased investments in these segments, supplier companies need to allocate more internal capital to segments associated with disclosing customers. Therefore, I hypothesize that customer disclosures affect suppliers' internal capital allocation decisions. I state the hypothesis (in the null form) as follows:

H2. Customer disclosures do not affect suppliers' internal capital allocation decisions.

However, it is unclear *ex ante* whether customer segment disclosures will lead to changes in suppliers' internal capital allocation. The competitive threat posed by the disclosed information might be limited. The customer segment data may not offer actionable insights sufficient for potential entrants to pose a serious threat to existing suppliers. Berger and Hann (2003) suggest that financial analysts and the market were aware of the segment information even before SFAS 131. Consequently, suppliers may not perceive a significant need to change their internal capital allocation strategies in response to these disclosures. Moreover, high barriers to entry in certain industries may persist despite increased information transparency. Existing suppliers often benefit from economies of scale, established customer relationships, and industry-specific expertise that are not easily replicated by new entrants. These advantages can serve as natural deterrents to potential competitors, reducing the pressure on suppliers to reallocate capital in response to customer disclosures.

If there are changes in internal capital allocation in response to customer disclosures and these changes are intended to retain their customer base and secure market share, I anticipate that firms implementing these changes experience an increase in their customer base and market share in the following years. By strategically allocating more resources to segments associated with disclosing customers, suppliers may meet customer needs more effectively. Additionally, the increased investment can improve the suppliers' competitive positioning, making it more difficult for new entrants to gain a foothold in the market. This preemptive approach helps suppliers protect their existing relationships.

I further predict that these changes in internal capital allocation are supported by an increase in investments for segments economically linked to customers with expanded disclosures. This increase in segment-level investments is driven by suppliers' efforts to preempt potential competitive threats spurred by customer disclosures. When a customer's proprietary information is disclosed, it reduces the private information advantage that existing suppliers hold, thereby enabling potential competitors to identify lucrative opportunities and enter the market. To counteract this threat, suppliers strategically boost their investments in segments associated with these disclosing customers. By doing so, they aim to deter new entrants by raising the cost and barrier of competing with these segments. This preemptive investment strategy serves as a barrier to entry, demonstrating the suppliers' commitment to maintaining their market position and securing their customer base (Spence 1977; Dixit 1980; Smiley 1988).

One might argue that customer disclosures help mitigate information asymmetry between customers and suppliers, thereby reducing under-investment (Chiu et al. 2019). Suppliers may underinvest due to a lack of information about customer demand or future growth prospects. The increase in investments could be a result of resolving this information asymmetry problem.

To refine my inferences and isolate the causal mechanism, I develop two cross-sectional hypotheses based on the customer size and the level of industry concentration among supplier segments. I expect to find stronger "over-investment" results for the subsample with larger customer size. The rationale is that larger customers are typically more crucial to suppliers and frequently represent a significant portion of their revenues. Consequently, suppliers may allocate more resources toward sustaining relationships with larger customers compared to those with smaller customers. If the increase in investments were primarily driven by resolved information asymmetry, I would expect to see stronger results for supplier segments linked with smaller customers, as these suppliers likely face greater information asymmetry challenges.

Next, I hypothesize that the effect is more pronounced in supplier segments within highly concentrated industries prior to customer disclosures. In such industries, the potential threat of entry is more substantial compared to less concentrated industries, due to the higher potential for market power disruption by new entrants. Therefore, I expect the spillover effect to be stronger in industries with higher concentration in the pre-period, as incumbents in these industries have more to lose from increased competition. If the resolution of the information asymmetry were the primary driver of increased investments, I would expect no differences in the spillover effect across different levels of industry concentration.

Finally, the increase in investments is likely to incur costs on "over-investing" supplier segments. This is because building up capacity as a defensive strategy is credible only if the investment is irreversible (Spence 1977; Dixit 1980). I expect that supplier segments experience a decline in future ROA as a result of expanding irreversible capacity. In contrast, if investment decisions were driven by the resolution of information asymmetry, we would expect to observe an increase in ROA in subsequent periods.

3 Data Collection and Sample Selection

3.1 Data Collection

This section details the data collection process. To obtain internal capital allocations and segment-level investments, I require several types of data: suppliers' segment-level data, supplier-customer relationship data, and linkages between supplier segments and customer segments. I gather these data from three primary sources: (a) Compustat Segment database, (b) Compustat WRDS Supply Chain with IDs (hereafter "Supply Chain database"), and (c) Bureau of Economic Analysis Input-Output data (hereafter "BEA IO data"). I outline the methodology employed to establish the links between supplier segments and customer segments.

The Compustat Segment database provides segment-level financial information including sales, capital expenditures, and assets, along with the corresponding SIC/NAICS industry codes for each segment. However, this database does not typically include restated segment data for companies that have changed their segment reporting in alignment with SFAS 131 standards ("change firms"). To address this gap, I manually collect the pre-SFAS 131 restated segment data for these change firms by reviewing their 10-Ks on the SEC's EDGAR database, following Cho (2015).[7] For the change firms, these hand-collected data are used for the period prior to SFAS 131, while the Compustat Segment data are used for the post-SFAS 131 period. For firms that did not change segment definitions, the Compustat Segment data are used across both timeframes. This approach ensures a uniform basis for comparing segment investments, adhering to consistent disclosure standards.

Next, I extract supplier-customer relationship from the Supply Chain database constructed by Cohen and Frazzini (2008) and Cen et al. (2017). This database identifies major customers, defined as those accounting for at least 10% of a supplier's sales. However, I find that the database has a significant number of missing supplier-customer links, consistent with Ellis et al. (2012). To address these gaps, I manually review suppliers' 10-Ks from the SEC EDGAR database and establish additional customer linkages accordingly (see Appendix C.4 for an example of this process).

To link a supplier's segments to a customer's segments, I utilize the BEA IO data, specifically the Direct Domestic Requirements table following Carter et al. (2021). This table outlines the input-output relationship among U.S. industries starting in 1997.[8] I convert the BEA's industry "IO codes" to NAICS codes and SIC codes to align with the segment SIC industry codes used in the Compustat Segment database.

The BEA IO data provide insights into the required inputs from a relevant industry for

7. Cho (2015) defines the change firm as (1) a firm that has changed their segment disclosure post-SFAS 131 and (2) the restated segments following SFAS 131 show additional operations in industries that were previously not reported pre-SFAS 131. For this study, I impose an additional criterion to classify customer companies as a shock to customer disclosures: the number of reported segments must have increased post-SFAS 131.

8. The requirements tables are available at the Bureau of Economic Analysis website: https://www.bea.gov/industry/input-output-accounts-data.

producing one dollar of output in each industry. Using this information, I rank supplier segments for a given customer segment based on the strength of the input-output relationship. The supplier segment with the strongest input-output linkage to the customer's segment is identified as the primary match. (see Appendix C.3 for an example).

3.2 Sample Selection

The sample selection procedure begins with 62,239 supplier-years (16,108 suppliers) in the Compustat Fundamental Annual database from 1996 to 2000. I eliminate 53,639 supplier-years (12,613 suppliers) that lack major customers from the Compustat Supply Chain database (augmented with hand-collection). The exclusion of observations missing segment data results in a sample of 4,429 supplier-years (1,674 suppliers).

To ensure that the results are not driven by real changes in operations (e.g., M&As or restructuring), change firms (suppliers) with such changes are excluded following Berger and Hann (2003) and Cho (2015).[9] This step yields a group of "pure" change firms with pure reporting changes. Through this process, 773 supplier-year observations (involving 306 suppliers) are removed, leaving a sample of 4,983 supplier-years and 1,787 suppliers.

The measurement of internal capital allocation requires companies to have multiple segments. Coupled with the exclusion of financial and regulated industries (SIC codes ranging between 6000 and 6999 or 4900 and 4949), this requirement eliminates an additional 2,023 supplier-years (1,012 suppliers) and leaves a total of 2,960 supplier-years (775 suppliers). The data requirement for control variables further reduce the sample to 897 supplier-years (316 unique suppliers and 278 unique customers associated with these suppliers). Table 1 summarizes the sample construction procedure.

To analyze segment-level investment efficiency, the segment-level sample selection procedure begins with the Compustat Segment database. Segments that only appear in either the

9. Cho (2015) implements the Berger and Hann (2003) algorithm and excludes change firms if the sums of segment revenues (and earnings) are different by more than 1% between the restated report under SFAS 131 and historical report pre-SFAS 131.

pre-SFAS 131 or post-SFAS 131 periods are removed from the sample. This step helps mitigate the concern that newly introduced or discontinued segments might influence the results. As in Cho (2015), segments with no real operations (e.g., unallocated segments or reconciling segments) are also eliminated. Geographic segments are excluded to focus exclusively on business segments. The final segment sample comprises 1,071 unique supplier-segment-years with 263 unique suppliers and 4,445 supplier-segment-customer-segment-year pairs.

4 Research Design

The analysis proceeds in three main stages. First, I examine whether customer disclosures intensify competition in supplier industries. Subsequently, I investigate the effect of customer segment disclosures on suppliers' internal investments along two dimensions: (a) internal capital allocations at the supplier level and (b) investments at the supplier-segment level. The supplier-level analysis aims to determine whether expanded customer disclosures lead to changes in suppliers' internal capital allocation. Building on these findings, the segment-level analysis provides deeper insights into the factors driving observed changes in internal resource allocation. Specifically, it examines whether these changes stem from increases or decreases in over- or under-investment (relative to a sales growth model) within specific supplier segments.

4.1 Suppliers' Competitive Environment

I measure the competitiveness of the supplier industry using two text-based measures derived from the Text-based Network Industry Classifications (TNIC-3, Hoberg and Phillips 2010, 2016): (a) the number of rivals and (b) textual similarities of product descriptions. This approach is based on textual analysis of product descriptions in firms' 10-K filings. The TNIC-3 measures are particularly suitable for this analysis because they can identify emerging competitors that might not yet have significant market shares but nonetheless pose competitive threats due to their product offerings and market positioning in response to customer disclosures. Traditional measures, such as the number of firms in pre-defined industries or the Herfindahl-Hirschman Index (HHI), might overlook these potential competitors.

To quantify the extent to which a supplier is affected by increased customer segment disclosures, I use a continuous treatment variable. This variable, denoted as $\%Treat$, is calculated by taking the ratio of the supplier's major customers that increased segment definitions to the total major customer count. For example, a supplier, HMT Technology Corporation, has three customers. One of these customers expanded their segment disclosures following SFAS 131. Consequently, the $\%Treat$ value for the supplier is 1/3. This example is further elaborated in Appendix C.2.

To examine the effect of customer disclosures on suppliers' competitive environment, I employ the following OLS regression:

$$Competition = \beta \%Treat_{it} \times Post_t + \gamma Controls + \varepsilon_{it}$$

where $Competition$ is either $N\ Rivals$ or $TextualSimilarities$. $N\ Rivals$ represents the number of rivals defined by TNIC-3 (Hoberg and Phillips 2010, 2016), and $TextualSimilarities$ is the overall similarity of product descriptions with rivals. $Post$ is an indicator variable equal to one for the post-SFAS 131 period and zero otherwise. The model includes $Controls$ with a vector of firm-level characteristics. These control variables are defined in Appendix A. I employ two fixed effects structures: (a) firm and year fixed effects, and (b) firm and industry-year fixed effects. Firm fixed effects control for time-invariant firm characteristics; year fixed effects account for any common shocks affecting all firms in a given time period; and industry-year fixed effects capture industry-specific trends, e.g., industry-wide merger waves.

4.2 Firm-level Internal Capital Allocations

I measure internal capital allocation efficiency following Cho (2015). A firm's capital allocation is classified as "passive" if the segment-level capital expenditures are proportional to the segment-level sales. The paper constructs a measure of the deviation from a passive capital allocation ("CAPX deviation") as:

$$CAPX\ deviation_{ijt} = \frac{CAPX_{ijt}}{\sum_{j=1}^{n} CAPX_{ijt}} - \frac{Sale_{ijt}}{\sum_{j=1}^{n} Sale_{ijt}},$$

where $CAPX$ represents segment-level capital expenditures, $Sale$ is segment-level sales. i, j, and t denote a firm, a segment, and a year, respectively, and n is the total number of segments of a firm i.

