Access to Debt and the Provision of Trade Credit

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Abstract

We examine the effect of improved access to debt markets on firms' provision of trade credit. Using hand-collected, granular trade credit data between U.S. public firms, we show that increased access to credit strengthens a firm's bargaining power relative to major customers and reduces their incentives to provide trade credit to those customers. We establish causality using the staggered passage of anti-recharacterization laws that expanded firms' debt capacity. Customer-dependent firms cut trade credit more, especially towards financially healthier customers. The reduced trade credit leads customers to cut investment, increase leverage, and scale back trade credit provision to firms further downstream.

Key words: Trade Credit, Access to Debt, Creditor Rights, Supply-Chain, Bargaining Power

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1 Introduction

Trade credit represents one of the most important sources of funding for U.S. firms, with a total volume exceeding 20% of total GDP (Garcia-Martin et al. 2020). In many segments of the supply chain, small suppliers compete for orders from large, powerful customers. Such power dynamics lead to the surprising phenomenon of "small lending big." In other words, suppliers face pressure to offer generous trade credit terms to retain major clients, even though doing so amplifies financial constraints and prevents them from conducting valuable investments (Klapper et al. 2012; Murfin and Njoroge 2015; Barrot 2016).

How does access to credit affect (supplier) firms' incentives to provide trade credit? The answer is not obvious. On the one hand, better access to credit could allow firms to provide more trade credit (i.e., a liquidity pass-through channel). An extensive literature in Finance and Economics documents this effect, focusing on situations with powerful suppliers and weak customers in lack of bank credit (Schwartz 1974; Petersen and Rajan 1997; Bias and Gollier 1997; Emery 1987; Jain 2001; Meltzer 1960). Patterns of liquidity pass-through also occur when customers are hit by banking crises or economic recessions (Love et al. 2007; Fabbri and Menichini 2016; Garcia-Appendini and Montoriol-Garriga 2013; Costello 2020; Amberg et al., 2021; Cunat 2007). On the other hand, access to external debt markets could reduce trade credit provision if enriched financial resources relax the pressure to provide trade financing as demanded by powerful customers (a bargaining power channel). More specifically, better access to credit helps ex ante weak suppliers pursue growth options, expand sales and client base, and strengthen its bargaining position vis-a-vis major customers. These effects help alleviate the need for them to provide trade credit, leading to a negative relation between access to debt and trade credit provision.

In this study, we revisit the relation between access to credit and the firm's decision to extend trade credit. We find evidence in support of the bargaining power channel, and also discuss the mechanisms underlying that channel. Our study features two empirical design choices. First, we compile a novel dataset on trade credit agreements between U.S. public

firms, which allows us to make detailed inferences regarding firms' decision to extend trade credit to each of their customers. Our data originate from firms' 10-K filings. FASB No. 105 requires firms to report material information regarding credit concentration, which includes trade credit offered to major customers. Such information is often embedded in footnotes and does not follow a standardized format. We thus read through firms' 10-K in detail and manually collect trade credit data from textual descriptions. This effort results in a large panel of trade credit data that contains the identities of both the buyer and the seller, the value of their annual transactions, and the value of credit sales. Our dataset covers 623 unique buyers and 969 unique sellers. Given that all of our buyers and sellers are public firms, we are able to observe detailed information regarding firms' financial and operational conditions, industry classification, and sales to individual customers. This represents a unique advantage relative to proprietary contract-level datasets, which either cover a limited set of firms, or lack granular information regarding trade counterparties.[1] While we do not observe an exhaustive list of customer-supplier relations in the U.S., we can track the trade credit for the near universe of major customers (who account for above 10% of sales) for each supplier in our sample. Another advantage of this granular data is that we can fix the demand for trade credit on the customer side, comparing the changes in trade credit from a supplier with improved access to finance to those from other suppliers of the same customer at the same time.

Second, we exploit the staggered state-level passage of anti-recharacterization laws (ARLs) as exogenous shocks to firms' debt capacity. Seven U.S. states have passed ARLs during the period spanning from 1997 to 2005. These laws eventually affected nearly 60% of all US publicly traded firms. ARLs are designed to protect creditors from the automatic stay provision during bankruptcy proceedings. Consequently, they improve firms' access to credit by providing them with the option to tap additional debt markets by creating Special Purpose Vehicles (SPVs). Section **??** provides a detailed description of anti-recharacterization laws. Prior research suggests that firms affected by the laws are able to borrow more, invest in new technology and innovation, and become more

[1]For example, Costello (2020) utilizes data from Credit2B, where buyer information is limited. Klapper et al. (2012) focus on a dataset from PrimeRevenue with only 56 buyers.

productive (Li et al. 2016; Mann 2018; Ersahin 2017; Favara et al. 2021). Yet, the effect of anti-recharacterization laws on product market dynamics remains under-explored.

We first show that, after the passage of anti-recharacterization laws, affected firms experience higher sales growth by around 5% compared to control firms. Those firms also expand their customer base by building relationships with new customers. Moreover, we find that treated firms significantly reduce the trade credit provided to major customers following the passage of the laws. Our estimation controls for a stringent set of fixed effects, including supplier firm fixed effects and customer-supplier-pair fixed effects. Moreover, we are able to follow Khwaja and Mian (2008) and use the within-firm estimator by imposing customer-year fixed effects. In other words, customer-year fixed effects help us hold constant customer-side conditions, including its demand for trade credit, and allow us to compare trade credit extended by a treated supplier and a control supplier to the same customer at the same time. Pair fixed effects allow us to track the changes in the trade credit per dollar of sales between the same pair of trade counterparties over time. With the most rigorous specification, our estimates suggest that treated suppliers reduce accounts receivable per dollar of sales by 4 percentage points following the passage of anti-recharacterization laws. This is an economically meaningful magnitude, accounting for around 16% of the average level of trade credit provided by suppliers in our sample.

Testing the parallel trend assumptions, we show that the sales and trade credit extension of treated firms do not diverge from control firms prior to the enactment of the laws. Following the enactment, sales of treated firms rise gradually, becoming significantly higher than those of control firms three years after the event. Trade credit of treated firms declines more swiftly: treated firms appear to cut trade credit immediately after the passage of the laws and the reduction persists in the long run. The differential timing between the changes in trade credit and sales could reflect the fact that trade credit agreements could incorporate suppliers' expectations for future orders and bargaining dynamics with respect to customers. In additional tests, we also address the concern related to heterogeneous treatment timing (Goodman-Bacon 2021; Callaway and Sant'Anna 2020) by focusing on a single event in Delaware and comparing Delaware firms

to those in states that never passed the laws. Our finding persists.

We provide additional support to the bargaining power channel, i.e., trade credit declines because better access to debt markets improves firms' bargaining power relative to buyers. If access to debt relieves the pressure for firms to provide liquidity to powerful buyers, our results should be more pronounced in cases where the supplier had *weaker* bargaining position relative to the customer prior to the shock. We gauge the relative bargaining position between customers and suppliers in several ways. First, major customers should possess stronger bargaining power relative to the supplier than minor customers, so the reduction in trade credit after the anti-recharacterization laws should be stronger for major customers. We classify major and minor customers based on the definition from SEC's SFAS 14: major (minor) customers are those that account for at least (less than) 10% of sales from a supplier. Separately examining the changes in trade credit provided to major and minor customers, we indeed find that the reduction in trade credit only occurs for major customers, but not present for minor ones.

Extending this analysis, we test the effect of ARLs on the receivables-to-sales ratio for all Compustat firms. Given that accounts receivable on a firm's balance sheet include trade credit extended to both major and minor customers, we expect the effect of ARLs to be weaker in the Compustat sample than in our testing sample, which only records trade credit to major customers. Consistently, we find that the average Compustat firm incorporated in ARL states exhibits a statistically significant, but economically smaller reduction in receivables compared to our baseline effect. The reduction is around 0.5 percentage point, approximately 3% relative to the mean.

Our second approach follows the methodology in Ahern (2012) and Ahern and Harford (2014), where we compute the sales dependence of the supplier's industry on the customer's industry. Specifically, for each supplier-customer pair, we calculate the percentage of sales from a supplier's industry that goes to a customer's industry, using data from the Input-Output (IO) matrices compiled by the Bureau of Economic Analysis (BEA). Measuring interdependence at the IO industry level helps alleviate the concern that sales dependence could be driven by other confounding firm characteristics. A high

sales dependence indicates that the supplier relies heavily on the order flow from the customer due to the nature of their production technologies. Given that the ARLs facilitate innovation and technology adoption (Mann 2017; Ersahin 2017), they could help firms develop alternative client relations. Consequently, firms with a high sales dependence on downstream industries should be able to offer lower trade credit after the laws. Consistent with this prediction, we find that the law-induced reduction in trade credit is concentrated in cases where the supplier is highly dependent on the customer, but is absent in cases of low supply-chain dependence. These results lend support to the argument that debt capacity increases firms' bargaining power relative to customers.

Third, we consider customers' financial health as a proxy for bargaining power. This metric is motivated by prior studies.[2] Accordingly, we partition customers into financial "safe" and "risky" categories based on both credit ratings and Z-scores, respectively. Similar to our previous findings, the passage of anti-recharacterization laws leads firms to cut trade credit significantly to financially healthy (powerful) customers, but not to risky (weak) customers. We also find consistent changes in the product market dynamics: firms affected by the laws increase sales to financially risky customers but not healthy ones. Collectively, these results suggest that better access to debt markets makes suppliers less risk-averse, motivating them to deepen riskier business relations.[3] The "rebalancing" of the customer portfolio potentially increases the firm's bargaining power with safe (and previously more powerful) customers, reducing its incentives to extend trade credit to those customers.

In the last step of our analysis, we explore how the law-induced reduction of trade credit affects downstream (customer) firms. To the extent that U.S. firms are closely connected in a business network (Acemoglu et al. 2012; Carvalho et al. 2021; Barrot and Sauvagnat 2016), deregulations affecting a subset of firms could generate percolating effects downstream. We conjecture that, as treated firms extend less trade credit to

[2]For example, Lang and Stulz (1992) document that financial distress diminishes a firm's product market strength. Klapper et al. (2012) show that financially healthy customers exercise market power and obtain more favorable trade credit terms from suppliers.

