(Don't) Feed the Mouth that Bites: Trade Credit Strategies among Rival Customers Sharing Suppliers

Abstract

Product market rivals often source upstream inputs from the same set of suppliers. Because these inputs are typically sold on credit, sharing a supplier could create incentives for customers to strategically demand trade credit terms in order to prevent the supplier from providing liquidity to rivals. In this paper, we empirically document this strategy and show that customers prolong payable days with suppliers that also sell to their rivals. For identification, we exploit the U.S. government's *QuickPay* reform, which permanently shortened the government's payable days to small business contractors, creating an exogenous liquidity influx. We find that after *QuickPay*, affected contractors extend more trade credit to their corporate customers. In response, rivals of these corporate customers begin to extract more trade credit from the shared suppliers, indicating their efforts to pull away these suppliers' liquidity from the competitors already benefiting from *QuickPay*. Our paper reveals an underexplored incentive in supply-chain relationships, namely, the incentive to avoid "feeding the mouth that bites," and how it shapes the allocation of trade credit.

Key words: Trade credit, supplier-customer chain, QuickPay, common suppliers, liquidity influx

1. Introduction

In 2001, Home Depot sharply changed its policies on trade credit payment to suppliers, after noting a gap between the company's days payable and that of its competitors. The then-CFO Carol Tomé explained:

> "*We used to pay our vendors faster than any other retail – and a lot faster than Lowe's…We really were the First National Bank of Home Depot. And I'm sorry, but we were subsidizing Lowe's [growth]. Our days payable is now 50, and before it was less than 30. Some of our vendors said to us, 'You know, we always wondered how long before you changed your policy.*"[1]

This example depicts a competitive incentive facing product market rivals that source upstream inputs from the same set of suppliers, as illustrated in the following plot.

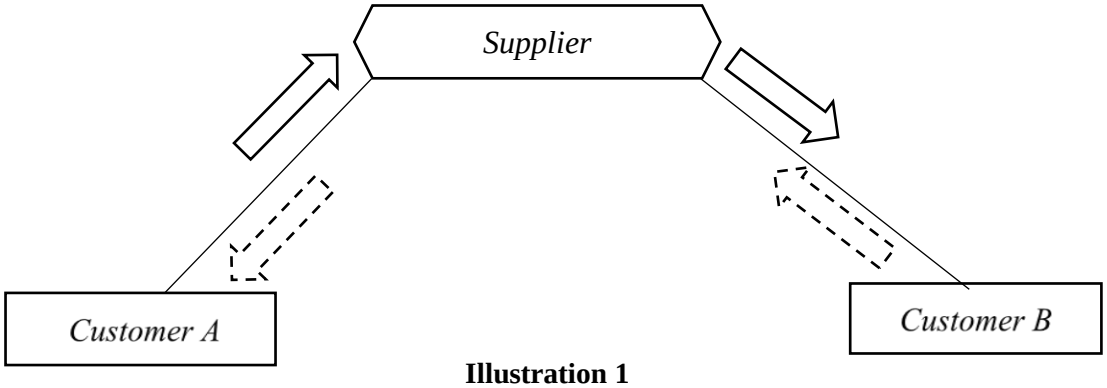

Illustration 1

Trade credit is among the most important sources of short-term financing for firms in the United States (Petersen and Rajan, 1997). As highlighted in Strom (2015), even the largest and most established companies are asking their suppliers to provide payables with generous terms: by prolonging payment to suppliers, companies can grow working capital and maximize their use of cash flows for higher returns. Suppliers, however, are often constrained regarding their ability to extend trade credit. When one customer (e.g., customer *A* in Illustration 1) makes a speedy payment, it unlocks the supplier's liquidity presently tied up with receivables, allowing it to offer

[1] Lloyd M.E. "Home Depot CEO: CEO won't accept sales cannibalization.", *Dow Jones Newswires*, 2001.

more trade credit to the other customer *B*. This flow of liquidity, as demonstrated by the solid arrows, can be particularly concerning if both firms (*A* and *B*) compete in the product market. In such a case, firm *A* becomes a de facto "shadow financier" and is effectively subsidizing the rival's growth, empowering it to take a stronger market position. Recognizing this threat, firm *A* may deliberately prolong its payable days with the common supplier to delay cash flows received by the supplier and consequentially, the rival – as demonstrated by the dashed arrows. The incentive here is clear: to avoid "feeding the mouth that bites." In this paper, we empirically demonstrate this tactic among rival customers relying on a common set of suppliers.

Over past decades, customers have increasingly relied on common upstream firms as the suppliers.[2] In the face of financial constraints, these suppliers often need to apportion their limited supply of trade credit among (competing) customers. This circumstance echoes a recent study by Chakroborty, Goldstein, and MacKinlay (2018), who find that better lending opportunities in a booming real estate market lead constrained banks to cut lending to the commercial sector (a crowding-out effect).[3] This substitution in credit provision reflects a supply effect – that is, banks purposefully shift lending to more lucrative sectors at the expense of less attractive ones. In our setting, however, the incentive to avoid "feeding the mouth that bites" reflects a demand effect set off by customers. Unlike bank borrowers, customers in the supply chain are often in a stronger market position than suppliers, and thus they can impose substantial influence on suppliers' decisions, including the provision of trade credit. This feature gives rise to a distinct phenomenon in which customers are capable of, and are incentivized to, tactically navigate suppliers' trade credit away from the rivals – adding to the more conventional (and better understood) rivalry behavior in the form of product pricing, employee poaching, and advertising.

[2] Figure 1 shows that the average number of rival customers sharing common suppliers goes up by more than 300% from mid 1980s to 2020.

[3] It also echoes the internal capital market literature, which shows that constrained headquarters allocate resources to more profitable projects at the expense of others (e.g., Stein, 1997; Scharfstein and Stein, 2000).

Empirically demonstrating the tactic of avoiding "feeding the mouth that bites" is challenging because any observed trade credit terms constitute an equilibrium outcome. The two underlying forces leading to such an equilibrium, however, are unobservable. First, we do not observe the off-equilibrium scenario where one customer willingly accelerates payment to the supplier, resulting in additional trade credit extended to the rival – the premise of "feeding the mouth that bites" (i.e., the solid arrows in Illustration 1). Second, we also do not observe the customer consequently withholding trade credit payment, in an attempt to counter "feeding the mouth that bites" (i.e., the dashed arrows). To overcome these challenges, we employ a unique setup to empirically uncover and disentangle the two underlying forces, as demonstrated in Illustration 2.

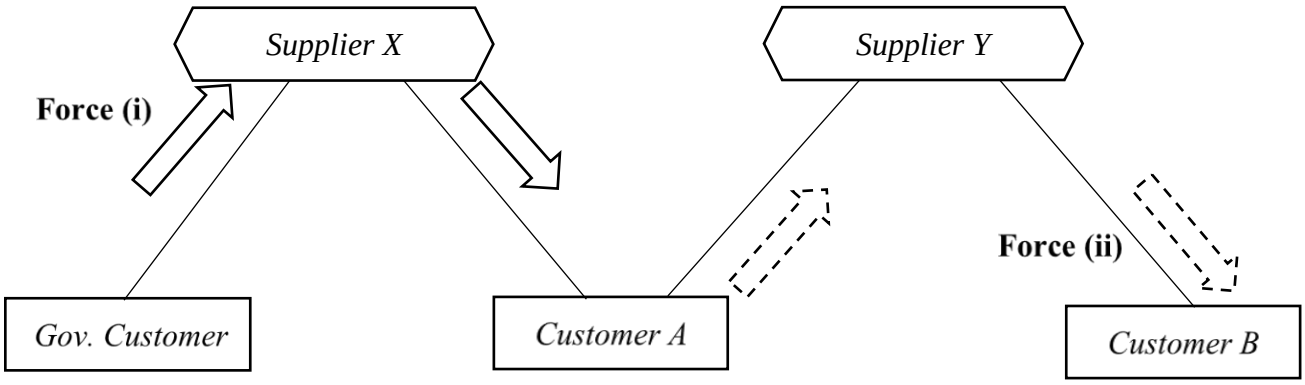

Illustration 2

In 2011, the U.S. federal government initiated the *QuickPay* reform, which mandated federal government agents to pay their small business contractors within 15 days of the receipt of invoice, a significant acceleration from the previously 30-day maximum. Barrot and Nanda (2020) document that *QuickPay* affected a total of $70 billion in annual contract value, and impacted almost every industry sector due to the massive footprint of federal government procurement. As demonstrated by the solid arrows in Illustration 2, this acceleration creates a liquidity influx to supplier *X* – largely exogenous to the supplier's a priori trade credit allocation, and allows us to observe whether the supplier re-distributes freed-up liquidity to its non-government customer *A* in

the form of increased trade credit. This dynamic reflects the first underlying force we aim to uncover.

Next, we expand the supplier-customer chain to include customer *B* – a rival of firm *A* that relies on a common set of suppliers *Y*. Provided customer *A* having received more trade credit from the *QuickPay* influx, we continue to examine whether rival customer *B* attempts to grab extra trade credit from suppliers *Y*, so that it can capture *Y*'s liquidity and prevent *A* from obtaining any additional trade credit. This dynamic, shown by the dashed arrows, reflects the second underlying force.[4]

Visually, Illustration 1 resembles a reduced form of Illustration 2, with the latter folded along "customer *A*" as the pivot. By unfolding Illustration 1 and leveraging the plausibly exogenous *QuickPay* reform, our empirical strategy aims to adopt a unified framework to unveil the two economic forces that are otherwise embedded in equilibrium outcomes. Hence, our subsequent analyses proceed in two parts, corresponding to the two forces.

In the first part, we use a difference-in-differences setting to analyze how suppliers distribute the unlocked liquidity following the adoption of *QuickPay*. A treated supplier is a small business that has outstanding contracts with federal government agents at the time of *QuickPay* (such as supplier *X* in Illustration 2); a treated customer is a non-government customer served by at least one treated supplier (customer *A* in Illustration 2). We manually collect the amount of pair-level trade credit that each supplier extends to its customers. Our sample includes 2,229 supplier-customer-year observations (representing 831 unique customer-supplier pairs) between 2008 and 2013, a window containing three years prior to *QuickPay* reform and three years after.

We then compare how the amount of trade credit between the treated supplier (*X*) and customer (*A*) changes around *QuickPay* (i.e., the first difference) with the trade credit change between the treated customer (*A*) and a control supplier – a supplier that is unaffected by *QuickPay*

[4] Supplier *Y* is willing to accommodate *B*'s request for additional trade credit, as a way to retain the customer from switching to supplier *X*. This motive is relevant because, as we later observe, suppliers *Y* and *X* are often substitutable from *B*'s perspective.

(i.e., the second difference). While the first difference may capture a general time trend in trade credit provisions that coincides with the *QuickPay* reform, the second difference nets it out. In our estimation, we include supplier-customer pair fixed effects to absorb time-invariant characteristics leading to the match between a supplier and customer, and to isolate the time-series variation in pairwise trade credit surrounding the reform.

In support of Force (i), we show that the government payment acceleration from *QuickPay* leads treated suppliers to extend more trade credit to their non-government customers. These customers, on average, receive 4.5% more payables relative to sales (benchmarked against control suppliers). This effect is both statistically and economically significant; it remains after we control for a battery of factors, including the relationship between suppliers and customers in business duration and intensity, as well as supplier and customer firm characteristics.