Next, a positive segment-level CAPX deviation is considered efficient (inefficient) if a segment has higher (lower) growth opportunities compared with the company's other segments. Segment-level growth opportunities are proxied by the median Tobin's q of single-segment companies with the same SIC industry codes. With this logic, the Signed CAPX deviation is defined as:

$$Signed\ CAPX\ deviation_{ijt} = (+1) \cdot CAPX\ deviation_{ijt} \text{ if } q_{ijt} > \bar{q}_{it},$$

$$Signed\ CAPX\ deviation_{ijt} = (-1) \cdot CAPX\ deviation_{ijt} \text{ if } q_{ijt} \leq \bar{q}_{it},$$

where q_{ijt} is Tobin's q for segment j of firm i in year t and $\bar{q}_{it}$ is the segment-asset-weighted average q_{ijt} of firm i's other segments in year t. q_{ijt} is proxied by the median q of single-segment firms within the same industry as the segment j.

Lastly, the firm-level internal capital allocation efficiency is defined by the segment-asset-weighted Signed CAPX deviation, i.e.,

$$Capital\ Allocation\ Efficiency_{it} = \sum_{j=1}^{n} w_{ijt} \cdot Signed\ CAPX\ deviation_{ijt},$$

$$\text{where } w_{ijt} = \frac{BA_{ijt}}{\sum_{j=1}^{n} BA_{ijt}}.$$

BA is the segment assets. i, j, and t denote a firm, a segment, and a year, respectively, and n is the total number of segments of a firm i.

This paper conducts a difference-in-differences (DiD) analysis to evaluate the effect of customer companies' segment disclosures on suppliers' internal capital allocation. This study estimates the following regression model:

$$Capital\ Allocation\ Efficiency_{it} = \beta\%Treat_{it} \times Post_t + \gamma Controls + \varepsilon_{it},$$

where $Post$ is an indicator variable equal to one for the post-SFAS 131 period and zero otherwise. The model includes $Controls$ with a vector of firm-level characteristics. These control variables are defined in Appendix A. I employ two fixed-effect structures: (a) firm and year fixed effects, and (b) firm and industry-year fixed effects. Firm fixed effects control for time-invariant firm characteristics; year fixed effects account for any common shocks affecting all firms in a given time period; and industry-year fixed effects capture industry-specific trends, e.g., industry-wide merger waves.

The coefficient of interest is β. A statistically significant β (i.e., significantly different from zero) would indicate that suppliers adjust their internal capital allocations across segments in response to customer segment disclosures.

4.3 Segment-level Investments

To analyze segment-level investment efficiency, I adapt the sales growth model of investment (Biddle et al. 2009) to the segment level and incorporate the customer segment's sales growth in the model. The first step involves regressing the segment-level lead investment (scaled by segment assets) against both its own sales growth and that of the connected customer segment, as outlined in the following model:

$$SegInvest_{j,t+1} = \beta_0 + \beta_1 \Delta Sales_{jt} + \beta_2 \Delta Customer\ Sales_{kt} + \varepsilon_{jt},$$

where $SegInvest$ is a supplier segment's lead capital expenditures (at $t+1$) divided by the segment assets (at t), $\Delta Sales_{jt}$ indicates the sales growth (from $t-1$ to t) of supplier segment j, $\Delta Customer\ Sales_{kt}$ represents the sales growth of the corresponding customer segment k. Should a supplier segment lack a matched customer segment, $\Delta Customer\ Sales_{kt}$ is imputed by the customer company's sales growth to avoid losing observations. i, j, k, and t denote a supplier, a supplier segment, a customer segment linked to the supplier segment j, and a year, respectively. This regression is run by Fama-French 48 industry and year with at least 10 observations for a given industry and year. The residual from the first-step regression is defined as *Residual_InvIneff*.

One measure of investment efficiency and two measures of investment *in*efficiency are derived from the residuals (*Residual_InvIneff*) from the first-step regression. $InvEff$ (*Abs*) is the absolute value of the residual, multiplied by -1 to ease the interpretation. A higher value of the $InvEff$ (*Abs*) indicates a greater investment efficiency. I further define *Over-investment* as taking the value of the *Residual_InvIneff* if it is positive and 0 otherwise. *Under-investment* variable is defined similarly as $(-1)\cdot$*Residual_InvIneff* if *Residual_InvIneff* is negative and 0 otherwise. That is, a higher value for either *Over-investment* or *Under-investment* indicates greater investment *in*efficiency based on the sales growth model.

I proceed with a segment-level difference-in-differences (DiD) analysis employing the following regression model:

$$Investment\ (In)efficiency_{ijkt} = \beta Treat_{ijk} \times Post_t + \gamma Controls + \varepsilon_{ijkt},$$

where $Investment\ (In)efficiency_{ijkt}$ corresponds to one of the investment (in)efficiency measures defined above. i, j, k, and t denote a supplier, a supplier segment, a customer segment linked to the supplier segment j, and a year, respectively. $Treat$ is an indicator variable that is set to 1 if the linked customer (of segment k) increased the segment disclosure following SFAS 131 and 0 otherwise, $Post$ is an indicator variable of one for the post-SFAS 131 period and zero otherwise. $Controls$ include first-step independent variables (segment sales growth and the corresponding customer segment sales growth), segment characteristics following Benz et al. (2023), and matched customer segment characteristics. These control variables are defined in Appendix A. Firm-segment fixed effects and industry-year fixed effects are included following (Chen et al. 2018; Chen et al. 2022) because the first-step regression is run by industry and year.[10]

The coefficient of interest is β. The statistical significance and sign of the coefficients β on the dependent variables of over-investment and under-investment will help identify the source of changes in internal capital allocations. For instance, a significantly positive β for the over-investment dependent variable would suggest that changes in internal capital allocation are primarily driven by segment-level over-investments. Conversely, a significantly negative β for the under-investment dependent variable would indicate that changes are driven by reductions in segment-level under-investments.

4.4 Descriptive Statistics

I partition the sample into four subsamples based on the median values of the $\%Treat$ and $Post$ variables and present the descriptive statistics for these subsamples in Table 2. Since the median for the $\%Treat$ variable is 1, (in the descriptive statistics) the customer companies linked to the treated suppliers have all increased their segment disclosures after the implementation of SFAS 131. By comparison, only an average of 25% of the customers associated with suppliers in the control group expanded their segment disclosures following SFAS 131.

Overall, the descriptive statistics in Table 2 for the four subsamples are comparable. Relative to the control group, the treatment group displays lower market-to-book values, higher

10. While (Chen et al. 2018; Chen et al. 2022) recommend a single-regression approach, they also suggest a two-step approach with all the first-step independent variables in the second-step regression. As such, I employ a two-step approach in this study. This choice is motivated by the need to distinguish between over-investment and under-investment at the segment level, which is crucial for identifying the source of changes in firm-level internal capital allocations. The two-step approach allows for a more nuanced analysis of investment (in)efficiency measures, enabling a clearer interpretation of how customer disclosures affect suppliers' segment-level investment decisions.

operating cash flows, a greater proportion of companies investing in R&D or intangibles, a smaller number of segments, and less industry concentration.

I conduct a parallel exercise for the segment-level descriptive statistics in Table 3. Overall, the descriptive statistics across the four subsamples exhibit similarities. Compared with the control segments, the treated segments are larger in size (both in absolute terms and relative to other segments within the company), show similar industry-wide investment opportunities, proxied by industry Tobin's q, exhibit higher sales growth, and have larger (linked) customer sizes.

The descriptive statistics may suggest that capital allocation efficiency and segment-level investment efficiency remain stable for the treated group, whereas they increase for the control group following the implementation of SFAS 131. I will address this concern in Section 5.8.

5 Empirical Results

5.1 The Effect of Customer Disclosures on the Competitive Environment: The Number of Rivals and Textual Similarities in the Supplier Industry

Table 4 presents the results for the model:

$$Competition = \beta\%Treat_{it} \times Post_t + \gamma Controls + \varepsilon_{it}.$$

Columns (1) – (4) indicate that the treated suppliers experience a significant increase in the number of rivals in the post-SFAS 131 period compared with the control group. The findings remain consistent across different fixed effects specifications of (a) firm and year fixed effects, and (b) firm and industry-year fixed effects. With a pre-period average of 34 rivals among treated suppliers, the observed increase of 7 rivals (approximately 20%) is economically meaningful. This result suggests that the effect of proprietary customer disclosures spills over to the supplier industry, significantly affecting the competitive environment of the suppliers.

Columns (5) – (8) demonstrate that the product descriptions of the treated suppliers become more similar to those of their rivals. The coefficients are statistically significant and consistent across different fixed effects structures. The increase in the textual similarities is approximately 10% relative to the pre-period average. The rise in textual similarity suggests a reduction in pricing power, driven by increasingly similar product offerings among rivals.

5.2 Firm-level Internal Capital Allocation

Table 5 presents the results for the model:

$$Capital\ Allocation\ Efficiency_{it} = \beta \% Treat_{it} \times Post_t + \gamma Controls + \varepsilon_{it}.$$

Columns (1) – (4) in Table 5 present the effect of SFAS 131 implementation on the internal capital allocation efficiency of treated suppliers compared to the control group. The significant and negative coefficient for $\%Treat \times Post$ suggests that the allocation efficiency of treated suppliers has *deviated* from the optimal allocation predicted by Tobin's q following the implementation of SFAS 131. The findings remain consistent across different fixed effects specifications of (a) firm and year fixed effects, and (b) firm and industry-year fixed effects. This result indicates that treated suppliers direct their capital allocation to segments with *lower* growth opportunities relative to Tobin's q by about 6% of total capital expenditure compared with control suppliers post-SFAS 131.

5.3 Firm-level Internal Capital Allocation and Market Share

I examine whether suppliers' strategic capital allocation succeeds in maintaining their customer relationships. I explore the relationship between the inefficient capital allocation (relative to Tobin's q) and the two measures of market share: sales-based market share and the number of customers.

For the sales-based market share, the analysis is conducted through the regression model:

$$Market\ Share_{it} = \beta_1 Post \times Ineff\ Cap\ Alloc + \beta_2 Ineff\ Cap\ Alloc + \beta_3 Post + \gamma Controls + \varepsilon_{it},$$

where $Market\ Share$ is the proportion of firm-level sales relative to SIC 3-digit industry sales. The *Ineff Cap Alloc* variable represents the *Capital Allocation Efficiency* measure, multiplied by -1. A higher value of *Ineff Cap Alloc* indicates *greater inefficiency* (relative to Tobin's q) in internal capital allocation. Columns (1) and (2) of Table 6 report the results for sales-based market share in the subsequent two years. Significantly positive coefficient β_1 for the $Post \times Ineff\ Cap\ Alloc$ variable in Columns (2) suggests that suppliers engaging in inefficient capital allocation tend to secure a larger market share in the post-SFAS 131 period. The results are robust to alternative specifications of the market share, such as the weighted average of segment-level market share and weighted average of segment-level market share from segments that experience increased customer disclosures.

For the number of customers in the following years. I conduct the following Poisson regression analysis:

$$N\ of\ Customers_{it} = F(\beta_1 Post \times Ineff\ Cap\ Alloc + \beta_2 Ineff\ Cap\ Alloc + \beta_3 Post + \gamma Controls + \varepsilon_{it}),$$

where $N\ of\ Customers$ is the number of customers in $t+1$ or $t+2$ years and F is a link function for the Poisson regression model. Given that the dependent variable is a count measure, I estimate a Poisson regression model (Greene 2012; Cohn et al. 2022). Column (4) of Table 6 shows significantly positive coefficient β_1 associated with the $Post \times Ineff\ Cap\ Alloc$ variable. This implies that suppliers allocating capital expenditures *inefficiently* (relative to Tobin's q) in the post-SFAS 131 period are more likely to maintain or expand their customer base in the subsequent years.

5.4 Segment-level Investment Efficiency

Next, I turn to segment-level analysis. Table 7 displays the results for the model:

$$Investment\ (In)efficiency_{ijkt} = \beta Treat_{ijk} \times Post_t + \gamma Controls + \varepsilon_{ijkt},$$

where $Investment\ (In)efficiency_{ijkt}$ represents one of the following measures: *InvEff (Abs)*, *Over-investment*, and *Under-investment*. Firm-segment fixed effects and industry-year fixed effects are included following Chen et al. (2018) and Chen et al. (2022) because the first-step regression is run by industry and year. Columns (1) – (2) in Table 7 indicate that supplier segments exhibit *lower* investment efficiency (relative to the sales growth) after a customer's segment disclosure increases. The effect is mainly driven by the segments that invest more than the sales growth model prescribes ("over-invest"). Given that the pre-period mean of the *Over-investment* variable is 0.031, the coefficient 0.0093 of the variable is economically significant, accounting for 30% of the pre-period mean.