[3]This result is consistent with prior studies showing that creditor rights protection makes firms more resilient to uncertainty shocks (Favara et al. 2021).

major customers, those customers may be forced to borrow from alternative sources at a higher cost and cut back investment. Note that this prediction is not trivial. Customers in our sample are large and financially healthy. They may easily find alternative, cheap sources of capital and stay unaffected by the decline in trade financing. Our evidence lends support for the contagion effect. To start, we verify that downstream firms who have more suppliers incorporated in ARL states (higher "Upstream Law Exposure") indeed report lower payables after the laws, indicating that they receive less liquidity from affected suppliers. Those customer firms then increase leverage and reduce investment. Our estimates suggest that a one-standard-deviation increase in a firm's *Upstream Law Exposure* is associated with a 5% reduction in investment and 5% increase in leverage. These effects become progressively stronger as we can track a greater proportion of suppliers in the Compustat Segment data.[4] Importantly, customer firms further reduce the provision of trade credit to their own customers, creating a cascading effect of liquidity tightening downstream. These results indicate that the protection of creditor rights generates negative spillover effects for downstream firms, leading to reduction in real economic activity.

A potential concern with our baseline result is that it may be driven by increased securitization of receivables following the passage of ARLs. Given that the laws enhanced the attractiveness of SPVs and the securitization of assets, it is possible that treated firms do not reduce the provision of receivables, but instead sell more receivables to SPVs. We design three analyses to address this concern. First, we show that our results remain robust when we exclude firms that report having an SPV or securitized accounts receivable.[5] Second, our results are virtually unchanged when we exclude the events in Texas and Louisiana, which had an emphasis on the securitization of accounts receivable. Finally, we analyze changes in accounts payable for customers and compare such changes across the customers of treated firms and those of control firms. This test is motivated by

[4]Given that the SEC only requires firms to disclose major customers, we are not able to track down all of a firm's major suppliers. We can only gather a firm's known suppliers based on those who report the firm as a major customer. We measure "traceable suppliers" using the percentage of COGS that can be assigned to purchases from known suppliers.

[5]The laws also affect firms without SPVs because it increases the option value of setting up an SPV.

the fact that accounts payable is not an asset and thus cannot be securitized through an SPV. We find a significant reduction in customer accounts payable following the passage of the laws in the supplier's state. Taken together, these findings suggest that our results are unlikely to be explained by receivable securitization. In additional robustness tests, we verify that our findings are not driven by the firms' discontinued reporting of customers, or by FASB disclosure threshold regarding customer sales.

This study contributes to three streams of research. First, we add to the important topic on how financial frictions affect firms' decision to extend trade credit. Much of the research on trade credit focuses on the provision of trade credit by larger suppliers to smaller, constrained customers (Schwartz 1974; Petersen and Rajan 1997; Bias and Gollier 1997; Emery 1987; Jain 2001; Meltzer 1960). Recent studies examining the role of financial constrained on trade credit provision utilizes crisis-period settings (Calomiris et al. 1995; Love et al. 2007; Fabbri and Menichini 2010; Garcia-Appendini and Montoriol-Garriga 2013; Costello 2020). These studies suggest that firms with access to bank credit extend more trade credit to help buyers survive and continue their business relations. We add to this line of research by showing that outside of the crises period, when buyer survival is less of a concern, access to debt markets enhances a firm's bargaining position with powerful buyers and reduces the need to provide trade credit to these customers. In particular, we complement Costello (2019), who studies a law change that allows trade creditors (suppliers) to reclaim their sold products in bankruptcy (i.e., strengthened creditor rights specifically tied to trade credit). While she finds that suppliers' ability to *collect* collateral from customers affects trade credit, our results show that suppliers' ability to *pledge* collateral to their own lenders also affects their incentives to extend trade credit, especially to financially healthy, powerful customers.

In addition, our results add to studies that analyze a small sample of supply-chain contracts, or contracts from other countries, and document that market power and bargaining dynamics are important determinants of trade credit provision (see, e.g., Demirguc-Kunt and Maksimovic 2001; Ng, Smith, and Smith 1999; Klapper et al. 2012; Fabbri and Klapper 2016; Costello 2020).

Our results also relate to the literature discussing trade credit as a type of "moveable" collateral asset. Existing studies often rely on cross-country comparisons or the setting of a European country. Their findings suggest that in foreign countries, creditor rights on "moveable" assets, such as accounts receivable, are not as protected as immovable assets, such as land. Such a difference in creditor protection makes movable assets a less desirable type of collateral (e.g., Calomiris et al. 2017; Campello and Larrain 2015). Giannetti et al. (2021) use the approval of laws against recharacterization in Italy as a positive shock to the pledgeability of firm receivables, showing that trade credit increases after the law adoption. Our study provides new insights for this literature, suggesting that stronger creditor rights protection does not increase, but instead decreases trade credit in the U.S. We note that the U.S. bankruptcy code is unique in that it offers superior protection over trade credit collateral, which qualifies as "cash collateral."[6] It is possible that the recharacterization laws have generated opposing effects on the provision of trade credit, i.e., increased product market power and increased pledgeability. The former effect may dominate in our setting given that the rights of cash collateral lenders in the U.S. are relatively well-protected prior to the laws.

Finally, our study is related to the burgeoning literature documenting the effect of anti-recharacterization laws. Vig (2013) explores a law reform in India that increases creditor protection and shows that firms use less secured debt after the reform. Li et al. (2016) show that ARLs increase firm leverage, while Chu (2020) finds ARLs reduce corporate leasing. Ersahin (2020) shows that ARLs improve firm productivity and foster technology adoption and Favara et al. (2021) document that firms in the law states are more resilient to uncertainty shocks. We add to this literature by showing that ARLs also affect product market dynamics, a previously unexplored question. Our findings suggest that better ac-

[6]Cash collateral receives special protection inside Chapter 11 bankruptcy court. Cash collateral includes cash and cash equivalents, a subset of assets that are "as good as cash" because they can be converted to cash easily without much loss of value, including receivables. Secured creditors have a relatively strong control over whether debtors can access proceeds from cash collateral. In cases where such proceeds are vital to a firm's continuing operations, the firm files for an emergency motion to request access from secured creditors. Secured creditors may allow the firm to use cash proceeds and in exchange, obtain concessions from the firm (Ayer et al. 2004). Such concessions commonly include items such as restrictions on the use of cash collateral, roll-ups of pre-petition debt, and creditor control of bankruptcy deadlines (Bussell and Klee 2009).

cess to debt markets allows firms to expand their customer base, deepen relationships with riskier customers, and obtain stronger bargaining power with safe, powerful customers. The enhanced bargaining position allows firms to provide less trade credit. Importantly, we also show that the reduced trade credit depresses the investment of downstream firms, leading to further deterioration of trade financing in downstream industries.

2 Empirical Framework

2.1 Data and Sample

Our main sample comes from manually collected data on the amount of trade credit extended by each firm based on their 10K disclosure to the SEC (i.e., the "SEC sample"). We start with firms that report at least one major customer according to the SFAS No.14.[7] A second regulation, FASB No. 105, applicable to firm fiscal years after June 15, 1990, requires that firms disclose concentrations of credit risks. Under this stipulation, many firms disclose information about receivable balances with major customers. Following the procedures outlined in Freeman (2020), we read each firm's annual financial statements and record the amount of trade credit the firm extends to individual major customers for each fiscal year. This results in a dataset that contains the trade credit used between each pair of customer and supplier in a given year.[8]

Our identification strategy is based on the staggered passage of anti-recharacterization laws across states during the years 1997 to 2005. We limit our sample period to 1992-2010 to allow five years prior to the passage of the first law and five years after the passage of the last. This leaves us with 5,405 observations with 1,775 customer-supplier pairs. Also note that the availability of trade credit data is relatively sparse prior to 1995. Our variable of interest is *Trade Credit*, the amount of receivables extended by a supplier to a customer scaled by the sales that the supplier makes to the customer. The value of transaction between a customer and a supplier is obtained from Compustat Segment database.

[7]SFAS No. 14 requires firms to report customers comprising 10% or more of their sales. Firms also often voluntarily disclose major customers falling below this threshold.

[8]Ersahin et al. (2021) follow a similar data collection procedure and study the effect of natural disasters on trade credit provision.

In later analysis, we verify our results from the SEC sample using receivables data from two broader samples. The first sample includes all industrial firms from the Compustat universe (i.e., the "Compustat sample"). We exclude firms in the financial industry (SIC from 6000 to 6999) and the utility industry (SIC from 4900 to 4999) and require sample firms to have available information on receivables, sales, and total assets. The Compustat sample thus contains 105,745 firm-year observations. The second sample includes all industrial firms that appear in the Compustat Segment database, who report at least one major customer (the "Segment sample"). In both samples, we compute *Receivables* as the ratio of the total value of accounts receivable of a firm over the firm's total sales.

2.2 Empirical Strategy

Our main analysis focuses on how firms' provision of trade credit changes around the adoption of the anti-recharacterization laws. We adopt a generalized difference-in-difference (DID) design and estimate the following regression model:

$$Trade\ Credit_{i,j,t} = \mu_{i,j} + \xi_{j,t} + \tau_t + \beta Supplier\ Law_{i,t} + \gamma Customer\ Law_{j,t} + Controls_{i,j,t} + \epsilon_{i,t} \quad (1)$$

Where i indicates a (supplier) firm, j indicates a customer of firm i, and t indicates a year. *Supplier Law*$_{i,t}$ is our variable of interest, which indicates whether the supplier's state of incorporation has implemented the anti-recharacterization laws. We also control for whether customers are affected by law passage in their state of incorporation (*Customer Law*$_{j,t}$). We control for customer-supplier-pair fixed effects ($\mu_{i,j}$) and year fixed effects (τ_t). This fixed effect structure helps remove unobservable traits that may affect supply-chain matching, focusing the comparison to how trade credit varies over time within a fixed pair of customer and supplier. The estimation also imposes customer-year fixed effects ($\xi_{j,t}$) to hold fixed customer conditions and compare the trade credit provided by a treated and a control supplier to the same customer at the same time. *Controls* include the firm characteristics of both the supplier and the customer, as well as some

characteristics of the customer-supplier relationship described in the next section.

We also test whether the adoption of the laws helps firms expand sales and customer bases. For this analysis, we construct a firm-year panel and compute the log of total sales generated by a firm-year as well as whether a firm establishes a new customer relationship. We perform the following analysis on the Compustat sample and the Segment sample:

$$Y_{i,t} = \alpha_i + \eta_{m,t} + \beta Law_{i,t} + Controls_{i,t} + \epsilon_{i,t}, \tag{2}$$

where i indicates a firm, m indicates the industry of the firm, and t indicates a year. Y includes *Log(Sales)*, the log of total sales of firm i and *New Customers*, the number of new customers of firm i in year t. *Law* is an indicator that equals to one if firm i is incorporated in a state that has passed anti-recharacterization laws by year t. In this firm-year panel, we control for firm fixed effects (α_i) and 2-digit SIC industry-year fixed effects ($\eta_{m,t}$). Firm fixed effects help us remove firm-specific determinants of trade credit usage and track the variation in trade credit extension by the same firm over time. Using industry-year fixed effects allows us to remove industry-level dynamics that influence the industry norm of trade credit provision.

