Strategic Adaptations to Competition: Supplier Investment Shifts Following Import Tariff Cuts

This paper examines the effects of increased foreign competition on customer-supplier relationships, specifically how suppliers adjust relationship-specific investments (RSI), such as trade credits and R&D expenditures. Using import tariff reductions as an exogenous shock, the study finds that, in response to heightened competition, suppliers significantly increase trade credit to strengthen customer relationships while reducing R&D investments to mitigate potential holdup risks. We also find that the decrease in R&D in response to tariff cuts is concentrated among suppliers who also increase trade credit, suggesting a strategic substitution of short-term RSI for longer-term high-risk RSI in response to increased foreign competition. Cross-sectional analyses show that the decline in R&D spending is most pronounced in firms highly vulnerable to holdup risks, whereas firms more dependent on their supply chain tend to offer greater trade credits. These findings underscore strategic adjustments made by suppliers to maintain competitiveness and manage risks in the face of shifting market dynamics. The robustness of these results is confirmed through placebo tests, entropy balancing, stacked regressions, and alternative tariff cut scenarios.

Keywords: Foreign Competition, Trade Credit, supply chain, relationship specific investment

1. Introduction

The relationship between suppliers and customers serves as the cornerstone of a thriving economy. This dynamic interplay is not just a transactional exchange; it's a strategic alliance based on mutual gains and trust. A collaborative supply chain is essential for firms to gain competitive advantages, adapt to changing market conditions, achieve operational excellence, mitigate risks, and create value for all stakeholders involved (Cowley, 1988; Hoegl and Wagener, 2005; Terpend, Tyler, Krause, and Handfield, 2008).

Studies on customer-supplier linkages have mostly examined R&D investments and trade credit as two separate forms of RSI and the interplay between industry forces and such RSIs. However, it is still unclear as to what causes suppliers to choose one form of RSI over another. Suppliers routinely invest in customer-specific innovation to strengthen trade relationships and to secure long-term contracts. However, investing in R&D exposes suppliers to holdup risks arising from incomplete contracts since such relationship-specific assets have limited value outside of the relationship, especially when the supplier has weaker bargaining power (Dass, Kale, and Nanda, 2015). Increased foreign competition further erodes suppliers' bargaining power: the lower barriers to entry for foreign suppliers reduces customers' costs of switching to another supplier.

On the other hand, trade credit is a short-term credit contract that allows suppliers to signal their commitment to customer-specific RSI when such innovation is not immediately observable, especially when suppliers are required to make ongoing investments that evolve as the customer's needs change (Dass et al., 2015).

In this paper, we investigate how increased foreign competition affects suppliers' decisions regarding different forms of RSI such as R&D and trade credit. Since short-term RSI acts as a commitment tool, when faced with increased competition, domestic suppliers have incentives to increase their relationship-specific investments to retain their key customers and protect their market share of the customers' purchases. Conversely, investment in relationship-specific assets like R&D could expose supplier firms to increased holdup risks as customer's cost of switching suppliers reduces. The threat of competition thus reduces suppliers' incentives to invest in long-term RSIs like R&D. Nevertheless, trade credit may provide a solution to the hold-up problems associated with longer-term RSIs. By offering trade credit, suppliers can signal their commitment to customer-specific investments, while the short-term nature of these contracts helps mitigate

hold-up risks. Ultimately, the impact of competition on supplier RSI choices is an empirical question that merits detailed examination.

We start our analyses by examining the impact of tariff cuts on supplier firms' operations. We show that tariff cuts of 10% or more are associated with decreased profit margins and lower average sales per key customer. In other words, tariff cuts act as quasi-random shocks that increase competition within supplier industries, leading to substantial impacts on suppliers' profitability and supply chain efficacy. Thus, tariff cuts provide an appropriate empirical design for our study. Additionally, suppliers are less likely to lobby for tariff cuts in their own industries, mitigating concerns that supplier industry competition is endogenous to changes in suppliers' RSI.

While both trade credit as well as R&D are significant investments made by firms to strengthen supply chain relationships[1], a key distinction between these forms of RSI is that trade credit is a short-term contract, whereas R&D is a longer-term commitment that is costly to reverse. As a result, firms face considerably higher risk when making R&D investments compared to when extending trade credit. This disparity between the choice of RSI is further amplified in a competitive environment. Therefore, when facing increased competition, firms must strategically choose between trade credit and R&D investments to balance retaining key customers with mitigating supply chain risks.

Indeed, we find that following an increase in foreign competition, suppliers increase trade credit by 1.2%. In economic terms, this translates to suppliers increasing trade credit by 6.7% more than the average supplier in our sample in the year following tariff cuts. In contrast, suppliers reduce their long-term RSIs, such as R&D investments, by 0.53%, which is 7% lower than the average supplier, in response to tariff reductions. Additionally, we find that reduction in R&D in response to tariff cuts is concentrated among suppliers who also increase trade credit. This supports the idea that firms substitute higher-risk RSIs like R&D with relatively lower-risk, shorter-term RSIs like trade credit, in response to import tariff cuts.

Next, we examine how firms' responses to increased competition affect operational outcomes, measured by profit margins and average sales per customer. Suppliers who increase

[1] On average, in our sample, firms involved in major supply chain relationships invest close to $200 million per year on R&D (~10% of total assets) and extend approximately $290 million per year in trade credits (~15% of total assets).

trade credit are able to maintain their profit margins and sales per key customer, whereas firms that do not increase trade credit are associated with significantly lower profit margins and average sales per key customer. In other words, we find that increasing trade credit helps suppliers mitigate the negative impact of heightened competition. However, reducing R&D in response to increased competition comes at a cost. Suppliers that cut R&D expenditures experience nearly a 15% decline in profit margins. Thus, while shifting from long-term RSIs to short-term RSIs may offer short-term benefits, it comes with significant trade-offs.

The next set of tests examine the cross-sectional variations in supplier RSI that help us identify scenarios where substitution between R&D and trade credit is more probable. Industry characteristics such as product market competition, product differentiation, and relative bargaining power influence suppliers' RSI decisions (Dass, et al., 2015). Suppliers operating within industries characterized by low market power and weak bargaining leverage are more susceptible to increased risks due to heightened competition. Similarly, suppliers exposed to higher ex-ante holdup risks are more vulnerable to exploitation when competition intensifies. Despite these challenges, these suppliers must sustain their trade relationships with key customers. We hypothesize that such suppliers are more likely to exhibit substitution between trade credit and R&D as forms of RSI. They will increase trade credit to sustain supply chain relationship while reducing R&D to manage risk.

Our results support this hypothesis. We find that suppliers with lower market power, i.e., suppliers with ex-ante below-median HHI, above-median product fluidity, and above-median product similarity are likely to extend greater trade credit to their customers compared to their peers. These suppliers also scale back their R&D investments to a greater extent when faced with higher foreign competition. Similarly, suppliers whose customers pose higher holdup risk reduce R&D expenses and increase trade credit to a greater extent in response to increased foreign competition. versus suppliers whose customers pose lower holdup risks[2]. Collectively, these results support our assertion that firms substitute short-term trade credit for high-risk R&D to balance the need to retain key customers and mitigate the heightened exposure to holdup risk on account of increased competition.

[2] Results show that while suppliers facing high hold up risk continue to extend trade credit, suppliers that face low hold up risk extend greater amount of trade credit to key customers and do not reduce R&D as much.

Suppliers that depend more on their supply chain relationships risk significant losses from losing key customers. For these suppliers, the need to maintain trade relationships outweighs the need to contain risk, limiting their ability to reduce long-term RSI in response to tariff cuts. We hypothesize that in suppliers with greater dependence on the supply chain will invest in both R&D and trade credit to mitigate the impact of increased competition on trade relationships. Consistent with this, we find that suppliers whose customers account for above-median fraction of sales, who report a unique customer, and suppliers that are smaller in size extend greater amount of trade credit while also maintaining their investment in R&D in response to tariff cuts. Collectively, these results support the idea that firms use trade credit and R&D as complementary RSI mechanisms to mitigate the risk of losing key customers when responding to increased foreign competition.

While retaining key customers is a critical consideration for all suppliers in a competitive environment, only those with sufficient financial slack can offer more trade credit. Therefore, we propose that financially strong suppliers are likely to extend greater amounts of trade credit to their customers. Consistent with this argument, we find that suppliers with below-median leverage, above-median Z-scores, and higher cash reserves are more likely to increase trade credit in response to foreign competition compared to suppliers with less financial flexibility. These cross-sectional results suggest that financially strong suppliers are better able to use trade credit as a form of RSI in response to heightened competition. In contrast, decision to reduce R&D is not correlated with financial strength of suppliers. This result is consistent with our hypothesis that suppliers reduce R&D to mitigate holdup risk and not because of financial constraints.

We next present evidence that help us rule out alternative channels through which import competition can induce suppliers to change their RSI. Increase in foreign competition can lower future profitability (Xu, 2012) and motivate suppliers to manage earnings (Raman and Shahrur, 2008). Consequently, higher trade credit and lower R&D investment in response to increased foreign competition can potentially be attributed to earnings management rather than an optimal risk management strategy. If earnings management were driving our results, we would expect firms with poor earnings quality to reduce R&D and increase accounts receivables more to boost short-term earnings. In contrast, we find no evidence of earnings management driving the association between suppliers' RSI choices and increased foreign competition. Additionally, we show that suppliers also respond to tariff cuts by increasing the total number of customers and by increasing

their equity investments in customer firms, a response consistent with managing supply chain risk, rather than earnings management. Overall, these results mitigate the concerns that alternate explanations such as earnings management may be driving our results.

Finally, we conduct several tests to examine the robustness of our findings. First, we use timing tests to show that the positive (negative) association between supplier trade credit (R&D intensity) and tariff cuts does not exist in the years before the tariff cuts. The statistically significant associations appear in the year of tariff cuts and persist up to two years after the tariff cuts, supporting the causal nature of our findings. To further rule out spurious correlation between tariff cuts and RSI, we conduct placebo tests by assigning tariff cuts to random firm-years and find no evidence that our results may be driven by random chance. Moreover, to ensure that the fundamental differences between treatment and control groups are not driving our results, we estimate our baseline regressions for an entropy balanced sample and show that our findings are robust to this alternate specification. Our results are also robust to alternative estimation using stacked regression that mitigates biases from a staggered shock (DiD) setting.