5.5 Competition Channel

To strengthen the inferences and pin down the channel, I conduct two cross-sectional tests based on the customer size and the level of industry concentration among supplier segments. I expect to find stronger "over-investment" results for the subsample with larger customer size. The reason is that larger customers are typically more crucial to suppliers and frequently represent a significant portion of their revenues. Consequently, suppliers may allocate more resources towards sustaining relationships with larger customers compared to those with smaller customers.

To examine this prediction, I perform the following regression analysis:

$$\begin{aligned} Investment\ (In)efficiency_{ijkt} =& \beta_1 Treat_{ijk} \times Post_t \times High\ Customer\ Size + \\ & \beta_2 Treat_{ijk} \times Post_t + \gamma Controls + \varepsilon_{ijkt}, \end{aligned}$$

where *High Customer Size* is equal to one if customer sizes are above the median and zero otherwise. The cross-sectional split of the sample is based on characteristics during the pre-period. The definitions for all other variables remain consistent with prior descriptions.

Consistent with the prediction, I find a significantly negative β_1 for the *InvEff (Abs)* measure and a significantly positive β_1 for the *Over-investment* measure in columns (1) – (2) of Table 8. These findings indicate that supplier segments linked to larger customers invest significantly more following SFAS 131 than those associated with smaller customers.

Next, I investigate whether the effect is more salient in supplier segments from highly concentrated industries (in the pre-period). In these industries, the threat of rivals' entry is likely greater than in less concentrated industries. This is because companies' market power is more likely to be harmed by new entrants in high-concentration industries. Therefore, I expect the spillover effect is stronger in industries with higher concentration (in the pre-period).

To evaluate this prediction, I estimate the following regression model:

$$\begin{aligned} Investment\ (In)efficiency_{ijkt} = &\beta_1 Treat_{ijk} \times Post_t \times High\ Supp\ Seg\ HHI + \\ &\beta_2 Treat_{ijk} \times Post_t + \gamma Controls + \varepsilon_{ijkt}, \end{aligned}$$

where $High\ Supp\ Seg\ HHI$ is equal to one for supplier segments operating in SIC 3-digit industries with higher concentration than other segments and zero otherwise. The cross-sectional split of the sample is based on characteristics during the pre-period.

Consistent with the prediction, I find a significantly negative β_1 for the *InvEff (Abs)* measure and a significantly positive β_1 for the *Over-investment* measure in columns (1) – (2) of Table 9. This result indicates that supplier segments in highly concentrated industries invest significantly more following SFAS 131, compared with those in lesser concentrated industries. This finding implies that suppliers allocate additional capital expenditures to maintain their competitive position in response to heightened competition.

To further rule out the alternative explanation that increased investments result from the mitigation of under-investment due to customer disclosures, I investigate if supplier segments that invest more experience a decline in profitability. Specifically, I perform the following regression analysis:

$$Segment\ ROA_{ijkt} = \beta_1 Post \times Overinvest + \beta_2 Overinvest + \beta_3 Post + \gamma Controls + \varepsilon_{ijkt},$$

where *Segment ROA* is the segment-level profits scaled by lagged assets in the following years. Table 10 shows the estimation results. Significant and negative coefficients of β_1 for the $Post \times Overinvest$ variable in the Columns (2) and (3) imply that those supplier segments that invest more exhibit a decline in the segment-level profitability following the higher investment in the post period. This evidence indicates that the competition channel is at play, rather than the resolution of information asymmetry channel.

5.6 Relationship between Firm-level Internal Capital Allocation Efficiency Measure and Segment-level Investment Efficiency Measure

Throughout the paper, I use two measures of investment efficiency: the firm-level internal capital allocation efficiency measure derived from Tobin's q and the segment-level investment efficiency measure based on the sales growth model. To establish that the two measures are related and represent similar constructs of investment efficiency, I analyze the relationship between the segment-level signed CAPX deviation (described in Section 4.2) and the segment-level investment efficiency (defined in Section 4.3) using a binscatter plot (binned scatterplot, Cattaneo et al. 2024).

A binscatter plot is a visualization technique used to simplify and clarify the relationship between two variables by partitioning the data into bins and displaying the average outcome for each bin. Compared to traditional scatter plots, this technique makes it easier to identify the relationship. Binscatter plots also allow for the inclusion of additional covariates, providing a clearer understanding of the conditional mean function. Cattaneo et al. (2024)

also propose the optimal number of bins and the optimal bin sizes, considering the trade-offs between variance and bias. I adopt their recommended approach in determining the number of bins and their sizes.

Figure 3 depicts the conditional mean function of the segment-level signed CAPX deviation measure in relation to the segment-level investment efficiency measure, controlling for the segment-level characteristics. The segment-level signed CAPX deviation measure is increasing with the segment-level investment efficiency measure. This figure illustrates that the two measures of investment efficiency adopted in this study are positively associated with each other.

5.7 Additional Analysis

To support the idea that suppliers aim to preempt potential market entrants prompted by customers' proprietary disclosures, I investigate whether the suppliers impacted by these disclosures use other countermeasures. According to the survey conducted by Smiley (1988), the most widely used strategy is to increase spending on advertising expenses. Therefore, I test whether the treated suppliers increase their advertising expenses. As advertising expense data are largely missing in Compustat (Liang 2024), I supplement the analysis with SG&A expenses. Table 11 shows that the treated suppliers increase their spending on advertising expenses and SG&A expenses, which further substantiates the claim that suppliers attempt to deter competition.

An alternative explanation for my findings is that mandated segment disclosures intensify the competitive environment of customer companies. Consequently, supplier companies may be increasing production capacity to meet the demands of these customers. In this scenario, supplier companies would be allocating resources towards segments linked to customers facing heightened competition, rather than allocating resources to deter entry by their own rivals..

To rule out this explanation, I test whether the competitive environment of customer companies changed following their segment disclosures. The treatment variable is whether the customer company changed its segment disclosure. The dependent variables are the number of rivals and the textual similarities based on the Text-based Network Industry Classifications (TNIC-3), which measure product market competition.

The results indicate no significant change in the competitive environment of treated customers. Table IA.1 shows that the increases in the number of rivals and the textual similarities are not statistically significant across different fixed effects structures. These findings suggest that the observed changes in supplier investments are not driven by increased competition among their customers.

5.8 Parallel Trends Assumption

An identifying assumption of the difference-in-differences (DiD) research design is that the treated and control groups are qualitatively similar prior to the treatment. To validate this assumption, Figure 1a displays the average firm-level internal capital allocation efficiency for both the treated and control groups across the years around the adoption of SFAS 131. 1997 and 1998 on the x-axis denote the pre-period and 1999 and 2000 indicate the years following it. The treatment group is defined as firms whose *%Treat* is greater than or equal to the median. Since the median of *%Treat* is 1, the treatment group is suppliers of which every customer changed the segment disclosure. The control group comprises suppliers with a *%Treat* value less than 1.

Figure 2a shows the equivalent exercise for the segment-level mean over-investment. The treatment group is a supplier segment whose linked customer changed the segment disclosure. The control group is supplier segments that have no linked customers or that have a linked customer, but the customer did not change the disclosure.

In both figures, the mean values of the (in)efficiency measures are comparable in the pre-period, despite the overlap in Figure 2a. In the post-period, the figures demonstrate that the efficiency measures for the treated group show a decline (or an increase in "over-investment") compared with the control group.

In addition, I decompose the coefficient estimates of the firm-level results in Table 5. Figure 1b plots the β_t coefficients of the following regression:

$$Capital\ Allocation\ Efficiency_{it} = \beta_t \times \sum_{t=1997,1999,2000} \%Treat_{it}Year_t + \gamma Controls + \varepsilon_{it},$$

where $Year_t$ is a dummy variable for the years around the adoption of SFAS 131. $Year_{1998}$, the year immediately before the adoption, is omitted for comparison. The figure plots the 90% confidence intervals. Standard errors are clustered at the firm level. Figure 1b shows that there is no difference in the coefficient estimates for the pre-SFAS 131 period.

In a parallel analysis of segment-level over-investment, I break down the coefficient estimates of the segment-level results in Table 7. Figure 2b plots the β_t coefficients of the following regression:

$$Over\text{-}invest_{ijkt} = \beta_t \times \sum_{t=1997,1999,2000} Treat_{ijk}Year_t + \gamma Controls + \varepsilon_{ijkt},$$

where $Year_t$ is a dummy variable for the years around the adoption of SFAS 131. $Year_{1998}$, the year immediately before the adoption, is omitted for comparison. The figure plots the 90% confidence intervals. Standard errors are clustered at the firm-segment level. Figure 2b shows that the there are no differential trends in the coefficient estimates in the pre-SFAS 131 period.

A limitation of this study's parallel trends assumption test is the restricted pre-period, which cannot extend beyond two years prior to the adoption of SFAS 131. This constraint stems from data availability: most firms subject to SFAS 131 have restated their pre-period segment data for a maximum of two years (represented by 1997 and 1998 in the figures). Given the available data, I posit that the parallel trends assumption holds, based on the assumption that there were no differential trends prior to the two-year period leading up to the adoption of SFAS 131.

6 Conclusion

This paper examines whether customer disclosures affect suppliers' internal capital allocation decisions. I show that supplier companies reallocate internal resources towards business segments related to their customer that has expanded disclosures. The findings are consistent with suppliers responding to competitive threats triggered by customer disclosures.

This study provides novel insights into the spillover effect of customer disclosures on supplier investments. I highlight a role of customer disclosures in leveling the information asymmetry between current and potential suppliers. This insight suggests the importance of considering the broader competitive landscape when evaluating the effects of corporate disclosures on stakeholders (Leuz and Wysocki 2016; Roychowdhury et al. 2019; Ferracuti and Stubben 2019). This work also contributes to the segment disclosure literature by exploring the implications for supply-chain partners. It sheds light on the broader impact of segment reporting beyond the disclosing firm itself.

It is important to acknowledge that the generalizability of this study's findings may be limited. The sample is restricted to suppliers with major customers. The observed investment decisions may not necessarily be representative of all suppliers. Suppliers with less dependence on any single customer might respond differently to customers' disclosures. Despite these limitations, the insights drawn from this study provide valuable understanding of the dynamics between customer disclosures and supplier investments.

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Appendix A Variable definitions

A.1 Firm-level variables

A.1.1 Investment Efficiency measures

CAPX deviation: the difference between the ratio of segment CAPX to firm CAPX and the ratio of segment sales to firm sales, i.e., $\frac{\text{segment capital expenditure}}{\text{firm capital expenditure}} - \frac{\text{segment sales}}{\text{firm sales}}$.

Signed CAPX deviation: the CAPX deviation if the segment q exceeds the asset-weighted average q of other segments and $(-1) \times CAPX\ deviation$ otherwise.

Capital Allocation Efficiency: the segment asset-weighted average of the segment-level Signed CAPX deviation as illustrated in Cho (2015). A higher value of *Capital Allocation Efficiency* indicates greater internal capital allocation efficiency.

Ineff Cap Alloc: the *Capital Allocation Efficiency* measure, multiplied by -1. A higher value of *Ineff Cap Alloc* indicates lower internal capital allocation efficiency (i.e., greater internal capital allocation *in*efficiency).

A.1.2 Other variables

Segment q: the median q of single-segment firms operating in the same industry.

% Treat: the proportion of customers who changed their segment disclosure following SFAS 131 to the entire customer base.

Post: equal to one if the reporting date of the company is past December 15, 1998, the start date of the SFAS 131, and zero otherwise.

N Rivals (Hoberg-Phillips): the number of rival companies based on the Text-based Network Industry Classifications (TNIC-3). See Hoberg and Phillips (2010) and Hoberg and Phillips (2016) for more detail.

Textual Similarities (Hoberg-Phillips): the overall similarity of product descriptions between a firm and all other firms in its product market space. This measure is calculated by summing the pairwise similarity scores between a focal firm and all other rival companies based on the TNIC-3. According to product differentiation theory, this measure is negatively associated with pricing power. Higher textual similarity indicates less product differentiation and potentially more intense competition. See Hoberg and Phillips (2010) and Hoberg and Phillips (2016) for more detail.

Market Share: the ratio of a company's sales to the total sales in the same three-digit SIC industry.

N Customers: the number of customers linked to the supplier company.

Advertising Expense: the advertising expenses scaled by the total assets.