2.3 Control Variables

We include firm-level controls that prior literature suggests may affect trade credit usage (e.g., Petersen and Rajan 1997, Giannetti et al. 2011, and Klapper et al. 2012): *Size*, the logarithm of firm assets; *Age*, measured as the log number of years since a firm's first appearance in Compustat; *Q*, the firm's market-to-book ratio; *Leverage*, the book leverage ratio of the firm; *Profitability*, operating income scaled by total assets; and *R&D Intensity*, the ratio of R&D expenditure over total assets. We control for these characteristics both for the customer and supplier.

Given that our main analysis tracks customer-supplier pairs over time, we include additional characteristics in our regression to control for heterogeneity across customer-supplier pairs, and those describing firms' supply-chain features. To start, we control for

relationship-specific characteristics between a pair of customer and supplier. This includes *Relationship Length*, the logarithm of the number of years since the supplier first reported sales to the customer and *Sales Dependence*, the percentage of sales that a firm makes to a customer. All continuous variables are winsorized at the 1^{st} and 99^{th} percentiles.

2.4 Descriptive Analyses

Table 1 reports the summary statistics for the key variables in this study. Panel A reports the statistics related to our main sample (i.e., the SEC sample); while Panel B reports the statistics from the Compustat and Segment samples. In our main sample, 45% of supplier-year observations and 36% customer-year observations are subject to anti-recharacterization laws. The average (median) supplier offers 17 (13) cents of trade credit per dollar of sales. Comparing the suppliers to the customers in this sample, the supplier firms are smaller in asset size, younger, have lower leverage, and are less profitable. This suggests that the trade credit agreements in our sample capture the dynamics of "small lending big" (Murfin and Njoroge 2015). While the SEC sample represents a small portion (5%) of the Compustat universe, firms in both samples provide similar levels of trade credit, around 17% of sales.

TABLE 1 ABOUT HERE

Figure 1 depicts cross-sectional and time-series patterns of trade credit observed in our main sample (the SEC sample) and compares such statistics with receivables observed in standardized databases, including a sample of all Compustat firms excluding financial and utility industries (i.e., the Compustat sample) as well as the set of all suppliers in the Compustat Segment database (i.e., the Segment sample). Panel A provides the average level of trade credit across industry sectors across the three samples. For the Compustat and Segment samples, we present the industry-average level of accounts receivable scaled by sales (i.e, *Receivables*) and for the SEC sample, we plot the industry-average of trade credit over sales between each pair of customer and supplier. In the Segment and SEC samples, industry is classified at the supplier level. In most industries, the three data

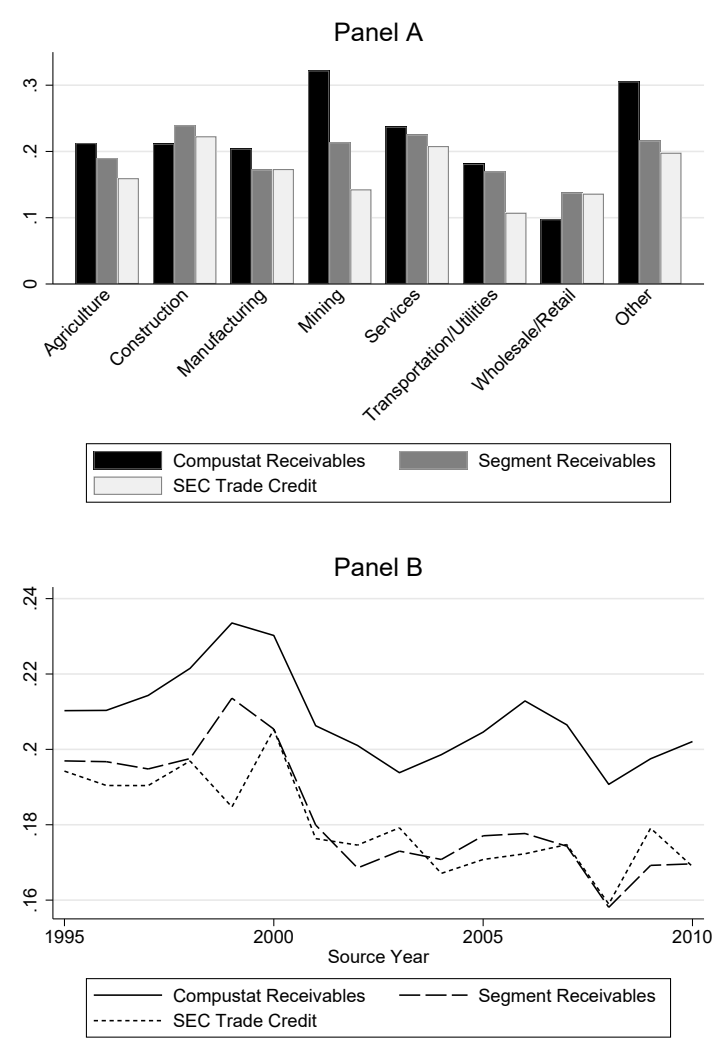

Figure 1. Trade Credit Across Samples. This figure describes cross-industry and time-series patterns of trade credit data in our manually collected sample (i.e., the SEC sample). We then compare such patterns with the accounts receivables of firms in the Compustat sample and the Segment sample. Panel A plots the average level of accounts receivable and trade credit across industry sectors for the three samples. The black columns represent the average accounts receivables (receivables/sales) for all firms in the Compustat universe excluding financial and utility industries (i.e., the Compustat sample). The dark grey columns represent the average receivables for suppliers that appear in Compustat Segment database (i.e., the Segment sample). The light grey columns indicate the average *Trade credit* between pairs of customers and suppliers in our manually collected sample (SEC sample). Panel B plots average level of trade credit over time for the three samples. The solid (dashed) line represents the time series average of receivables in the Compustat (Segment) sample. The dotted line represents the time series patterns of pairwise trade credit in the SEC sample.

sources document similar levels of trade credit, although the trade credit-sales ratio in the SEC sample is slightly lower than those in the Compustat and Segment samples.

Panel B reports the time series variation of *Trade credit* in the SEC sample and compares it with the time series patterns of *Receivables* in the Compustat sample and the Segment sample. Trade credit observed in our sample is similar to the average level

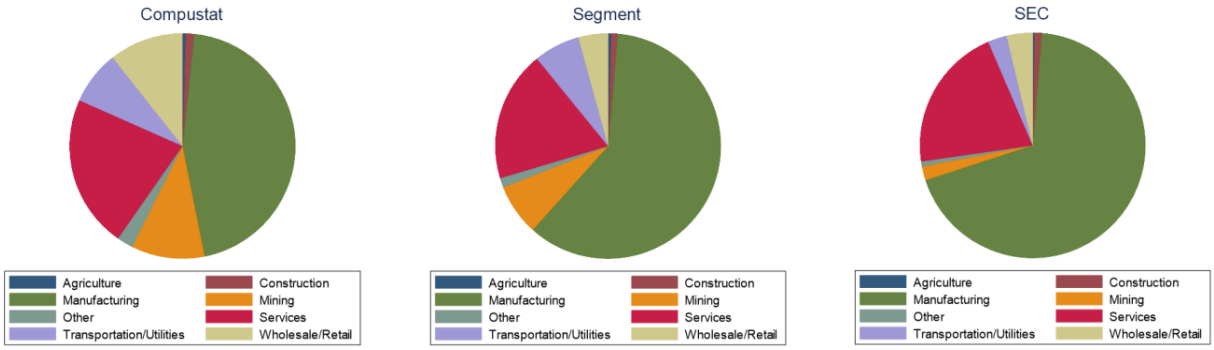

Figure 2. Industry Distribution of Firms Across Samples. This figure depicts the industry distribution in the three samples. Industries are defined at the one-digit SIC level. For the Compustat sample, we plot the distribution across all firms. For the Segment and SEC samples, we plot the industry composition across all suppliers.

of receivables recorded in the Segment database, and both are lower than the receivables reported from Compustat. All three series exhibit similar aggregate movement over time.

Figure 2 reports the distribution of industry sectors for all three samples. Manufacturing firms have a bigger presence in our SEC sample as well as the Segment sample, compared to the Compustat sample. This is not surprising because manufacturers are more likely to have major customers and extending trade credit is common industry practice. All three samples contain similar percentage of firms in service and wholesale industries. Again, retail firms account for a smaller proportion of firms in the Segment and SEC data than in the Compustat universe. Our sample also contains fewer firms in transportation and mining industries.

3 Baseline Results

3.1 Sales and Anti-Recharacterization Laws

We first validate the argument that anti-recharacterization laws allow a firm to increase its bargaining position with major customers. We conjecture that a firm's bargaining power with buyers depends on the option to switch to other customers. Thus, we look at the log of total sales that the firm makes to all customers and the number of new customers it establishes. These metrics capture the firm's product market presence

and alternative outside options. Thus, we estimate Equation 2 using the Segment sample and the full Compustat sample. Table 2 reports the results.

TABLE 2 ABOUT HERE

Panel A presents results from the Segment sample, and Panel B reports results from the Compustat sample. Coefficients from the strictest specification (Column (3)) suggest that the passage of ARLs leads to a significant increase in firm sales. Estimates yield larger economic magnitudes for the Segment sample (a 5% increase) than from the full Compustat sample (around 2%).

In Panel C, we examine the establishment of new customer relationships following the passage of the laws. We define a new customer as one who is reported by a firm as a major customer for the first time. For this analysis, we adopt a Poisson regression approach given the dependent variable is an integer count of new customers (Cohn et al. 2021). Consistent with an increased product market presence, we observe that firms are more likely to establish new customer relations after the law.

3.2 Trade Credit and Anti-Recharacterization Laws

We next examine the effect of anti-recharacterization laws on firms' incentives to extend trade credit. Table 3 reports the main results. Panel A presents baseline results and Panel B reports results controlling for customer-year fixed effects. In each panel, we present results in stages as we add more controls.