Furthermore, this effect exhibits large variation depending on the relative market power in the cross-section of supplier-customer pairs. Specifically, treated customers that are larger in size relative to treated suppliers, and that can access a broader network of vendors (such that their purchases do not heavily rely on any one of them) experience greater increases in the payables following *QuickPay*. This result is perhaps unsurprising given that suppliers affected by the reform are small business contractors; their decision to allocate the freed-up liquidity is thus likely catered to customers with the strongest market positions. This interpretation is consistent with Giannetti, Serrano-Velarde, and Tarantino (2021), who document that customers with greater bargaining power obtain more trade credit than their low-bargaining-power counterparts, and following a regulatory shock that decreases suppliers' cost of trade credit provision, these high-bargaining-power customers are rewarded with particularly more payables. In a similar spirit, Murfin and Njoroge (2015) and Barrot (2016) find that buyers often impose heavy trade credit demands on

smaller vendors to the extent that the suppliers have to sacrifice their own growth, leading to deadweight losses.[5]

The second part of our analyses builds on these findings to uncover Force (ii) of our setup. For each *QuickPay* treated customer (*A*), we identify its product market rival firms (customer *B*) that rely on a common set of suppliers (*Y*). We consider several aspects of product market competition to identify rivals, including whether firm *B* operates in the same industry as firm *A*, whether the two have a high level of product similarity, whether they have comparable market dominance, and whether they are geographically close to each other. This identification intends to capture firms that are in a confrontational position (as in the case of Home Depot and Lowe's), and thus are likely subject to the incentive of avoiding "feeding the mouth that bites."

We find that prior to *QuickPay*, the respective trade credit received by the treated customer (*A*) and rival firm (*B*) from their common suppliers (*Y*) does not exhibit significant differences. However, the pattern begins to diverge once the treated customer (*A*) gains additional payables following *QuickPay*. Specifically, the trade credit from the common suppliers (*Y*) now shifts disproportionally toward the rival firm (*B*) away from the treated customer (*A*): the rival firm now obtains 7% more payables (proportional to sales) whereas the treated customer's payables from *Y* remains nearly unchanged. This pattern is consistent with the prediction of Force (ii) and the dashed arrows in Illustration 2.

More importantly, the disproportional shift is only evident among rival firms of the treated customer. In a falsification setting, we identify a group of non-rivals that similarly rely on a same set of suppliers (*Y*) as the treated customer (*A*) but do not compete with the treated customer in product markets. In such a case, the disproportional shift in supplier *Y*'s trade credit disappears. The contrast in the two scenarios indicates that it is the rival firms – most incentivized to avoid "feeding the mouth that bites" – that strategically pull away trade credit from the common suppliers

[5] Related literature on trade credit and market power includes Brennan, Maksimovic, and Zechner (1988), Dass, Kale, and Nanda (2015), Fabbri and Klapper (2016), Peura, Yang, and Lai (2017), and Gyiman, Machokoto, and Sikochi (2020).

before it flows into competing customers' pockets. In the cross-section, the disproportional shift is more prominent when common suppliers (*Y*) are more important to the treated customer (*A*), that is, when suppliers *Y* are more capable of "feeding" customer *A*, and as such, avoiding the "feeding" becomes more germane.

The tactic of avoiding "feeding the mouth that bites" is different from the notion of "keeping up with the Joneses", in which case a rival firm spots peers' additional trade credit (due to *QuickPay*) and instinctively demand more from their own suppliers in a blanket manner. In contrast, the demand under "avoiding feeding the mouth that bites" is targeted at suppliers that commonly serve both the rival and the peers. This tactic is also different from the notion of "patching up the wounds", in which case the rival's market position is harmed by empowered peers (due to the additional trade credit from *QuickPay*), prompting it to solicit more trade credit to cover the threatened market position and worsening inventory turnover. Our data allow us to depict rich nuances of our main results to rule out these alternative explanations.

The tactic we uncover here echoes the one documented in Cao, Fang, and Lei (2020). This study finds that firms strategically publicize adverse news of rivals – namely, negative peer disclosure (NPD) – in an attempt to implicitly disclose favorable information about themselves and increase rivals' cost of capital. Similar to NPD, we discover a strategy that aims to benefit firms at the expense of rivals. But different from NPD, this strategy stems from the supplier-customer chain and is carried out by rivals relying on a common set of suppliers. To this extent, our setting is related to, yet distinct from, the recent literature on common ownership, which examines firms' behavior and interactions when they are held by common shareholders.[6] Instead

[6] This literature examines settings of mergers and acquisitions (e.g., Matvos and Ostrovsky, 2008; Harford, Jenter, and Li, 2011), product markets (e.g., He and Huang, 2017; Azar, Schmalz, and Tecu, 2018; Freeman 2019; Dennis, Gerardi, and Schenone, 2020; Koch, Panayides, and Thomas, 2020), corporate governance and compensation (e.g., Kwon, 2016; Liang, 2016; Kang, Luo, and Na, 2017; He, Huang, and Zhao, 2019; Edmans, Levit, and Reilly, 2019; Antón et al., 2020), managerial incentives (e.g., Gilje, Gormley, and Levit, 2020), financial reporting (e.g., Jung, 2013; Park, Sani, Shroff, and White, 2019; He, Li, and Yeung, 2020), and cost of capital (He, Liang, Wang, and Xia, 2020).

of focusing on shareholders, we examine common stakeholders – the suppliers, and how these common stakeholders elicit strategic reactions among competing customers.

Several recent studies explore stakeholders' strategic interactions in the context of trade credit. For example, Chod, Lyandres, and Yang (2018) develop a theoretical model to show that trade credit provided by a supplier allows cash constrained retailers to increase purchases from competing suppliers, leading to a free rider problem. Consequently, suppliers, especially those serving a common customer, extend less trade credit in equilibrium. The authors find support for their model predictions using simulated and real data. Different from their context, we examine strategic interactions when customers share a common set of suppliers. Our setting is more similar to that of Giannetti, Serrano-Velarde, and Tarantino (2021), who show that suppliers offer trade credit to ease competition among customers, especially when customers deal with a common supplier. The idea is that a supplier has to reward customers with high bargaining power, but does not want to do so by means of price discounts, which would amplify these customers' market power over other buyers of the supplier, leading to sales cannibalization and reducing the supplier's profit. Instead, the supplier offers trade credit to the high-bargaining-power customers, which is de facto price discounts without rendering excessive market power to these customers. Different from that paper's focus on the common supplier's motives, we instead examine the motives of competing customers served by a common set of suppliers.

Our empirical strategy centers on the *QuickPay* reform to identify exogenous liquidity influx to suppliers. We show that such influx benefits the suppliers' non-government customers and in turn, prompts rival firms to pull trade credit away from the benefiting customers. This finding adds to Barrot and Nanda (2020), who document that freed-up financial constraints from *QuickPay* increase treated suppliers' employment growth. Moreover, these suppliers begin to pay their own suppliers in a more timely manner, pointing to *QuickPay*'s upstream spillover effects. Complementing their findings, our results document a downstream effect on the customers of the

treated suppliers. Furthermore, this downstream effect spills over along an extended supply chain to influence the behavior of rivals of the benefiting customers.

Trade credit provided by nonfinancial corporations in the U.S. stands at $4.1 trillion as of 2020.[7] Prior literature explores the economic motivation for trade credit provision, including information asymmetry (Smith, 1987; Biais and Gollier, 1997), implicit guarantee of product quality (Lee and Stowe, 1993; Long, Malitz, and Ravid, 1993; Petersen and Rajan, 1997), liquidity insurance (Ng, Smith, and Smith, 1999; Wilner, 2000; Cunat, 2007), product characteristics and lender relationships (Giannetti, Burkart, and Ellingsen, 2011), and buyer opportunism (Burkart and Ellingsen, 2004; Fabbri and Menichini, 2010; Chod, 2016). With a few exceptions, the empirical side of this literature largely relies on aggregate trade credit data in the forms of receivables or payables. Exploiting pair-wise trade credit data between a supplier and customer, we contribute to this literature by analyzing how customers' competitive incentives shape the allocation of trade credit along the supply chain.

2. Data, Sample Construction, and Summary Statistics

2.1. Data, sample, and variable construction

Our primary data source comes from a manual collection of trade credit disclosures in US public firms' annual reports (10Ks). Two Financial Accounting Standards Board (FASB) regulations provide the basis of these disclosures: First, Statement of Financial Accounting Standards (SFAS) No. 14 requires that public firms in the U.S. report major customers in their 10K disclosures to the Securities and Exchange Commission (SEC).[8] Second, FASB No. 105 requires firms to disclose their credit concentrations, for which accounts receivable balances to major customers frequently qualify. We start with Compustat supplier firm-years that report sales to at least one major customer, excluding suppliers in financial (SIC codes 6000-6999) and utility

[7] https://www.federalreserve.gov/releases/z1/20210923/html/b103.htm

[8] SFAS No. 14 requires sets 10% of sales as the threshold for defining a major customer, but firms often also voluntarily disclose major customers falling below this threshold.

(SIC codes 4900-4999) industries and requiring that firms have basic financial information (such as total assets, book equity, leverage, sales, total receivables, and year-end share price) in that year. We then manually read a supplier's 10Ks to obtain its trade credit amount provided to each major customer at each year-end. Our sample period is 2008-2013, including three years before the implementation of *QuickPay* and three years after. The resulting pair-level trade credit dataset includes 2,229 supplier-customer-year observations, with 503 unique suppliers, 339 unique customers, and 831 unique customer-supplier pairs. See Freeman (2020) for more details on the data collection process.

Our identification strategy centers on the U.S. federal government's *QuickPay* reform in 2011.[9] The policy mandated accelerated payment from federal agencies to their small business contractors from the previous 30-day maximum (as required by the Prompt Payment Act, see Chapter 39 of Title 31 of the U.S. Code) to a new 15-day maximum for eligible contractors. As businesses – particularly small businesses – struggled in the post-recession era, the goal of *QuickPay* was to improve the cash flows and profitability of businesses. The policy was officially announced on September 14, 2011, and mandated adoption by all federal agencies by November 1. However, federal agencies knew about the planned reform in advance, and some – most notably, the Department of Defense that accounts for 2/3 of government procurement (Barrot and Nanda, 2020) – preemptively adopted quicker payment terms by late April 2011.[10]

To identify treated suppliers (i.e., Supplier *X* in Illustration 2), we obtain data on all government procurement contracts for fiscal years 2009-2010, and manually match names of government contractors to suppliers included in the Compustat Segment database. Since *QuickPay* specifically targeted small businesses, we noted whether a given transaction was denoted "small

[9] See Memorandum M-11-32 from the Executive Office of the President, Office of Management and Budget.
[10] See Memorandum 2011-O0007 from the Office of the Under Secretary of Defense.

business" in the contracting data. The small business classification by government agencies is based on the Small Business Administration (SBA)'s industry-specific classifications, which are defined by firm sales and/or number of employees. However, we observe that many transactions classified as "small business" were with contractors whose parent corporations are much larger than the SBA-specified size threshold. This observation means the government's classification is likely at the establishment level rather than the parent level.[11] For this reason, we classify a parent firm as a small business contractor if a significant fraction of its reported government procurement contracts are denoted "small business." This entity is thus likely influenced by *QuickPay*, and is classified as a treated supplier (analogous to *X* in Illustration 2).[12] Accordingly, a customer that is served by at least one treated supplier and that is not associated with government agencies is a treated customer (*A* in Illustration 2). Suppliers that are not affected by *QuickPay* are control suppliers.

Among our identified small business contractors, some were already paid within 15 days even before *QuickPay,* and so are not included in the treatment group. First, contracts for purchases of perishable food products were already paid in less than 15 days; we thus excluded SIC codes 2000-2200 from the treated group. Second, contracts designated "cost-plus" rather than "fixed price" were also typically paid in 15 days prior to *QuickPay.* This is because fixed-price contracts involve a pre-negotiated price, whereas cost-plus contracts involve the reimbursement of expenses plus a profit margin. Barrot and Nanda (2020) report that 60% of government spending is through

[11] Contractors are identified by both their Dun and Bradstreet DUNS number and their parents' DUNS number, which are often different. While the "small business" classification happens at the DUNS level, Compustat GVKEYs best correspond to the parent DUNS, leading to the disconnect of small business classifications between subsidiaries and parents. For example, in 2009, we identified five Federal contracts with Adobe Inc., three of which were labeled as small business contracts. The Small Business Administration (SBA) considers a business in Adobe's primary NAICS code (541511) to be a small business if it earns less than $30 million in revenue. In 2009, Adobe's revenues were around $2.9 billion.