Overall, these results provide evidence that tariff cuts are a significant source of increased import competition that impacts suppliers' profitability and sales efficiency. Further, suppliers respond by increasing trade credit to retain key customers while reducing their R&D investments to mitigate the increased holdup risk. Our paper contributes to several strands of literature. First, we fill the gap in the literature that examines the association between industry competition and customer-supplier relationships by studying both short-term as well as long-term RSI. Existing literature has *separately* documented the effects of industry competition on trade credit and R&D investments. By focusing on firms in strong supply chain relationships, we are able to examine the interplay between R&D and trade credit. Because it is extremely costly for suppliers in such relationships to lose key customers, they need to balance customer retention with increased hold up risk due to increased competition. To our knowledge, ours is the first paper to show that suppliers strategically choose between short-term and long-term RSI when faced with increased foreign competition.

Further, we provide greater insight into firms' decision to invest in trade credit and R&D. Prior literature documents mixed findings for the relation between trade credit and competition. Chod, Lyandres, and Yang (2019) find that firms may reduce trade credit in response to increased

competition as cash constrained customers may use it to increase cash purchased from other customers. Petersen and Rajan (1997) argue that monopolistic suppliers are more likely to extend trade credit since they are better able to internalize the long-term benefits of helping their customers. On the other hand, studies like Fisman and Raturi (2004) find supplier monopoly is associated with lower trade credit. We reconcile these contradicting findings by showing that in the face of increased competition, firms may resort to extending more trade credit to maintain supply chain relationship as it allows them to reduce high-risk R&D investments as a commitment tool.

Our results also identify an important channel through which increased foreign competition is associated with changes to supplier RSI – namely through profitability and sales efficiency. Specifically, our results show that increased foreign competition is negatively associated with suppliers' operational efficiency, and suppliers respond by strategically balancing short-term and long-term RSI to alleviate the adverse effect of heightened competition.

Finally, we contribute to the literature that examines the interplay between industry competition and corporate policies by showing that firms' extent of investments in their customer-supplier relationships is a nontrivial channel through which they respond to industry shocks.

The rest of the paper is organized as follows. Section 2 provides an overview of relevant existing literature and develops our main hypotheses. Section 3 discusses our data and research design, while Section 4 details our empirical results. Section 5 concludes.

2. Literature review and Hypothesis Development

2.1 Relationship-specific investments and corporate policies

Firms along the supply chain invest in relationship-specific assets to signal their commitment to their trade partners. However, these investments have little value outside of the relationship and expose firms to hold up risks. Empirical evidence suggests that firms maintain lower debt, keep more cash, and have lower CEO incentive-based pay to signal lower cash flow risk and to induce their supply chain partners to make greater relationship-specific investments (Kale and Shahrur, 2007; Kale et al., 2016) and to reduce the risk of losing relation-specific investments (Banerjee et al., 2008). Firms also take other confidence building measures such as

having overlapping ownership (Freeman, 2021), buying minority stakes (Nain and Wang, 2018) and sharing board seats (Minnick and Raman, 2017) to improve trust in each other.

Two important channels through which suppliers make relationship-specific investments (RSI) are through extending trade credit and making R&D investments. A large body of research examines the importance of trade credit in firms' strategic goals. For example, firms use trade credit as an alternative form of external finance since suppliers may be better at assessing customers' credit risk and customer product quality compared to banks (Petersen and Rajan, 1997; Biais and Gollier, 1997; Ng et al., 1999; Cunat 2007). Suppliers also use trade credit as a commitment device when they trade non-standard goods (Gianetti et al., 2011) and when customers have high bargaining power (Dass et al., 2015).

The literature also finds that firms leverage relationship-specific R&D investments to maintain their relationships with strategic trade partners (Allen and Phillips, 2000; Kale and Shahrur, 2007; Fee et al., 2006; Raman and Shahrur, 2008). Further, this literature suggests that firms that invest in R&D are likely to have a stronger and stable supply chain relationship (Williamson, 1985; Perry, 1989; Clark and Fujimoto, 1991; Kang, Nemani, and Raman, 2024).

Both R&D and trade credit are significant investments by firms in their supply chain relationships. In our sample, firms that are suppliers in major supply chain relationships spend on average $200 million on R&D and $290 million on trade credits – almost 10% and 20% of total assets – respectively. However, a key difference between trade credit and R&D investments as tools of RSI commitments is that trade credit is a shorter-term investment while R&D investments have longer term implications. In response to new information or a changing competitive landscape, firms should be able to adjust the terms and extent of trade credit relatively faster. On the other hand, R&D investments may be costly to reverse once a supplier, or customer has committed to the RSI (Dasgupta and Tao, 2000; Fee, Hadlock, and Thomas, 2006; Raman and Shahrur, 2008). Further, while R&D has longer gestation period, firms can extend trade credit faster. As a result, suppliers can use trade credit to react more swiftly to increased competition. The inherent differences between trade credit and R&D investment allows us to examine whether firms strategically choose between these commitment mechanisms to balance relationship strength and supply chain risks in response to increased foreign competition. By examining both short- and

long-term aspects of RSI, we provide a novel perspective on the nature of supplier-customer relationships in the presence of increased competition.

2.2 Product market competition and corporate policies

Extant literature has examined the effect of industry competition on corporate policies. This literature documents that product market competition significantly impacts firms' capital structure decisions (MacKay and Phillips, 2005), payout policies (Grullon and Michaely, 2007; Hoberg et al., 2013), and cost of debt (Valta, 2012). A significant body of research within this literature exploits tariff cuts as an exogenous shock to industry competition and examines firms' response to increased foreign competition. For example, Fresard (2010) shows that firms with large cash reserves are able to respond to increased foreign competition by gaining market share, whereas Fresard and Valta (2016) find that firms counter increased import competition by reducing capital investments. Using USITC data, Srinivasan (2020) finds that domestic firms react to increased foreign competition by making more acquisitions, whereas Bai (2021) uses plant-level data and finds that following tariff cuts, conglomerates are more likely to restructure to focus on their core competencies and improve productivity. Bakke et al. (2022) find that tariff cuts impact managers' risk-taking incentives and therefore, lead to reductions in CEOs' compensation vegas. Thus, it is well established that import tariff cuts lead to significant increase in product market competition that has wide ramifications.

2.3 Hypothesis development

We extend the prior literature by examining suppliers' RSI choices in response to tariff cuts in supplier industries and the interplay between trade credit and R&D as forms of RSI. Increased competition in the suppliers' industry increases customers' opportunity set and consequently reduces customers' switching costs. Since it is costly to lose key customers, we predict that suppliers respond by making strategic changes to RSI to retain key customers. This leads to the prediction that suppliers should increase RSI in response to import tariff cuts (*Relationship Strengthening Hypothesis*). However, such a strategy is not without risks. Increased competition due to tariff cuts in the suppliers' industry erodes suppliers' bargaining power and exposes them to higher holdup risks. This risk is further enhanced for firms that make longer-term RSI. This argument leads to the prediction that suppliers would reduce investment in long-term RSI as they have little value outside the supply chain relationship (*Risk Mitigating Hypothesis*).

Ultimately, suppliers must respond to increased foreign competition by balancing the need to strengthen their supply chain relationships and the need to mitigate increased holdup risks. We argue that suppliers respond to increased foreign competition through a combination of R&D and trade credit investments to balance the need to mitigate holdup risk with the importance of retaining key customers. While R&D has a longer gestation period, firms can extend trade credit faster. As a result, suppliers can use trade credit to react more swiftly to increased competition. In addition, trade credit poses lower holdup risks compared to R&D investment due to their shorter duration. Therefore, we conjecture that firms use short term investments such as trade credits to strengthen supply chain relationship while simultaneously reducing riskier investments such as R&D when faced with increased competition. Thus, our hypotheses stated in alternative forms are:

H1a: Relationship Strengthening Hypothesis: Suppliers increase trade credit in response to increased foreign competition.

H1b: Risk Mitigating Hypothesis: Suppliers reduce R&D expenses in response to increased foreign competition.

While on average, we expect firms to increase short term RSI (trade credit) and reduce long term RSI (R&D) in response to tariff cuts, there may be cross-sectional variations in suppliers' responses to increased foreign competition. In subsequent sections, we examine how suppliers' choice of RSI varies in customer holdup risks, strength of supply chain relationship, suppliers' strength in the product market, as well as suppliers' financial health. Specifically, we investigate supply chain characteristics when trade credit and R&D investments are substitutes as well as instances when suppliers use both as complements. We also consider alternative interpretations of our main results as well as explore whether such responses to increased foreign competition spillover to other corporate policies.

3. Data and Research Design

3.1 Sample

Our sample consists of all firms that are covered by the Compustat customer segment database between 1999 and 2022.[3] SFAS 131 requires firms to report sales to all customers that

[3] The customer segment database links customer identifiers from historical CRSP and Compustat using fuzzy name-matching algorithm along with manual verification. The records are further calibrated and complemented by publicly available data and data contributed by researchers (Cen, Maydew, Zhang, and Zuo, 2017; Cohen and Frazzini, 2008).

account for greater than 10% of total sales. Some firms voluntarily report customers who are important but account for less than 10% of total sales. To avoid potential biases due to firms' voluntary reporting, we follow prior literature and include only the trade relationships with customers that account for at least 10% of the total supplier sales (Cen, Maydew, Zhang, and Zuo, 2017; Cohen and Frazzini, 2008; Minnick and Raman, 2017; Kang, Nemani, and Raman, 2024). We aggregate our sample at the supplier-year level and exclude observations with missing controls from Compustat and CRSP databases. We then merge our sample with the import tariff data from the U.S. International Trade Commission's (USITC) website. Our final sample consists of 16,391 supplier-year observations.