TABLE 3 ABOUT HERE

In Panel A, we start by showing univariate evidence. In this first test, we only control for *Customer Law* and fixed effects including supplier, customer, and year fixed effects (Column (1)). In Column (2), we control for time-varying characteristics for the customer and the supplier firms. In Column (3), we augment the model by adding both supplier industry-year fixed effects and customer industry-year fixed effects. Finally,

we show in Column (4) the results from imposing customer-supplier-pair fixed effects. Across all specifications, *Supplier Law* generates a negative and statistically significant coefficient with highly consistent magnitudes. From the strictest specification (Column (4)), the estimates suggest that the anti-recharacterization laws are associated with a 16% (= −0.027/0.169) reduction in the provision of trade credit from a supplier to a major customer.

One concern with the above result is that changes in a firm's receivables can be driven by its customers' demand for trade credit. If firms incorporated in states with anti-recharacterization laws happen to also face a decline in trade credit demand from their customers, our estimated effect of the laws could be biased. To address this concern, we design an additional test using the SEC sample where we focus on customers with at least two suppliers at the same time. In this test, we control for customer-year fixed effects to purge out determinants at the customer side. This fixed effect structure allows us to compare the changes in receivables of two different suppliers of the same customer, where one supplier is incorporated in a state that has enacted the laws and the other is in a state that has not. Panel C shows the results from this analysis. *Supplier Law* continues to generate a negative and significant coefficient with similar magnitudes as shown in the baseline test (Panel B). This result suggests that the passage of anti-recharacterization laws generates variation in the trade credit provision across suppliers of the same firm at the same time.

Table 4 reports the effect of anti-recharacterization laws on firm receivables using broader samples, including the entire Compustat universe (excluding financial and utility firms) and the full set of suppliers in the Compustat Segment database. Columns (1) and (2) present results for the Compustat sample while Columns (3) and (4) report results for the Segment sample. For each sample, we first examine the effect from regressions including firm and year fixed effects, and then impose industry-by-year interactive fixed effects. Across both samples, *Law* generates a negative coefficient, significant in three out of the four specifications, suggesting that firms extend less trade credit following the passage of anti-recharacterization laws. The economic magnitude is meaningful: the coefficient

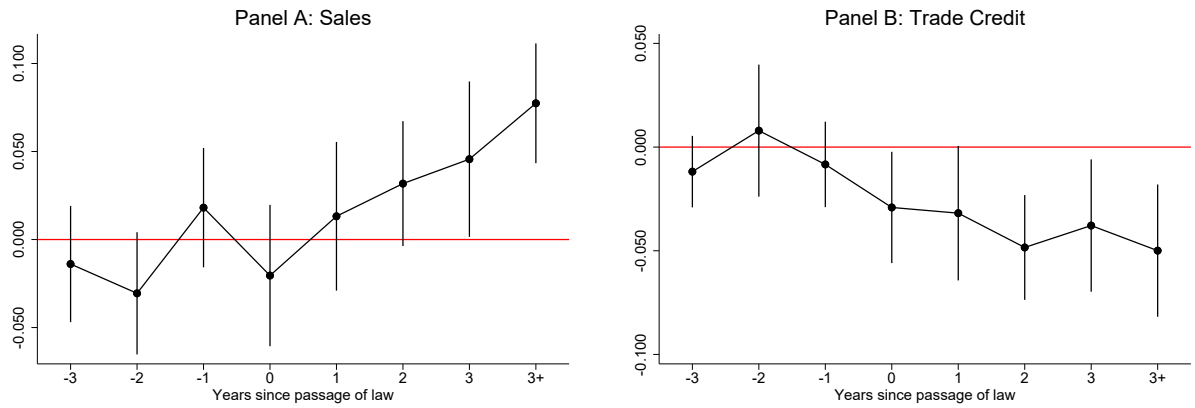

Figure 3. Testing Parallel Trends. This figure plots coefficient estimates from dynamic difference-in-differences regression around the passage of an anti-recharacterization law. Panel A plots coefficients for *Log(Sales)*, where the sample contains all suppliers in the Segment sample. Sales is measured at the firm level. Panel B plots coefficient estimates for *Trade Credit* using the SEC sample. Trade credit is measured at the customer-supplier pair level. The regressions follow the specification and controls in Table 3, Panel A Column (4). Point estimates are marked, with 90% confidence intervals.

in Column (2) suggests that after the passage of the laws, treated firms decrease trade credit by 2.7% relative to the sample average (= −0.005/0.186). Note that the estimates from the SEC sample (Table 3, Panel A, Column (4)) imply higher economic magnitudes than those from the Compustat sample. One explanation is that the SEC sample allows us to track granular, within-trade-pair variation in trade credit. Our stringent fixed effect structure also allows us to better remove noise generated by other determinants of trade credit policies and identify changes in trade credit attributable to the enactment of the anti-recharacterization laws.

Table 4 About Here

Taken together, our results show that firms increase sales and gain new customers following the adoption of anti-recharacterization laws. At the same time, treated firms reduce trade credit provision to existing customers. These findings are consistent with better access to debt market allowing firms to develop stronger market power and provide less short-term financing to their customers.

3.3 Testing Parallel Trends Assumptions

We verify whether the parallel-trend assumption holds in our setting by examining whether firms in treated states changed their provision of trade credit prior to the passage of anti-recharacterization laws significantly compared to firms in control states. To test this assumption, we code separate indicator variables for whether a firm's state of incorporation passes the anti-recharacterization laws in the following year (*Law (t-1)*), in two years (*Law (t-2)*), and in three years (*Law (t-3)*). We include all of these indicators into the baseline regression, together with the same set of controls. If these variables generate statistically significant coefficients in the same direction as the effect of *Law*, it suggests that firms in that state may anticipate the passage of the law and change their receivables ahead of the implementation. Figure 3 presents results from this analysis. Panel A reports the results for sales and Panel B shows the results for trade credit. We do not find a significant change in sales or receivables prior to the passage of the laws. This evidence is important in validating the baseline findings and suggests that our results are unlikely to be driven by persistent firm or local characteristics that affected trade credit usage prior to the inception of the laws.

4 The Bargaining Power Channel

Our baseline results are consistent with the view that better access to debt markets improves firms' bargaining power relative to downstream firms. If firms face the pressure to provide trade credit to powerful customers, and if improved debt capacity helps resolve such pressure, our results should be stronger in cases where the supplier firm has a *weaker* bargaining position relative to the customer. In this section, we provide further evidence to support this point. To start, we track the changes in trade credit extended to major and non-major customers. Second, we examine the differential response of industries that have higher and lower bargaining power with downstream industries. Finally, we look into the heterogeneous responses of firms towards financially strong and weak customers.

4.1 Major and Non-Major Customers

We conjecture that the reduction in trade credit extended by treated firms should be most pronounced for major customers, who account for a substantial portion of sales for the firm of interest. According to FASB No. 14, major customers are defined as ones that contribute at least 10% of sales for a given firm. We follow this convention and classify customers into major and minor ones.

While we do not directly observe trade credit provided to individual minor customers, we can compute the total trade credit and total sales attributed to these customers as a whole. Specifically, trade credit to minor customers equals the difference between total accounts receivable and the receivables attributed to major customers; sales to minor customers equal the difference between total sales and the sales to major customers. With this information, we can compute the amount of trade credit per dollar of sales to all minor customers at the supplier-year level. Accordingly, we define *Trade Credit, Major Cust* and *Trade Credit, Minor Cust* as follows:

$$Trade\,Credit,\ Major\,Cust_{i,t} = \frac{\sum_{j\in J} Reported\,TC_{i,j,t}}{\sum_{j\in J} Reported\,Sales_{i,j,t}}$$
$$Trade\,Credit,\ Minor\,Cust_{i,t} = \frac{Total\,Receivables_i - \sum_{j\in J} Reported\,TC_{i,j,t}}{Total\,Sales_i - \sum_{j\in J} Reported\,Sales_{i,j,t}},$$

where i represents a supplier, j represents a customer, J is the set of all customers of supplier i, and t indicates a year. *Reported TC* represents the trade credit provided to major customers, as reported by the firm in its 10-K footnotes. *Reported Sales* comes from Compustat Segment database, indicating the amount of sales to major customers.

Table 5 reports the results from this analysis. In this table, all variables are defined at the supplier level, with one observation per supplier-year. Columns (1) and (2) present the results regarding trade credit to major customers (*Trade Credit, Major Cust*), and Columns (3) and (4) report the changes in trade creidt to minor customers (*Trade Credit, Minor Cust*).

We find that treated firms significantly reduce the trade credit to major customers, by around 4.3 percentage points. This result is consistent with our baseline findings

presented in Table 3. However, we do not observe a meaningful reduction in the trade credit for minor customers. For each dependent variable, we alternate the exclusion and inclusion of the percentage of sales attributed to major customers to account for the possibility that changes in the denominator might drive the changes in trade credit-sale ratio. Yet, our results are not sensitive to this control. In Column (5), we document a overall decline in receivable-to-sales ratio at the firm level. Such a decline has a smaller magnitude of around 1.1 percentage points, representing around 6% change relative to the sample mean. It is driven primarily by changes in trade financing for major customers.

TABLE 5 ABOUT HERE

Taken together, results from this analysis is consistent with the argument that improved access to debt markets reduces suppliers' dependence on their most significant customers. Such a change in bargaining dynamics relieves the pressure for firms to extend trade credit to powerful customers.

4.2 Industry Sales Dependence

We next use downstream sales dependent at the industry-level as a proxy for customer bargaining power. Following Ahern (2012) and Ahern and Harford (2014), we compute the percentage of total output from a supplier industry that is purchased by a customer's industry. Data come from the Input-Output (IO) matrices provided by the Bureau of Economic Analysis (BEA). This ratio represents the reliance of the supplier industry on the customer industry, which also represents the lack of bargaining power. Given that industry-level input-output flow is largely determined by technologies and the nature of products, this dependence is unlikely to be driven by omitted variables that also influence an individual firm's response to the enaction of anti-recharacterization laws. We link this ratio to each customer-supplier pair based on the IO-NAICS (or IO-SIC) crosswalk and classify firms based on their industries' dependence on their customers' industries. We then examine the differential effect of anti-recharacterization laws on the trade credit

provision of high-dependence firms (above-median) and low-dependence firms (below-median). Following Fan and Lang (2000) and Acemoglu, Johnson, and Mitton (2009), we exclude firms in retail or wholesale industries from these tests.[9]

Table 6 reports the results from this analysis. In Panel A, we construct the customer-dependence measure using IO matrices updated every five years. For example, we use the IO matrices from 1997 to compute the customer-dependence of industries for years 1997—2001, and IO matrices from 2002 to compute the measure for years 2002—2006. In Panel B, we use only the 2002 matrices to calculate a fixed dependence measure for all sample years. This helps alleviate the concern that industry classification was coarse for earlier years. Another advantage of this approach is the time-invariant assignment of a customer-supplier pair to either the "low" or "high" dependence group throughout the sample. In both panels, we consistently find that the reduction in trade credit after ARLs is more pronounced for suppliers that depend heavily on (or have low bargaining power with) their customers. The estimated reduction is about 4 to 5 percentage points. In contrast, suppliers that have low dependence on (high bargaining power with) downstream industries do not reduce trade credit. These results provide further credence for the argument that better access to credit markets allow firms to extend less trade credit because they achieve an enhanced bargaining position relative to buyers.