[12] We define the "significant fraction" as at least 25% of the reported transactions, but our results are robust to alternative thresholds such as 10%, 20%, and 33%.

fixed-price contracts, and that the Department of Defense, which accounts for two thirds of government contract spending, already paid cost-plus contracts within 15 days. Hence, our treatment supplier group also excludes firms with a substantial fraction of contracts categorized as cost-plus.[13]

Throughout our analyses, we examine pairwise trade credit (*Trade Credit*), defined as the receivables extended to a customer by a supplier scaled by the supplier's sales to the customer. We construct pair-level and firm-level control variables that can affect trade credit, as motivated by the literature (e.g., Petersen and Rajan, 1997, Giannetti et al., 2011, and Klapper et al., 2012). *Relationship length* is the log of the number of years since a supplier first reported sales to a customer; *Sales dependence* is the percentage of the supplier's sales made to the customer; *Size* is the logarithm of firm assets; *Leverage* is book debt scaled by total assets; *Profitability* is operating income scaled by total assets; *R&D intensity* is R&D expenses scales by total assets (set equal to zero when missing); *Q* is the firm's Tobin's Q (market value of assets relative to book value of assets); *Tangibility* is plant, property, and equipment as a percentage of total assets; *HHI* is industry concentration as measured by the Herfindahl Index. *Relationship length* and *Sales dependence* are defined at the pair-level, and other controls are defined for both the customer and supplier. All continuous variables are winsorized at their 1st and 99th percentiles.

2.2 Summary Statistics

Table 1 reports the summary statistics for the key variables. Panel A reports summary statistics for the sample used in the first part of our analyses (to examine Force (i) in Illustration 2), and Panel B reports summary statistics for the second part (to examine Force(ii)). In Panel A, approximately 14% of our sample pair-year observations involve *Treated Suppliers*. On average,

[13] That is, we require a treatment supplier to have at least 25% of its contracts categorized as fixed-price (i.e., less than 75% categorized as cost-plus). Our results are robust to alternative cutoffs, including 10%, 20%, and 33%.

the percentage of supplier sales to federal government agencies is 0.2%; among suppliers that are government contractors, the average is 1.8%.[14] 47.7% of the sample observations are in the post-*QuickPay* period.

As to pair-level control variables, the average *Trade Credit*¸ the ratio of pair-level trade credit to pair-level sales, is 0.179. *Sales Dependence* of the supplier on the customer averages 23.8%. The average *Relationship Length* in log-years is 1.725 (5.6 years). Comparing firm level controls, suppliers tend to be smaller, less leveraged, and less profitable than their customers, with greater R&D intensity.

In Panel B, 81.6% of observations involve customers that have ex ante relationship with at least one treated supplier (i.e., treated customers), while the rest 18.4% involve customers in the same industries as the treated customers but do not have any treated suppliers (i.e., rival customers). The average *Trade Credit* is 0.182. *Sales Dependence* of the supplier on customer averages 24.5%. The average *Relationship Length* in log-years is 1.676 (5.3 years). Control variables are similar to those in Panel A.

[Table 1 About Here]

3. The Redistribution of Supplier Liquidity following *QuickPay*

3.1. Empirical strategy and baseline results

The first part of our analyses aims to uncover Force (i). We adopt a difference-in-differences (DiD) analysis around *QuickPay*. Specifically, we compare the quantitative changes in trade credit between the treated supplier (*X*) and customer (*A*) – the first difference, with trade credit changes between the *same* customer (*A*) and the control supplier unaffected by *QuickPay* – the second difference. In this setting, the main variable of interest is *Treated Supplier*, which

[14] Our results continue to hold if we require above-median, above-75th percentile, at least 5%, or at least 10% government dependence.

indicates whether the customer (*A*)'s trade credit comes from a treated supplier or a control supplier. By using the same customer's trade credit from control suppliers, we can control for any changes in the *demand* for trade credit that might coincide with *QuickPay*, and thus isolate a *supply* effect. In other words, this DiD setting allows us to identify whether *QuickPay* leads suppliers to redistribute freed-up liquidity to their customers in the form of additional trade credit (i.e., the solid arrows in Illustration 2).

Specifically, we estimate the following equation:

$$Trade\ Credit_{s,c,t} = \mu_{s,c} + \tau_t + \beta Post \times Treated\ Supplier_{s,t} + Controls_{s,c,t} + \epsilon_{s,c,t}, \quad (1)$$

where *s* denotes a supplier, *c* denotes a customer, and *t* denotes year. This analysis is performed using pairs involving treated customers only (i.e., those having at least one supplier treated by *QuickPay*, as defined in Section 2). *Treated Supplier* is a dummy variable that equals one if a pair involves a treated supplier, and zero if the pair involves only control suppliers that have no exposure to *QuickPay*. In robustness tests, we also use *Treated Sales*, the proportion of supplier sales arising from government contracts, as a continuous treatment variable to captures a supplier's exposure to *QuickPay*. *Post* is a dummy variable that equals one if an observation is in the post-*QuickPay* period (i.e., years 2011-2013), and zero if the observation is in the pre-*QuickPay* period (i.e., years 2008-2010). We incorporate either pair fixed effects or supplier and customer fixed effects throughout our analysis to control for time-invariant pair-level or firm-level characteristics. These fixed effects fully absorb the variation in *Treated Supplier* itself. We further control for year fixed effects, which absorbs *Post* itself. Lastly, we include pair-level and firm-level control

variables discussed in Section 2. The standard errors are double-clustered at both the supplier and the customer levels.

Table 2 reports the results. The DiD estimator, namely, the coefficient estimate of *Treated Supplier* × *Post* is significantly positive in all model specifications, indicating that payment acceleration from *QuickPay* leads treated suppliers to extend more trade credit to their general (non-government) customers relative to control suppliers unaffected by the reform. This effect is economically significant. Treated customers receive 4.1% to 4.4% more payables relative to their total sales from the treated suppliers (benchmarked against control suppliers), representing about 22% to 25% of the sample standard deviation of *Trade Credit*.

These results suggest that when one customer accelerates payment to its supplier, the supplier redistributes freed-up liquidity and extends additional trade credit to other customers. This implication is consistent with Force (i) shown by the solid arrows of Illustration 2, which in turn comprises the premise of "feeding the mouth that bites".

[Table 2 About Here]

An important premise for the DiD approach is the parallel trends assumption, which states that the trends in the outcome variable (i.e., trade credit in our case) should not significantly differ between treatment and control pairs in the absence of the treatment (i.e., *QuickPay*). To verify this premise and provide richer dynamics of our baseline result, we perform the following dynamic DiD model:

$$Trade\ Credit_{s,c,t} = \mu_{s,c} + \sum_{i=2009}^{2013}(\beta_i Year_i \times Treated\ Supplier_{s,t} + \gamma_i Year_i \times Control\ Supplier_{s,t}) + Controls_{s,c,t} + \epsilon_{s,c,t}, \quad (2)$$

where $Year_i$ (i = *2009 to 2013*) are indicator variables for the fiscal years around the implementation of *QuickPay* in 2011, *Treated Supplier* indicates pairs involving treated suppliers, *Control Supplier* indicates pairs involving control suppliers, and other variables are the same as in

Equation (1). We omit the interaction terms involving the year dummy for 2008 (as the baseline) and include pair fixed effects in our estimation. We plot the yearly DiD estimators for pairs involving treated and control suppliers respectively (i.e., β_i and γ_i) in Figure 1.

As can be seen, there is no visible difference in trade credit between the treated and control pairs in the years leading up to *QuickPay*, verifying the parallel trends assumption. Following *QuickPay*, treated suppliers quickly extend additional trade credit to the treated customers: the treatment effect begins at the end of 2011, eight months after *QuickPay* was first adopted by the Department of Defense. This effect persists, and gradually increases in magnitude over time.

[Figure 2 About Here]

3.2 Cross-sectional analyses

We next examine if our baseline results exhibit cross-sectional variation depending on the relative supplier-customer bargaining power. Inspired by recent studies, including Giannetti, Serrano-Velarde, and Tarantino (2021), Murfin and Njoroge (2015), and Barrot (2016), we expect that following the liquidity influx from *QuickPay*, treated suppliers are more likely to extend extra trade credit to customers with greater bargaining power. This prediction holds particularly in our case, where suppliers affected by *QuickPay* are small business contractors; Lacking bargaining power, their decision to allocate the freed-up liquidity may be catered to customers with the strongest market positions.

To test this prediction, we perform a triple-differences regression analysis by augmenting Equation (1) with the triple interaction between *Treated Supplier* × *Post* and measures of relative supplier-customer bargaining power. Specifically, we construct two proxies for a treated customer's bargaining power over its supplier: (1) the customer's ex ante sales dependence on the supplier (*Dependence*), defined as pair-level sales scaled by the customers' COGS, averaged across 2008-2009; and (2) the supplier's ex ante size relative to the customer (*Relative Size*), defined as the ratio of supplier total assets to customer total assets, averaged across 2008-2009.

Higher values of the two measures indicate that the customer has weaker bargaining power against its supplier.

Table 3 reports the results. Panel A presents results based on *Dependence*, and Panel B presents results based on *Relative Size*. As expected, the coefficient estimates of the triple-interaction terms in both panels (i.e., *Treated Supplier* × *Post* × *Dependence* and *Treated Supplier* × *Post* × *Relative Size*) are significantly negative, suggesting that treated customers that can access a broader network of vendors (such that their purchases do not heavily rely on any one of them), or those larger in size relative to treated suppliers, experience greater increases in the payables following *QuickPay*.

[Table 3 About Here]

4. The Spillover Effect of *QuickPay* to Rival Customers

4.1. Empirical strategy and baseline results

Conditioning on observing that treated customers (i.e., *A* in Illustration 2) receive more trade credit from the *QuickPay* influx, we next explore whether the rivals of treated customers (i.e., customer *B*) deliberately prolong their payable days to shared suppliers (i.e., supplier *Y*), in an attempt to strategically curb liquidity flows to the treated customers – Force (ii) demonstrated by the dashed arrows in Illustration 2.

This part of analysis uses a different DiD setting around *QuickPay*. We now compare that, given a common set of suppliers (*Y*), how trade credit from these suppliers changes for the treated customer (*A*) versus its product market rival (*B*). Thus, the main treatment variable in this setting is *Rival Customer*, which indicates whether the common suppliers' (*Y*) trade credit goes to the treated customer (*A*) or its rival (*B*). By fixing the same set of suppliers, we effectively fix the total amount of short-term financing available to customers in the form of trade credit, and thus isolate the *allocation* of this financing between the treated customer and its rival. This DiD setting in turn

allows us to identify any disproportional allocation, and therefore whether rivals (*B*) attempt to pull liquidity away from the common suppliers (*Y*) before it flows into the pocket of the treated customer (*A*).

To implement this setting, we first identify the rivals of treated customers (*B*) by considering several aspects of product market competition. Our goal is to capture firms operating in a confrontational position (as in the case of Home Depot and Lowe's), and thus are most likely subject to the incentive of avoiding "feeding the mouth that bites." In this section, we start by considering whether the two firms are in the same 4-digit SIC industry. We later expand this consideration to include, e.g., product similarity and geographical proximity, in Section 4.2.

Next, we identify the common set of suppliers (*Y*) that serve both treated customers (*A*) and their rivals (*B*). We form this common set by identifying all industries in which treated customers (*A*) and rivals (*B*) have a supplier (i.e., upstream industries). All suppliers in these industries that are unaffected by *QuickPay* then generate the set of suppliers analogous to *Y* in Illustration 2.