SG&A Expense: the selling, general, and administrative expenses scaled by the total sales.

Market-to-Book: the ratio of the market value of equity to the book value of equity.

Cashflow: the operating cash flows scaled by the lagged total assets.

CapEx: the capital expenditures scaled by the net PP&E.

NonCapEx: equal to one if a firm reports positive R&Ds or intangibles and zero otherwise.

Tangibility: the net PP&E scaled by the total assets.

Cash: cash and cash equivalents scaled by the total assets.

Leverage: the ratio of total liabilities to the total assets.

Dividend: equal to one if a firm reports positive dividends for common stocks and zero otherwise.

External Financing: the net external financing scaled by the capital expenditures. The net external financing is computed as: sales of common and preferred stock + long-term debt issuance − purchases of common preferred stock − long-term debt reduction + any current debt changes − dividend.

N Segment: the number of segments.

Speed of Profit Adjustment: the asset-weighted average of the profit adjustment speed in the industries where the segment operates. The speed of profit adjustment is calculated from the following regression:

$$X_{ijt} = \beta_{0j} + \beta_{1j} D_n X_{ijt-1} + \beta_{2j} D_p X_{ijt-1} + \varepsilon_{ijt},$$

where X_{ijt} is the difference between a firm i's ROA and the industry-median ROA. D_n is an indicator variable equal to one if X_{ijt-1} is negative and zero otherwise. D_p is an indicator variable equal to one if X_{ijt-1} is positive and zero otherwise. The regression is estimated in each industry for the past 20 years. The estimated coefficient β_{2j} is the speed of profit adjustment in industry j. See Harris (1998) for the detailed definition.

Concentration Ratio: the asset-weighted average of the Herfindahl index of the industries in which the segment operates.

Seg Earnings Persistence: the asset-weighted average of the persistence of abnormal earnings in the industries where the segment operates. The persistence of abnormal earnings is calculated from the regression similar to that of *Speed of Profit Adjustment*. The regression form is:

$$X_{ijt} = \beta_{0j} + \beta_{1j} X_{ijt-1} + \varepsilon_{ijt},$$

where X_{ijt} is defined likewise. The regression is estimated in each industry for the past 20 years. The estimated coefficient β_{1j} is the segment earnings persistence in industry j. See Cho (2015) for the detailed definition.

Seg Industry Diversity: the ratio of the number of segments with unique two-digit SIC codes to the total number of segments.

A.2 Segment-level variables

A.2.1 Investment Efficiency measures

Residual_InvIneff: the residual obtained from the first-step regression of the segment investment (segment-level capital expenditures scaled by lagged segment assets) on its segment-level sales growth and the sales growth of the linked customer segment by Fama-French 48 industry and year.

InvEff (Abs): the absolute value of the *Residual_InvIneff*. This measure is multiplied by -1 to ease the interpretation, i.e., a higher value of *InvEff (Abs)* indicates greater investment efficiency.

Over-investment (or *Overinvest*): a truncated variable that assumes the value of *Residual_InvIneff* from the first-step regression when it is positive, and is set to zero when it is negative. A higher value of *Over-investment* indicates greater over-investment (investment inefficiency) relative to the sales growth model.

Under-investment: a truncated variable that assumes the value of *Residual_InvIneff* from the first-step regression multiplied by -1 when it is negative, and is set to zero when it is positive. A higher value of *Under-investment* indicates greater under-investment (investment inefficiency) relative to the sales growth model.

A.2.2 Other variables

Treat: equal to one if the customer segment is linked to the supplier's segment and the customer changed the definition of the segment disclosure following SFAS 131.

Post: equal to one if the reporting date of the company is past December 15, 1998, the start date of the SFAS 131.

SegInvest: lead capital expenditures of a supplier segment, scaled by the segment assets.

Seg Sales Growth: the percentage change in segment sales.

Customer Sales Growth: the percentage change of the linked customer's sales. If the segment of the customer is linked, then it is the customer segment's sales growth. If the customer segment is not linked, then it is imputed by the customer company's sales growth.

Seg Size: the log value of the segment assets.

Seg Relative Size: the ratio of the segment assets to the firm assets.

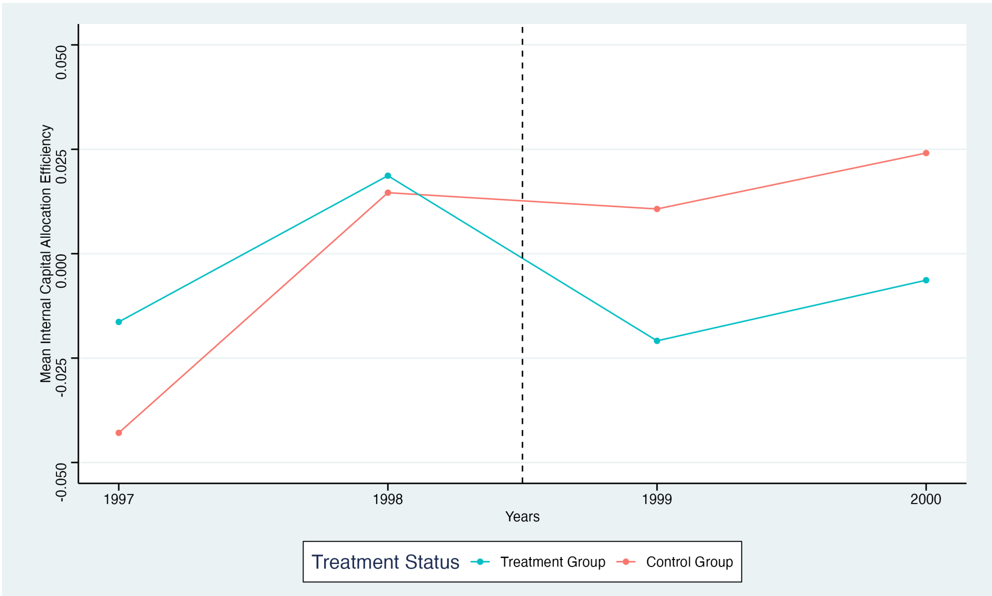
Industry q: the median q of single-segment firms within the same industry as the segment.

Customer size: the log value of the total assets of the linked customer company.

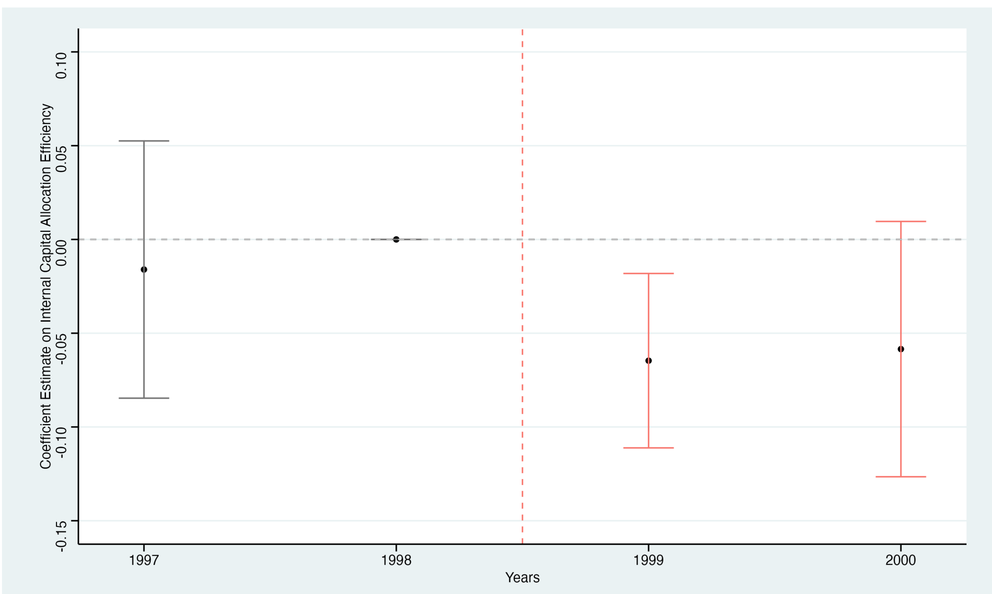
High Customer Size: equal to one if the customer size is greater than the median customer size and zero otherwise (the cross-sectional split of the sample is based on characteristics during the pre-period).

High Supp Seg HHI: equal to one if the supplier segment operates in more concentrated SIC 3-digit industries than other segments and zero otherwise (the cross-sectional split of the sample is based on characteristics during the pre-period).

Appendix B Figures and Tables



(a) Mean Internal Capital Allocation Efficiency



(b) Coefficients on Internal Capital Allocation Efficiency

Figure 1: Parallel Trends in Internal Capital Allocation Efficiency

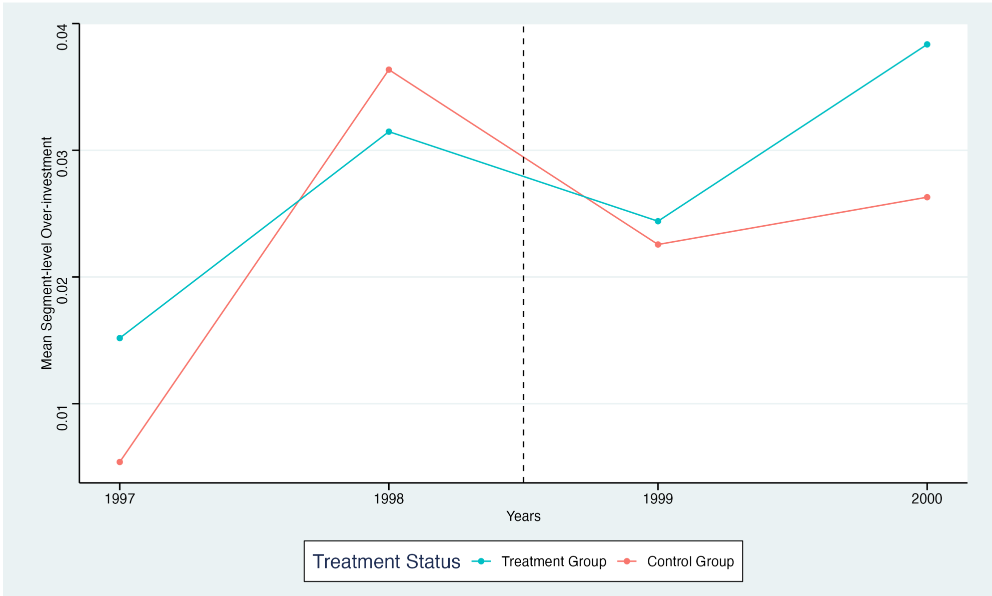
Figure 1a plots the average internal capital allocation efficiency for both the treated and control groups across the years around the adoption of SFAS 131. 1997 and 1998 on the x-axis denote the pre-period and 1999 and 2000 indicate the years following it, respectively.

The treatment group is defined as firms whose *%Treat* is greater than or equal to the median. Since the median of *%Treat* is 1, the treatment group is suppliers of which every customer changed the segment disclosure. The control group is defined as suppliers whose *%Treat* value is less than 1.

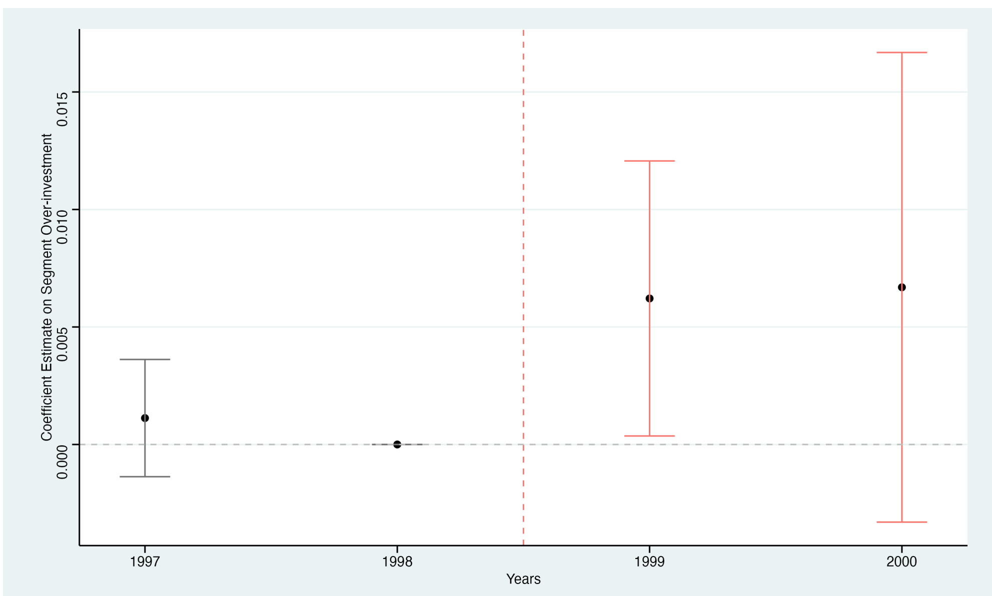
Figure 1b plots the β_t coefficients of the following regression:

$$Capital\ Allocation\ Efficiency_{it} = \sum_{t=1997,1999,2000} \beta_t \%Treat_{it} Year_t + \gamma Controls + \varepsilon_{it},$$

where $Year_t$ is a dummy variable for the years around the adoption of SFAS 131. $Year_{1998}$, the year immediately before the adoption, is omitted for comparison. The figure plots the 90% confidence intervals. Standard errors are clustered at the firm level.



