How Do Corporate Liquidity and Repurchase Policies Respond to Unionization at Major Customer Firms?

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Comments welcome

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Abstract

We examine whether firms respond to labor unionization at major customer firms by changing their financial policies. We employ a regression discontinuity design (RDD) to identify the causal effects of customer unionization on a firm's cash holdings and stock repurchases. We empirically test for two opposite, non-mutually-exclusive effects: shielding vs. specific investment. In the full sample, dependent suppliers respond to customer unionization by reducing their cash holdings by 3% of total assets (or 22% of the sample mean) and increasing stock repurchases by 0.5% of total assets (or 38% of the sample mean). These effects are even larger when the customer (1) is more important to the supplier, (2) has greater market power, (3) is located near the supplier, and (4) has had a shorter business relationship with the supplier. These effects generally reverse for suppliers with greater specific investment or longer relationship duration. Our findings suggest that overall, the shielding effect dominates: dependent suppliers reduce cash holdings and increase repurchases to shield the firm from rent-seeking by newly unionized customers. But for suppliers with greater specific investment or longer relationship with the customers, the specific investment effect dominates: suppliers increase their financial flexibility to incentivize the customer to preserve the customer's relationship-specific investment.

Keywords: Labor unions, Supply chain, Corporate financial policies, Cash holdings, Stock repurchases

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1. Introduction

A large literature analyzes how formation of a labor union at a firm affects its corporate policies such as employee compensation (Freeman 1981, Hirsch 2004), capital structure (Bronars and Deere 1991; Matsa 2010; Simintzi, Vig, and Volpin 2015), corporate governance (Agrawal 2012) and innovation (Bradley, Kim, and Tian 2017). A few recent studies examine the effect of unionization on a firm's stakeholders, such as creditors (Campello et al 2018) or suppliers (Leung, Li, and Sun 2020; Chen, Judd, and Pandit 2021). However, to our knowledge, there is currently no systematic evidence on how unionization at a major customer firm affects the financial policies of its dependent suppliers. This paper is aimed at filling this gap in the literature.

In the theory of labor unions, there is no direct link explaining the effect of unionization at customer firms on suppliers' financial policies. Prior studies suggest that unionized firms face a higher cost function following labor unionization (see, e.g., Chen et al. 2011; Chen, Judd, and Pandit 2021; He et al. 2020; Hirsch 1997; Lewis 1986), forcing them to look for ways to cut costs, e.g., by squeezing their dependent suppliers. How do those suppliers respond to this shock? There are two competing and opposite effects. The first effect is rent-seeking by the newly unionized customers. DeAngelo et al (2009) suggest that to reduce a perception by stakeholders such as labor unions that the firm has "deep pockets," firms reduce their cash balances to make them less subject to rent extraction by stakeholders. Smith (2016) finds that firms reduce their cash holdings to shield their assets from rent-extraction by government officials. In our context, unionized customer firms can engage in rent-seeking behavior by asking their dependent suppliers for better contract terms

such as lower prices or longer trade credit. Anticipating such pressures, dependent suppliers have an incentive to reduce their financial flexibility (e.g., by reducing cash holdings or increasing stock repurchases) to shield the firm from such rent extraction. Larger cash holdings make the firm particularly vulnerable to customer demand for lower prices or better terms. And stock repurchases are a way to distribute excess cash to shareholders without making future payout commitments. We refer to this as the shielding effect.

A competing effect is that both customers and suppliers make relationship-specific investments to establish and maintain their business relationship (see, e.g., Williamson 1983). Newly unionized customer firms may increase debt financing to improve their bargaining position with their employees (see, e.g., Matsa 2010; Myers and Saretto 2016). Higher leverage and higher operating costs can prompt customer firms to reduce their relationship-specific investment in the supplier (see, e.g., Chu 2012, Hennessy and Livdan 2009). To counter this effect, dependent suppliers may opt to increase their financial flexibility to encourage their unionized customers to maintain their investment in the relationship. The change in suppliers' financial policies will be greater if they have greater need for their customers' relationship-specific investments (see, e.g., Chu 2012). The two effects (shielding and specific investment) are not mutually exclusive. So, the direction and magnitude of the net effect are empirical issues that we examine. In addition, we examine specific situations where one effect is likely to be stronger.

Using several different sources, we construct a dataset that consists of 1,269 union elections in 328 firms, affecting 2,181 dependent supplier firms, i.e., firms that rely on the unionizing customer firm for ≥10% of their sales. A labor union is certified if the vote for the union is at least 50 percent of the total votes cast. Using this 50 percent threshold, we employ a regression discontinuity design (RDD) model to measure the causal effect of labor unionization in customer

firms on their dependent suppliers' financial policies. Specifically, we examine the changes in supplier cash holdings and repurchases following the unionization of customer firms. We focus on these two policies because compared to leverage and dividend payout, cash holdings and repurchase policies are quite flexible and do not require the firm to make a commitment.