3.2 Key variables

3.2.1 Import tariff cuts

To measure increases in competition, we follow recent literature that uses tariff cuts as an exogenous shock to industry competition (Fresard, 2010; Xu, 2012; Fresard and Valta, 2016; Srinivasan, 2020; Bakke et al., 2022, to name a few). Although import tariff cuts are not entirely unpredictable, they are largely independent of firms' corporate decisions. Moreover, firms' lobbying efforts are geared towards tariff increases. Hence, tariff cuts provide a quasi-random shock to the supplier industry that allow us to make causal inferences about suppliers' responses through RSI changes.

We calculate tariff rate as the ad-valorem duty scaled by the dutiable import value for all MFN countries for each industry-year. We download data on ad-valorem duties collected and the dutiable value of imports from Most Favored Nations (MFN) from the U.S. International Trade Commission's (USITC) website. Since our analyses use tariff cuts as an industry-level shock, we aggregate the tariffs across all products within each 6-digit NAICS for each year. Further, all WTO members accord each other the status of Most Favored Nations (MFN), and countries enjoying the MFN status are charged the same tariff rates[4]. This allows us to aggregate import tariffs across MFN countries to create our tariff cut variables at the industry-year level. Finally, since the USITC

[4] The WTO agreements impose binding tariffs equally on all trading partners by proving member nations with Most Favored Nations (MFN) status. Further, the WTO is also responsible for taking disciplinary actions against countries that export at unfairly low prices (Anti-Dumping Agreement) as well against countries that provide subsidies to domestic firms to counteract the effect of the tariff cuts. See https://www.wto.org/english/thewto_e/whatis_e/tif_e/agrm8_e.htm.

database switches from SIC- to NAICS-based industry classification in 1997, we start our import tariff sample in 1998 to ensure a consistent industry classification throughout our sample.

For each industry, we define tariff cuts as the percentage change in the tariff rate for that industry from year t-1 to year t. Our independent variable of interest (*Decdummy*) is a binary variable that takes a value of one if the percentage change in tariff rate is -10% or less (this roughly coincides with the 10th percentile value of percentage change in tariff rates), zero otherwise. As a robustness check, we also use alternate thresholds to define the tariff cut dummy variables to take a value of one if the percentage change in tariff rate is -2% or less (*Decdummyalt1*), -15% or less (*Decdummyalt2*), and -20% or less (*Decdummyalt3*), respectively. To ensure that our results are not influenced by transitory cuts in import tariffs, we replace the tariff cut dummy variables with zero for years where a tariff cut is followed by an increase in tariff rates by an equivalent value or more within two years of the tariff cut.

Table 1 presents tariff cuts by 3-digit NAICS industries. *DutyCut (Mean)* presents the average tariff cut for each industry, whereas *%Change (Mean)* and *%Change (Median)* present the average and median percentage changes in tariffs from the prior year, respectively. Oil and Gas, Forestry, and Minerals and Ores have some of the lowest tariff rates, whereas industries like primary metal manufacturing, computers and electronic products, and several others have tariff rates above 5%. Our sample has an average duty cut of 12.7%, ranging between 0.7% and 73.5%.

3.2.2 Relationship specific investments (RSI)

Our measures of short-term and long-term RSIs are trade credit and R&D intensity, respectively. We define trade credit as total account receivables scaled by sales, and we define R&D intensity as the R&D expenses scaled by total assets. Extensive literature as shown that firms use trade credit and R&D investments to strengthen the supply chain relationships. Firms make R&D investments to produce specialized products for their key customers. These assets often have little value outside of the relationship and are intended for specific customers (Aghion and Tirole, 1997; Kale and Shahrur, 2007; Banerjee, Dasgupta, and Kim, 2008; Raman and Shahrur, 2008; Minnick and Raman, 2017). Similarly, trade credits are used by firms to support supply chain partners and to strengthen customer-supplier relationships (Fabbi and Klapper, 2008; Burkart and Ellingsen, 2004; Dass, Kale, and Nanda, 2015).

3.2.3 Summary statistics

Table 2 Panel A provides summary statistics for our key variables. We use control variables common to this literature in our regressions, including firm size, firm age, cash holdings, market-to-book value of assets, as well as RSI-specific controls like relationship sales and number of customers. Table A1 in the Appendix defines all control variables used in our analyses. The average (median) firm in our sample extends 17.63% (14.64%) of its sales as trade receivables (*Trade Credit*) and spends 7.6% of its assets in R&D (*R&DIntensity*). On average suppliers report 2.4 number of key customers in a year. Further, about 4.1% of firm-years in our sample face a tariff cut of 10% or more (*Decdummy*).

Our treatment sample consists of supplier firms that face a tariff cut of 10% or more from the previous year, whereas our control sample consists of all other supplier firms. Panel B of Table 2 presents firm-specific variables for the treatment and control samples. Univariate tests indicate that on average, suppliers that face tariff cuts tend to offer significantly higher trade credit as a percentage of their total sales and have lower R&D expenses compared to supplier firms that don't face increased foreign competition. Comparisons of other variables in Table 2 also suggest that industries that face tariff cuts tend to have smaller and younger firms with greater sales growth, and lower dividends and repurchases compared to suppliers in industries that don't face tariff cuts.

3.3 Empirical design

We use a difference-in-difference model to test our main hypotheses that suppliers respond to increased foreign competition by increasing trade credit in the short-term and reducing R&D expenses. We test our hypotheses using the following regression equations:

$$Y_{i,t} = X'_{i,t-1} * \beta_i + \gamma_i * Decdummy_{j,t-1} + Firm\ FE + Industry - Year\ FE + \epsilon_{i,t} - (1)$$

$$Z_{i,t} = X'_{i,t-1} * \beta_i + \gamma_i * Decdummy_{j,t-1} + Firm\ FE + Industry - Year\ FE + \epsilon_{i,t} - (2)$$

Where $Y_{i,t}$ and $Z_{i,t}$ are firm $i's$ receivables scaled by sales and R&D expenses scaled by total assets, respectively, in year t. Our main measure of increase in foreign competition is defined as a binary variable that takes a value of one if a firm's industry faces a percentage decrease in tariff rates by 10% or more compared to the previous year, zero otherwise (*Decdummy*). We measure all right-hand side variables in year t-1 to mitigate potential concerns of reverse causality.

To control for unobserved time invariant firm-specific characteristics as well as for variations across industries and years, we use firm and industry-year fixed effects in our analyses, and we correct for heteroskedasticity by clustering our standard errors at the firm-level.

4. Results

4.1 Import Competition and suppliers' operations

We start our analyses by examining the impact of foreign competition on supplier profitability and supply chain performance. Industrial trade literature has documented ample evidence of foreign competition reducing price-cost margins and constraining market power (Pugel, 1980; DeRosa and Goldstein, 1981; Katics and Petersen, 1994). Using supplier profitability and sales from key customers, we examine whether increased foreign competition has a material impact on suppliers. Table 3 presents these results. In Column (1), we find that a reduction in import tariffs by 10% or more is associated with a reduction in suppliers' net profit margins by 2.3% versus average net margin of -3.2%. Column (2) shows that for suppliers in industries facing tariff cuts, the average sales per customer declines by almost $22.5 million, which translates to nearly 10% decrease compared to mean sales per customer.

Thus, these results indicate that increased foreign competition has a significant impact on suppliers' profitability as well as sales efficiency.

4.2 Main Results

We present the results from tests of our main hypotheses in Table 4. Column (1) shows that for the average supplier firm, a percentage decrease of 10% or more in the ad-valorem tariff rate (*Decdummy*) is associated with a 1.37% increase in trade credit offered to customers, whereas (2) reports that *Decdummy* is associated with an almost 0.53% reduction in R&D intensity. In terms of economic significance, these results imply that suppliers in industries that face a tariff cut of 10% or more increase trade credit by 7.75% (1.37/17.63) and decrease R&D by 6.9% (0.526/7.586) compared to the average firm in the sample. In Columns (3) and (4), we show results that examine whether suppliers substitute short-term RSI for long-term RSI to balance the need to retain key customers and the need to mitigate increased holdup risk from customers. We find that in response to material tariff cuts, decrease in R&D intensity is concentrated in suppliers that increase trade credit, indicating that suppliers trade off short-term and long-term RSI to mitigate the adverse effects of increased competition. Overall, consistent with our hypotheses, we find that

suppliers facing increased foreign competition tend to increase trade credit to strengthen their relationship with key customers, while reducing their R&D investments to mitigate the increased holdup risk from their key customers.

To alleviate concerns of reverse causality, we conduct timing and placebo tests as robustness checks. First, we regress our measures of relationship-specific investments on separate dummy variables that take a value of one for four years before through four years after an industry faces a tariff cut of 10% or more, respectively. If our results were driven by reverse causality, we should see significant changes to supplier RSIs in the years prior to tariff cuts. Panel A of Table 5 presents the results from these timing tests. We find a significant positive (negative) association between supplier trade credit (R&D intensity) and tariff cuts for the years of and up to two years after the tariff cuts. However, we find no significant changes in supplier RSI for the years before the tariff cuts. These results support the causal nature of the association between increased foreign competition and changes to short-term and long-term RSI by supplier firms.

Next, we conduct a placebo test to rule out the concern that our results may be driven by some unobserved biases in our sample or test design. We replace our key independent variable *Decdummy* with a variable that assigns tariff cuts to random firm-years. If the significant association between increased foreign competition and supplier RSI is indeed causal, we should expect to find no significant association between increased (decreased) trade credit (R&D investments) and randomly assigned tariff cuts. In Panel B of Table 5, we find evidence consistent with this argument. Overall, these findings indicate that our main results in Table 4 that tariff reductions in the suppliers' industry are associated with increased trade credit and reduced R&D intensity are unlikely to be the result of spurious correlation or driven by reverse causality.