(a) Mean Segment-level Over-investment



(b) Coefficients on Over-investment

Figure 2: Parallel Trends in Segment-level Over-investment

Figure 2a plots the average segment-level over-investment for both the treated and control groups across the years around the adoption of SFAS 131. 1997 and 1998 on the x-axis denote the pre-period and 1999 and 2000 indicate the years following it, respectively. The treatment group is a supplier segment whose linked customer changed the segment disclosure. The control group is a supplier segment that has no linked customers or that has a linked customer, but the customer did not change the disclosure.

Figure 2b plots the β_t coefficients of the following regression:

$$Over\text{-}investment_{ijkt} = \sum_{t=1997,1999,2000} \beta_t Treat_{ijk} Year_t + \gamma Controls + \varepsilon_{ijkt},$$

where $Year_t$ is a dummy variable for the years around the adoption of SFAS 131. $Year_{1998}$, the year immediately before the adoption, is omitted for comparison. The figure plots the 90% confidence intervals. Standard errors are clustered at the firm-segment level.

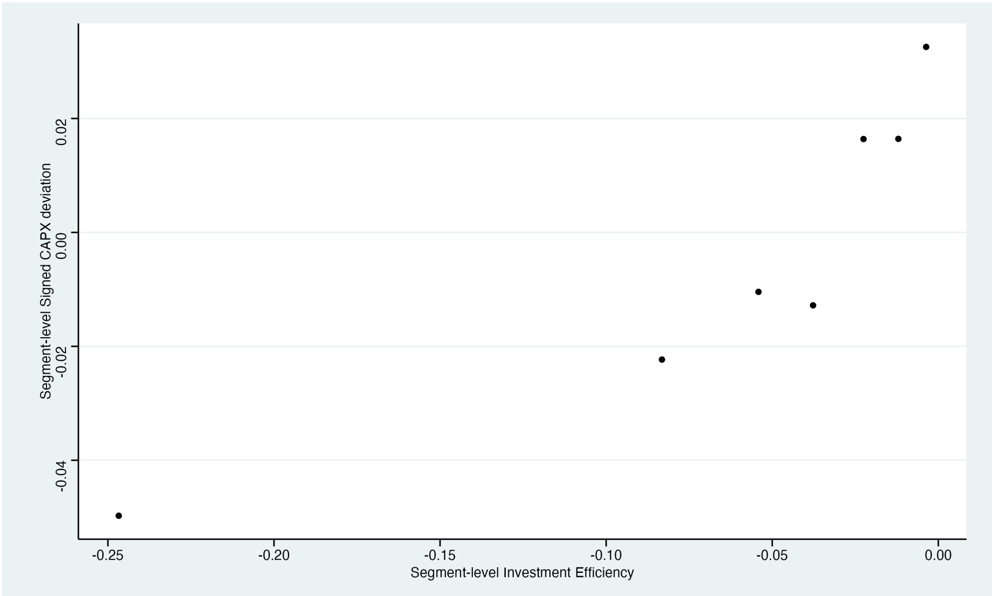


Figure 3: Correspondence between Internal Capital Allocation Efficiency Measure and Segment Investment Efficiency Measure

This binned scatter plot depicts the conditional mean function of the segment-level signed CAPX deviation measure, a component of the firm-level internal capital allocation efficiency (outlined in Section 4.2), in relation to the segment-level investment efficiency measure (defined in Section 4.3), controlling for the segment-level characteristics. The segment-level signed CAPX deviation measure is increasing in the segment-level investment efficiency measure. This figure illustrates that the two measures of investment efficiency used in this study are positively associated with each other.

Table 1: Sample Selection Procedure

Sample selection criteria	No. of supplier-years	No. of suppliers
Observations in Compustat from 1996 to 2000	62,239	16,108
Less observations without major customers	(53,639)	(12,613)
Less observations without segment data	(4,171)	(1,821)
Less observations with operating changes around SFAS 131	(773)	(306)
Less observations with missing dependent variables (Capital Allocation Efficiency)	(2,023)	(1,012)
Less observations with missing control variables	(2,063)	(459)
Final sample	897	316

This table outlines the sample selection process for the study. The sample comprises firms present in both the Compustat Segment database and the Compustat Supply Chain database from 1996 to 2000.

Table 2: Descriptive Statistics (Firm-level)

Panel A: Treatment Group

Statistic	Pre-SFAS 131 N	Mean	St. Dev.	Pctl(25)	Median	Pctl(75)	Post-SFAS 131 N	Mean	St. Dev.	Pctl(25)	Median	Pctl(75)
Capital Allocation Efficiency	221	0.001	0.195	−0.073	−0.004	0.099	231	−0.014	0.183	−0.099	−0.013	0.073
% Treat	221	1.000	0.000	1	1	1	231	1.000	0.000	1	1	1
N Rivals	179	33.626	41.577	7	18	45	193	30.782	41.342	5	12	32
Textual Similarities	207	2.206	2.359	1.091	1.357	1.988	219	2.278	2.626	1.063	1.241	1.887
Market-to-Book	221	2.866	3.451	1.407	2.169	3.206	231	2.552	3.536	0.957	1.506	2.828
Cashflow	221	0.085	0.123	0.040	0.097	0.153	231	0.084	0.138	0.032	0.087	0.157
CapEx	221	0.257	0.143	0.165	0.222	0.321	231	0.227	0.141	0.128	0.188	0.293
NonCapEx	221	0.891	0.312	1	1	1	231	0.892	0.311	1	1	1
Tangibility	221	0.313	0.186	0.173	0.280	0.407	231	0.329	0.188	0.194	0.288	0.430
Cash	221	0.098	0.123	0.015	0.044	0.134	231	0.088	0.123	0.011	0.035	0.118
Leverage	221	0.536	0.219	0.393	0.553	0.689	231	0.536	0.229	0.369	0.549	0.681
Dividend	221	0.516	0.501	0	1	1	231	0.468	0.500	0	0	1
External Financing	221	0.674	4.592	−0.516	0.174	1.181	231	0.933	4.826	−1.090	0.012	1.319
N Segment	221	2.792	1.001	2	3	3	231	2.688	0.936	2	2	3
Speed of Profit Adjustment	221	0.315	0.224	0.110	0.282	0.436	231	0.275	0.249	0.082	0.201	0.415
Concentration Ratio	221	0.055	0.030	0.035	0.045	0.073	231	0.053	0.026	0.036	0.045	0.068
Seg Earnings Persistence	221	0.207	0.251	0.043	0.124	0.274	231	0.201	0.238	0.042	0.126	0.341
Seg Industry Diversity	221	0.735	0.269	0.500	0.667	1.000	231	0.752	0.261	0.500	0.667	1.000

Panel B: Control Group

Statistic	Pre-SFAS 131 N	Mean	St. Dev.	Pctl(25)	Median	Pctl(75)	Post-SFAS 131 N	Mean	St. Dev.	Pctl(25)	Median	Pctl(75)
Capital Allocation Efficiency	202	−0.012	0.268	−0.109	−0.003	0.107	243	0.018	0.260	−0.108	0.004	0.149
% Treat	202	0.219	0.259	0.000	0.000	0.500	243	0.269	0.268	0.000	0.333	0.500
N Rivals	166	30.470	41.705	4	12	34	184	30.734	42.559	5	13	34.5
Textual Similarities	193	2.240	2.505	1.057	1.246	1.949	224	2.032	2.154	1.037	1.200	1.883
Market-to-Book	202	3.434	4.488	1.443	2.242	3.355	243	3.343	5.523	0.837	1.431	3.124
Cashflow	202	0.082	0.148	0.008	0.079	0.148	243	0.052	0.133	−0.002	0.052	0.115
CapEx	202	0.277	0.170	0.154	0.244	0.366	243	0.235	0.160	0.124	0.191	0.292
NonCapEx	202	0.752	0.433	1	1	1	243	0.798	0.402	1	1	1
Tangibility	202	0.310	0.197	0.150	0.284	0.395	243	0.304	0.191	0.148	0.271	0.427
Cash	202	0.124	0.156	0.020	0.056	0.150	243	0.102	0.150	0.014	0.038	0.109
Leverage	202	0.490	0.230	0.309	0.450	0.646	243	0.551	0.267	0.347	0.521	0.734
Dividend	202	0.391	0.489	0	0	1	243	0.342	0.475	0	0	1
External Financing	202	0.840	4.659	−0.601	0.146	1.909	243	0.379	5.701	−0.971	0.052	1.445
N Segment	202	2.856	1.095	2	3	3	243	2.831	0.992	2	3	3
Speed of Profit Adjustment	202	0.339	0.243	0.141	0.325	0.479	243	0.296	0.248	0.086	0.251	0.452
Concentration Ratio	202	0.059	0.033	0.037	0.046	0.077	243	0.060	0.034	0.037	0.050	0.074
Seg Earnings Persistence	202	0.170	0.208	0.038	0.090	0.240	243	0.196	0.290	0.034	0.095	0.281
Seg Industry Diversity	202	0.745	0.278	0.500	0.833	1.000	243	0.737	0.276	0.500	0.750	1.000

This table presents the descriptive statistics for firm-level variables related to Treated and Control firms across both pre-SFAS 131 and post-SFAS 131 periods. All variable definitions are in Appendix A. All continuous variables are winsorized at the 1% and 99% levels.

Table 3: Descriptive Statistics (Segment-level)

Panel A: Treatment Group

	Treatment (Pre, N = 1,288)					Treatment (Post, N = 1,239)				
Statistic	Mean	St. Dev.	Pctl(25)	Median	Pctl(75)	Mean	St. Dev.	Pctl(25)	Median	Pctl(75)
InvEff (Abs)	−0.078	0.117	−0.088	−0.038	−0.016	−0.062	0.096	−0.068	−0.039	−0.015
Over-invest	0.031	0.079	0.000	0.000	0.020	0.029	0.083	0.000	0.000	0.017
Under-invest	0.040	0.065	0.000	0.014	0.055	0.031	0.045	0.000	0.014	0.046
Seg Size	4.317	1.820	2.935	4.324	5.608	4.296	2.086	2.499	4.602	5.924
Seg Relative Size	0.392	0.285	0.143	0.306	0.643	0.398	0.280	0.172	0.320	0.592
Industry q	1.910	0.682	1.478	1.655	2.144	1.904	1.012	1.179	1.415	2.557
Customer Sales Growth	0.247	0.923	−0.005	0.049	0.136	0.167	0.701	−0.032	0.066	0.160
Seg Sales Growth	0.609	1.933	0.031	0.156	0.389	0.718	2.431	−0.017	0.086	0.424
Customer Size	11.189	1.552	10.296	12.341	12.378	10.648	1.776	9.774	10.506	12.458

Panel B: Control Group

	Control (Pre, N = 729)					Control (Post, N = 1,189)				
Statistic	Mean	St. Dev.	Pctl(25)	Median	Pctl(75)	Mean	St. Dev.	Pctl(25)	Median	Pctl(75)
InvEff (Abs)	−0.070	0.110	−0.077	−0.037	−0.013	−0.056	0.074	−0.065	−0.036	−0.015
Over-invest	0.036	0.089	0.000	0.000	0.018	0.024	0.060	0.000	0.000	0.022
Under-invest	0.030	0.049	0.000	0.011	0.047	0.031	0.050	0.000	0.011	0.042
Seg Size	3.918	1.640	2.795	3.959	4.985	3.904	1.932	2.285	4.155	5.221
Seg Relative Size	0.380	0.287	0.137	0.278	0.602	0.379	0.272	0.147	0.302	0.577
Industry q	1.857	0.724	1.255	1.626	2.207	1.762	0.923	1.179	1.338	2.125
Customer Sales Growth	0.164	0.373	0.023	0.082	0.163	0.166	0.421	0.004	0.088	0.203
Seg Sales Growth	0.399	1.560	−0.011	0.100	0.256	0.260	1.200	−0.066	0.075	0.243
Customer Size	9.915	1.191	9.537	10.214	10.723	10.147	1.470	9.659	10.321	10.820

This table presents the descriptive statistics for segment-level variables related to Treated and Control segments across both pre-SFAS 131 and post-SFAS 131 periods. All variable definitions are in Appendix A. All continuous variables are winsorized at the 1% and 99% levels.