We start by estimating the effects of labor unionization at customer firms on the dependent suppliers' cash holdings and repurchases using global polynomial regressions. The results show that dependent suppliers reduce their cash holdings by 2.1% of total assets (or about 16% of the sample mean), while they do not significantly change their repurchases. The estimation results using the global polynomial are associated with biases because the models use the full sample for estimation. So we also consider the non-parametric (i.e., local linear) estimation models. We find that following customer unionization, suppliers reduce cash holdings by 3% of total assets (or 22% of the sample mean) and increase repurchases by 0.5% of total assets (or 38% of the sample mean). These findings suggest that overall, the shielding effect dominates the specific investment effect.

Next, we do several tests to check the robustness of these findings. First, there is a concern that our local linear estimations are sensitive to optimal bandwidth choices. We re-estimate the local linear models with the optimal bandwidths selected by the method suggested by Imbens and Kalyanaraman (2012). Our results continue to hold under this method. Another concern is about the possibility that union elections tend to cluster during financial crises. If so, our results might be confounded by the resulting sharp economic downturn. To address this concern, we remove union elections triggered during the financial crisis years of 1998, and 2007 to 2009, following the crisis definition of Bekaert et al (2014). We perform local linear regressions in the remaining subsample and continue to get results similar to our baseline results.

Another concern is about the possibility of reverse causality, i.e., changes in suppliers' cash holdings and repurchases causes the unionization push at customer firms. To mitigate this possibility, we use the Granger causality test and estimate linear probability, logit and probit models to predict customer unionization by the dependent suppliers' financial variables measured one year prior to the election year. We find no evidence of this reverse causality.

Yet another concern is the possibility that our findings might be driven by chance. If the results we find are by chance, instead of discontinuity in the treatment, then if we randomly change the cutoff point for a win in the union election (from 0.5), we should continue to find similar and significant results. To address this concern, we conduct placebo tests in which each time we randomly generate a fake cutoff point between 0 and 1 and use that to estimate the effects of a customer firm's unionization on its dependent supplier's cash holdings and repurchases. We repeat the process 10,000 times each for cash holdings and repurchases. These placebo tests show that the distribution of the estimated coefficients using the fake cutoff points is centered around 0. We then do a t-test of the null hypothesis that the true mean of the sample of coefficients estimated using these fake cutoff points equals 0. We get p-values of 0.314 and 0.364 for the models of cash holdings and repurchases, respectively. Thus, we fail to reject the null, which implies that customer unionization has no effects on supplier cash holdings and repurchases if the union election cutoff point is different from 0.5. Overall, our findings do not appear to be driven by chance, but rather by the discontinuity of the treatment around the cutoff point of 0.5.

We next conduct several cross-sectional tests further exploring our findings on the effects of customer unionization on liquidity and repurchase policies of dependent suppliers. We partition our sample of dependent suppliers based on the duration of the supplier-customer relationship,

supplier-customer distance, supplier specificity, customer share, and market concentration in the customer's industry.

We start by examining whether the effects of customer unionization vary by the duration of the relationship between suppliers and customers. We use the number of years of transactions between a firm and its customers reported in the Compustat Segments database to measure the duration of the business relationship. We construct a variable called Relationship Duration which equals one, if the number of years of transactions between suppliers and customers is greater than the sample median and equals zero otherwise. We then partition our sample by this variable and perform local linear regressions using the optimal bandwidths estimated in the main models. We hypothesize that following customer unionization, suppliers with long-term relationships with their customers are more likely to relax their financial flexibility to induce customers to maintain their investment in the relationship, while suppliers with short relationships with their customers are more likely to reduce their financial flexibility to prevent rent extraction by their unionized customers. Consistent with these predictions, in the subsample with short business relationships, suppliers reduce their cash holdings and increase repurchases following customer unionization. In contrast, in the subsample with long-term business relationships, suppliers do not reduce their cash holdings and reduce stock repurchases following customer unionization.

Next, we examine whether the effects of customer unionization vary by the supplier-customer distance. We use supplier and customer headquarters city and state to extract their location coordinates and measure the distance between them. We construct a variable called Supplier-Customer Distance, which equals 1 if the distance between suppliers and customers is greater than the median for the sample, and equals 0 otherwise. Prior studies suggest that customers share more information with their neighboring suppliers (see, e.g., Chu, Tian and Wang (2019);

Wu, et al. (2022)) . So following unionization, customers are more likely to press their neighboring suppliers for better contract terms. To shield themselves from rent-seeking by customers, neighboring suppliers are more likely to reduce their financial flexibility by reducing cash holdings or increasing repurchases. Consistent with this prediction, the results show that suppliers near their newly unionized customers reduce their cash holdings by 3.3 percent and increase their repurchases by 1.2 percent, while distant suppliers do not significantly change their financial flexibility.