Based on this framework, we perform the following DiD analysis:

$$Trade\ Credit_{s,c,t} = \mu_{s,c} + \tau_t + \beta Post \times Rival\ Customer_{s,t} + Controls_{s,c,t} + \epsilon_{s,c,t}, \quad (3)$$

where *s* denotes a supplier, *c* denotes a customer, and *t* denotes year. This estimation is performed only using pairs involving the set of common suppliers. *Rival Customer* is a dummy variable that equals one if a pair involves a rival customer (analogous to *B*), and zero if it involves a treated customer (*A*). *Post* is a dummy variable that equals one if an observation is in the post-*QuickPay* period (i.e., years 2011-2013), and zero if the observation is in the pre-*QuickPay* period (i.e., years 2008-2010). We incorporate the same set of fixed effects as well as the pair-level and firm-level

control variables as in Equation (1). The standard errors are again double-clustered at the supplier and the customer levels.

Table 4 reports the results. The DiD estimator, namely, the coefficient estimate of *Rival Customer* × *Post*, is significantly positive in all specifications, indicating that following *QuickPay*, trade credit from the common suppliers (*Y*) shifts disproportionally toward the rival customer (*B*) away from the treated customer (*A*). This effect is economically significant. Rival customers receive 6.3% to 7.2% more payables relative to their total sales from the common suppliers (benchmarked against treated customers), representing about 27% to 39% of the sample standard deviation of *Trade Credit*.

These findings are consistent with the tactic to avoid "feeding the mouth that bites": the rival, after observing treated customers receiving more trade credit from the *QuickPay* influx, attempts to grab extra trade credit from their common suppliers to curb further liquidity inflows to its competitors.

[Table 4 About Here]

Similar to the baseline analysis in Section 3.1, we perform a dynamic DiD model for Equation (3) to verify the parallel trends assumption. Specifically, we run a regression model similar to the last column of Table 4, but replace *Post* with a set of year dummies other than 2008 (the baseline). We then interact each year dummy with *Rival Customer* and *Treated Customer* (an indicator for customers with at least one treated supplier) and plot the yearly DiD estimators for in Figure 2. The results again show no pre-*QuickPay* trends in trade credit between the pairs involving treated and rival customers.

[Figure 3 About Here]

4.2. Alternative definitions of rivals

We next repeat the DiD analysis of Equation (3) using expanded rival definitions. Previous in Table 4, we identify rivals of treated customers based on their industry classification. Here we alternatively identify rivals based on whether they share high product similarity as treated customers (Hoberg and Phillips, 2016), whether they possess similar market dominance (i.e., industry and sales), or whether they split similar customer bases (i.e., industry and geographical distance).

Table 5 reports the results. Columns (1) and (2) define rivals as the top 20 firms with the greatest product similarity as a treated customer, based on Hoberg and Phillips' 10K-text-based measures. Columns (3) and (4) define rivals as firms in the same industry (at the 4-digit SIC level) and with similar sales (within 50-200% ex ante sales) as a treated customer. Columns (5) and (6) define rival customers as firms in the same industry (at the 4-digit SIC level) as and headquartered within 500 miles of a treated customer. To conserve space, we only repeat the analysis of Equation (3) with year fixed effects.

As can be seen, our Table 4 results continue to hold: the DiD estimator is again significantly positive in all six columns with comparable or even larger magnitudes than those in Table 4. These results are reassuring as they show that our results in Section 4.1 are not sensitive to the definitions of rival customers.

[Table 5 About Here]

4.3. Cross-sectional analyses

We next examine cross-sectional variation of the results on Force (ii). The tactic of rival customers (*B*) to strategically pull liquidity away from the treated customers (*A*) should be stronger when common suppliers (*Y*) matter more to *A*. If *Y* plays a trivial role to *A*'s overall liquidity supply – that is, when *Y* has limited capacity to feed *A* to begin with – then the tactic to avoid "feeding the mouth that bites" should subside.

To explore this prediction, we capture the importance of each common supplier *Y* to the treated customer *A* by calculating the ex-ante (prior to *QuickPay*) ratio of the pair-level sales to

the customer's COGS. *Dependent* is an indicator equal to one if the ratio is above sample median, and zero otherwise. A higher value of *Dependent* indicates that the common supplier *Y* is more important for providing liquidity (i.e., "feeding") through its sales to customer *A*.

We perform a triple-differences regression analysis, in a similar manner as in Section 3.2, by augmenting Equation (3) with the triple interaction between *Rival Customer* × *Post* and *Dependent*. Table 6 reports the results. The coefficient estimates of *Treated Supplier* × *Post* × *Dependent* are significantly positive in all columns, suggesting that the disproportionate shift in trade credit away from customers A to rivals B (the Table 4 results) is particularly prominent when common suppliers Y carry more importance with customers A. This finding adds nuances to the tactic of avoiding "feeding the mouth that bites".

[Table 6 About Here]

4.3. Alternative explanations

4.3.1. "Keeping up with the Joneses"

In this subsection, we examine a few alternative explanations for the results of Force (ii) tests in Table 4. Under Force (ii), we posit that rival customer (*B*) intends to pulls trade credit from the common supplier (*Y*) so that it would not feed the mouth that bites (treated customers *A*). Indeed, in Table 4 we observe disproportional shift of trade credit away from the treated customer (*A*) toward the rival customer (*B*).

However, one might be concerned that this disproportional shift simply reflects customer *B*'s motive to "keep up with the Joneses". That is, when observing the peers (including customer *A*) receiving extra trade credit following the *QuickPay* liquidity influx, customer *B* is inclined to demand similarly additional trade credit from suppliers. The key difference between the two motives, "keeping up with the Joneses" and "avoiding feeding the mouth that bites", is that under the former, the rival customer's demand pertains to all its suppliers, while under the latter, the demand is targeted at only common suppliers serving both customers *B* and *A*.

This conceptual difference allows us to differentiate the two motives empirically. Recall that in section 4.1, we identify the set of common suppliers *Y* based on upstream industries, i.e., all suppliers that operate in an industry selling to at least one treated customer (*A*), and by definition, rival customer (*B*). This is a broad group including not only those concurrently serving customer *A* prior to *QuickPay* but also potential suppliers of *A*. Concurrent suppliers allow us to detect whether rival (*B*) intends to grab the liquidity of *A*'s *existing* trade credit provider, while potential suppliers allow us to detect whether *B* also intends to do so with *A*'s *prospective* trade credit provider.[15] Now we refine this definition. We identify suppliers that concurrently serve both *A* and *B* as the common suppliers (namely "Y_1"). Among *A*'s potential suppliers previously defined, we now identify those that concurrently serve only *B* but not concurrently serve *A* (namely "Y_2"). Under this definition, both Y_1 and Y_2 are concurrently serving *B*, but only Y_1 is the concurrent common supplier of *A* and *B*; as such, only Y_1 is the target of *B*'s motive to "avoid feeding the mouth that bites." We repeat our analyses for Y_1 and Y_2 separately.

In Panel A Table 7, we analyze the change in rival customer *B*'s trade credit from Y_1 around *QuickPay*, relative to *A*'s trade credit from Y_1. This is essentially the same test that we perform in Table 4, except that instead of using the broad definition of common suppliers *Y* (upstream industries), here we use only the concurrent common suppliers between *A* and *B*. Despite a limited sample size and testing power, we continue to find a disproportionate shift of trade credit from Y_1 toward the rival customer *B* and away from the treated customer *A*, as captured by the coefficients of *Rival Customer* × *Post*, confirming the results in Table 4.

In Panel B of Table 7, we replace the main subject of comparison with Y_2. We examine the change in *B*'s trade credit from Y_2 around *QuickPay*. Because by definition, Y_2 does not serve *A* (and thus we do not observe *A*'s trade credit from Y_2), the benchmark here is still *A*'s trade credit from Y_1, as in Panel A. "Keeping up with the Joneses" would predict a similar positive and

[15] Additionally, because the SEC only requires firms to disclose "major" customers (those comprising 10% or more of total sales), certain concurrent suppliers might not be identified as so if the treated customers they sell to are not major customers. Including both concurrent and potential suppliers thus minimizes such missing cases.

significant coefficient of *Rival Customer* × *Post*. However, we do not find so, suggesting that this motive is unlikely to drive our Force (ii).

[Table 7 About Here]

4.3.2. "Patching up the wounds"

Another alternative explanation for our Force (ii) results is that rival customers (*B*) may request more trade credit after *QuickPay* to "patch up the wounds". Specifically, the *QuickPay* liquidity influx gives rise to additional trade credit granted to treated customers (*A*). To the extent that additional trade credit can lower inventory management and financing costs, customers *A* practically get a boost in their operations and product market positions. This improved position in turn hurts the competitiveness of rival customers *B*, lowering their inventory turnover. In this case, customers *B* will be compelled to demand more trade credit from their own suppliers to "patch up the wounds". The key difference between "avoiding feeding the mouth that bites" and "patching up the wounds" is that the former is a tactical act, whereas the latter is an act of defense.

The aforementioned Panel B of Table 7 results do not seem to support the alternative explanation. That is, if "patching up the wounds" is driving our Force (ii), then we should expect rival customers *B* to demand more trade credit from all suppliers after *QuickPay*, instead of targeting only common suppliers that also serve treated customers *A*.

We take one further step to investigate this alternative explanation. Intuitively, "patching up the wounds" should be particularly prominent when rival customers *B* are in a weaker product market position ex ante; in this case, a boost in customers *A*'s position will cause more harm to *B*. Figure 4 examines whether this prediction is supported. It plots coefficients of *Rival Customer* × *Post*, along with their 90% confidence intervals, from regressions that estimate Equation (3) separately for rival customers *B* with below-median ex ante market share ("weak rival") and those with above-median ex ante market share ("strong rival"). All regressions include the full set of controls and year fixed effects. The left two specifications include firm fixed effects, while the right two specifications include pair fixed effects.

As can be seen, the coefficients of *Rival Customer* × *Post* for weak rivals are not larger than those for stronger rivals. This result is not supported by the prediction of "patching up the wounds".

[Figure 4 About Here]

5. Robustness Tests

Finally, we perform several robustness tests for both parts of our analyses.

In our first part of analyses, we have used the binary variable *Treated Supplier* to capture a supplier's *QuickPay* exposure, and to examine how it redistributes freed-up liquidity to non-government customers (i.e., Equation (1)). We now use a continuous treatment variable (*Treated Sales*) in lieu of the binary indicator. Specifically, *Treated Sales* is the average proportion of a supplier's sales from government contracts in 2009-2010 among its total sales. Table 8 shows that the DiD estimator for *Treated Sales* × *Post* remains positive and significant (and more so than Table 2).

[Table 8 About Here]

Second, we perform a falsification test to the second part of our analysis. Previously, we show that the common supplier *Y*'s trade credit disproportionally shifts away from the treated customer *A* to rival *B* following *QuickPay* (i.e., Equation (3)). We now replace rival *B* with a customer that similarly relies on suppliers *Y*, but do not compete with the treated customer *A* – i.e., a non-rival of *A*. We examine whether supplier *Y*'s trade credit still disproportionally shifts to such a non-rival. Because non-rivals are not as incentivized to avoid "feeding the mouth that bites", the disproportional shift should be weaker among them. Put differently, we should see that non-rivals are less inclined to strategically pull away trade credit from common suppliers to counter trade credit flowing to treated customers. This is indeed what we find in Table 9. The insignificant coefficients of *Non-Rival Customer* × *Post* indicate that the disproportional shift disappears in this falsification setting.