Table 4: (Firm-level Analysis) The Effect of Customer Disclosures on Supplier's Competitive Environment and Textual Similarity

Dependent Variables:	N Rivals (Hoberg-Phillips)				Textual Similarities (Hoberg-Phillips)			
Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables								
% Treat x Post	7.357***	7.657***	7.702**	8.538**	0.2804***	0.2967***	0.2241**	0.2634**
	(3.372)	(3.180)	(2.592)	(2.589)	(3.081)	(2.750)	(2.029)	(2.188)
Market-to-Book		-0.2979		-0.3633		-0.0105		-0.0126
		(-1.406)		(-1.127)		(-1.214)		(-1.205)
Cashflow		-16.87		-29.16**		-0.8581*		-0.8322
		(-1.323)		(-2.252)		(-1.730)		(-1.612)
CapEx		9.757		3.706		0.2549		0.2522
		(1.259)		(0.4074)		(1.023)		(0.6542)
NonCapEx		-2.616		-1.592		0.2191		0.1902
		(-0.4912)		(-0.2442)		(0.7018)		(0.8213)
Tangibility		-20.56		-28.15		0.6871		0.5908
		(-0.9170)		(-1.134)		(0.6720)		(0.6257)
Cash		11.63		-8.168		1.672**		0.5815
		(0.6890)		(-0.5363)		(2.088)		(0.6747)
Leverage		11.86**		1.438		0.2492		-0.0314
		(2.098)		(0.1912)		(1.096)		(-0.1065)
Dividend		1.779		3.937		0.0446		0.0641
		(0.9144)		(1.092)		(0.3752)		(0.4352)
External Financing		0.0911		0.2118		-0.0054		-0.0054
		(0.5821)		(1.192)		(-0.5787)		(-0.4662)
N Segment		-1.848		-3.094		-0.1303*		-0.0934
		(-1.108)		(-0.7854)		(-1.916)		(-1.057)
Speed of Profit Adjustment		7.899		-13.24		0.3557		-0.1415
		(1.387)		(-0.9290)		(1.573)		(-0.3199)
Concentration Ratio		-32.97		-103.6		1.928		1.675
		(-0.4197)		(-0.5451)		(0.9343)		(0.3283)
Seg Earnings Persistence		2.427		-0.1581		0.2079*		0.1519
		(0.9083)		(-0.0159)		(1.817)		(0.7282)
Seg Industry Diversity		-8.356		-24.72		-0.1624		-0.7651*
		(-0.9452)		(-1.545)		(-0.6261)		(-1.886)
Fixed-effects								
Firm	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes			Yes	Yes		
Industry-Year			Yes	Yes			Yes	Yes
Fit statistics								
Observations	722	722	719	719	843	843	839	839
R^2	0.94148	0.94415	0.96021	0.96351	0.96258	0.96427	0.97361	0.97427
Adjusted R^2	0.90300	0.90435	0.90148	0.90507	0.94067	0.94182	0.94102	0.94028

Clustered (Firm) co-variance matrix, t-stats in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

This table presents difference-in-differences (DiD) regression results for the spillover effect of customer disclosures on the supplier's number of rivals and textual similarities defined by the Text-based Network Industry Classifications (TNIC-3, Hoberg and Phillips 2010, 2016). *Textual Similarities* measure is negatively associated with pricing power according to product differentiation theory. All variable definitions are in Appendix A. The unit of observation is at the firm-year level. Columns (1), (2), (5), and (6) include firm and year fixed effects. Columns (3), (4), (7), and (8) include firm and industry-year fixed effects, where industries are defined at the two-digit SIC level. t-statistics are reported in parentheses. Standard errors are clustered at the firm level. All continuous variables are winsorized at the 1% and 99% levels.

Table 5: (Firm-level Analysis) The Spillover Effect of Customer Disclosures on Supplier Internal Capital Allocations

Dependent Variable:	Capital Allocation Efficiency			
Model:	(1)	(2)	(3)	(4)
Variables				
% Treat x Post	-0.0587**	-0.0607**	-0.0584*	-0.0633*
	(-2.278)	(-2.177)	(-1.688)	(-1.797)
Market-to-Book		-0.0012		0.0006
		(-0.1739)		(0.0793)
Cashflow		-0.0261		-0.0288
		(-0.3082)		(-0.2603)
CapEx		0.0483		0.0607
		(0.4903)		(0.4967)
NonCapEx		0.0130		-0.0292
		(0.2859)		(-0.4373)
Tangibility		-0.1584		-0.2336
		(-0.9049)		(-1.169)
Cash		0.0225		-0.0059
		(0.1579)		(-0.0370)
Leverage		-0.0845		-0.1230
		(-1.123)		(-1.156)
Dividend		0.0058		-0.0204
		(0.1496)		(-0.5683)
External Financing		0.0013		0.0011
		(0.4071)		(0.2673)
N Segment		0.0203		0.0417
		(0.5956)		(0.9359)
Speed of Profit Adjustment		0.0427		-0.0875
		(0.5263)		(-0.5897)
Concentration Ratio		-1.492*		-1.016
		(-1.663)		(-0.6040)
Seg Earnings Persistence		-0.1131		0.0250
		(-0.9800)		(0.1890)
Seg Industry Diversity		-0.0386		-0.0571
		(-0.3219)		(-0.4092)
Fixed-effects				
Firm	Yes	Yes	Yes	Yes
Year	Yes	Yes		
Industry-Year			Yes	Yes
Fit statistics				
Observations	897	897	897	897
R^2	0.54134	0.55060	0.70399	0.70903
Adjusted R^2	0.28529	0.28224	0.35780	0.34659

Clustered (Firm) co-variance matrix, t-stats in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

This table presents difference-in-differences (DiD) regression results for the spillover effect of customer disclosures on suppliers' internal capital allocations. All variable definitions are in Appendix A. The unit of observation is at the firm-year level. Columns (1) and (2) include firm and year fixed effects. Columns (3) and (4) include firm and industry-year fixed effects, where industries are defined at the two-digit SIC level. *t*-statistics are reported in parentheses. Standard errors are clustered at the firm level. All continuous variables are winsorized at the 1% and 99% levels.

Table 6: (Firm-level Analysis) Consequences of Strategic Capital Allocation: Market Share and Number of Customers

Dependent Variables:	Market Share (t+1)	Market Share (t+2)	N Customers (t+1)	N Customers (t+2)
Model:	(1)	(2)	(3)	(4)
	OLS	OLS	Poisson	Poisson
Variables				
Post × Ineff Cap Alloc	0.0260	0.1704**	-0.0044	0.3588***
	(0.3291)	(2.137)	(-0.0288)	(2.707)
Ineff Cap Alloc	-0.0477	-0.1456*	0.0076	-0.0920
	(-0.6023)	(-1.900)	(0.0832)	(-0.8634)
Market-to-Book	0.0003	-0.0022	0.0128**	0.0168***
	(0.1332)	(-0.9228)	(2.194)	(3.039)
Cashflow	-0.1071	0.0107	0.4783*	-0.0097
	(-1.231)	(0.1368)	(1.841)	(-0.0298)
CapEx	0.0988	0.0031	0.2380	0.3866*
	(1.414)	(0.0513)	(1.483)	(1.889)
NonCapEx	-0.0076	0.0082	0.2161**	0.3846***
	(-0.1695)	(0.1722)	(2.277)	(3.447)
Tangibility	0.0737	0.1475	0.2330	0.6345
	(0.5288)	(0.9377)	(0.4346)	(1.026)
Cash	-0.0433	0.0425	0.2883	0.1578
	(-0.2110)	(0.2391)	(0.8729)	(0.4267)
Leverage	-0.0760	-0.0521	0.0772	0.0015
	(-1.445)	(-0.7320)	(0.5677)	(0.0066)
Dividend	-0.0399	0.0033	-0.1080	-0.0459
	(-1.309)	(0.1287)	(-1.394)	(-0.4618)
External Financing	-0.0009	-0.0013	0.0001	0.0008
	(-0.6473)	(-1.067)	(0.0300)	(0.1587)
N Segment	-0.0430	-0.0284	-0.0322	0.0235
	(-1.247)	(-1.064)	(-0.4628)	(0.1867)
Fixed-effects				
Firm	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Fit statistics				
Observations	859	804	740	625
R^2	0.89093	0.90266		
Adjusted R^2	0.82343	0.83851		
Pseudo R^2			0.24503	0.24105

Clustered (Firm) co-variance matrix, t-stats in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

This table presents OLS and Poisson regression results for the effect of firm-level inefficient internal capital allocation (relative to Tobin's q) on the market share (Columns 1 and 2) and the number of customer companies (Columns 3 and 4) in the subsequent years. The *Ineff Cap Alloc* variable represents the *Capital Allocation Efficiency* measure, multiplied by -1. A higher value of *Ineff Cap Alloc* indicates *greater inefficiency* (relative to Tobin's q) in internal capital allocation. The outcome variable *Market Share* is the ratio of a company's sales to the total sales in the same three-digit SIC industry in the subsequent years and *N Customers* is the number of customers in the following years. All variable definitions are in Appendix A. The unit of observation is at the firm-year level. I include firm and year fixed effects. t-statistics are reported in parentheses. Standard errors are clustered at the firm level. All continuous variables are winsorized at the 1% and 99% levels. The results are robust to alternative specifications of the market share, such as the weighted average of segment-level market share and weighted average of segment-level market share from segments that experience increased customer disclosures.

Table 7: (Segment-level Analysis) The Spillover Effect of Customer Segment Disclosure on Supplier-Segment Investments

Dependent Variables:	Segment-level InvEff (Abs)	Segment-level Over-investment	Segment-level Under-investment
Model:	(1)	(2)	(3)
Variables			
Treat x Post	-0.0089**	0.0093**	-0.0004
	(-2.017)	(2.050)	(-0.2619)
Seg Sales Growth	0.0065**	0.0004	-0.0068*
	(1.972)	(0.2017)	(-1.889)
Customer Sales Growth	0.0030**	-0.0030***	-1.5×10^{-5}
	(2.548)	(-2.782)	(-0.0568)
Seg Size	0.0393	-0.0578**	0.0186**
	(1.338)	(-2.015)	(2.328)
Seg Relatize Size	0.1152	-0.1855	0.0703
	(0.6663)	(-1.031)	(1.639)
Industry q	-0.0014	0.0023	-0.0009
	(-0.0968)	(0.1472)	(-0.1842)
Customer Size	0.0044	-0.0036	-0.0007
	(1.274)	(-1.080)	(-0.8524)
Fixed-effects			
Firm-segment	Yes	Yes	Yes
Industry-Year	Yes	Yes	Yes
Fit statistics			
Observations	4,445	4,445	4,445
R^2	0.80668	0.77707	0.89205
Adjusted R^2	0.77103	0.73595	0.87214

Clustered (Firm-segment) co-variance matrix, t-stats in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

This table presents DiD regression results for the spillover effect of customer segment disclosure on the investments within supplier segments. All variable definitions are in Appendix A. The unit of observation is at the supplier segment-customer segment-year level. I include firm-segment and industry-year fixed effects following Chen et al. (2018) and Chen et al. (2022). *t*-statistics are reported in parentheses. Standard errors are clustered at the firm-segment level. All continuous variables are winsorized at the 1% and 99% levels.