TABLE 6 ABOUT HERE

4.3 Customer Financial Strength

We next explore the heterogeneity in customers' financial strength. With a low debt capacity, firms are likely to be constrained to supplying products and services to a small group of "safe" customers, who have high credit quality and thus a higher likelihood to repay. However, these customers are also likely to be larger, more powerful firms that offer lower growth opportunities and demand superior trade terms, implying a higher shadow

[9] Acemoglu et al. (2009) note that the input-output classification system is not sufficiently refined for retail codes to reveal meaningful vertical flow patterns, reporting that nearly all SIC codes between 5000-5999 map into two single IO codes.

cost of providing trade credit to those customers.[10] With the passage of ARLs, firms can better access outside credit markets, and we should observe treated firms reduce trade credit provision to those safe customers and simultaneously extend and deepen relationships with lower credit quality customers ("risky" customers).

To characterize customer credit quality, we look at both credit ratings and Z-scores prior to the enaction of the laws. We define "safe" customers as ones with above-median S&P long-term issuer rating or ones with Z-scores of 3 or above. The sales and trade credit regressions are then estimated separately for each of type of customers.

Table 7 reports the results for sales. Panel A shows results from subsamples of customers with above and below median credit ratings. Panel B reports results from subsamples of customers whose Z-scores are above and below 3. Across both criteria, we find treated firms only increase sales significantly to risky customers. Coefficients from the most rigorous specification suggest that treated firms increase sales to risky customers by about 1–2%, but do not increase sales to safe customers.

TABLE 7 ABOUT HERE

Table 8 reports the results related to trade credit extension. Here, we observe a consistent pattern: firms affected by the anti-recharacterization laws reduce trade credit only to safe customers but not to risky customers. Customers with high ratings (Z-scores) face a reduction in trade credit by 5% (4%) after the adoption of the laws, but there is no change in the trade credit to lowly rated (low-Z-score) customers.

TABLE 8 ABOUT HERE

Taken together, results from this analysis suggest that as firms gain better access to credit, they deepen relationships with riskier customers, but not customers with high credit quality. In fact, firms only reduce trade credit provided to the "safe" customers. This finding indicates that firms restructure their customer base to exploit the greater growth opportunities with riskier customers. The intuition is consistent with the idea

[10] In our SEC sample, the median customer in the above-median credit rating subsample is 3.7 times as large as the median for the subsample with below-median credit ratings. Similarly, the median market share of highly rated customers is about twice as large as the market share of lowly rated customers.

that creditor rights protection makes firms more resilient to uncertainty shocks (Favara et al. 2021). Given that safe customers are also more likely to have stronger market power, this finding also implies that better creditor protection potentially makes firms less dependent on and less "held-up" by powerful customers.

5 Implications for Downstream Firms

5.1 Customers' Payables

We examine changes in downstream firms' payables around the implementation of ARLs in the state of their suppliers (i.e., "Upstream Laws"). A firm's payables reflect the total amount of trade credit it receives from all of its suppliers. If some suppliers face ARLs and reduce the amount of trade credit they grant to the firm, the customer firm should report lower payables. We measure a firm's exposure to upstream anti-recharacterization laws using *Upstream Law Exposure*, which is defined as the firm's purchases from suppliers in ARL states divided by the firm's total cost of goods sold. This measure is analogous to the weighted average of law exposure across a firm's suppliers. We regress a firm's payables (defined as a ratio over total cost of goods sold) on its *Upstream Law Exposure*, and expect a negative coefficient. This analysis is conducted at a firm-year panel and includes controls for firm and year fixed effects.

Critically, our prediction relies on the assumption that the firm cannot switch its orders to alternative suppliers without cost. We argue that switching is likely to be costly when the treated supplier accounts for a large percentage of inputs purchased by the firm. As such, we expect that upstream ARLs should only have a meaningful effect on the customer firm's payables if the affected suppliers provide a substantial portion of the firm's inputs. To account for this effect, our regressions control for *Traceable Suppliers*, the percentage of cost of goods sold that can be traced to any supplier. We also repeat this analysis for multiple samples of firms for whom we can identify increasing fractions of traceable suppliers. We expect the effect to be stronger for firms for whom higher fractions of inputs are traceable.

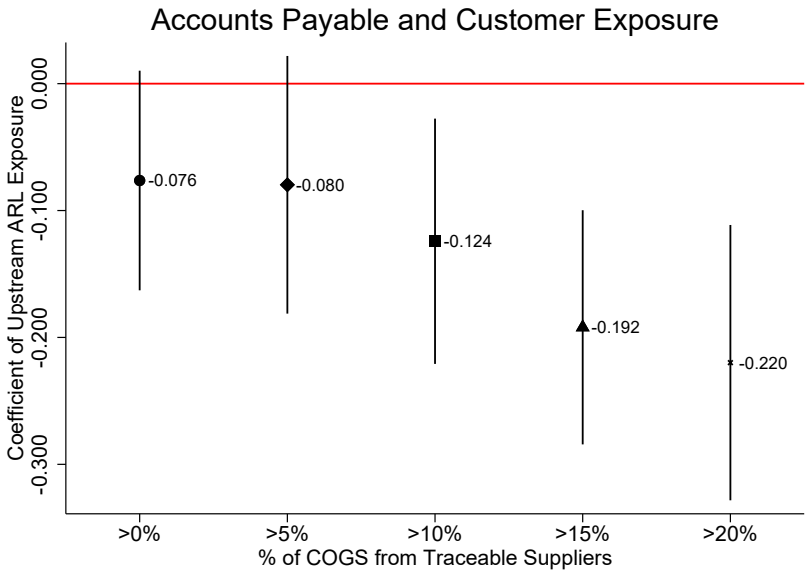

Figure 4. Effects on Customer Payables. This figure plots the coefficient estimates from regressions of Customer payables (customer payables scaled by customer cost of goods sold) on *Upstream Law Exposure*, the percentage of customer cost of goods sold that can be traced to suppliers in ARL states. A full set of controls are included in these regressions, including Traceable suppliers, the percentage of customer COGS that can be traced to any supplier. The x-axis reflects thresholds from sequentially limiting customer-years to those with a specified level of Traceable suppliers. Point estimates are marked, with 90% confidence intervals.

Figure 4 presents the results from this analysis. Consistent with our conjecture, a firm's exposure to upstream ARL is associated with a reduction in payables. As discussed above, we expect that suppliers' exposure to ARLs should only affect a firm's payables when those suppliers account for a significant portion of firm's input. We thus narrow down the sample in stages. We first consider all customers with at least one reported supplier. Next, we gradually increase this threshold to requiring that observed suppliers account for 5%, 10%, 15%, and 20% of firms' cost of goods sold. In this figure, the markers represent coefficient estimates of *Upstream Law Exposure*, and the corresponding intervals suggest 90% confidence intervals of each estimate. The horizontal axis indicates the sampling criteria. The figure shows that coefficients of *Upstream Law Exposure* are negative across all tests. Importantly, the effects of supplier ARLs on customer payables increase monotonically with the amount of inputs that can be traced back to major suppliers. As we focus on firms with at least 10% traceable suppliers, effects become significantly both economically and statistically. For firms with 10% (15%) traceable inputs, a one-standard deviation increase in supplier exposure is associated with a 3.55%

(5.50%) reduction in firm payables, relative to subsample means.[11] Overall, results from this analysis confirms our previous results that the passage of anti-recharacterization laws leads firms to provide less trade credit to their customers.

5.2 Customers' Investment, Leverage, and Trade Credit

If the enactment of ARLs reduces the amount of liquidity firms provide to their customers, does it generate any real effects on customers' financial and operating policies? We investigate this question by tracing customer firms' investment, debt levels, and trade credit provision further downstream around the implementation of ARLs. Following the design of the payable analysis, we regress the investment, leverage, and receivables of a firm on its exposure to anti-recharacterization laws through suppliers, *Upstream Law Exposure*. Consistent with the previous test on customer payables, we also control for the total percentage of inputs that can be traced to suppliers.

Table 9 provides the results. Following the passage of anti-recharacterization laws in a state, customers of affected firms experience a significant decline in investment levels and an increase in total debt. A one-standard-deviation increase in *Upstream Law Exposure* corresponds to approximately a 5% increase in leverage and a 5% reduction in investment relative to the sample means.[12] This suggests that the reduction in trade financing forces downstream firms to scale back their operations and substitute external financing for supply-chain financing. Interestingly, the customer firms in our analysis also significantly reduced their own trade credit provision to their own respective customers. This result indicates that the contraction in trade financing is passed through input-output linkages and potentially influencing firms indirectly connected through the supply-chain.

TABLE 9 ABOUT HERE

[11] For the $\geq$ 10% subsample, the effect is -3.55% relative to the sample average level (=-0.124 $\times$ 0.051/0.178). For the $\geq$ 15%, the effect is computed as -5.50% (=-0.192 $\times$ 0.051/0.178).

[12] For leverage, the effect is 4.68% relative to the sample average (0.234 $\times$ 0.051/0.255). For investment, the effect is -4.67% relative to the sample average (-0.075 $\times$ 0.051/0.082).

6 Additional Analysis

In this section, we address several potential concerns related to our baseline results. First, we discuss the possibility that our results might be biased due to heterogeneous treatment timing in a generalized difference-in-difference setting. Second, we address the concern related to firms' reporting choices by testing the robustness of our results in a set of stable customer-supplier relations. Finally, we consider whether our findings could be explained by firms securitizing their receivables.

6.1 Addressing Concerns Regarding Heterogeneous Treatment Timing

We repeat our baseline analysis in a single-event setting to address concerns related to heterogeneous treatment time in a generalized difference-in-difference setting. In this analysis, we focus on the adoption of anti-recharacterization laws in Delaware and retain control observations only from states that have never passed the law. In Table 10 we present results from four specifications in correspondence with our baseline analysis in Table 3. Our results are robust across all specifications.