We next examine whether the effects of customer unionization vary by the specificity of a supplier's products. Following Barrot and Sauvagnat (2016), we use the number of patents granted to a supplier in the three years prior to customer union elections as a proxy for supplier specificity. A supplier is more (less) specialized if it receives more (fewer) patents than the sample median. Specialized suppliers produce more specific products, so they are more likely to make relationship-specific investments with their customers to maintain long-term business relationships with them. Under the relationship-specific investment theory, more specialized suppliers tend to increase their financial flexibility (by increasing their cash holdings or reducing repurchases) in response to unionization at their customers. In contrast, less specialized suppliers produce more easily substitutable products, so they have less need to make relationship-specific investments in their customers. So their dominant response to customer unionization is shielding: they are more likely to reduce their financial flexibility by reducing cash holdings or increasing repurchases. Consistent with these predictions, we find a significant increase (decrease) in supplier cash holdings in the subsample of suppliers with high (low) specificity. There is no significant effect on repurchases in either subsample. Overall, these findings confirm our predictions and suggest that the estimation

results for our full sample in our main local linear models are the net effect of the two competing forces.

Next, we expect the shielding effect to be larger for a firm's bigger customers. We measure customer share as the percentage of a firm's sales to a given customer and classify a customer as large (small) if this percentage is larger (smaller) than the sample median. We expect suppliers to tighten their financial flexibility (by increasing cash holdings or reducing repurchases) more in response to unionization at customers with higher share. As predicted, we see a significant decrease in supplier cash holdings in the group of customers with higher share, while there is no significant effect for the other group of customers.

Next, customers in more concentrated industries have greater negotiating power with their suppliers, who find it more difficult to find another customer in the industry. So, the shielding effect predicts that suppliers will respond to customer unionization by reducing their financial flexibility more for such customers. We measure customer market concentration as the Herfindahl-Hirschman Index in the customer's 2-digit SIC industry and define high (low) concentration as being above (below) the sample median. We find that both subgroups of suppliers reduce their cash holdings, but the effect is much larger in the subgroup of customers in more concentrated industries. This finding is consistent with the prediction of the shielding effect.

Finally, we investigate the effect of customer unionization on three measures of supplier performance and valuation: operating margin, the ratio of cost of goods sold to sales, and Tobin's Q. We find no evidence that customer unionization significantly reduces dependent suppliers' performance or valuation. Overall, our findings suggest that the shielding effect dominates suppliers' response to unionization at a major customer: suppliers strategically restrict their financial flexibility by reducing liquidity or increasing repurchases to protect themselves from rent

extraction by these customers. But for suppliers with greater specific investment or longer relationship with such customers, the specific investment effect dominates: suppliers increase their financial flexibility to incentivize the customer to preserve the customer's relationship-specific investment.

This paper contributes to two streams of the literature. First, our research contributes to the literature on labor unions. Prior literature finds that labor unions influence a variety of corporate decisions and outcomes in focal firms, including employee benefits (Freeman 1981, Hirsch 2004), capital structure (Matsa 2010; Woods, Tan, and Faff 2019; Simintzi, Vig, and Vilpin 2015), cost of debt (Chen, Kacperczyk, and Ortiz-Molina 2012), liquidation (Campello et al. 2017), innovation (Bradley, Kim, and Tian 2017), corporate governance (Agrawal 2012), and firm value (Abowd 1989). These studies focus on the relationship between labor unions and unionized firms. A few recent studies examine externalities from unionization in the supply chain context. Chen, Judd, and Pandit (2021) find that labor unionization at customer firms disrupts their business relationships with suppliers. Leung, Li, and Sun (2020) find a reduction in suppliers' performance following customer unionization. We extend this literature by providing evidence on how suppliers respond to customer unionization by changing their own financial flexibility. We find that overall, dependent suppliers reduce their cash holdings or increase stock repurchases to shield their firms from rent extraction by their newly unionized customers.

Our paper also contributes to the literature on rent seeking behavior by a firm's stakeholders such as employees and the government. The existing literature has focused on studying how firms use financial leverage (Bronars and Deere 1991; Matsa 2010, Smith 2016) and dividend payout (DeAngelo et al 2009, Chino 2016) to mitigate rent extraction by unionized employees or government officials. We extend this literature by showing how firms use two

financial policies, cash holdings and stock repurchases, to mitigate rent-seeking by newly unionized customers.