[Table 9 About Here]

Third, our empirical analyses of Force (i) and Force (ii) both rely on DiD analyses. To ensure that the treatment and control in these analyses are on an equal footing (that is, they have balanced covariates), we adopt an entropy balancing method. Entropy balancing is a quasi-matching approach that maintains the entire sample and weights each pair observation such that post-weighting distributional properties of the treatment and control groups are virtually identical (Hainmueller 2012; Chapman et al. 2019).[16]

Table 10 reports the results. Panel A shows Force (i) results after balancing the pre-*QuickPay* characteristics of treated and control suppliers (including *Size, Leverage, Profitability, R&D Intensity, Q, Tangibility*, *HHI,* and accounts receivables over sales), and Panel B compares the pre- and post-balancing means for these variables between treated and control suppliers. The entropy balancing effectively removes the main differences in almost all characteristics between the two groups, and our main results continue to hold after covariance balance is satisfied.

Panel C shows Force (ii) results after balancing ex-ante characteristics of treated and rival customers (including *Size, Leverage, Profitability, R&D Intensity, Q, Tangibility*, *HHI*, and accounts payables over COGS), and Panel D compares the pre- and post-balancing means. Our interpretation is confirmed.

[Table 10 About Here]

6. Conclusion

In this paper, we empirically document a strategic incentive – to avoid "feeding the mouth that bites" – among customers competing for trade credit from a common set of suppliers. Specifically, we find customers prolong payable days with common suppliers in order to hold up the suppliers' liquidity and prevent it from flowing to rivals in the form of trade credit. For identification, we rely on the U.S. government's *QuickPay* reform, which permanently shortened

[16] The main advantage of the entropy balancing method over traditional matching (e.g., propensity score matching) is the former's ability to achieve covariate balance while maintaining the sample size (and thus the test power).

the government's payable days to small business contractors and thus creates an exogenous liquidity influx to these contractors.

We first show that following *QuickPay*, affected contractors extend more trade credit to their corporate customers, particularly for high-bargaining power customers. We then find that in response, rivals of these corporate customers begin to extract more trade credit from the shared suppliers, indicating their efforts to pull away these suppliers' liquidity from the customers already benefiting from *QuickPay*. In contrast, we do not observe this effort among the non-rivals of affected customers.

Our paper reveals an underexplored incentive in supply-chain relationships, namely, the incentive to avoid "feeding the mouth that bites," and how it shapes the allocation of trade credit.

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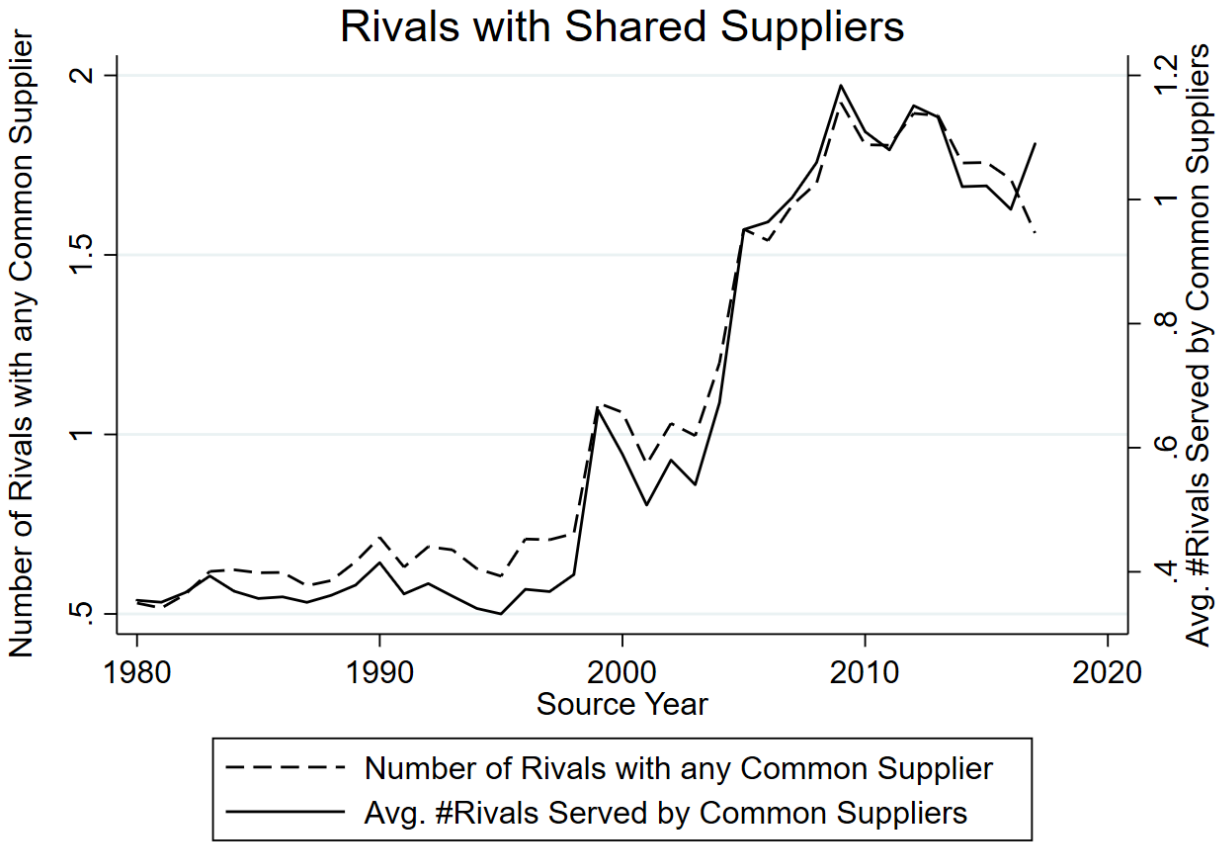

Figure 1: Number of Rival Customers Sharing Common Suppliers Over Time
This figure plots the time trend of the average number of rivals that share at least one supplier ("Number of Rivals with any Common Supplier"), as well as the average number of rivals a shared supplier serves. To draw the dashed line, we first count the total number of same-industry rivals that share at least one common supplier with a customer in a given year, and then take average of this variable across all customers in that year. To draw the solid line, we first identify all suppliers of a given customer in a year. Then, for each such supplier, we count the number of same-indsutry rivals this supplier is serving in the year and average across all suppliers. Last, we take average of this variable across all customers in that year.

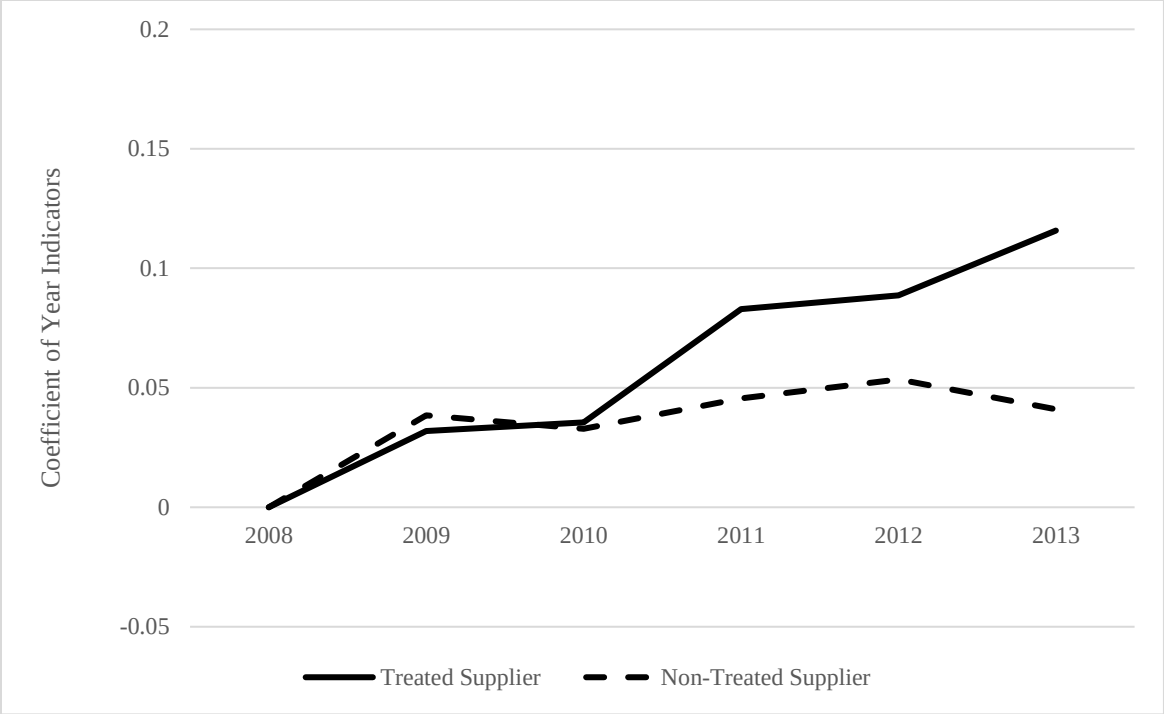

Figure 2: Force (i) Results by Year
This figure plots yearly DiD estimators from Equation (2), a dynamic difference-in-differences regression around the enactment of *QuickPay*. The *Treated Supplier* line reports year coefficients for the sample of suppliers affected by *QuickPay*. The *Non-Treated Supplier* line reports year coefficients for the sample of suppliers that are not affected by *QuickPay* but sell to the same customers as affected suppliers. The dependent variable is *Trade Credit*, the amount of trade credit offered by a supplier to an individual customer, scaled by the sales between the two.

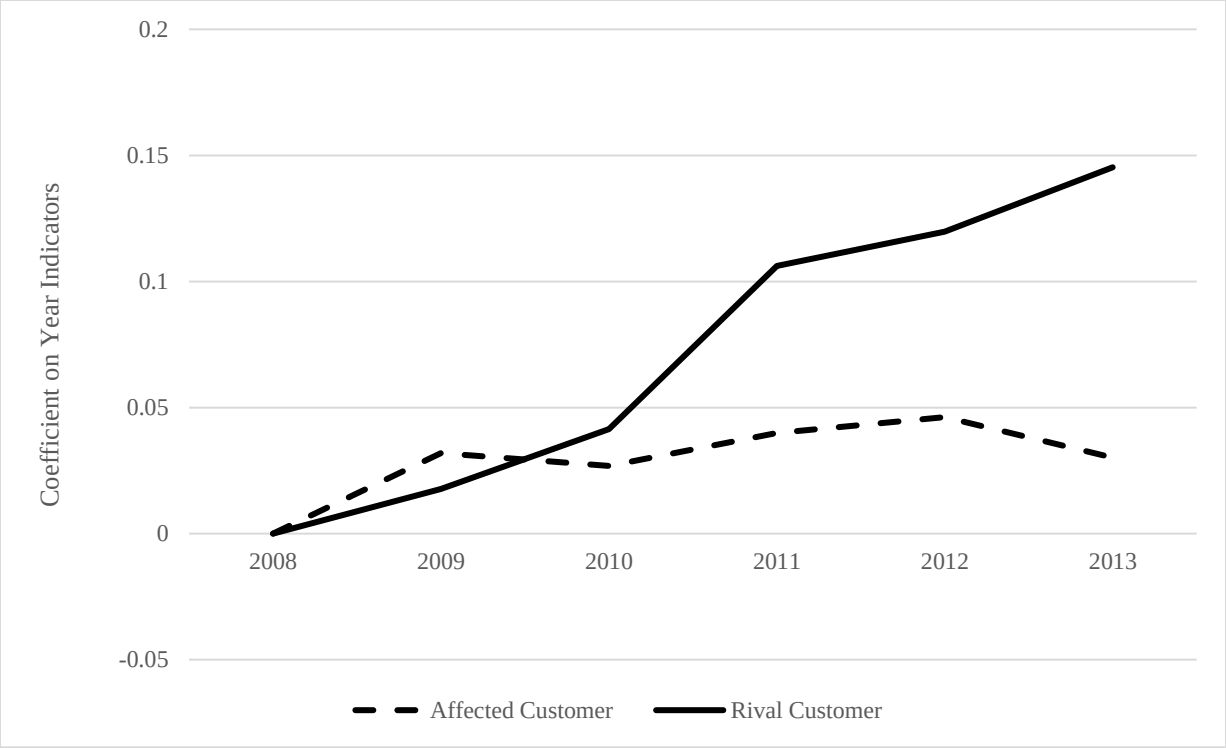

Figure 3: Force (ii) Results by Year
This figure plots yearly DiD estimators from a dynamic difference-in-differences regression based on an expanded version of Equation (3). The *Treated Customer* line reports year coefficients for customers with at least one supplier subject to *QuickPay*. The *Rival Customer* line reports year coefficients for rival customers. The dependent variable is *Trade Credit*, the amount of trade credit offered by a supplier to an individual customer, scaled by the sales between the two.