Table 10 About Here

6.2 Addressing Concerns Regarding Sample Selection

As we collect trade credit data from firms' 10-K disclosures, concerns could arise related to selection effects. For example, suppliers may stop transacting with customers demanding high levels of trade credit after the laws are enacted. This could lead to a reduction in the average trade credit observed after the laws. While such an effect should be limited by the addition of customer-supplier pair effects, we evaluate the importance of this selection effect by restricting the sample to a set of "stable" supply-chain relations that are observed both before and after the passage of the laws.

We design a novel matching approach to accommodate this restriction. For each

treated supplier, we look at a matched control supplier that shares the same customer during the event horizon. Importantly, we require that both suppliers report trade credit data to the common customer for at least N years ($N = 1, 2, 3$) *both* before and after the passage of the laws. For example, Steelcloud is incorporated in Virginia, where the anti-recharacterization law passed in 2004. Steelcloud reports trade credit to its major customer, Lockheed Martin, during two years before 2004 and two years after 2004. Over the same time period, Moog Inc., incorporated in New York (a control state), also reports trade credit to Lockheed Martin. In this example, we compare the change in trade credit extended by Steelcloud (treated) to Lockheed Martin around 2004 to the change in trade credit extended by Moog (matched control) to Lockheed Martin over the same time period. This matched sample method ensures that we can trace the change in trade credit provision to a "surviving" customer around the laws.

Table 11 reports the results from this analysis. In the first two columns, we require the treated and control relations to report at least one year of trade credit data both before and after the laws. In Columns (3) and (4), we raise this requirement to two years, and for the last two columns, we require three years. Customer-year fixed effects are included in all regressions, which help narrow down the comparison between matched pairs. Across all sample restrictions, our baseline findings persist. Importantly, the magnitude of this effect gradually increases as we raise the stringency of sample requirements. Column (6) suggests that suppliers affected by the laws cut trade credit to customers by 11 percentage points more compared to unaffected suppliers. The higher magnitude could arise from us focusing on a set of customers that have limited outside options, who are more likely to accept worse trade terms.

Table 11 About Here

6.3 Addressing Concerns Related to Securitization

The last concern we address is that the baseline results could be driven by firms securitizing their receivables to an unconsolidated SPV following the passage of anti-recharacterization laws. If the anti-recharacterization laws make it more desirable for

firms to sell receivables off balance sheet to an unconsolidated SPV, the observed decline in receivables could reflect a mechanical effect of receivable securitization.

We conduct two analyses to alleviate this concern. First, we directly gauge firms' SPV usage and exclude firms that report having an SPV for securitization purposes. Data regarding firms' SPV usage come from Lemmon et al. (2014).[13] Lemmon et al. collect detailed data from firms' SEC filings regarding whether a firm has a special purpose entity or mentions specifically that its securitizes (sells) its accounts receivable. Based on this information, we restrict the sample by removing observations where a firm discloses having an SPV outstanding or that it securitizes receivables. We repeat the baseline tests using those restricted samples. Columns (1) and (2) of Table 12 show that our results continue to hold in these samples.

TABLE 12 ABOUT HERE

Next, we exclude from our sample the implementation of two anti-recharacterization laws, passed in Texas and Louisiana, which focused on the securitization of accounts receivable. If our findings are mechanically driven by the securitization of trade credit, effects should weaken once we exclude these two events. In Columns (3) and (4) of Table 12, we find that the baseline results persist in the restricted sample and the coefficients of *Law* generate similar magnitudes as those from Table 3 (Column (4) of Panel A). This evidence further suggests that our results are unlikely to solely be driven by increased securitization of receivables.

In earlier analysis (Section 5.1), we also traced the payables of the customers of treated firms, as customer payables should not be affected by the securitization activities of treated firms. We verify that customers' accounts payable decline after the passage of the laws in the supplier state. This further lends support to our interpretation that enhanced creditor rights allow firms to reduce trade credit extension.

[13] We thank Laura Li and Mike Mao for sharing the data on firms' SPV usage.

7 Conclusion

We use a granular dataset on the trade credit between U.S. public firms to examine the effect of credit market frictions on firms' incentives to provide trade credit. Contrary to the conventional wisdom that better credit access increases trade credit extension, we show that better access to debt markets improves firms' bargaining position with powerful customers, ultimately allowing them to cut back on trade credit provided to those customers. The affected customers in turn cut back investment, increase leverage, and reduce trade credit provided firms further downstream. Our findings highlight the role of product market power on trade credit provision during normal times, when the option to expand is more valuable.

Our analysis takes advantage of the adoption of anti-recharacterization laws as an exogenous shock to firms' access to debt markets. These laws enhance creditor rights protection inside bankruptcy and allow firms to borrow more, invest in new technology and innovation, and become more productive. Our findings add to the growing literature studying the role of creditor rights protection on firm-level outcomes by showing a novel implication of the bankruptcy law reforms on product market dynamics. In particular, we show that firms affected by the laws expand their customer base, reduce reliance on established customers, and achieve greater bargaining power in supply-chain relationships.

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Table 1
Summary Statistics
This table reports the summary statistics of the key variables in the study. Panel A reports summary statistics for our main sample, which consists of all firms that appear in the Compustat Segment database with available information regarding customer-supplier level trade credit. The sample spans 1992 to 2010. Panel B reports summary statistics in the broader samples, including the Compustat universe, supplier-years represented in the Segment sample, and customer-years represented in the Segment database. *Law* is an indicator for the firm being incorporated in a state that has adopted an anti-recharacterization law. *Trade Credit* is the amount of trade credit offered by a supplier to an individual customer, scaled by the value of transactions between the two. The unit of observation is a customer-supplier-pair-year. *Receivables* is the ratio of accounts receivable over sales, measured at the firm-year level. Other variable definitions are available in Appendix A. All continuous variables are winsorized at the 1st and 99th percentiles.

Panel A: SEC Sample

Variable	N	Mean	Std. Dev	25th Pctl.	Median	75th Pctl.
Pair-level characteristics:						
Trade Credit	5,405	0.169	0.153	0.081	0.133	0.207
Sales Dependence	5,402	0.254	0.201	0.122	0.183	0.310
Relationship Length	5,405	1.365	0.867	0.693	1.386	2.079
Supplier characteristics:						
Law	5,405	0.445	0.497	0.000	0.000	1.000
Size	5,405	4.937	1.819	3.717	4.869	6.110
Age	5,405	2.488	0.705	1.946	2.485	2.996
Q	5,405	2.262	1.930	1.143	1.622	2.607
Leverage	5,405	0.189	0.243	0.001	0.103	0.290
Profitability	5,403	0.017	0.262	-0.035	0.085	0.152
R&D Intensity	5,405	0.107	0.188	0.000	0.050	0.138
Customer characteristics:						
Law	5,405	0.360	0.480	0.000	0.000	1.000
Size	5,404	9.778	1.824	8.796	10.059	11.014
Age	5,405	3.231	0.742	2.708	3.401	3.871
Q	5,404	1.957	1.142	1.208	1.599	2.284
Leverage	5,404	0.236	0.161	0.115	0.223	0.316
Profitability	5,398	0.131	0.078	0.082	0.131	0.171
R&D Intensity	5,404	0.035	0.051	0.000	0.012	0.056

Panel B: Broader Samples

Variable	N	Mean	Std. Dev	25th Pctl.	Median	75th Pctl.
Compustat:						
Law	105,745	0.251				
Receivables	105,745	0.186	0.203	0.091	0.151	0.217
Log(Sales)	105,745	4.405	2.625	2.792	4.558	6.227
Segment Suppliers:						
Law	24,983	0.274				
Receivables	24,872	0.179	0.116	0.114	0.159	0.214
Log(Sales)	24,950	4.562	2.178	3.119	4.544	6.034
Segment Customers:						
Payables	12,164	0.178	0.182	0.088	0.130	0.194
Receivables	12,085	0.163	0.119	0.092	0.147	0.207
Upstream Law Exposure	12,175	0.014	0.051	0.000	0.000	0.001
Traceable Suppliers	12,175	0.079	0.176	0.004	0.017	0.065
Leverage	12,175	0.255	0.197	0.107	0.232	0.359
Investment	11,742	0.082	0.089	0.031	0.057	0.099

Table 2
Access to Debt Markets and Sales

This table shows the effect of the anti-recharacterization laws on firms' sales. *Law* is an indicator for the firm being incorporated in a state that has passed the anti-recharacterization law. Panel A examines the effect of the laws on firm sales for supplier-years represented in the Compustat Segment database ("Segment Sample"). Panel B reports results for the Compustat sample. The dependent variable in Panels A and B is the log of total sales. Panel C reports results from a Poisson regression where the dependent variable is the count of the suppliers' newly reported major customers in a given year. Controls include *Age, Size, Q, Leverage, Profitability*, and *R&D Intensity*. Variable definitions are available in Appendix A. Industry is defined by 2-digit SIC codes. *t*-statistics are shown in parentheses, calculated from standard errors clustered by the supplier's state of incorporation. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Total Sales, Segment Sample

Dep. Var.: *Log(Sales)*	(1)	(2)	(3)
Law	0.200***	0.056***	0.047***
	(5.07)	(4.08)	(3.30)
Controls		Yes	Yes
Year FEs	Yes	Yes	
Firm FEs	Yes	Yes	Yes
Industry×Year FEs			Yes
R^2	0.925	0.970	0.971
Observations	24,044	20,839	20,647

Panel B: Total Sales, Compustat Sample

Dep. Var.: *Log(Sales)*	(1)	(2)	(3)
Law	0.192***	0.025***	0.019**
	(14.99)	(2.67)	(2.05)
Controls		Yes	Yes
Year FEs	Yes	Yes	
Firm FEs	Yes	Yes	Yes
Industry×Year FEs			Yes
R^2	0.904	0.954	0.954
Observations	105,056	90,629	90,599

Panel C: New Customers

Dep. Var.: *New Customers*	(1)	(2)	(3)
Law	0.015	0.178*	0.205**
	(0.18)	(1.90)	(2.16)
Controls		Yes	Yes
Year FEs	Yes	Yes	
Firm FEs	Yes	Yes	Yes
Industry×Year FEs			Yes
Observations	22,447	18,625	17,979