Next, we conduct stacked regressions to alleviate concerns associated with staggered DiD estimates. Recent studies (Cengiz et al. 2019, Baker et al. 2022) have highlighted that staggered DiD estimates are biased because of the two reasons. First, standard DiD estimation uses previously (or later) treated firms as control group, which biases the coefficients. Second, the time varying nature of the impact may bias the findings. Baker et. al. (2022) suggest a staggered estimation approach to mitigate these biases. To implement this approach, we identify each treatment i.e., import tariff cut as a separate event and create a pool of control firms consisting of observations that never face a tariff change through the sample period. We then create a new

database by stacking treatment and control group observations for an event window of -3 to +3 years around the treatment period. Our stacked sample consists of 28,907 firm-years. We estimate our results using firm fixed effects and even-year fixed effects. Panel C of Table 5 reports the results. Our main finding that firms increase trade credit and reduce R&D in response to import tariff cuts remains robust to using this approach.

To ensure that fundamental differences between treatment and control groups are not driving our results, we use an entropy balanced sample in Panel D of Table 5. Following Hainmueller (2012), we use the reweighting scheme to adjust for inequalities in representation with respect to the higher moments of the covariate distributions. We confirm that following reweighting, the first and second moments of the sample are balanced and our findings persist in the entropy balanced sample.

Finally, Panel E of Table 5 shows that our results are robust to using alternate cutoffs for tariff cuts. We define the tariff cut dummy variables to take a value of one if the percentage change in tariff rate is -2% or less (*Decdummyalt1*), -15% or less (*Decdummyalt2*), and -20% or less (*Decdummyalt3*), respectively. Consistent with our hypotheses, we find that in all except one column, increased foreign competition is significantly associated with supplier firms increasing their short-term RSIs while reducing their long-term RSIs.

Since almost all tariff cuts in the U.S. are bilateral/multilateral and based on WTO agreements, one concern could be that suppliers that face tariff cuts in their industry should also face lower export costs, thus allowing them to compete in foreign markets. Consequently, suppliers should be able to make up for any key customers lost in the domestic market by acquiring new customers in the foreign market. However, supply chain relationships take time to build, and acquiring new customers in foreign markets immediately following lower tariffs is not a trivial undertaking (Eaton, et al., 2021). On the other hand, retaining existing key customers where the supplier has already invested significant time and effort is a more immediate need when faced with the threat of new entrants[5]. Thus, it is not clear why a supplier facing increased competition in the domestic market would choose to acquire new customers overseas rather than focus on retaining

[5] A related question is whether tariff increases are associated with reduced trade credit and increased R&D expenses. While this is an interesting conjecture, suppliers can lobby for tariff increases within their industries and therefore are not necessarily exogenous to suppliers' RSI choices.

key customers. Moreover, if the increased competition faced by supplier firms in the domestic market is negated by suppliers' ability to compete better in foreign markets, we should expect to find no significant association between tariff cuts and changes in RSI. Thus, the results in Tables 4 and 5, combined with the impact of foreign competition on suppliers' profitability in Table 3, are also indicative of tariff cuts being a significant shock to supplier industries.

4.3 Supplier response to import competition and supplier profitability and sales efficiency

In this section, we examine how firms' responses to tariff cuts impact profitability and supply chain sales. Table 3 shows that when competition increases, suppliers face decreases in profit margins and sales to key customers. While firms aim to balance customer retention and risk mitigation by increasing trade credit and cutting R&D, it is important to understand the implications of these decisions on profitability and sales efficiency. Increasing trade credit is expected to help mitigate the negative effects of increased foreign competition on suppliers' profitability and sales to key customers, while reducing R&D may have a detrimental effect.

As shown in Table 6, our findings reveal that suppliers who increase trade credit in response to increased competition experience no adverse effects on profitability or average sales per customer. Conversely, suppliers that do not increase trade credit in response to tariff cuts face significant negative impacts: profitability drops by 14.9% in terms of profit margin, and sales efficiency decreases by $46.5 million in average sales per customer. Indeed, when combined with the fact that Table 3 finds a negative impact of tariff cuts on net profit margin for the average supplier in our sample, the lack of significance in Column (1) of Table 6 points to a reversal of the negative impact of tariff cuts for suppliers that respond by increasing trade credit.

The results regarding R&D intensity are also significant. Suppliers that reduce R&D investments in response to increased competition experience a decline in profitability, indicating that efforts to mitigate holdup risks by cutting long-term investments come at the cost of reduced margins. However, we do not find that R&D cuts significantly affect sales per key customer.

In summary, Table 6 suggests that suppliers facing increased foreign competition tend to shift from long-term relationship-specific investments (RSI) like R&D, to short-term RSIs such as trade credit—sometimes at the expense of profitability. This demonstrates that suppliers view the

risk of customers switching suppliers as a significant concern when responding to heightened import competition.

4.4 Trade credit and R&D as substitutes: Cross-sectional analyses

Our baseline results show that firms increase trade credit and reduce R&D expenses in response to increased foreign competition. This is consistent with our hypotheses that suppliers respond to competition through their choice of RSI to retain key customers as well as to mitigate increased holdup risk from customers with lower switching costs. To further explore this substitution of longer-term RSI with short-term RSI, we now examine how suppliers' choice of RSI changes with cross-sectional variations in supply chain characteristics.

First, we study if supplier firms' market power prior to the tariff cuts moderates how suppliers respond to increased foreign competition. Dass et al. (2015) finds that low market power firms use trade credit to strengthen supply chain relations. The effect of increased foreign competition is more severe on suppliers with weak market power, and hence they should be more likely to increase trade credit to mitigate the risk of losing key customers. Thus, the *Relationship Strengthening Hypothesis* suggests that in response to tariff cuts, suppliers with weaker ex-ante market power should increase trade credit more than suppliers with greater market power. Simultaneously, the risk of holdup would be more pronounced for suppliers with lower market power as they have less bargaining power in the relationship. Increase in foreign competition makes the risk even higher for low-market-power suppliers. Hence, according to the *Risk Mitigating Hypothesis*, we should expect to find that suppliers with lower ex-ante market power reduce their R&D investments more when faced with increased import competition compared to suppliers with higher market power. To the extent that competition intensifies both suppliers' risk of losing key customers as well as their risk of being held up by customers, we posit that suppliers with lower market power should reduce R&D as well as increase trade credit in response to increased foreign competition.

We draw on existing literature to identify suppliers with low market power – firms with below median HHI within their industries (Gaspar and Massa, 2006), firms with product fluidity higher than the industry median (Hoberg et al., 2014), and firms with above-median product

similarities (Hoberg and Phillips, 2016). We present results from this analysis in Table 7 and show that our main findings that supplier firms increase trade credit in response to increased foreign competition is further amplified for firms with lower ex-ante market power. Specifically, we find that in response to increased foreign competition, suppliers with low ex-ante market power increase trade credit by 2.5% to 3.1%. In contrast, high-market-power suppliers do not increase trade credit in response to tariff cuts. In Columns (4) through (6) of Table 7, we find that in response to increased foreign competition, suppliers with lower market power prior to the tariff cut reduce R&D by 0.62% to 0.78%. These findings suggest that suppliers substitute R&D investments with trade credit in response to tariff cuts when their lower market power further amplifies the impact of increased foreign competition.

In Panel B, we examine cross-sectional variation with holdup risks from customers. Suppliers making large relationship-specific investments face high holdup risk, since these investments have little value outside of the relationship (Kale and Shahrur, 2007; Kale et al., 2016). Increased competition amplifies suppliers' holdup risk, since customers now have lower costs of switching to other suppliers. Such suppliers would be expected to respond to increased competition by choosing shorter-term low-risk RSI to retain key customers. Thus, suppliers facing higher holdup risks from their customers should be more likely to substitute trade credit for longer-term R&D investments.

In the same vein as Titman and Wessels (1988) and Banerjee et al. (2008), we argue that customers pose a higher holdup risk to their suppliers when they have higher leverage. Suppliers also face lower holdup threat when their key customers are not in concentrated industries as supplier firms can transfer their costly RSI to other customers from the same industry. Thus, suppliers with customers from concentrated industries face greater holdup risk. Additionally, we create an indicator variable to measure if there is a below-median overlap between block ownership of the supplier firm and its key customers. Prior studies show that common ownership can help align supply chain goals and alleviate holdup problems (Freeman, 2023), and as such we expect that suppliers that have below-median overlap of blockholders with their customers would be more prone to being held up by their customers. Finally, we create an indicator variable that takes a value of one for suppliers with below-median average duration of relationship with key customers. Longer trade relationships entrench customer firms in the trade relationships and increase

switching costs for the customer (Krolikowski and Yuan, 2017). Thus, the lower switching costs due to increased foreign competition is arguably moderated by the higher switching cost due to longer relationship duration. For suppliers with shorter relationship durations, the holdup cost is higher compared to suppliers with longer trade relationships.

Columns (1) through (4) of Panel B of Table 7 show that suppliers with greater risk of being held up by customers increase trade credit by 0.88% to 2.7% when their industry faces a tariff cut of 10% or more. Simultaneously, Columns (5) through (8) indicate that suppliers with higher risk of being held up by customers also make significantly lower R&D investment (0.39% to 0.85%) when faced with increased foreign competition. However, we do not find that suppliers facing lower ex-ante holdup risk substitute trade credit with R&D; they increase trade credit by 1.7% to 3.8% without significantly reducing R&D investments.

In summary, our findings in Table 7 suggest that when faced with tariff cuts, suppliers are more likely to shift from longer-term to shorter-term RSI when the effect of such increased competition is amplified due to lower market power and higher holdup risks from customers prior to the tariff cuts.

4.5 Trade credit and R&D as complements: cross-sectional analyses

Next, we examine whether changes to suppliers' choice of RSI in response to increased foreign competition varies with their dependence on the supply chain. Prior studies provide theoretical as well as empirical evidence that suppliers with lower bargaining power offer more trade credit to higher-bargaining-power customers (Giannetti et al., 2021; Dass et al., 2015). Consequently, suppliers for whom the supply chain relationships matter more should be more likely to increase trade credit in response to increased foreign competition because retaining key customers is more important to them (*Relationship Strengthening Hypothesis*). Firms that are more reliant on their supply chain relationships would also be reluctant to cut R&D for two key reasons. First, firms with greater reliance on supply chain would have more to lose if customers switch due to availability of more alternatives. Second, such suppliers have lesser bargaining power to adjust their RSI (Kang et al., 2024) to respond to competitive pressures. Therefore, we expect suppliers with high dependence on supply chain to be limited in their ability to reduce R&D in response to increased foreign competition.