Table 8: (Segment-level Analysis) Cross-sectional Test for Customer Size

Dependent Variables:	Segment-level InvEff (Abs)	Segment-level Over-investment	Segment-level Under-investment
Model:	(1)	(2)	(3)
Variables			
Treat x Post	-0.0007	0.0024	-0.0017
	(-0.1365)	(0.4322)	(-0.5519)
Treat x Post x High Customer Size	-0.0201**	0.0150*	0.0050
	(-2.298)	(1.708)	(1.133)
Seg Sales Growth	0.0063**	0.0005	-0.0068*
	(1.971)	(0.2658)	(-1.884)
Customer Sales Growth	0.0031**	-0.0030***	-8.35×10^{-5}
	(2.465)	(-2.686)	(-0.2635)
Seg Size	0.0402	-0.0586**	0.0185**
	(1.350)	(-2.016)	(2.280)
Seg Relatize Size	0.1154	-0.1867	0.0713*
	(0.6676)	(-1.039)	(1.657)
Industry q	-0.0045	0.0052	-0.0007
	(-0.2777)	(0.3087)	(-0.1512)
Customer Size	0.0053	-0.0044	-0.0009
	(1.365)	(-1.158)	(-0.9041)
Fixed-effects			
Firm-segment	Yes	Yes	Yes
Industry-Year	Yes	Yes	Yes
Fit statistics			
Observations	4,103	4,103	4,103
R^2	0.80278	0.77339	0.88736
Adjusted R^2	0.76759	0.73297	0.86726

Clustered (Firm-segment) co-variance matrix, t-stats in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

This table presents DiD regression results for the cross-sectional effect of customer segment disclosure on the investments within supplier segments. The cross-sectioning variable *High Customer Size* is equal to one if customer sizes are above the median and zero otherwise. The cross-sectional split of the sample is based on characteristics during the pre-period. All variable definitions are in Appendix A. The unit of observation is at the supplier segment-customer segment-year level. I include firm-segment and industry-year fixed effects following Chen et al. (2018) and Chen et al. (2022). t-statistics are reported in parentheses. Standard errors are clustered at the firm-segment level. All continuous variables are winsorized at the 1% and 99% levels.

Table 9: (Segment-level Analysis) Cross-sectional Test for Supplier Segment Industry Concentration

Dependent Variables:	Segment-level InvEff (Abs)	Segment-level Over-investment	Segment-level Under-investment
Model:	(1)	(2)	(3)
Variables			
Treat x Post	0.0050	-0.0006	-0.0044
	(0.6205)	(-0.0787)	(-1.478)
Treat x Post x High Supp Seg HHI	-0.0252**	0.0209**	0.0044
	(-2.421)	(2.013)	(0.8450)
Seg Sales Growth	0.0194*	-0.0070	-0.0124
	(1.731)	(-0.8600)	(-1.306)
Customer Sales Growth	0.0031**	-0.0030**	-8.48×10^{-5}
	(2.015)	(-2.169)	(-0.2885)
Seg Size	0.0386	-0.0671***	0.0286**
	(1.425)	(-2.701)	(2.326)
Seg Relatize Size	-0.0367	0.0200	0.0167
	(-0.6039)	(0.4005)	(0.4017)
Industry q	0.0175	-0.0135	-0.0040
	(1.057)	(-0.7988)	(-0.4730)
Customer Size	0.0084	-0.0073	-0.0011
	(1.233)	(-1.085)	(-0.6932)
Fixed-effects			
Firm-segment	Yes	Yes	Yes
Industry-Year	Yes	Yes	Yes
Fit statistics			
Observations	2,531	2,531	2,531
R^2	0.81718	0.78842	0.90257
Adjusted R^2	0.78841	0.75513	0.88724

Clustered (Firm-segment) co-variance matrix, t-stats in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

This table presents DiD regression results for the cross-sectional effect of customer segment disclosure on the investments within supplier segments. The cross-sectioning variable *High Supp Seg HHI* is equal to one for supplier segments operating in SIC 3-digit industries with higher concentration than other segments and zero otherwise. The cross-sectional split of the sample is based on characteristics during the pre-period. All variable definitions are in Appendix A. The unit of observation is at the supplier segment-customer segment-year level. I include firm-segment and industry-year fixed effects following Chen et al. (2018) and Chen et al. (2022). t-statistics are reported in parentheses. Standard errors are clustered at the firm-segment level. All continuous variables are winsorized at the 1% and 99% levels.

Table 10: (Segment-level Analysis) Consequences of "Over-investments" in Segments: Future Segment ROA

Dependent Variables:	Segment ROA (t+1)	Segment ROA (t+2)	Segment ROA (t+3)
Model:	(1)	(2)	(3)
Variables			
Post × Overinvest	-0.8102	-0.8268**	-0.7939*
	(-1.573)	(-2.215)	(-1.776)
Overinvest	0.7081*	-0.0342	0.3601
	(1.902)	(-0.1673)	(1.499)
Seg Sales Growth	-0.0022	0.0024	0.0082**
	(-0.7183)	(0.5329)	(2.176)
Customer Sales Growth	-0.0024	-0.0698	-0.0789
	(-0.8549)	(-1.175)	(-0.8777)
Seg Size	-0.0584	0.0078	0.0434
	(-1.001)	(0.1428)	(0.5166)
Seg Relatize Size	0.1370	-0.0018	-0.2283
	(0.7180)	(-0.0081)	(-0.7643)
Industry q	-0.1378**	0.0699	-0.0101
	(-2.053)	(1.497)	(-0.2226)
Fixed-effects			
Firm	Yes	Yes	Yes
Year	Yes	Yes	Yes
Fit statistics			
Observations	447	200	179
R^2	0.71492	0.61012	0.69814
Adjusted R^2	0.54428	0.39386	0.54077

Clustered (Firm) co-variance matrix, t-stats in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

This table presents OLS regression results for the effect of segment-level substantial investments on the segment-level ROA in the subsequent years. A higher value of *Overinvest* variable indicates greater segment-level investment than the expected level of investment based on the sales growth model. The outcome variable *Segment ROA* is the segment-level profits scaled by lagged assets in the following years. All variable definitions are in Appendix A. The unit of observation is at the segment-year level. I include firm and year fixed effects. *t*-statistics are reported in parentheses. Standard errors are clustered at the firm level. All continuous variables are winsorized at the 1% and 99% levels.

Table 11: (Firm-level Analysis) The Effect of Customer Disclosures on Supplier Advertising Expenses and SG&A Expense

Dependent Variables:	Advertising Expense		SG&A Expense	
Model:	(1)	(2)	(3)	(4)
Variables				
% Treat x Post	0.0111*	0.0131**	0.0210**	0.0211**
	(1.889)	(2.224)	(2.373)	(2.409)
Market-to-Book	-3.48×10^{-5}	3.42×10^{-5}	-0.0015	-0.0014
	(-0.5272)	(0.6093)	(-0.8881)	(-0.8306)
Cashflow	0.0237	0.0248	-0.1083***	-0.1090***
	(1.300)	(1.374)	(-2.712)	(-2.758)
CapEx	-0.0087	-0.0096	-0.0112	-0.0084
	(-0.6145)	(-0.6557)	(-0.2242)	(-0.1648)
NonCapEx	0.0060	0.0106	-0.0026	-0.0045
	(0.8204)	(1.099)	(-0.2828)	(-0.4882)
Tangibility	0.0545**	0.0297	-0.0410	-0.0374
	(2.150)	(1.134)	(-0.3325)	(-0.3030)
Cash	0.0110	-0.0020	0.0793	0.0852
	(0.3888)	(-0.0680)	(0.9352)	(1.006)
Leverage	0.0251	0.0240	0.0390	0.0387
	(1.131)	(1.034)	(0.5288)	(0.5173)
Dividend	0.0064	0.0051	-0.0062	-0.0061
	(1.043)	(0.8076)	(-0.6675)	(-0.6472)
External Financing	-0.0005	-0.0007*	-1.4×10^{-5}	0.0001
	(-1.569)	(-1.858)	(-0.0136)	(0.0989)
N Segment	-0.0257**	-0.0296***	0.0082	0.0093
	(-2.054)	(-3.995)	(1.317)	(1.461)
Speed of Profit Adjustment		-0.0114		0.0289
		(-1.390)		(1.616)
Concentration Ratio		-0.0489		0.1343
		(-0.6891)		(0.5338)
Seg Earnings Persistence		-0.0039		0.0066
		(-0.8211)		(0.5266)
Seg Industry Diversity		-0.0722**		0.0052
		(-2.623)		(0.1675)
Fixed-effects				
Firm	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Fit statistics				
Observations	172	172	824	824
R^2	0.96443	0.96785	0.94281	0.94310
Adjusted R^2	0.93530	0.93891	0.90788	0.90764

Clustered (Firm) co-variance matrix, t-stats in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

This table presents DiD regression results for the effect of customer segment disclosure on supplier advertising expenses and SG&A expenses. All variable definitions are in Appendix A. The unit of observation is at the firm-year level. I include firm and year fixed effects, with t-statistics reported in parentheses. Standard errors are clustered at the firm level. All continuous variables are winsorized at the 1% and 99% levels.

Appendix C Illustrative Examples

C.1 Segment Disclosure Example

Navistar International Corporation (CIK 0000808450) provides an illustrative example of the impact of SFAS 131 implementation. In its 1998 10-K filing, under SFAS 14, Navistar disclosed only two segments. However, following the adoption of SFAS 131, the company's 1999 10-K filing revealed a more granular segment structure. Specifically, Navistar disaggregated its previously reported Manufacturing Operations segment into two distinct segments: Truck and Engine. Moreover, in compliance with the new standard, Navistar provided restated segment-level data for previous years, demonstrating how the breakdown would have appeared had SFAS 131 been in effect earlier. This restatement allows potential suppliers to observe sales growth of individual segments and identify specific growth opportunities, thereby illustrating how enhanced disclosures can influence the competitive landscape of supplier industries.

Navistar 1998 Millions of dollars	Manufacturing Operations	Financial Services Operations	Total
October 31, 1998			
Total revenues........	$7,678	$ 280	$7,885
Operating profit......	1,165	126	1,226
Depreciation..........	123	36	159
Capital expenditures..	305	–	305
Identifiable assets...	4,326	2,309	6,178
October 31, 1997			
Total revenues........	$6,191	$ 239	$6,371
Operating profit......	873	112	932
Depreciation..........	97	23	120
Capital expenditures..	172	–	172
Identifiable assets...	4,111	1,857	5,516
October 31, 1996			
Total revenues........	$5,550	$ 258	$5,754
Operating profit......	690	121	762
Depreciation..........	90	15	105
Capital expenditures..	117	–	117
Identifiable assets...	3,815	1,843	5,326

Figure 4: Navistar's segment disclosure in 1998 (SFAS 14)

Navistar 1999 Millions of dollars	Truck	Engine	Financial Services	Total
October 31, 1999				
Total revenues........	$6,628	$2,379	$ 344	$9,351
Interest expense......	$ –	$ –	$ 103	$ 103
Depreciation..........	62	59	48	169
Segment profit........	295	294	102	691
Segment assets........	$1,852	$ 814	$3,009	$5,675
Capital expenditures..	199	213	110	522
October 31, 1998				
Total revenues........	$6,276	$1,959	$ 286	$8,521
Interest expense......	$ –	$ –	$ 82	$ 82
Depreciation..........	54	63	35	152
Segment profit........	246	186	74	506
Segment assets........	$1,379	$ 584	$2,310	$4,273
Capital expenditures..	184	107	127	418
October 31, 1997				
Total revenues........	$4,999	$1,609	$ 239	$6,847
Interest expense......	$ –	$ –	$ 73	$ 73
Depreciation..........	47	43	22	112
Segment profit........	129	138	67	334
Segment assets........	$1,284	$ 526	$1,860	$3,670
Capital expenditures..	113	43	44	200

Figure 5: Navistar's segment disclosure in 1999 (SFAS 131)

C.2 Treatment and Post Variables Illustration: Increase in Customer Disclosure

This example illustrates how the treatment and post variables are implemented in this study. Consider a supplier company, HMT Technology Corporation (CIK 0001005967). The supplier has three major customers: Iomega Corporation, Maxtor Corporation, and Western Digital Corporation. Among these customers, only Iomega Corporation increased its segment disclosures following the adoption of SFAS 131.

The treatment variable for this supplier is calculated as 1/3, representing the fraction of its major customers that expanded their disclosures relative to the major customer base. The post variable becomes 1 in fiscal year 1999 for this supplier, indicating the period after SFAS 131 implementation. Table 12 demonstrates how these variables evolve over time.