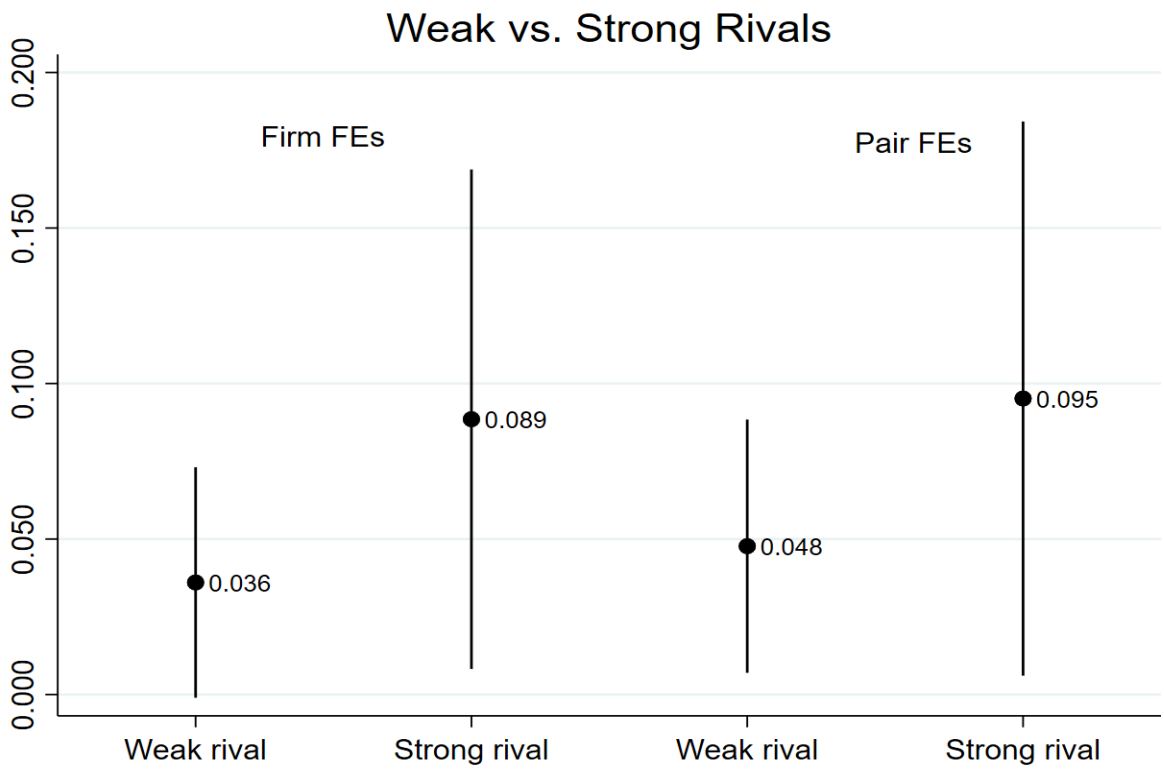

Figure 4: Comparing Force (ii) for Weak vs. Strong Rivals
This figure plots coefficient estimates of *Rival Customer* × *Post*, along with their 90% confidence intervals, in regressions that estimate Equation (3) separately for *Rival Customers* with below-median ex ante market share ("Weak rival") and those with above-median ex ante market share ("Strong rival"). The dependent variable is *Trade Credit*, the amount of trade credit offered by a supplier to an individual customer, scaled by the sales between the two. All regressions include the full set of controls and year fixed effects. The two left specifications include firm fixed effects, while the two right specifications include pair fixed effects.

Table 1: Summary Statistics

This table reports the summary statistics of the key variables in the study. The sample is formed from firms in the Compustat Segment database with available information regarding customer-supplier level trade credit. The sample spans 2008-2013. Panel A reports summary statistics for the sample of the Force (i) test, and Panel B reports summary statistics for the sample of the Force (ii) test. *Trade Credit* is the amount of trade credit offered by a supplier to an individual customer, scaled by the sales between the two. *Treated Supplier* is an indicator that equals one for pairs involving a supplier being a government contractor eligible for *QuickPay* in either 2009 or 2010, and equals zeros for pairs involving a non-treated control pair. *Treated Sales* is the ratio of a supplier's government contract sales eligible for *QuickPay* to total supplier sales, averaged across 2009 and 2010. *Rival Customer* is an indicator that equals one for pairs involving a rival customer (same-industry customer) of a treated customer (with at least one a treated supplier in 2009 or 2010), and equals zero for pairs involving a treated customer. *Post* is an indicator for a year after the enactment of *QuickPay* (2011-2013). The unit of observation is a customer-supplier-pair-year. Other variable definitions are available in Appendix A. All control variables are winsorized at the 1st and 99th percentiles.

Panel A: Force (i) Sample Summary Statistics

Variable	N	Mean	S.D.	P25	Median	P75
QuickPay measures						
Post	1,577	0.477				
Treated Supplier	1,577	0.195				
Treated Sales	1,445	0.002	0.025	0.000	0.000	0.000
Pair-level characteristics						
Trade Credit	1,577	0.178	0.176	0.086	0.134	0.212
Sales Dependence	1,577	0.238	0.190	0.120	0.180	0.270
Relationship Length	1,577	1.725	0.862	1.099	1.792	2.398
Supplier characteristics						
Size	1,577	5.711	1.945	4.375	5.627	6.913
Leverage	1,577	0.176	0.212	0.000	0.108	0.283
Profit	1,577	0.020	0.245	-0.018	0.093	0.145
R&D Intensity	1,577	0.116	0.163	0.003	0.068	0.157
Q	1,577	2.074	1.678	1.119	1.539	2.342
Tangibility	1,577	0.148	0.158	0.041	0.100	0.198
HHI	1,577	0.147	0.154	0.051	0.087	0.178
Customer characteristics						
Size	1,577	10.792	1.355	9.966	10.844	12.004
Leverage	1,577	0.234	0.152	0.120	0.203	0.277
Profit	1,577	0.126	0.062	0.083	0.122	0.164
R&D Intensity	1,577	0.028	0.040	0.000	0.004	0.043
Q	1,577	1.522	0.547	1.131	1.417	1.732
Tangibility	1,577	0.225	0.199	0.064	0.137	0.367
HHI	1,577	0.229	0.182	0.084	0.174	0.321

Panel B: Force (ii) Summary Statistics						
Variable	N	Mean	S.D.	P25	Median	P75
QuickPay measures						
Post	1,548	0.472				
Rival Customer	1,548	0.184				
Pair-level characteristics						
Trade Credit	1,548	0.182	0.184	0.081	0.134	0.214
Sales Dependence	1,548	0.245	0.203	0.120	0.180	0.277
Relationship Length	1,548	1.676	0.866	1.099	1.792	2.303
Supplier characteristics						
Size	1,548	5.587	1.931	4.286	5.574	6.771
Leverage	1,548	0.170	0.209	0.000	0.097	0.278
Profit	1,548	0.013	0.241	-0.033	0.087	0.141
R&D Intensity	1,548	0.117	0.175	0.000	0.055	0.149
Q	1,548	2.010	1.654	1.075	1.465	2.278
Tangibility	1,548	0.176	0.199	0.041	0.115	0.214
HHI	1,548	0.146	0.148	0.051	0.088	0.184
Customer characteristics						
Size	1,548	10.650	1.583	9.698	10.833	12.004
Leverage	1,548	0.240	0.154	0.134	0.214	0.289
Profit	1,548	0.129	0.067	0.087	0.128	0.169
R&D Intensity	1,548	0.031	0.044	0.000	0.007	0.049
Q	1,548	1.550	0.616	1.106	1.419	1.765
Tangibility	1,548	0.263	0.212	0.089	0.180	0.429
HHI	1,548	0.206	0.188	0.060	0.135	0.297

Table 2: Baseline Results for Testing Force (i)

This table shows the effect of the *QuickPay* on trade credit offered to corporate customers. The sample is limited to customers with at least one treated supplier. *Post* is an indicator for the three-year period after the enactment of *QuickPay* (i.e., years 2011-2013). *Treated Supplier* is an indicator for a supplier being a government contractor eligible for *QuickPay* in either 2009 or 2010, and is individually subsumed by fixed effects. The dependent variable is *Trade Credit*, the amount of trade credit offered by a supplier to an individual customer, scaled by the sales between the two. Controls include *Size, Leverage, Profitability, R&D Intensity, Q, Tangibility*, and *HHI* for both the customer and supplier, as well as pair-level *Relationship Length* and *Sales Dependence*. Variable definitions are available in Appendix A. Continuous variables are winsorized at the 1st and 99th percentiles. t-statistics are shown in parentheses, calculated from standard errors clustered by supplier firm and customer firm. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Dep. Var.	*Trade Credit*					
	(1)	(2)	(3)	(4)	(5)	(6)
Treated Supplier × Post	0.039*	0.043**	0.044**	0.038*	0.041**	0.044**
	(1.94)	(2.32)	(2.20)	(1.90)	(2.19)	(2.14)
Post	0.001	0.005	0.011			
	(0.07)	(0.48)	(0.90)			
Sales Dependence		-0.125	-0.166		-0.127	-0.166
		(-1.12)	(-1.17)		(-1.14)	(-1.18)
Relationship Length		-0.028*	-0.056**		-0.031*	-0.075**
		(-1.86)	(-1.99)		(-1.98)	(-2.16)
Supplier size		0.009	0.009		0.011	0.011
		(0.51)	(0.46)		(0.65)	(0.54)
Supplier Leverage		-0.035	-0.038		-0.028	-0.029
		(-0.57)	(-0.59)		(-0.47)	(-0.46)
Supplier Profitability		-0.128	-0.100		-0.126	-0.095
		(-1.50)	(-1.35)		(-1.51)	(-1.34)
Supplier R&D Intensity		-0.163	-0.113		-0.152	-0.092
		(-1.53)	(-1.41)		(-1.42)	(-1.20)
Supplier Q		0.004	0.005		0.004	0.004
		(0.59)	(0.66)		(0.55)	(0.54)
Supplier Tangibility		-0.169	-0.158		-0.169	-0.149
		(-1.60)	(-1.52)		(-1.60)	(-1.50)
Supplier HHI		-0.009	0.002		-0.027	-0.024
		(-0.10)	(0.02)		(-0.29)	(-0.25)
Customer Size		-0.033	-0.016		-0.032	-0.019
		(-1.23)	(-0.57)		(-1.18)	(-0.66)
Customer Leverage		0.098	0.127		0.118	0.158
		(0.95)	(1.20)		(1.14)	(1.48)
Customer Profitability		0.226	0.196		0.256	0.246
		(1.47)	(1.31)		(1.59)	(1.61)
Customer R&D Intensity		-0.525	-0.772		-0.423	-0.598
		(-0.67)	(-0.93)		(-0.57)	(-0.77)
Customer Q		0.020	0.021		0.020	0.015
		(1.33)	(1.27)		(1.24)	(0.85)
Customer Tangibility		-0.052	-0.026		-0.031	0.016
		(-0.34)	(-0.15)		(-0.20)	(0.09)