We present these results in Table 8. We use three alternative measures to define suppliers' relationship dependence. In Columns (1) and (4), we define a supplier being more dependent on the supply chain if the supplier reports only one key customer (*UniqueCustomer*). In Columns (2) and (5), we define suppliers as having greater relationship dependence on their customers if they report above-median proportion of their total sales to their key customers (*HighRelationSales*). Our third measure of greater supply chain dependence is an indicator variable that takes a value of one for below-median supplier size (*SmallSupplier*), as smaller suppliers have lower bargaining power compared to larger suppliers.

We find that suppliers with greater dependence on the supply chain respond to increased foreign competition by increasing trade credit by 1.6% to 2.1% while also maintaining their R&D investments (no significant reduction in R&D). These findings highlight that suppliers with greater reliance on the supply chain use R&D and trade credit as complementary RSI devices to bolster their trade relationships when faced with increased foreign competition. In contrast, suppliers with lower reliance on the supply chain, i.e., greater bargaining power respond to increased foreign competition by reducing R&D investments (-0.7% to -0.8%) since the need to mitigate holdup dominates the need to retain key customers. Thus, we find that suppliers' bargaining power moderates their choice of RSI when responding to increased foreign competition.

4.6 Import tariff cuts and variation in RSI with suppliers' financial strength

Finally, we examine variations in supplier RSI with suppliers' financial strength. When faced with increased foreign competition, financially constrained suppliers cannot effectively respond to tariff cuts by offering more trade credit. Thus, the increase in RSI to retain key customers in response to increased foreign competition should be stronger for financially stronger firms. In Table 9, we present results from interacting *Decdummy* with measures of greater financial slack in suppliers. Following prior literature, we measure greater supplier financial slack using below-median leverage, above-median Z-score, and above-median cash holdings in suppliers. We find that suppliers with greater financial slack increase trade credit by 1.9% to 2.4% in response to tariff cuts of 10% or more.

However, financially unconstrained firms have little reason to respond to tariff cuts by reducing R&D since they have enough financial slack. In Columns (4) through (6) we do not find

consistent evidence to suggest that suppliers with greater financial respond to increased foreign competition by making significant changes to their R&D investments.

4.7 Alternative interpretations of results

The results so far show that suppliers respond to foreign competition by increasing short-term RSI to retain their key customers and reducing long-term RSI to mitigate holdup risk. Consistent with prior literature, we use trade credit to proxy for short-term RSI and R&D intensity as a measure of long-term RSI. However, these results can also be consistent with alternative explanations. Increased foreign competition could motivate suppliers to manage their earnings, either to increase the information content by removing transitory components, or to opportunistically inflate earnings, because retaining key customers is now strategically more important (Raman and Shahrur, 2008). Thus, tariff cuts could be associated with higher trade credit and lower R&D investments through the earnings management channel rather than the customer retention or risk mitigation channels that we suggest.

In Table 10, we explore if earnings management could be driving our main results. We use two proxies to identify firms that are more susceptible to earnings management. First, firms with high accruals are more likely to manipulate earnings (Kothari et. al., 2005; Guay et. al., 1996). Second, firms that just miss or just meet earnings estimate are likely to engage in earnings management (Burgstahler and Dichev, 1997; Dhaliwal et al., 2004). If earnings management is driving our results, then we should expect to find that the results are stronger for firms that are more likely to engage in earnings management. To test this hypothesis, we interact our tariff cut variable (*Decdummy*) with indicator variables *HighAccruals* (Columns 1 and 3), *JustMiss,* and *JustBeat* (Columns 2 and 4). *HighAccruals* takes a value of one for above-median discretionary accruals and zero otherwise. *JustMiss* and *JustBeat* take a value of one if the supplier misses or beats analyst estimate by 1% or less. In all except one column in Table 10, we find no significant evidence that poor earnings quality drives the association between tariff cuts and suppliers' choice of RSI. These results suggest that the association between increased foreign competition and reduced long-term RSI and increased short-term RSI, respectively, is more likely to be driven by supplier market power, holdup risk from customers, suppliers' bargaining power, and their financial flexibility rather than by increased earnings management.

4.8 Alternative actions by suppliers facing increased foreign competition

In this section, we investigate the additional actions that supplier firms take to respond to increased import competition. Tariff cuts increase the threat of new entrants, thereby reducing customers' costs of switching to new suppliers. Suppliers can respond to this threat by diversifying their portfolio of key customers. Increasing the extent of inter-dependence as well as strengthening existing customer-supplier relationship could help suppliers effectively thwart the negative impact of increased competition. In Column (1) of Table 11, we find that the number of key customers reported by suppliers increases by 0.20% following a tariff reduction by 10% or more in the supplier industries. In Column (2), we also find that increased foreign competition is significantly associated with suppliers increasing their investment in customer equity by 0.76%. This is consistent with prior work that finds that holding equity stake in trading partners is more common in the presence of contracting frictions between customers and suppliers (Fee et al., 2006; Dasgupta and Tao, 2000). These results are robust to using alternative measures of increased foreign competition (results not tabulated for brevity).

In summary, the results in Table 11 highlight that increased foreign competition as measured by tariff cuts are indeed a significant source of risk for supplier firms, and that in addition to substituting long-term RSI with more short-term RSI, supplier firms also respond to increased foreign competition by increasing their customer base and strengthening the relationships with existing customers. Further, these results lend support to our earlier analyses and show that these actions are consistent with our results in Tables 7 through 10 in that suppliers' response to increased foreign competition is more likely to be motivated by their need to retain key customers while also reducing the potential losses due to customers switching to new suppliers, and less likely to be driven by increased earnings management.

5 Conclusion

We examine the impact of increased foreign competition on customer-supplier linkages by examining changes to suppliers' RSI in response to tariff cuts. Tariff cuts in the supplier industries

provide an exogenous shock to the level of competition that suppliers face, consequently reducing customer firms' costs of switching to another supplier. Literature that studies the impact of competition on RSI largely focuses on the trade credit offered to customers and R&D investments separately. In this paper, we conjecture that suppliers facing increased foreign competition balance the risk of customer holdup risk and the need to retain their key customers by strategically substituting short-term trade credit for long-term R&D investments. Using a binary variable for tariff reductions by 10% or more from the previous year, we find that suppliers facing increased import competition reduce their R&D investments but increase trade credit. We argue that this is consistent with suppliers trading off their long-term RSI for short-term RSI when faced with increased foreign competition. Using timing tests, entropy balancing, stacked regressions, as well as a placebo variable that assigns tariff cuts to random industry-years, we confirm that our results are unlikely to be driven by reverse causality or by random chance.

Lower market power as well as higher holdup risks increase suppliers' risk of losing their key customers to competitors when foreign competition increases. When their industries face tariff cuts, suppliers with lower market power face the possibility of further losing their market share to new entrants, whereas suppliers with higher holdup risks from their customers could lose customers switching to other suppliers. In cross-sectional analyses, we provide evidence that suppliers increase trade credit more while also further reducing R&D investments in response to tariff cuts when they have lower ex-ante market power and higher holdup risks from their customers. We argue that this suggestive of suppliers with already weaker positions within their industries substituting short-term RSI for longer-term RSI when their relative standing is further threatened by increased foreign competition. On the other hand, suppliers' choice of RSI when responding to increased foreign competition also varies with their reliance on the supply chain compared to their customers. Suppliers that depend more on their supply chain relationships risk significant losses from losing key customers and therefore, their need to maintain trade relationships outweighs the need to mitigate holdup risk. We find that such suppliers invest in both R&D as well as trade credit to mitigate the impact of increased competition on trade relationships, suggesting complementarity between the two firms of RSI. Additionally, we find that the increase in trade credit in response to increased foreign competition is more pronounced for financially unconstrained suppliers, and that such suppliers with financial flexibility do not reduce R&D in response to increased competition.

We rule out alternative explanations that our findings may be driven by earnings management. We also support our analysis by showing that suppliers mitigate supply chain risk arising from increasing competition by diversifying customer bases and increasing equity investments in the customer firms. Overall, results point toward suppliers strategically choosing between trade credit and R&D in response to increased competition.

Our paper contributes to the literature on industry competition and customer-supplier relationships by introducing a tradeoff between trade credit and R&D investments as tools of supply chain management. We show that suppliers strategically use long-term and short-term RSI to balance the need for retaining key customers and mitigating heighted risks on account of increased foreign competition.

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Appendix A: Variable definition

USITC – import tariff data

Decdummy: The indicator variable equals one if the import duty is reduced by 10%.

Decdummyalt1: The indicator variable equals one if the import duty is reduced by 2%.

Decdummyalt2: The indicator variable equals one if the import duty is reduced by 15%.

Decdummyalt3: The indicator variable equals one if the import duty is reduced by 20%.

Relationship level Variables (Compustat customer-supplier segment data)

Relationship duration: The number of years since the initiation of the customer-supplier relation.

UniqueCustomer: Equals to one if supplier report only one firm as a key customer.

RelationshipSales/Dependence: Sales to the key customers as a fraction of total supplier sales.

Relationsales/#customer: RelationshipSales divided by number of key customers reported by the supplier.

R&DIntensity: R&D expenses (XRD) divided by book value of assets (AT), multiplied by 100.

TradeCredit: Total receivables (RECTR) divided by sales (SALE), multiplied by 100.

#customers: Number of key customers reported by a supplier in a year.

EquityInvestment: Total investment (IVAO) in equity of key customers by a supplier, divided by book value of total assets (AT), multiplied by 100.

Compustat

Size: Logarithm of total assets (AT).

Age: Logarithm of years since the firm appears for the first time on CRSP database.

Cash: Cash and short-term investments (CHE), divided by total assets (AT).