Table 3
Access to Debt Markets and Trade Credit
This table examines how the passage of anti-recharacterization laws affects suppliers' extension of trade credit. We use the SEC sample, which consists of all firm for which we could identify trade credit data to major customers during the period of 1992–2010. The dependent variable is *Trade Credit*, defined as the trade credit extended between a supplier to a customer during a given year, scaled by the total transaction value between the two firms in the same year. *Law* is an indicator for the firm being incorporated in a state that has passed the anti-recharacterization law. Panel A presents our baseline results. Panel B further includes customer-year fixed effects. Controls include *Age, Size, Q, Leverage, Profitability, and R&D Intensity*, for both the customer and the supplier. Variable definitions are available in Appendix A. Industry fixed effects are captured by 2-digit SIC codes. *t*-statistics are shown in parentheses, calculated from standard errors clustered by the supplier's state of incorporation. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Baseline Results

Dep. Var.: *Trade Credit*	(1)	(2)	(3)	(4)
Supplier Law	-0.024**	-0.024***	-0.036***	-0.027***
	(-2.70)	(-2.77)	(-3.73)	(-2.80)
Customer Law	0.023**	0.021**	0.023**	0.047***
	(2.64)	(2.45)	(2.59)	(4.98)
Supplier Characteristics		Yes	Yes	Yes
Customer Characteristics		Yes	Yes	Yes
Pair Characteristics		Yes	Yes	Yes
Year FEs	Yes	Yes		Yes
Supplier FEs	Yes	Yes	Yes	
Customer FEs	Yes	Yes	Yes	
Supplier Industry×Year FE			Yes	
Customer Industry×Year FE			Yes	
Pair FE				Yes
R^2	0.423	0.449	0.430	0.497
Observations	5,100	5,086	4,740	4,820

Panel B: Controlling for Customer-Year FE

Dep. Var.: *Trade Credit*	(1)	(2)	(3)	(4)
Supplier Law	-0.026*	-0.032**	-0.034**	-0.043***
	(-1.96)	(-2.28)	(-2.48)	(-2.74)
Supplier Characteristics		Yes	Yes	Yes
Pair Characteristics		Yes	Yes	Yes
Supplier FEs	Yes	Yes	Yes	
Customer×Year FEs	Yes	Yes	Yes	Yes
Supplier Industry×Year FE			Yes	
Pair FE				Yes
R^2	0.490	0.503	0.509	0.503
Observations	3,212	3,210	3,018	2,979

Table 4
Robustness of Results in Broader Samples
This table reports results for broader samples. Columns 1 and 2 report results for the Compustat sample. Column 3 and 4 report results for suppliers in the Segment sample, i.e., firm-years whereby the firm reports at least one major customer. The dependent variable is *Receivables*, the accounts receivable of a firm divided by total sales. All regressions include the same set of controls as Table 2. Variable definitions are available in Appendix A. Industry fixed effects are captured by 2-digit SIC codes. *t*-statistics are shown in parentheses, calculated from standard errors clustered by the supplier's state of incorporation. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Sample:	Compustat		Segment	
Dep. Var.: *Receivables*	(1)	(2)	(3)	(4)
Law	-0.005**	-0.005**	-0.003	-0.004*
	(-2.03)	(-2.16)	(-1.32)	(-1.71)
Controls	Yes	Yes	Yes	Yes
Firm FEs	Yes	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes	Yes
Industry×Year FEs		Yes		Yes
R^2	0.453	0.454	0.527	0.527
Observations	9,629	90,599	20,770	20,575

Table 5
Major and Minor Customers

This table compares the effect of the adoption of the anti-recharacterization laws on suppliers' extension of trade credit for major customers, minor customers, and aggregate total customers. The sample is a supplier-year panel, including observations in which the firm reports trade credit for at least one major customer. In Columns (1) and (2), the dependent variable is *Trade Credit, Major Cust*, trade credit aggregated across major customers by taking the ratio of aggregate summed receivables to all reported major customers and aggregate summed sales to all reported major customers. In columns 3 and 4, the dependent variable is *Trade Credit, Minor Cust*, trade credit aggregated across minor customers by taking the ratio of supplier firm-level receivables not designated as major customer receivables and supplier firm-level sales not designated as major customer sales. In Column (5), the dependent variable is *Receivables*. Columns (2) and (4) include a control for the percentage of supplier sales comprised by major customers. Other controls are included but suppressed for presentation. Control variables are the same as in Table 2. Variable definitions are available in Appendix A. All continuous variables are winsorized at the 1st and 99th percentiles. *t*-statistics are shown in parentheses, calculated from standard errors clustered by supplier's state of incorporation. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Dep. Var.:	*Trade Credit, Major Cust*		*Trade Credit, Minor Cust*		*Receivables*
	(1)	(2)	(3)	(4)	(5)
Supplier Law	-0.040***	-0.043***	-0.005	-0.001	-0.011**
	(-3.24)	(-3.36)	(-0.48)	(-0.14)	(-2.12)
%Sales to Major Customers		Yes		Yes	
Controls	Yes	Yes	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes	Yes	Yes
Firm FEs	Yes	Yes	Yes	Yes	Yes
R^2	0.461	0.474	0.447	0.461	0.521
Observations	3,652	3,648	3,650	3,646	3,648

Table 6
Supplier-Chain Dependence

This table shows the differential effect of the anti-recharacterization laws on firms' extension of trade credit between suppliers in industries with high and low dependence on customers' industries. The dependent variable is *Trade Credit*, the amount of trade credit provided by a supplier to a customer scaled by their transaction value in a year. *Law* is an indicator for the firm being incorporated in a state that has passed an anti-recharacterization law. In Panels A and B, we partition the sample by supplier dependence, measured as the percent of the supplier's industry output purchased by the customer's industry using the BEA's input-output (IO) matrices. In Panel A, customer dependence is measured by all BEA matrices, while in Panel B, this measure is constructed using only the 2002 table. In each panel, *High Customer Dependence* refer to suppliers whose industries have a dependence on the customer industry that is above the sample median. Both panels use the SEC sample, excluding firms in retail or wholesale industries (SIC codes 5000-5999). Controls include all the controls in Table 3. Variable definitions are available in Appendix A. Industry fixed effects are captured by 2-digit SIC codes. *t*-statistics are shown in parentheses, calculated from standard errors clustered by the supplier's state of incorporation. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Supplier Dependence Above and Below Median (Time-Varying IO)

Sample: Customer Dependence	High	Low	Difference	High	Low	Difference
Dep. Var.: *Trade Credit*	(1)	(2)	(High−Low)	(3)	(4)	(High−Low)
Supplier Law	-0.043*	0.027	-0.069**	-0.053**	0.027	-0.080**
	(-2.04)	(1.06)	(-2.28)	(-2.51)	(1.05)	(-2.50)
Controls	Yes	Yes		Yes	Yes	
Year FEs	Yes	Yes		Yes	Yes	
Supplier FEs	Yes	Yes				
Customer FEs	Yes	Yes				
Pair FE				Yes	Yes	
R^2	0.486	0.418		0.537	0.483	
Observations	1,086	1,088		1,027	1,036	

Panel B: Supplier Dependence Above and Below Median (2002 IO)

Sample: Customer Dependence	High	Low	Difference	High	Low	Difference
Dep. Var.: *Trade Credit*	(1)	(2)	(High−Low)	(3)	(4)	(High−Low)
Supplier Law	-0.074***	0.040	-0.110***	-0.077***	0.047**	-0.118***
	(-3.96)	(1.69)	(-3.22)	(-3.22)	(2.12)	(-3.24)
Controls	Yes	Yes		Yes	Yes	
Year FEs	Yes	Yes		Yes	Yes	
Supplier FEs	Yes	Yes				
Customer FEs	Yes	Yes				
Pair FE				Yes	Yes	
R^2	0.484	0.393		0.538	0.460	
Observations	1,204	1,214		1,147	1,168	

Table 7
Financially Healthy and Risky Customers

This table shows the effect of the anti-recharacterization laws on firms' customer sales for subsample splits along dimensions of customer creditworthiness. The dependent variable is *Log(Sales)*. *Law* is an indicator for the firm being incorporated in a state that has passed an anti-recharacterization law. Panel A reports results from subsamples of customers whose credit rating lies above and below the sample median. Panel B reports results from subsamples of customers with z-scores above and below 3. Both panels use the Compustat Segment sample. Controls include all the control variables in Table 3, excluding *Sales Dependence*. Variable definitions are available in Appendix A. Industry fixed effects are captured by 2-digit SIC codes. *t*-statistics are shown in parentheses, calculated from standard errors clustered by the supplier's state of incorporation. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Credit Rating Above and Below Median

Sample:	Safe Customer	Risky Customer	Difference	Safe Customer	Risky Customer	Difference
Dep. Var.: *Log(Sales)*	(1)	(2)	(Safe−Risky)	(3)	(4)	(Safe−Risky)
Supplier Law	-0.028	0.214***	-0.242***	-0.029	0.162***	-0.191***
	(-0.74)	(4.72)	(-4.55)	(-0.54)	(4.41)	(-3.36)
Controls	Yes	Yes		Yes	Yes	
Year FEs	Yes	Yes		Yes	Yes	
Supplier FEs	Yes	Yes				
Customer FEs	Yes	Yes				
Pair FE				Yes	Yes	
R^2	0.893	0.910		0.923	0.931	
Observations	12,236	11,695		11,245	10,618	

Panel B: Z-score Above and Below 3

Sample:	Safe Customer	Risky Customer	Difference	Safe Customer	Risky Customer	Difference
Dep. Var.: *Log(Sales)*	(1)	(2)	(Safe−Risky)	(3)	(4)	(Safe−Risky)
Supplier Law	0.073	0.101*	-0.028	0.014	0.120**	-0.106
	(1.63)	(1.73)	(-0.40)	(0.25)	(2.55)	(-1.37)
Controls	Yes	Yes		Yes	Yes	
Year FEs	Yes	Yes		Yes	Yes	
Supplier FEs	Yes	Yes				
Customer FEs	Yes	Yes				
Pair FE				Yes	Yes	
R^2	0.894	0.906		0.923	0.932	
Observations	15,052	12,498		13,618	11,136	

Table 8
Cross-sectional Analyses: Trade Credit and Customer Credit Quality
This table shows the effect of the anti-recharacterization laws on firms' extension of trade credit for subsample splits along dimensions of customer credit quality. The dependent variable is *Trade Credit*, the amount of trade credit provided by a supplier to a customer scaled by their transaction value in a year. *Law* is an indicator for the firm being incorporated in a state that has passed an anti-recharacterization law. Panel A reports results from subsamples of customers whose credit rating lies above and below the sample median. Panel B reports results from subsamples of customers with z-scores above and below 3. Both panels use the Compustat Segment sample. Controls include all the control variables in Table 3, excluding *Sales Dependence*. Variable definitions are available in Appendix A. Industry fixed effects are captured by 2-digit SIC codes. *t*-statistics are shown in parentheses, calculated from standard errors clustered by the supplier's state of incorporation. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Credit Rating Above and Below Median