Customer HHI		-0.071	-0.147		-0.046	-0.099
		(-0.56)	(-1.01)		(-0.35)	(-0.65)
Supplier FEs	Yes	Yes	No	Yes	Yes	No
Customer FEs	Yes	Yes	No	Yes	Yes	No
Pair FEs	No	No	Yes	No	No	Yes
Year FEs	No	No	No	Yes	Yes	Yes
R^2	0.478	0.488	0.523	0.477	0.488	0.525
Observations	1,483	1,483	1,398	1,483	1,483	1,398

Table 3: Cross-Sectional Variation in Force (i) Tests

This table shows how the effect of the *QuickPay* on trade credit varied cross-sectionally on pair-level bargaining power measures. Panel A interacts *Treated Supplier* with ex ante customer dependence on the supplier, defined as pair-level sales scaled by customer COGS, averaged across 2008-2009. Panel B interacts *Treated Supplier* with the ex ante relative size of the supplier to the customer, defined as the ratio of supplier total assets to customer total assets, averaged across 2008-2009. The sample is limited to customers with at least one treated supplier. *Post* is an indicator for a year after the enactment of *QuickPay*. *Treated Supplier* is an indicator for a supplier being a government contractor eligible for *QuickPay* in either 2009 or 2010, and is individually subsumed by fixed effects. The dependent variable is *Trade Credit*, the amount of trade credit offered by a supplier to an individual customer, scaled by the sales between the two. Controls include *Size, Leverage, Profitability, R&D Intensity, Q, Tangibility*, and *HHI* for both the customer and supplier, as well as pair-level *Relationship Length* and *Sales Dependence*. Variable definitions are available in Appendix A. Continuous variables are winsorized at the 1st and 99th percentiles. t-statistics are shown in parentheses, calculated from standard errors clustered by supplier firm and customer firm. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Customer Dependence

Dep. Var.	*Trade Credit*			
	(1)	(2)	(3)	(4)
Treated Supplier × *Post* × *Dependence*	-0.776**	-0.841**	-0.719*	-0.780*
	(-2.00)	(-2.05)	(-1.70)	(-1.73)
Treated Supplier × *Post*	0.044**	0.046**	0.042**	0.044**
	(2.27)	(2.30)	(2.16)	(2.19)
Post × *Dependence*	0.370	0.381	0.386	0.396
	(1.46)	(1.50)	(1.41)	(1.43)
Treated Supplier × *Dependence*	-25.349**		-25.534**	
	(-2.05)		(-2.02)	
Post	-0.006	-0.007		
	(-0.45)	(-0.49)		
Dependence	4.033*		3.975*	
	(1.72)		(1.71)	
Controls	Yes	Yes	Yes	Yes
Supplier FEs	Yes	No	Yes	No
Customer FEs	Yes	No	Yes	No
Pair FEs	No	Yes	No	Yes
Year FEs	No	No	Yes	Yes
R2	0.492	0.524	0.493	0.526
Observations	1,216	1,192	1,216	1,192

Panel B: Relative Size

Dep. Var.	*Trade Credit*			
	(1)	(2)	(3)	(4)
Treated Supplier × *Post* × *Relative Size*	-0.127**	-0.149**	-0.124**	-0.145*
	(-2.15)	(-2.01)	(-2.12)	(-1.91)
Treated Supplier × *Post*	0.058***	0.059**	0.057**	0.059**
	(2.73)	(2.57)	(2.60)	(2.49)
Post × *Relative Size*	0.068	0.089	0.066	0.087
	(1.38)	(1.47)	(1.34)	(1.38)
Treated Supplier × *Relative Size*	0.054		0.062	
	(0.56)		(0.70)	
Post	0.003	0.008		
	(0.26)	(0.57)		
Relative Size	0.145*		0.143*	
	(1.84)		(1.82)	
Controls	Yes	Yes	Yes	Yes
Supplier FEs	Yes	No	Yes	No
Customer FEs	Yes	No	Yes	No
Pair FEs	No	Yes	No	Yes
Year FEs	No	No	Yes	Yes
R2	0.500	0.534	0.500	0.536
Observations	1,451	1,381	1,451	1,381

Table 4: Baseline Results for Testing Force (ii)

This table shows the spillover effects of *QuickPay* on competition for trade credit between affected customers and their rivals. Customers are either affected customers or their rivals. Suppliers are non-treated but operate in an industry with at least one affected customer. *Rival Customer* is an indicator for a customer that does not have a treated supplier, but has a peer (defined as a firm in the same 4-digit SIC code) that is an affected customer, and is individually subsumed by fixed effects. *Post* is an indicator for a year after the enactment of *QuickPay*. The dependent variable is *Trade Credit*, the amount of trade credit offered by a supplier to an individual customer, scaled by the sales between the two. Controls include *Size*, *Leverage*, *Profitability*, *R&D Intensity*, *Q*, *Tangibility*, and *HHI* for both the customer and supplier, as well as pair-level *Relationship Length* and *Sales Dependence*. Variable definitions are available in Appendix A. Continuous variables are winsorized at the 1st and 99th percentiles. t-statistics are shown in parentheses, calculated from standard errors clustered by supplier firm and customer firm. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Dep. Var.	*Trade Credit*					
	(1)	(2)	(3)	(4)	(5)	(6)
Rival Customer × Post	0.050*	0.065**	0.070**	0.049*	0.063**	0.072**
	(1.79)	(2.11)	(2.13)	(1.77)	(2.11)	(2.18)
Post	0.001	0.003	0.010			
	(0.13)	(0.27)	(0.78)			
Sales Dependence		-0.059	-0.090		-0.057	-0.084
		(-0.61)	(-0.75)		(-0.60)	(-0.70)
Relationship Length		-0.028**	-0.058**		-0.028*	-0.072**
		(-1.98)	(-2.11)		(-1.97)	(-2.10)
Supplier size		0.024	0.026		0.027	0.028
		(1.21)	(1.14)		(1.37)	(1.25)
Supplier Leverage		-0.087	-0.090		-0.079	-0.077
		(-1.03)	(-0.99)		(-0.92)	(-0.86)
Supplier Profitability		-0.150	-0.122		-0.148	-0.116
		(-1.60)	(-1.47)		(-1.60)	(-1.45)
Supplier R&D Intensity		-0.117	-0.071		-0.105	-0.050
		(-1.13)	(-0.86)		(-1.00)	(-0.62)
Supplier Q		0.007	0.010		0.007	0.009
		(0.88)	(1.22)		(0.85)	(1.14)
Supplier Tangibility		-0.142	-0.130		-0.145	-0.129
		(-1.16)	(-1.05)		(-1.17)	(-1.05)
Supplier HHI		-0.034	-0.022		-0.046	-0.043
		(-0.33)	(-0.20)		(-0.43)	(-0.38)
Customer Size		-0.030	-0.016		-0.028	-0.018
		(-0.89)	(-0.43)		(-0.84)	(-0.50)
Customer Leverage		0.042	0.041		0.061	0.076
		(0.42)	(0.38)		(0.61)	(0.69)
Customer Profitability		0.131	0.070		0.145	0.105
		(1.13)	(0.57)		(1.27)	(0.88)
Customer R&D Intensity		-1.004	-1.243*		-0.970	-1.152*
		(-1.63)	(-1.94)		(-1.57)	(-1.83)
Customer Q		0.016	0.019		0.019	0.018
		(0.65)	(0.74)		(0.75)	(0.68)
Customer Tangibility		0.029	0.069		0.042	0.091

		(0.20)	(0.41)		(0.30)	(0.55)
Customer HHI		-0.026	-0.129		-0.011	-0.099
		(-0.13)	(-0.56)		(-0.05)	(-0.43)
Supplier FEs	Yes	Yes	No	Yes	Yes	No
Customer FEs	Yes	Yes	No	Yes	Yes	No
Pair FEs	No	No	Yes	No	No	Yes
Year FEs	No	No	No	Yes	Yes	Yes
R^2	0.436	0.445	0.488	0.434	0.444	0.488
Observations	1,449	1,449	1,363	1,449	1,449	1,363

Table 5: Baseline Results for Testing Force (ii): Alternative Peer Definitions

This table shows the spillover effects of *QuickPay* on competition for trade credit between affected customers and their peers. Customers are either affected customers or their peers. Suppliers are non-treated but sell to an industry with at least one affected customer. *Peer Customer* is an indicator for a customer that does not have a treated supplier, but has an affected peer. The definition of customer peer varies across the table: Columns 1 and 2 define the customer peer group as the 20 firms with greatest product similarity to an affected customer, based on Hoberg and Phillips' text-based measures; Columns 3-4 define the customer peer group as firms in the same industry (4-digit SIC code) and similar revenues (50-200% ex ante revenues) as an affected customer; and Columns 5-6 define the customer peer group as firms in the same industry (4-digit SIC code) and headquartered within 500 miles of an affected customer. *Peer Customer* is individually subsumed by fixed effects. *Post* is an indicator for a year after the enactment of *QuickPay*. The dependent variable is *Trade Credit*, the amount of trade credit offered by a supplier to an individual customer, scaled by the sales between the two. Controls include *Size*, *Leverage*, *Profitability*, *R&D Intensity*, *Q*, *Tangibility*, and *HHI* for both the customer and supplier, as well as pair-level *Relationship Length* and *Sales Dependence*. Variable definitions are available in Appendix A. Continuous variables are winsorized at the 1st and 99th percentiles. t-statistics are shown in parentheses, calculated from standard errors clustered by supplier firm and customer firm. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Dep. Var.	*Trade Credit*					
Peer Definition:	*Top-20 in Product Similarity*		*Industry + Revenue*		*Industry + Geographic Proximity*	
	(1)	(2)	(3)	(4)	(5)	(6)
Rival Customer × *Post*	0.057*	0.070**	0.090**	0.101**	0.106*	0.124**
	(1.74)	(2.09)	(2.10)	(2.13)	(1.93)	(2.25)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Supplier FEs	Yes	No	Yes	No	Yes	No
Customer FEs	Yes	No	Yes	No	Yes	No
Pair FEs	No	Yes	No	Yes	No	Yes
Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.324	0.393	0.449	0.492	0.270	0.362
Observations	1,141	1,093	1,366	1,291	810	782

Table 6: Cross-Sectional Variation in Force (ii) Tests

This table shows cross-sectional variation in the spillover effects of *QuickPay* on competition for trade credit between affected customers and their peers. Customers are either affected customers or their peers. We compare *Treated Customers* and their suppliers with *Rival Customers* and their suppliers that are not ex ante suppliers to *Treated Customers*. *Rival Customer* is an indicator for a customer that does not have a treated supplier, but has a peer (defined as a firm in the same 4-digit SIC code) that is an affected customer, and is individually subsumed by fixed effects. *Post* is an indicator for a year after the enactment of *QuickPay*. *Dependent* is an indicator for the supplier. It equals one if a *Treated Customer* depended on the supplier heavily prior to *QuickPay*, that is, if the customer has an above-median ratio of sales/COGS with the supplies prior to *QuickPay*; it equals zero otherwise. The dependent variable is *Trade Credit*, the amount of trade credit offered by a supplier to an individual customer, scaled by the sales between the two. Controls include *Size, Leverage, Profitability, R&D Intensity, Q, Tangibility*, and *HHI* for both the customer and supplier, as well as pair-level *Relationship Length* and *Sales Dependence*. Variable definitions are available in Appendix A. Continuous variables are winsorized at the 1st and 99th percentiles. t-statistics are shown in parentheses, calculated from standard errors clustered by supplier firm and customer firm. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Dep. Var.	*Trade Credit*			
	(1)	(2)	(3)	(4)
Dependent × *Rival Customer* × *Post*	0.215*	0.319***	0.209*	0.322***
	(1.82)	(3.19)	(1.72)	(2.98)
Rival Customer × *Post*	0.063*	0.061*	0.062*	0.064*
	(1.86)	(1.75)	(1.88)	(1.84)
Dependent × *Rival*	-0.243		-0.241	
	(-1.39)		(-1.35)	
Dependent × *Post*	0.027	0.029	0.027	0.029
	(1.00)	(1.07)	(1.00)	(1.11)
Post	0.009	0.014		
	(0.81)	(0.97)		
Controls	Yes	Yes	Yes	Yes
Supplier FEs	Yes	No	Yes	No
Customer FEs	Yes	No	Yes	No
Pair FEs	No	Yes	No	Yes
Year FEs	No	No	Yes	Yes
R^2	0.448	0.494	0.447	0.495
Observations	1,449	1,363	1,449	1,363