Dividend: Total common stock dividend (DVC), expressed as a fraction of firm's assets at the end of the previous year.

Repurchases: Repurchases are calculated as the expenditure on the repurchase of common and preferred stock (PRSTKC) minus any reduction in the value of preferred stock outstanding (PSTK), divided by the book value of assets (AT).

PriorRet: Buy-and-hold return over the prior year.

ProfitMargin: Net Income (NI) divided by total sales (Sale).

Market-to-Book: Market capitalization plus long-term debt (DLTT) plus debt in current liabilities (DLC) plus preferred stock (PSTK), divided by the book value of assets (AT).

Return on Assets (ROA): Return on assets is calculated as net income (NI) divided by total assets (AT).

Leverage: Leverage is calculated as the sum of long-term debt (DLTT) and short-term debt (DLC) divided by book value of assets (AT)..

Free Cash Flow (FCF): Free cash flow is calculated as the operating income before depreciation (OIBDP) minus interest, taxes, and dividends, divided by book value of assets (AT).

SalesGrowth: The percentage change in sales from the prior year to the current year.

OperatingIncome: Operating income (OIBDP), divided by book value of assets (AT).

HHI: Herfindahl-Hirschman Index of sales is calculated as the sales market share within SIC 4-digit industries.

InstOwn: The percentage of common shares outstanding held by 13F institutional investors

Intangibility: Intangible assets (INTAN) divided by the total assets.

Z-score: Altman Z-Score = 1.2*NWC + 1.4*RE + 3.3*EBIT + 0.6*MarketCap + 1.0*Sales, where NWC is net working capital divided by total assets, RE is retained earnings divided by total assets, EBIT is earnings before interest and taxes divided by total assets, MarketCap is market value of equity divided by total liability, and sales is total sales divided by total assets.

BlockOverlap: The percentage of common shares outstanding held by common block holding institutions. A common block holding institution is defined if a block holding institution owns both customer and supplier in a given quarter. A block holding institution is defined as 13F institution holding more than 5% of common shares outstanding in a firm.

Product Fluidity: The product market fluidity measure by Hoberg and Phillips (2014), which captures how intensively the product market around a customer is changing each year. Measures of fluidity are customized to each firm based on each firm's unique product market vocabulary (from 10-K).

Product Similarity: The product market fluidity measure by Hoberg and Phillips (2016), which is based on firm-by-firm pair wise similarity of words in product description from 10-K in a year.

Accruals: ΔCurrent assets (ACT) – ΔCash (CHE) – ΔCurrent liability (LCT) – ΔShort term debt (DLC) – ΔTax payable (TXP) – Depreciation (DP), divided by assets (AT).

JustMiss: Indicator variable that takes a value of one if company reports EPS that misses analyst estimates by 1% or lower.

JustBeat: Indicator variable that takes a value of one if company reports EPS that beats analyst estimates by 1% or lower.

Table 1: Industry wise import tariff cuts

This table presents details of industry wise import tariff cuts (cuts in Ad-valorem duty rates) in our sample. Column 3 presents mean duty prior to the tariff cuts. Columns 4 and 5 presents mean and median percentage changes in the import tariffs. Ad-valorem duty rates are defined at the industry-year level and are aggregated across all countries of import with Most Favored Nation (MFN) status. Data on import tariffs are from USITC's website.

NAICS	Description	Duty (Mean)	%Change (Mean)	%Change (Median)
111	Agricultural Products	2.05%	-3.2%	-1.6%
113	Forestry Products	0.34%	-5.9%	-5.9%
211	Oil & Gas	0.18%	-22.7%	-25.0%
212	Minerals & Ores	0.63%	-73.5%	-73.5%
311	Food & Kindred Products	8.14%	-4.3%	-1.4%
312	Beverage & Tobacco Products	0.41%	-11.2%	-7.5%
313	Textiles and Fabrics	11.22%	-2.1%	-2.1%
314	Textile Mill Products	4.28%	-1.1%	-1.1%
316	Leather and Allied Products	1.96%	-2.1%	-2.1%
321	Wood Products	6.50%	-0.9%	-1.1%
322	Paper	4.41%	-21.8%	-8.2%
323	Printed Material and Related Products	4.45%	-8.7%	-8.7%
324	Petroleum & Coal Products	3.57%	-17.2%	-13.8%
325	Chemicals	1.07%	-1.4%	-0.3%
326	Plastic and Rubber Products	3.62%	-0.7%	-0.4%
327	Nonmetallic Mineral Products	4.69%	-5.3%	-3.8%
331	Primary Metal Manufacturing	5.47%	-6.6%	-6.6%
332	Fabricated Metal Products	3.08%	-1.4%	-1.0%
333	Machinery Except Electrical	4.32%	-33.1%	-0.4%
334	Computer & Electronics Products	6.05%	-33.1%	-2.6%
335	Electrical Equipment, Appliances, & Components	3.45%	-7.0%	-0.6%
336	Transport Equipment	3.61%	-2.2%	-0.8%
337	Furniture & Fixtures	3.09%	-26.2%	-2.5%

Table 2: Summary statistics

This table presents the summary statistics of key variables used in our analyses. Our sample include all firms in Compustat customer-supplier database between 1999 and 2022. We exclude utilities and firm-years with missing data on control variables. The final sample consists of 16,391 firm-quarters. Ad-valorem duty rates are defined at the industry-year level and are aggregated across all countries of import with Most Favored Nation (MFN) status. Panel A reports statistics for the entire sample. Panel B presents comparison of treatment and control sample. Appendix A provides detailed definitions of the variables.

Panel A: Unconditional summary stats: all firm-years

	Obs.	Mean	Median	Std Dev	Min	Max
R&DIntensity	16,391	7.586	1.518	13.248	0.000	91.813
Trade Credit	16,391	17.630	14.638	16.770	0.000	154.630
#Customers	16,391	2.368	2.000	2.449	1.000	44.000
Investments	16,391	2.416	0.000	9.243	0.000	119.660
ProfitMargin	16,391	-0.032	0.026	1.559	-11.375	0.762
Relationsales/#customer	16,391	217.03	36.68	498.25	0.186	2,548.28
Decdummy	16,391	0.041	0.000	0.197	0.000	1.000
Decdummyalt1	16,391	0.080	0.000	0.272	0.000	1.000
Decdummyalt2	16,391	0.037	0.000	0.188	0.000	1.000
Decdummyalt3	16,391	0.032	0.000	0.175	0.000	1.000
Decdummyalt4	16,391	0.019	0.000	0.135	0.000	1.000
Placebo	16,391	0.037	0.000	0.188	0.000	1.000
RelationSale	16,391	0.253	0.187	0.230	0.000	0.940
Log(Age)	16,391	8.437	8.564	0.775	6.054	9.593
Log(Asset)	16,391	6.054	5.997	1.962	0.616	10.416
Cash	16,391	0.230	0.138	0.239	0.000	0.896
Dividends	16,391	0.102	0.000	0.026	0.000	0.167
Repurchases	16,391	0.017	0.000	0.040	0.000	0.212
FreeCashFlow	16,391	0.024	0.077	0.215	-1.037	0.357
Leverage	16,391	0.223	0.176	0.222	0.000	0.994
Market-to-book	16,391	1.887	1.306	1.781	0.345	11.063
OperatingIncome	16,391	0.051	0.099	0.206	-0.937	0.458
PriorRet	16,391	0.134	0.118	0.584	-1.348	2.021
SalesGrowth	16,391	0.200	0.075	0.631	-0.612	4.477
ROA	16,391	-0.044	0.026	0.236	-1.216	0.326
Intangibility	16,391	0.172	0.099	0.193	0.000	0.720
InstOwn	16,391	0.557	0.603	0.317	0.000	2.306

Panel B: control vs sample firms

	Control (Decdummy = 0)	Treated (Decdummy = 1)	Difference	P-value
R&DIntensity	7.641	6.294	-1.347	2.57
Trade Credit	17.993	21.483	3.490	0.00
Controls				
RelationSale	0.253	0.256	0.003	0.78
Log(Age)	8.443	8.279	-0.164	0.00
Log(Asset)	6.070	5.673	-0.397	0.00
Cash	0.231	0.191	-0.040	0.00
Dividends	0.010	0.007	-0.003	0.00
Repurchases	0.017	0.015	-0.002	0.07
FreeCashFlow	0.023	0.057	0.034	0.00
Leverage	0.223	0.233	0.010	0.25
Market-to-book	1.887	1.880	-0.007	0.92
OperatingIncome	0.050	0.077	0.027	0.00
PriorRet	0.129	0.268	0.139	0.00
SalesGrowth	0.196	0.307	0.111	0.00
ROA	-0.044	-0.027	0.017	0.06
Intangibility	0.173	0.142	-0.031	0.00
InstOwn	0.561	0.456	-0.105	0.00

Table 3: Tariff cuts and supplier performance

This table presents results from a difference-in-difference analysis of effect of supplier response to import tariff cuts on supplier outcomes. Our sample is aggregated at the supplier-year level for all firms that report major supply-chain relation as captured by Compustat segment data. Our sample spans 1999 to 2022. ProfitMargin is defined as net income divided by total sales and Relationsales/customer is defined as relationship sales divided by number of key customers reported. BHR measures the next one year buy and hold return. All models include firm, and industry-year fixed effects. Control variables are measured in year t-1. Appendix A provides detailed definitions of the variables. Standard errors are corrected for heteroskedasticity and are clustered at the 3-digit NAICS industry level. *t*-statistics are reported in parenthesis. The symbols ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)
	ProfitMargin	Relationsales/#customer
Decdummy	-0.023**	-22.438**
	(-2.10)	(-2.14)
Observations	15,239	15,377
Firm Fixed Effect	Yes	Yes
Ind-Year Fixed Effect	Yes	Yes
Controls	Yes	Yes
Adj. R-squared	0.662	0.855