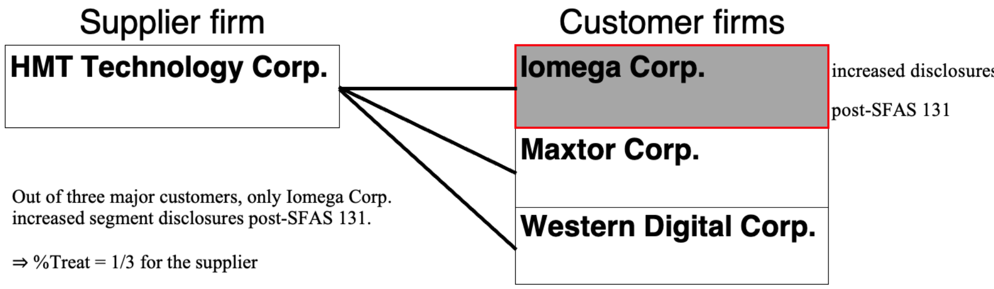


Figure 6: %Treat Calculation for HMT Technology Corp.

Table 12: Treatment and Post Variables for HMT Technology Corporation

Year	1997	1998	1999	2000
$\%Treat$	1/3	1/3	1/3	1/3
$Post$	0	0	1	1
$\%Treat \times Post$	0	0	1/3	1/3

The treatment variable remains constant at 1/3 throughout the period, reflecting the stable proportion of customers that increased their segment disclosures. The post variable switches from 0 to 1 in 1999, marking the implementation of SFAS 131 for this supplier. Consequently, the $\%Treat \times Post$ interaction term becomes non-zero (1/3) starting in 1999, capturing the effect of customer disclosure changes in the post-SFAS 131 period.

C.3 Segment-Segment Matching between Suppliers and Customers

The Bureau of Economic Analysis (BEA) Input-Output (IO) data provide valuable insights into the interdependencies between different industries in the economy. These data reveal the average amount of input required from various industries to produce one dollar of output in a specific industry.[11]

I use these data to match segments of customer companies to those of supplier companies. Specifically, given a segment of a customer company, I rank the segments of its supplier company based on how closely these segments are economically related, as proxied by the Input-Output data. This approach allows me to identify the most relevant supplier segment for each customer segment, based on the strength of their economic relationships.

To illustrate this segment-segment matching process, consider the example of Safety Components International, Inc. (CIK 0000918964) and its customer, TRW, Inc. (CIK 0000100030). Safety Components International has two segments: Automotive Airbags and Defense. TRW operates across two segments: Automotive and Space & Defense.

11. In this study, an industry producing an output in the BEA IO data is considered a customer industry, while an industry producing an input is considered a supplier industry.

The matching process begins by identifying an industry code (BEA IO code) for each segment based on its SIC industry code. For instance:

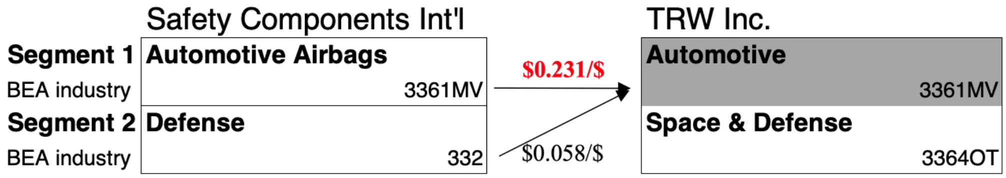
1. Safety Components International (supplier)
   - Automotive Airbags segment: BEA IO code 3361MV (Motor vehicles)
   - Defense segment: BEA IO code 332 (Fabricated metal products)
2. TRW (customer)
   - Automotive segment: BEA IO code 3361MV (Motor vehicles)
   - Space & Defense segment: BEA IO code 3364OT (Other transportation equipment)

Next, I use the BEA IO data to determine the input requirements for each customer segment. According to the 1998 BEA IO data, to produce one dollar of output in the Motor vehicles industry (IO code 3361MV), \$0.231 of input from the Motor vehicles industry itself (IO code 3361MV) and \$0.058 of input from the Fabricated metal products industry (IO code 332) are required. Therefore, I match the Automotive segment of the customer company to the Automotive Airbags segment of the supplier company over the Defense segment of the supplier.

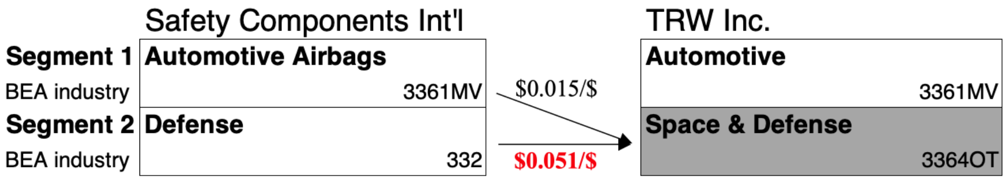
Following the same methodology, the customer's Space & Defense segment is matched to the supplier's Defense segment. See Figure 7 and Figure 8.

1998			Output industries (Customer industries)	
			Motor vehicles	Other transportation
	IO Code	Name	3361MV	3364OT
Input Industries (Supplier industries)	...	...	...	...
	321	Wood products	0.0047091	0.0008961
	327	Nonmetallic mineral products	0.0088007	0.0009280
	331	Primary metals	0.0625697	0.0339989
	332	Fabricated metal products	0.0577315	0.0506458
	333	Machinery	0.0286718	0.0161562
	334	Computer and electronic products	0.0170401	0.0737806
	335	Electrical equipment, appliances, and components	0.0068292	0.0096105
	3361MV	Motor vehicles, bodies and trailers, and parts	0.230618	0.0153551
	3364OT	Other transportation equipment	0.0003267	0.1750170
	...	...	...	...
	T011	Total Direct Requirements	0.5328975	0.5237812

Figure 7: Excerpt from the BEA Direct Requirements table



(a) Segment Matching: Customer's Automotive Segment to Supplier's Automotive Airbags Segment



(b) Segment Matching: Customer's Space & Defense Segment to Supplier's Defense Segment

Figure 8: Example of Matching Customer's Segments to Supplier's Segments

C.4 Hand-Collecting Major Customer Information from 10-Ks: An Example

The WRDS Supply Chain database reports that Kitty Hawk, Inc. (CIK 0000932110) had three major customers in 1996: General Motors, USPS, and Burlington Northern Santa Fe (BNSF). Interestingly, the database listed no customers for 1997 and only one (USPS) for 1998. However, an analysis of the company's 10-K filings from 1996 to 1998 reveals a consistent presence of three major customers throughout this period. While Kitty Hawk chose not to explicitly name these customers in later filings, their identities can be inferred by comparing the proportions of sales across the years.

The 1996 10-K filing disclosed that GM, USPS, and Burlington represented 41.0%, 14.9%, and 10.9% of total revenues, respectively. The 1997 10-K, while not naming specific customers, reported that one customer accounted for approximately 41% and 18% of revenues in 1996 and 1997; another for about 15% and 18%; and a third for approximately 12% and 18% in the same years. By analyzing these sales proportions, we can infer that GM, USPS, and Burlington remained Kitty Hawk's major customers throughout this period, despite the non-disclosures in these filings.

Figure 9 illustrates the hand-collected major customer data from Kitty Hawk's 10-K reports, providing a clear visualization of the company's customer relationships over time.

Customers of Kitty Hawk, Inc. according to the WRDS Supply Chain database

	Proportion of sales (from 10-K)		
Customers	1996	1997	1998
GM	41%		
USPS	14.9%		16.8%
BNSF	10.9%		

Adapted Excerpts from Kitty Hawk's 10-Ks (company names in the parentheses added by the author)

1997 (GM) The Company provided services to one customer which accounted for approximately 41%, 18% of its total revenues in 1996 and 1997, respectively.
(USPS) Another customer accounted for approximately 15% and 18% of the total revenues in 1996 and 1997, respectively.
(BNSF) The Company provided services to one customer which accounted for approximately 12% and 18% of its total revenues in 1996 and 1997, respectively.

1998 (GM) The Company provided services to one customer which accounted for approximately 41%, 18%, and 7.7% of its total revenues in 1996, 1997, and 1998, respectively.
(USPS) Another customer accounted for approximately 15%, 18%, 16.8% of the Company's total revenues in 1996, 1997, and 1998, respectively.
(BNSF) The Company provided services to one customer which accounted for approximately 10.8%, 18%, 10% of its total revenues in 1996, 1997, and 1998, respectively.

Customers of Kitty Hawk, Inc. supplemented with hand-collected data

	Proportion of sales (from 10-K)		
Customers	1996	1997	1998
GM	41%	18%	7.7%
USPS	14.9%	18%	16.8%
BNSF	10.9%	18%	10%

: customers inferred from 10-K

Figure 9: Example of Major Customer Information Hand-Collected from Kitty Hawk's 10-Ks

Internet Appendix to

“Do Customer Disclosures Affect Suppliers’ Internal Capital Allocation Decisions?”

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Table IA.1: (Firm-level Analysis) The Effect of Customer Disclosures on Their Competitive Environment and Textual Similarity

Dependent Variables:	N Rivals (Hoberg-Phillips)				Textual Similarities (Hoberg-Phillips)			
Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables								
Treat x Post	4.974	4.906	4.063	3.816	0.1695	0.1751	0.1999	0.1822
	(0.9342)	(0.8925)	(0.7264)	(0.6071)	(0.8619)	(0.8480)	(1.047)	(0.8388)
Market-to-Book		-0.4061		0.0449		-0.0108		0.0102
		(-0.8450)		(0.0818)		(-0.5128)		(0.3854)
Cashflow		22.73		26.92		0.7004		1.034
		(0.9917)		(1.142)		(0.8555)		(1.254)
CapEx		16.63		-13.01		1.180		-0.0668
		(0.9795)		(-0.6294)		(1.512)		(-0.0814)
NonCapEx		-3.051		-9.260		0.0713		-0.2713
		(-0.5579)		(-1.261)		(0.2563)		(-0.8932)
Tangibility		-7.715		-42.19		-0.5201		-1.906
		(-0.2501)		(-1.039)		(-0.4731)		(-1.226)
Cash		-52.64		-65.85		-2.453		-3.480*
		(-1.021)		(-1.218)		(-1.212)		(-1.687)
Leverage		34.24		6.334		1.267		0.2733
		(1.050)		(0.1863)		(0.9881)		(0.2191)
Dividend		-6.811		-10.79		-0.2160		-0.2759
		(-0.3993)		(-0.5718)		(-0.4302)		(-0.4675)
External Financing		0.2610		0.5150		0.0072		0.0197
		(0.5203)		(0.7917)		(0.3851)		(0.8593)
N Segment		1.343		1.482		-0.0369		-0.0421
		(0.6063)		(0.8151)		(-0.5642)		(-0.7166)
Speed of Profit Adjustment		2.061		-39.40*		0.1223		-1.455*
		(0.3228)		(-1.935)		(0.4890)		(-1.942)
Concentration Ratio		35.54		-26.30		2.136		1.030
		(0.6483)		(-0.1912)		(1.061)		(0.2176)
Seg Earnings Persistence		-0.3041		-20.23		-0.0032		-0.8092*
		(-0.6234)		(-1.573)		(-0.1708)		(-1.923)
Seg Industry Diversity		15.21		7.324		0.6403		0.3165
		(0.9744)		(0.4335)		(1.636)		(0.7084)
Fixed-effects								
(Customer) Firm	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes			Yes	Yes		
Industry-Year			Yes	Yes			Yes	Yes
Fit statistics								
Observations	721	682	719	680	750	710	748	708
R^2	0.90415	0.90685	0.92698	0.93033	0.89404	0.89854	0.92284	0.92710
Adjusted R^2	0.87219	0.87107	0.85477	0.85217	0.85978	0.86086	0.84911	0.84841

Clustered ((Customer) Firm) co-variance matrix, t-stats in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

This table presents DiD regression results for the effect of customer disclosures on the *customer*'s number of rivals and textual similarities defined by the Text-based Network Industry Classifications (TNIC-3, Hoberg and Phillips 2010, 2016). *Textual Similarities* measure is negatively associated with pricing power according to product differentiation theory. Unlike the previous tables, the sample consists of customer companies. *Treat* variable is whether the customer company itself changed the segment disclosure following SFAS 131. All other variable definitions are in Appendix A. The unit of observation is at the (customer) firm-year level. Columns (1), (2), (5), and (6) include firm and year fixed effects. Columns (3), (4), (7), and (8) include firm and industry-year fixed effects, where industries are defined at the two-digit SIC level. *t*-statistics are reported in parentheses. Standard errors are clustered at the firm level. All continuous variables are winsorized at the 1% and 99% levels.