Table 7: Keeping up with Joneses

This table shows the spillover effects of *QuickPay* on competition for trade credit between treated customers and their rivals. Customers are either treated customers or their rivals. In Panel A, we compare the trade credit of *Treated Customers* from their concurrent (i.e., pre-*QuickPay*) suppliers (Y_1) with the trade credit of *Rival Customers* from these suppliers. In Panel B, we compare the trade credit of *Treated Customers* from Y_1 with the trade credit of *Rival Customers* from suppliers that operate in the same industry as Y_1 but do not serve *Treated Customers* (i.e., Y_2). *Rival Customer* is an indicator for a customer that does not have a treated supplier, but has a peer (defined as a firm in the same 4-digit SIC code) that is an affected customer, and is individually subsumed by fixed effects. *Post* is an indicator for a year after the enactment of *QuickPay*. The dependent variable is *Trade Credit*, the amount of trade credit offered by a supplier to an individual customer, scaled by the sales between the two. Controls include *Size*, *Leverage*, *Profitability*, *R&D Intensity*, *Q*, *Tangibility*, and *HHI* for both the customer and supplier, as well as pair-level *Relationship Length* and *Sales Dependence*. Variable definitions are available in Appendix A. t-statistics are shown in parentheses, with standard errors clustered by supplier and customer. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Trade credit from Y_1

Dep. Var.	*Trade Credit*			
	(1)	(2)	(3)	(4)
Rival Customer × *Post*	0.065*	0.078**	0.063*	0.078**
	(1.87)	(2.11)	(1.80)	(2.04)
Post	0.005	0.010		
	(0.51)	(0.73)		
Controls	Yes	Yes	Yes	Yes
Supplier FEs	Yes	No	Yes	No
Customer FEs	Yes	No	Yes	No
Pair FEs	No	Yes	No	Yes
Year FEs	No	No	Yes	Yes
R^2	0.354	0.391	0.353	0.393
Observations	1,273	1,194	1,273	1,194

Panel B: Trade credit from Y_2

Dep. Var.	*Trade Credit*			
	(1)	(2)	(3)	(4)
Rival Customer × *Post*	0.026	0.021	0.029	0.027
	(0.58)	(0.45)	(0.65)	(0.57)
Post	0.009	0.014		
	(0.81)	(0.97)		
Controls	Yes	Yes	Yes	Yes
Supplier FEs	Yes	No	Yes	No
Customer FEs	Yes	No	Yes	No
Pair FEs	No	Yes	No	Yes
Year FEs	No	No	Yes	Yes
R^2	0.395	0.440	0.393	0.440
Observations	1,266	1,199	1,266	1,199

Table 8: Robustness Tests for Force (i): Continuous *QuickPay* Treatment

This table shows the effect of the *QuickPay* on trade credit offered to corporate customers. This table is identical to Table 2 except the treatment variable, *Treated Sales*, is defined continuously as the ex ante government contracting sales eligible for *QuickPay* as a percentage of total sales. The sample is limited to customers with at least one treated supplier. *Post* is an indicator for a year after the enactment of *QuickPay*. *Treated Sales* is averaged across 2009-2010 and is subsumed by fixed effects. The dependent variable is *Trade Credit*, the amount of trade credit offered by a supplier to an individual customer, scaled by the sales between the two. Controls include *Size*, *Leverage*, *Profitability*, *R&D Intensity*, *Q*, *Tangibility*, and *HHI* for both the customer and supplier, as well as pair-level *Relationship Length* and *Sales Dependence*. Variable definitions are available in Appendix A. *Treated Sales* is bounded between 0 and 1 and other continuous variables are winsorized at the 1st and 99th percentiles. t-statistics are shown in parentheses, calculated from standard errors clustered by supplier firm and customer firm. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Dep. Var.	*Trade Credit*			
	(1)	(2)	(3)	(4)
Treated Sales × *Post*	0.187***	0.181**	0.204***	0.203***
	(3.00)	(2.56)	(3.32)	(2.91)
Post	0.009	0.013		
	(0.86)	(0.96)		
Controls	Yes	Yes	Yes	Yes
Supplier FEs	Yes	No	Yes	No
Customer FEs	Yes	No	Yes	No
Pair FEs	No	Yes	No	Yes
Year FEs	No	No	Yes	Yes
R^2	0.503	0.531	0.503	0.533
Observations	1,359	1,278	1,359	1,278

Table 9: Falsification Tests for Force (ii): Non-Rival Customers

This table shows that the spillover effect reported in Table 4 does not hold for non-peer customers. Customers are either affected customers or non-affected customers operating in an industry (SIC-4) without an affected customer. Suppliers are non-treated but operate in an industry with at least one affected customer. *Non-Peer Customer* is an indicator for a customer that does not have a treated supplier and does not have a peer (defined as a firm in the same 4-digit SIC code) that is an affected customer. *Non-Peer Customer* is individually subsumed by fixed effects. *Post* is an indicator for a year after the enactment of *QuickPay*. The dependent variable is *Trade Credit*, the amount of trade credit offered by a supplier to an individual customer, scaled by the sales between the two. Controls include *Size, Leverage, Profitability, R&D Intensity, Q, Tangibility,* and *HHI* for both the customer and supplier, as well as pair-level *Relationship Length* and *Sales Dependence*. Variable definitions are available in Appendix A. Continuous variables are winsorized at the 1st and 99th percentiles. t-statistics are shown in parentheses, calculated from standard errors clustered by supplier firm and customer firm. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Dep. Var.	*Trade Credit*			
	(1)	(2)	(3)	(4)
Non-Rival Customer × *Post*	-0.011	-0.010	-0.012	-0.011
	(-0.51)	(-0.46)	(-0.57)	(-0.49)
Post	0.011	0.018		
	(1.09)	(1.38)		
Controls	Yes	Yes	Yes	Yes
Supplier FEs	Yes	No	Yes	No
Customer FEs	Yes	No	Yes	No
Pair FEs	No	Yes	No	Yes
Year FEs	No	No	Yes	Yes
R^2	0.424	0.474	0.425	0.477
Observations	1,414	1,337	1,414	1,337

Table 10: Robustness Tests for Forces (i) and (ii): Entropy Balanced Controls

This table repeats the baseline results of Table 2 (Force (i)) and Table 4 (Force (ii)) after entropy balancing treatment and control firms. Panel A shows Force (i) regression results after balancing characteristic means of *Treated Suppliers* and control suppliers, and Panel B compares the pre- and post-balancing means of these characteristics between the suppliers. Panel C shows Force (ii) regression results after balancing characteristics of *Treated Customers* and *Rival Customers,* and Panel D compares the pre- and post-balancing means of these characteristics between the groups. Balancing is based on pre-*QuickPay* characteristics. In Panel A, the sample is limited to customers with at least one treated supplier. *Post* is an indicator for the three-year period after the enactment of *QuickPay* (i.e., years 2011-2013). *Treated Supplier* is an indicator for a supplier being a government contractor eligible for *QuickPay* in either 2009 or 2010, and is individually subsumed by fixed effects. In Panel C, Customers are either affected customers or their rivals. Suppliers are non-treated but operate in an industry with at least one affected customer. *Rival Customer* is an indicator for a customer that does not have a treated supplier, but has a peer (defined as a firm in the same 4-digit SIC code) that is an affected customer, and is individually subsumed by fixed effects. *Post* is an indicator for a year after the enactment of *QuickPay*. The dependent variable for Panels A and C is *Trade Credit*, the amount of trade credit offered by a supplier to an individual customer, scaled by the sales between the two. Controls include *Size, Leverage, Profitability, R&D Intensity, Q, Tangibility,* and *HHI* for both the customer and supplier, as well as pair-level *Relationship Length* and *Sales Dependence*. Variable definitions are available in Appendix A. Continuous variables are winsorized at the 1st and 99th percentiles. t-statistics are shown in parentheses, calculated from standard errors clustered by supplier firm and customer firm. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Force (i) Entropy Balanced Results

Dep. Var.	*Trade Credit*			
	(1)	(2)	(3)	(4)
Treated Supplier × Post	0.033*	0.033*	0.031*	0.031*
	(1.74)	(1.72)	(1.74)	(1.71)
Post	-0.010	-0.006		
	(-0.61)	(-0.34)		
Controls	Yes	Yes	Yes	Yes
Supplier FEs	Yes	No	Yes	No
Customer FEs	Yes	No	Yes	No
Pair FEs	No	Yes	No	Yes
Year FEs	No	No	Yes	Yes
R^2	0.589	0.632	0.590	0.634
Observations	1,304	1,238	1,304	1,238

Panel B: Force (i) Balanced Means

	Means before weighting		*Means after weighting*	
Variable	Treated supplier	Control supplier	Treated supplier	Control suppliers
Size	5.636	5.542	5.636	5.636
Leverage	0.173	0.167	0.173	0.173
Profit	0.065	0.003	0.065	0.065
R&D Intensity	0.112	0.127	0.112	0.112
Q	2.294	1.882	2.294	2.294
Tangibility	0.145	0.166	0.145	0.145
HHI	0.096	0.148	0.096	0.096
AR/Sales	0.193	0.167	0.193	0.193

Panel C: Force (ii) Entropy Balanced Results

Dep. Var.	*Trade Credit*			
	(1)	(2)	(3)	(4)
Rival Customer × *Post*	0.039*	0.048**	0.037*	0.049**
	(1.93)	(2.26)	(1.84)	(2.21)
Post	-0.002	0.004		
	(-0.15)	(0.29)		
Controls	Yes	Yes	Yes	Yes
Supplier FEs	Yes	No	Yes	No
Customer FEs	Yes	No	Yes	No
Pair FEs	No	Yes	No	Yes
Year FEs	No	No	Yes	Yes
R^2	0.520	0.551	0.519	0.552
Observations	1,394	1,311	1,394	1,311

Panel D: Force (ii) Balanced Means

	Means before weighting		*Means after weighting*	
Variable	Treated customer	Rival customer	Treated customer	Rival customer
Size	10.310	8.157	10.310	10.310
Leverage	0.230	0.225	0.230	0.230
Profit	0.136	0.121	0.136	0.136
R&D Intensity	0.038	0.056	0.038	0.038
Q	1.494	1.704	1.494	1.494
Tangibility	0.228	0.269	0.228	0.228
HHI	0.166	0.101	0.166	0.165
AP/COGS	0.178	0.242	0.178	0.178

Appendix A: Variable Definitions

Variable	Definition
Treated Supplier	Supplier eligible for QuickPay based on 2009-2010 government contracts
Post	Indicator for a year after QuickPay took effect
Affected Customer	A customer with at least one Treated Supplier
Rival Customer	A customer in the same industry as an Affected Customer
Trade Credit	Pair-level receivables scaled by pair-level sales
Sales Dependence	Sales to customer as proportion of total supplier sales
Relationship Length	Logarithm of the number of years since the supplier first reported the customer as a major client
Size	Logarithm of total assets
Leverage	Short-term debt + long-term debt, scaled by total assets
Profitability	Operating income before depreciation scaled by total assets
R&D Intensity	R&D expenditures scaled by total assets (set equal to zero when missing)
Q	Tobin's Q, defined as (market cap + total book assets – book equity)/(total book assets)
Tangibility	Plant, property, and equipment scaled by total book assets
HHI	Industry concentration