Table 4: Import tariff cuts and RSI

This table presents results from a difference-in-difference analysis of changes in R&D investment and trade credit in response to import tariff cuts. Our sample is aggregated at the supplier-year level for all firms that report major supply-chain relation as captured by Compustat segment data. Our sample spans 1999 to 2022. TradeCredit is defined as trade credit divided by total sales and R&DIntensity is defined as R&D divided by total assets. Columns 1 and 2 report result for full sample. Columns 3 and 4 report results of subsample analysis to examine the substitution between trade credit increased and R&D decreases. Column 3 consists of firm-years for which suppliers increase trade credit and Column 4 include subsample for which suppliers reduce trade credit. All models include firm, and industry-year fixed effects. Control variables are measured in year t-1. Appendix A provides detailed definitions of the variables. Standard errors are corrected for heteroskedasticity and are clustered at the 3-digit NAICS industry level. *t*-statistics are reported in parenthesis. The symbols ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
	TradeCredit (S)	R&DIntensity (S)	R&DIntensity (S)	R&DIntensity (S)
	Full sample	Full sample	Trade credit ↑	Trade credit ↓
Decdummy	1.367**	-0.526***	-0.832***	0.037
	(2.53)	(-4.81)	(-6.86)	(0.21)
RelationshipSales	-2.302**	0.093	-0.284	0.248
	(-2.53)	(0.32)	(-0.41)	(0.70)
Log(Age)	-1.642***	0.992**	0.916**	1.149
	(-3.20)	(2.51)	(2.56)	(1.60)
Log(Asset)	-0.515	-2.795***	-3.011***	-2.838***
	(-0.60)	(-3.62)	(-3.53)	(-3.84)
Cash	5.760*	-4.227***	-5.165***	-3.451***
	(1.90)	(-4.15)	(-5.36)	(-3.17)
Dividends	-13.643***	-5.563	-10.758	-2.047
	(-3.00)	(-1.45)	(-1.61)	(-0.72)
Repurchases	-2.507	2.197	-0.707	9.897***
	(-0.97)	(1.60)	(-0.37)	(2.87)
FreeCashFlow	-2.493	-1.289	-1.816	-0.312
	(-0.86)	(-0.73)	(-0.74)	(-0.22)
Leverage	-3.353***	-1.035**	-1.079	-0.601
	(-2.84)	(-2.05)	(-1.19)	(-1.16)
Market-to-book	1.326***	1.197***	1.317***	1.106***
	(8.37)	(4.86)	(4.24)	(5.92)
OperatingIncome	-15.711***	-9.427***	-8.691***	-11.681***
	(-5.36)	(-4.54)	(-5.03)	(-3.86)
PriorRet	3.002***	0.509	0.540	0.546*
	(10.84)	(1.52)	(1.14)	(1.92)
SalesGrowth	0.479	-0.220	0.222	-0.230
	(1.12)	(-1.14)	(1.06)	(-0.79)
ROA	6.697***	-0.104	0.085	-0.842
	(8.37)	(-0.18)	(0.07)	(-0.70)
Intangibility	2.486	-2.734	-3.095	-1.092
	(0.88)	(-1.00)	(-1.41)	(-0.32)
InstOwn	3.826***	0.297	0.697	0.231
	(4.05)	(0.56)	(0.96)	(0.50)
Observations	15,377	15,377	7,474	6,555
Firm Fixed Effect	Yes	Yes	Yes	Yes
Ind-Year Fixed Effect	Yes	Yes	Yes	Yes
Adj. R-squared	0.469	0.842	0.816	0.851

Table 5: Tests for causality of import tariff cuts and RSI

This table presents the findings of the robustness of our baseline tests of changes in R&D investment and trade credit in response to import tariff cuts. Our sample is aggregated at the supplier-year level for all firms that report major supply-chain relation as captured by Compustat segment data. Our sample spans 1999 to 2022. R&DIntensity is defined as R&D divided by total assets and TradeCredit is defined as trade credit divided by total sales. Panel A reports the results of a timing test. $Decdummy_{t-x\ (}Decdummy_{t+x)}$ is equal to one if the 3-digit NAICS industry faces a tariff cut of 10% of ore more in year *t-x (t+x).* Panel B presents results from falsification tests where tariff cuts are assigned to random firm-years. Panel C reports the results of a stacked regression that uses event-specific datasets by identifying a clean control set of supplier that never realize import tariff cut during the sample period. for each rate cut, we identify an event window of -3 to +3 years around rate cuts and stack firm-years of the treated and control firms. We then conduct DiD estimation on the stacked sample using firm fixed effects and event-year fixed effects. Panel D reports estimates of our findings in Table 4 for an entropy balanced sample and Panel E presents robustness of Table 4 results for different levels of tariff cuts. Decdummy1, Decdummy2, and Decdummy3 take a value of 1 if the 3-digit NAICS industry faces an import tariff cut of 2%, 15%, and 20% respectively. Control variables from Table 4 are included but not reported for brevity. All models include firm, and industry-year fixed effects. Appendix A provides detailed definitions of the variables. Standard errors are corrected for heteroskedasticity and are clustered at the 3-digit NAICS industry level. *t*-statistics are reported in parenthesis. The symbols ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Timing of tariff cuts and RSI changes

	(1)	(2)
	TradeCredit (S)	R&DIntensity (S)
$Decdummy_{t-4}$	-0.114	0.715
	(-0.24)	(0.78)
$Decdummy_{t-3}$	0.573	0.761
	(0.73)	(0.89)
Decdummyt-2	0.100	-0.112
	(0.15)	(-0.20)
$Decdummy_{t-1}$	0.344	-0.496
	(0.31)	(-1.07)
$Decdummy_{t}$	1.388	-0.678***
	(1.62)	(-3.20)
$Decdummy_{t+1}$	2.096***	-0.688***
	(3.13)	(-2.87)
$Decdummy_{t+2}$	0.977	-1.013**
	(1.25)	(-2.56)
$Decdummy_{t+3}$	0.434	-0.620
	(0.64)	(-1.19)
$Decdummy_{t+4}$	0.589	-0.245
	(0.66)	(-0.98)
Observations	15,377	15,377
Firm Fixed Effect	Yes	Yes
Industry-Year Fixed Effect	Yes	Yes
Controls	Yes	Yes
Adj. R-squared	0.456	0.846

Panel B: Placebo tests

	(1)	(2)
	TradeCredit (S)	R&DIntensity (S)
Placebo	-0.294	-0.171
	(-0.68)	(-0.93)
Observations	15,377	15,377
Firm Fixed Effect	Yes	Yes
Ind-Year Fixed Effect	Yes	Yes
Control	Yes	Yes
Adj. R-squared	0.469	0.842

Panel C: Stacked Regression

	(1)	(2)
	TradeCredit (S)	R&DIntensity (S)
Decdummy	1.660*	-0.690***
	(1.82)	(-2.69)
Observations	28,907	28,305
Firm Fixed Effect	Yes	Yes
Ind-Year Fixed Effect	Yes	Yes
Event-Year Fixed Effect	Yes	Yes
Adj. R-squared	0.686	0.902

Panel D: Entropy balanced sample

	(1)	(2)
	Entropy balanced sample	
	TradeCredit (S)	R&D intensity (S)
Decdummy	1.035**	-0.510***
	(2.01)	(-6.57)
Observations	15,377	15,377
Firm Fixed Effect	Yes	Yes
Ind-Year Fixed Effect	Yes	Yes
Control	Yes	Yes
Adj. R-squared	0.863	0.564

Panel E: Different levels of tariff cuts and RSI

	(1)	(2)	(3)	(4)	(5)	(6)
	TradeCredit (S)			R&DIntensity (S)		
Decdummyalt1	0.577			-0.454***		
	(1.31)			(-3.01)		
Decdummyalt2		1.153*			-0.580***	
		(1.75)			(-2.90)	
Decdummyalt3			1.413**			-0.470**
			(2.25)			(-2.42)
Observations	15,377	15,377	15,377	15,377	15,377	15,377
Firm Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Ind-Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-squared	0.469	0.469	0.469	0.842	0.842	0.842

Table 6: Supplier response to tariff cuts and consequences

This table presents results from a difference-in-difference analysis of effect of supplier response to import tariff cuts on corporate outcomes. Our sample is aggregated at the supplier-year level for all firms that report major supply-chain relation as captured by Compustat segment data. Our sample spans 1999 to 2022. ProfitMargin is defined as net income divided by total sales and Relationsales/customer is defined as relationship sales divided by number of key customers reported. Columns 1 and 2 report results for profit margin and columns 3 and 4 present findings for Relationsales/#customer. Tradecredit_Increase (Tradecredit_NoIncrease) takes a value of 1 if suppliers increase (do not increase) trade credit YoY. R&D_Decrease (R&D_NoDecrease) takes a value of 1 if suppliers reduce (do not reduce) R&D investment YoY. Control variables from Table 4 are included but not reported for brevity. All models include firm, and industry-year fixed effects. Appendix A provides detailed definitions of the variables. Standard errors are corrected for heteroskedasticity and are clustered at the 3-digit NAICS industry level. *t*-statistics are reported in parenthesis. The symbols ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
	ProfitMargin		Relationsales/#customer	
Decdummy *Tradecredit_Increase	0.056		-7.440	
	(1.18)		(-0.73)	
Decdummy *Tradecredit_NoIncrease	-0.149***		-46.536**	
	(-3.10)		(-2.03)	
Decdummy *R&D_NoDecrease		0.018		-32.827
		(0.49)		(-1.58)
Decdummy *R&D_Decrease		-0.056***		-14.562
		(-4.34)		(-1.25)
P-value of difference	*0.029*	*0.057*	*0.149*	*0.370*
Observations	15,239	15,239	15,377	15,377
Firm Fixed Effect	Yes	Yes	Yes	Yes
Ind-Year Fixed Effect	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Adj. R-squared	0.662	0.663	0.855	0.855