Sample:	Safe Customer	Risky Customer	Difference	Safe Customer	Risky Customer	Difference
Dep. Var.: *Trade Credit*	(1)	(2)	(Safe−Risky)	(3)	(4)	(Safe−Risky)
Supplier Law	-0.047***	-0.004	-0.044**	-0.046***	0.002	-0.047**
	(-3.29)	(-0.28)	(-2.34)	(-2.92)	(0.13)	(-2.28)
Controls	Yes	Yes		Yes	Yes	
Year FEs	Yes	Yes		Yes	Yes	
Supplier FEs	Yes	Yes				
Customer FEs	Yes	Yes				
Pair FE				Yes	Yes	
R^2	0.500	0.424		0.528	0.490	
Observations	1,946	2,296		1,859	2,194	

Panel B: Z-score Above and Below 3

Sample:	Safe Customer	Risky Customer	Difference	Safe Customer	Risky Customer	Difference
Dep. Var.: *Trade Credit*	(1)	(2)	(Safe−Risky)	(3)	(4)	(Safe−Risky)
Supplier Law	-0.043***	-0.003	-0.040*	-0.047***	-0.005	-0.041*
	(-3.39)	(-0.17)	(-1.90)	(-3.79)	(-0.33)	(-1.90)
Controls	Yes	Yes		Yes	Yes	
Year FEs	Yes	Yes		Yes	Yes	
Supplier FEs	Yes	Yes				
Customer FEs	Yes	Yes				
Pair FE				Yes	Yes	
R^2	0.460	0.448		0.510	0.493	
Observations	2,806	1,956		2,649	1,863	

Table 9
Effects on downstream firms

This table shows the effect of the adoption of the anti-recharacterization laws on downstream firms' investment and leverage. Panel A shows the effect for customer investment (capital expenditures scaled by beginning-of-year assets), Panel B shows the effect for customer leverage, and Panel C for customer receivables. The sample is a customer-year panel, including observations in which a firm is reported as a major customer by at least one supplier from the Compustat Segment database. *Upstream Law Exposure* is defined as the percentage of a firm's cost of goods sold that can be traced to suppliers in ARL states. *Traceable Suppliers* is the percentage of a firm's cost of goods sold that can be traced to any supplier in the Segment database. Other controls are included but suppressed for presentation. Control variables are the same as in Table 2. Variable definitions are available in Appendix A. All continuous variables are winsorized at the 1st and 99th percentiles. t-statistics are shown in parentheses, calculated from standard errors clustered at the customer firm level. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Panel A: Customer Investment

Dep. Var.: *Customer Investment*	(1)	(2)	(3)	(4)	(5)
Sample: Traceable Purchase/COGS	All	≥5%	≥10%	≥15%	≥20%
Upstream Law Exposure	-0.049**	-0.047	-0.043	-0.075*	-0.109**
	(-1.99)	(-1.49)	(-0.99)	(-1.80)	(-2.25)
Traceable Suppliers	0.027**	0.026*	0.007	0.023	0.003
	(2.26)	(1.88)	(0.32)	(1.26)	(0.14)
Controls	Yes	Yes	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes	Yes	Yes
Firm FEs	Yes	Yes	Yes	Yes	Yes
R^2	0.632	0.662	0.668	0.662	0.645
Observations	10,305	2,821	1,654	1,083	800

Panel B: Customer Leverage

Dep. Var.: *Customer Leverage*	(1)	(2)	(3)	(4)	(5)
Sample: Traceable Purchase/COGS	All	≥5%	≥10%	≥15%	≥20%
Upstream Law Exposure	0.101	0.145*	0.189*	0.234**	0.193
	(1.53)	(1.71)	(1.89)	(2.14)	(1.54)
Traceable Suppliers	-0.041*	-0.026	-0.030	-0.019	-0.011
	(-1.74)	(-1.04)	(-0.95)	(-0.49)	(-0.24)
Controls	Yes	Yes	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes	Yes	Yes
Firm FEs	Yes	Yes	Yes	Yes	Yes
R^2	0.722	0.762	0.772	0.773	0.811
Observations	9,373	2,861	1,679	1,097	808

Panel C: Customer Trade Credit Provision

Dep. Var.: *Customer Receivables*	(1)	(2)	(3)	(4)	(5)
Sample: Traceable Purchase/COGS	All	≥5%	≥10%	≥15%	≥20%
Upstream Law Exposure	-0.077***	-0.062*	-0.080*	-0.132***	-0.128**
	(-2.83)	(-1.82)	(-1.86)	(-2.98)	(-2.17)
Traceable Suppliers	0.046***	0.030	0.019	0.033	0.036
	(2.59)	(1.59)	(0.71)	(1.35)	(1.36)
Controls	Yes	Yes	Yes	Yes	Yes
Year FEs	Yes	Yes	Yes	Yes	Yes
Firm FEs	Yes	Yes	Yes	Yes	Yes
R^2	0.794	0.776	0.778	0.787	0.787
Observations	10,404	2,854	1,674	1,092	803

Table 10
Single-Event Difference-in-Difference: Delaware
This table presents results from a single-event setting, where we focus only on the laws passed in Delaware.. The dependent variable is *Trade Credit*, the amount of trade credit provided by a supplier to a customer scaled by transaction value in a year. *Law* is an indicator for the firm being incorporated in a state that has passed an anti-recharacterization law. We use the SEC sample. Control variables are the same as Panel A of Table 3. Variable definitions are available in Appendix A. Industry fixed effects are captured by 2-digit SIC codes. t-statistics are shown in parentheses, calculated from standard errors clustered by the supplier's state of incorporation. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Dep. Var.: *Trade Credit*	(1)	(2)	(3)	(4)
Supplier Law	-0.021**	-0.033***	-0.024*	-0.040**
	(-2.39)	(-3.57)	(-1.76)	(-2.52)
Customer Characteristics	Yes	Yes		
Supplier Characteristics	Yes	Yes	Yes	Yes
Pair Characteristics	Yes	Yes	Yes	Yes
Year FEs	Yes			
Supplier FEs	Yes	Yes	Yes	
Customer FEs	Yes	Yes		
Supplier Industry×Year FE		Yes		
Customer Industry×Year FE		Yes		
Customer×Year FEs			Yes	Yes
Pair FE				Yes
R^2	0.448	0.430	0.505	0.503
Observations	4,792	4,461	2,999	2,781

Table 11
Robustness of Results to SEC Reporting Thresholds
This table shows the robustness of our results for several samples restrictions. We require that the customer-supplier relations in our sample to appear for both before and after the law passage for at least 1 year (Columns (1) and (2)), 2 years (Columns (3) and (4)), and 3 years (columns (5) and (6)), respectively. The dependent variable is *Trade Credit*, defined as the trade credit extended between a supplier to a customer during a given year, scaled by the total transaction value between the two firms in the same year. *Law* is an indicator for the firm being incorporated in a state that has passed the anti-recharacterization law. Controls include *Age, Size, Q, Leverage, Profitability, R&D Intensity*, for both the customer and the supplier, though customer-year fixed effects in Panel A subsumes the customer controls. Variable definitions are available in Appendix A. Industry fixed effects are captured by 2-digit SIC codes. *t*-statistics are shown in parentheses, calculated from standard errors clustered by the supplier's state of incorporation. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Sample:	≥1 pre- and post-		≥2 pre- and post-		≥3 pre- and post	
Dep. Var.: *Trade Credit*	(1)	(2)	(3)	(4)	(5)	(6)
Supplier Law	-0.045**	-0.048**	-0.054**	-0.060**	-0.103***	-0.111***
	(-2.58)	(-2.76)	(-2.36)	(-2.57)	(-3.75)	(-4.20)
Supplier Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Pair Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Supplier FEs	Yes		Yes		Yes	
Customer×Year FEs	Yes	Yes	Yes	Yes	Yes	Yes
Pair FE		Yes		Yes		Yes
R^2	0.564	0.552	0.384	0.394	0.408	0.428
Observations	1,087	1,087	630	630	384	384

Table 12
Addressing Effects of Securitization
This table presents evidence to address the concern that the baseline results might be driven by increases in the securitization of receivables following anti-recharacterization laws. The dependent variable is *Trade Credit*, the amount of trade credit provided by a supplier to a customer scaled by transaction value in a year. *Law* is an indicator for the firm being incorporated in a state that has passed an anti-recharacterization law. In Columns (1) and (2), we remove observations of firms with known securitization programs (Lemmon et al. 2014). In Columns (3) and (4), we exclude firms incorporated in Texas or Louisiana. All columns use the SEC sample. Control variables are the same as Panel A of Table 3. Variable definitions are available in Appendix A. Industry fixed effects are captured by 2-digit SIC codes. *t*-statistics are shown in parentheses, calculated from standard errors clustered by the supplier's state of incorporation. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Sample:	Exclude Firms with SPVs		Exclude TX and LA	
Dep. Var.: *Trade Credit*	(1)	(2)	(3)	(4)
Supplier Law	-0.033**	-0.042**	-0.029*	-0.040**
	(-2.40)	(-2.68)	(-1.98)	(-2.39)
Supplier Characteristics	Yes	Yes	Yes	Yes
Pair Characteristics	Yes	Yes	Yes	Yes
Supplier FEs	Yes		Yes	
Customer×Year FEs	Yes	Yes	Yes	Yes
Pair FE		Yes		Yes
R^2	0.502	0.500	0.506	0.506
Observations	3,112	2,890	3,138	2,907

Appendix A Variable Definitions

Variable	Definition
Law	Indicator for firm being incorporated in state with ARL
Trade Credit	Pair-level receivables scaled by pair-level sales
Size	Logarithm of total assets
Age	Logarithm of number of years firm has appeared in Compustat
Q	Tobin's Q, defined as (market cap + total book assets – book equity)/ (total book 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 expense scaled by total assets
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
Customer Payables	Accounts payable scaled by COGS
Upstream Law Exposure	Percentage of customer COGS that can be traced to suppliers in ARL states
Traceable Suppliers	Percentage of customer COGS that can be traced to any supplier
Investment	Capital expenditures scaled by beginning-of-year assets