Table 7: Import tariff cuts and RSI substitution: cross sectional analysis

This table presents the findings of cross-sectional variation of our baseline results with suppliers' product market strength and customer holdup risks. Our sample is aggregated at the supplier-year level for all firms that report major supply-chain relation as captured by Compustat segment data. Our sample spans 1999 to 2022. R&DIntensity is defined as R&D divided by total assets and TradeCredit is defined as trade credit divided by total sales. Decdummy is equal to one if the 3-digit NAICS industry faces a tariff cut of 10% of ore more in a year. Panel A presents the findings for variation in suppliers' product marker power strength. Columns 1-3 (4-6) respectively define suppliers to have low market power if they have below median HHI, above median product fluidity and above median product similarity. Panel B presents the findings for variation in customer holdup risks. Columns 1-2 (5-6) define customers as high holdup if their leverage, and industry HHI is above median respectively. Columns 3 and 4 (7 and 8) define suppliers to be facing high holdup risk if they share low common block ownership (below median) with their customers and have below median relationship duration. Control variables from Table 3 are included but not reported for brevity. All models include firm, and industry-year fixed effects. Appendix A provides detailed definitions of the variables. Standard errors are corrected for heteroskedasticity and are clustered at the 3-digit NAICS industry level. t-statistics are reported in parenthesis. The symbols ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Cross-sectional variation with supplier market power

	(1)	(2)	(3)	(4)	(5)	(6)
	TradeCredit (S)			R&DIntensity (S)		
	HHI (S)	Product Fluidity(S)	Product Similarity (S)	HHI (S)	Product Fluidity(S)	Product Similarity (S)
Decdummy * LowMarketPower	2.818***	2.463***	3.089***	-0.754***	-0.781**	-0.619**
	(4.90)	(5.61)	(8.32)	(-3.05)	(-2.55)	(-2.22)
Decdummy * HighMarketPower	0.407	0.632	0.138	-0.362***	-0.099	-0.437**
	(0.73)	(0.98)	(0.22)	(-3.07)	(-0.64)	(-2.32)
LowMarketPower	0.160	-0.613*	-0.615	0.258**	0.425	0.475
	(0.36)	(-1.89)	(-0.91)	(2.07)	(1.67)	(1.17)
Observations	15,203	15,111	15,203	15,203	15,111	15,203
Firm Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Ind-Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-squared	0.470	0.467	0.470	0.844	0.844	0.844

Panel B: Cross-sectional variation with customer holdup risk

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	TradeCredit (S)				R&DIntensity (S)			
	Leverage (C)	HHI (C)	BlockOverlap	Relationship Duration	Leverage (C)	HHI (C)	BlockOverlap	Relationship Duration
Decdummy * HighHoldUp	0.876*	0.781	1.076**	2.683***	-0.849***	-0.746***	-0.578***	-0.396**
	(1.89)	(1.20)	(2.31)	(4.23)	(-8.39)	(-6.43)	(-3.99)	(-2.24)
Decdummy * LowHoldUp	1.714***	2.070***	3.820***	0.117	-0.284	-0.268	-0.084	-0.645***
	(3.68)	(4.99)	(2.82)	(0.24)	(-1.51)	(-1.60)	(-0.24)	(-9.11)
HighHoldUp	-0.155	0.112	0.161	-0.948**	0.106	0.131	-0.004	-0.354
	(-0.44)	(0.30)	(0.68)	(-2.05)	(0.63)	(0.51)	(-0.02)	(-1.51)
Observations	15,352	15,377	15,377	15,377	15,352	15,377	15,377	15,377
Firm Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ind-Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-squared	0.469	0.469	0.469	0.469	0.842	0.842	0.842	0.842

Table 8: Import tariff cuts and RSI: cross sectional variation with supply chain dependence

This table presents the findings of cross-sectional variation of our baseline results with firm's supply chain dependence. Our sample is aggregated at the supplier-year level for all firms that report major supply-chain relation as captured by Compustat segment data. Our sample spans 1999 to 2022. TradeCredit is defined as trade credit divided by total sales and R&DIntensity is defined as R&D divided by total assets. Decdummy is equal to one if the 3-digit NAICS industry faces a tariff cut of 10% of ore more in a year. Columns 1-3 (4-6) respectively define suppliers to have high supply chain dependence if sales to key customers account for higher percentage of total sales (above median), they have a unique customer, and their size is below median assets. Control variables from Table 3 are included but not reported for brevity. All models include firm, and industry-year fixed effects. Appendix A provides detailed definitions of the variables. Standard errors are corrected for heteroskedasticity and are clustered at the 3-digit NAICS industry level. t-statistics are reported in parenthesis. The symbols ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	TradeCredit (S)			R&DIntensity (S)		
	UniqueCustomer	HighRelationsales	SmallSupplier	Unique Customer	HighRelationsales	SmallSupplier
Decdummy * HighDependence	1.814***	1.626***	2.090**	-0.243	-0.331	-0.349
	(3.21)	(3.02)	(2.33)	(-1.47)	(-1.31)	(-1.39)
Decdummy * LowDependence	0.957	0.882	0.559*	-0.804***	-0.704***	-0.676**
	(0.93)	(1.01)	(1.92)	(-5.82)	(-3.58)	(-2.10)
SCDependence	-0.170	-0.858**	1.856***	-0.319	-0.223**	-1.042***
	(-0.62)	(-2.14)	(3.86)	(-1.10)	(-2.06)	(-3.46)
Observations	15,377	15,377	15,377	15,377	15,377	15,377
Firm Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Ind-Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-squared	0.469	0.469	0.469	0.842	0.842	0.843

Table 9: Import tariff cuts and RSI: variation with supplier's financial strength

This table presents the findings of cross-sectional variation of our baseline results with supplier's financial strength. Our sample is aggregated at the supplier-year level for all firms that report major supply-chain relation as captured by Compustat segment data. Our sample spans 1999 to 2022. TradeCredit is defined as trade credit divided by total sales and R&DIntensity is defined as R&D divided by total assets. Decdummy is equal to one if the 3-digit NAICS industry faces a tariff cut of 10% of ore more in a year. Columns 1-3 (4-6) respectively define suppliers to have high financial strength if they have below median leverage, above median Altman Z-score, and above median cash holding. Control variables from Table 3 are included but not reported for brevity. All models include firm, and industry-year fixed effects. Appendix A provides detailed definitions of the variables. Standard errors are corrected for heteroskedasticity and are clustered at the 3-digit NAICS industry level. *t*-statistics are reported in parenthesis. The symbols ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	TradeCredit (S)			R&DIntensity (S)		
	Leverage (S)	ZScore (S)	Cash (S)	Leverage (S)	ZScore (S)	Cash (S)
Decdummy * StrongFinance	1.957***	2.417***	2.100**	-0.757	-0.457	-0.362*
	(3.38)	(4.73)	(2.17)	(-1.62)	(-1.59)	(-1.91)
Decdummy * WeakFinance	0.672	0.342	0.722	-0.322	-0.598	-0.744**
	(0.93)	(0.26)	(1.52)	(-1.65)	(-1.38)	(-2.29)
StrongFinance	0.088	-0.012	0.946**	-0.186	0.244	-0.349**
	(0.16)	(-0.03)	(2.16)	(-1.23)	(0.70)	(-2.62)
Observations	15,377	15,377	15,377	15,377	15,377	15,377
Firm Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Ind-Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R-squared	0.469	0.469	0.468	0.842	0.842	0.842

Table 10: Tests for alternate explanations: tariff cuts, RSI, and earnings management

This table examines earnings management as an alternate explanation of our main results. Our sample is aggregated at the supplier-year level for all firms that report major supply-chain relation as captured by Compustat segment data. Our sample spans 1999 to 2022. R&DIntensity is defined as R&D divided by total assets and TradeCredit is defined as trade credit divided by total sales. Decdummy is equal to one if the 3-digit NAICS industry faces a tariff cut of 10% of ore more in a year. Columns 1 and 3 examine variation of baseline results with earnings accruals (HighAccruals take a value of one for above median accruals) and Columns 2 and 4 examine difference in our finding between suppliers that just miss (actual EPS misses analyst estimates by less than 1%) or just beat ((actual EPS beats analyst estimates by less than 1%) earnings versus firms that meet earnings estimates (base case). Control variables from Table 4 are included but not reported for brevity. All models include firm, and industry-year fixed effects. Appendix A provides detailed definitions of the variables. Standard errors are corrected for heteroskedasticity and are clustered at the 3-digit NAICS industry level. *t*-statistics are reported in parenthesis. The symbols ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
	TradeCredit (S)		R&DIntensity (S)	
Decdummy	0.871	0.746	-0.652***	-0.535***
	(1.44)	(1.33)	(-2.70)	(-3.80)
Decdummy *HighAccruals	1.033*		0.260	
	(1.80)		(0.66)	
HighAccruals	1.316***		-0.247	
	(5.68)		(-1.40)	
Decdummy *JustMiss		2.258		-1.079
		(0.88)		(-0.93)
Decdummy *JustBeat		1.122		0.598
		(0.77)		(0.69)
JustBeat		-0.234		-0.218
		(-0.49)		(-1.35)
JustMiss		-0.224		0.191*
		(-0.85)		(1.77)
Observations	15,377	10,359	15,377	10,359
Firm Fixed Effect	Yes	Yes	Yes	Yes
Ind-Year Fixed Effect	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Adj. R-squared	0.470	0.536	0.842	0.861

Table 11: Import tariff cuts and alternate responses by suppliers

This table presents the impact of import tariff cuts on other supplier actions such as number of key customers and suppliers' investment in customer equity. Our sample is aggregated at the supplier-year level for all firms that report major supply-chain relation as captured by Compustat segment data. Our sample spans 1999 to 2022. Decdummy is equal to one if the 3-digit NAICS industry faces a tariff cut of 10% of ore more in a year. Control variables from Table 4 are included but not reported for brevity. All models include firm, and industry-year fixed effects. Appendix A provides detailed definitions of the variables. Standard errors are corrected for heteroskedasticity and are clustered at the 3-digit NAICS industry level. *t*-statistics are reported in parenthesis. The symbols ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)
	#Customers	EquityInvestment
Decdummy	0.200**	0.764***
	(2.60)	(2.83)
Observations	15,377	15,377
Firm Fixed Effect	Yes	Yes
Ind-Year Fixed Effect	Yes	Yes
Controls	Yes	Yes
Adj. R-squared	0.637	0.652