The remainder of the paper is organized as follows. Section 2 presents the development of our hypotheses. Section 3 discusses our sample construction and data sources. Section 4 presents our RDD models as identification strategy and tests its underlying assumptions. Section 5 reports our estimation results. Section 6 discusses robustness tests. Section 7 presents cross-sectional analyses of our baseline results and an analysis of firm performance. Section 8 concludes.

2. Hypotheses

The existing literature suggests that labor unions impose substantial costs on unionized firms due to increased cost stickiness (Chen et al. 2011, Chen, Judd, and Pandit 2021, He et al. 2020, Hirsch 1997, Lewis 1986), lower production efficiency (Hirsh 2004), or increased bankruptcy costs (Campello et al. 2018). Given the increased operating cost caused by unionization, unionized customer firms look for operating cost savings from other channels such as seeking better prices or contract terms from their dependent suppliers (Leung, Ling, and Sun 2020). How do firms respond to such rent-seeking behavior by a major customer? DeAngelo et al (2009) argue that firms reduce their cash holdings to make them less subject to outsiders' perceptions that they have "deep pockets." Smith (2016) finds that firms protect themselves from expropriation by government officials by reducing their cash holdings. Chino (2016) finds that highly profitable firms increase their dividend payout to protect their assets from labor unions. Thus, we argue that faced with the threat of rent extraction by newly unionized customers, the

dependent suppliers are more likely to reduce their financial flexibility to shield the firm. This implies the following *shielding hypothesis*:

Hypothesis 1: *A supplier will reduce its cash holdings and/or increase stock repurchases following the unionization of a major customer firm to shield the firm from rent extraction by newly unionized customers.*

The literature on financial and product market interactions suggests that both customers and suppliers make relationship-specific investments that are affected by factors such as firms' bankruptcy risk and leverage (see, e.g., Titman 1984; Maksimovic and Titman 1991; and Hennessy 2009). Unionized customer firms face increases in operating costs, bankruptcy costs and bankruptcy risk, reducing their incentive to maintain relationship-specific investments in their dependent suppliers. Consequently, the dependent suppliers have an incentive to increase financial flexibility to induce their newly unionized customers to continue their relationship-specific investments. This implies the following *relationship-specific investment hypothesis*:

Hypothesis 2: *A supplier will increase its cash holdings and/or decrease stock repurchases following unionization of a major customer firm to induce the customer to maintain its relationship-specific investment.*

3. Data

We construct our data from different sources including Compustat Segments file for supplier-customer relationship, Compustat Annual Fundamentals file for firms' financial data, the National Labor Relations Board (NLRB) for union election data, and CRSP for stock price data.

3.1 Labor Union Data

We collect data on labor union elections from three sources including Holmes (2006) for labor union elections from 1977 to 1999, National Archive Catalog for the period from 1999 to 2011, and the NLRB for the elections from 2011 to 2021. These sources provide the union election data for the period from 1977 to 2021. Following Lee and Mas (2012), we remove any elections with missing outcomes. We keep only representation certifications (RC) elections. Finally, we remain 101,088 RC elections from 1977 to 2021. This data includes the following information: employers, date of election, votes against unions, votes for unions, total votes, outcomes, cities, states, the number of eligible votes. One problem with the union election data is that it does not provide firm IDs to link with Compustat except the company names. Using the company names, we match the union election to Compustat by deploying a 2-step matching procedure. In the first step, we run a fuzzy match function in R[1] to match the employer names reported in the union election data to the identified firm names in CRSP based on the similarities between names. Next, we manually match and check again the automatic matching using LexisNexis' Dun and Bradstreet Corporate Family Tree. As a result, we identify 8,082 RC union elections happening in 1,325 unique firms over the period from 1977 to 2021.

3.2 Supplier-Customer Data

We download and use the supplier-customer data contributed by Cen et al (2017) and Cohen and Frazzini (2008) on Wharton Research Data Services. This supply chain dataset is built on historical customer segment data from Compustat Segment database. Under the FASB 14

[1] We use the stringdist_join function provided by fuzzyjoin package in R.

(1976) and 131 (1997), public firms are required to report their customers accounting for at least 10 percent of their total sales. This dataset has more than 124,570 observations over the period from 1977 to 2021 with GVKEYs for both suppliers and customers. It provides the transaction dates and suppliers' sales to a given customer. First, we remove all suppliers and customers in financial and utility industries before merging this supply chain data to the union election data using customer GVKEYs. To reduce the possible confounding effects, we remove suppliers having union elections one year before, on the year of, or one year after the customers' election years. For customers with multiple RC elections in the same year, we keep the election with the largest number of eligible votes. For suppliers having multiple customers with RC elections in the same year, we keep the election in the largest customer using the suppliers' sales to customers. Finally, we obtain the sample of 9,669 supplier-customer-election observations. This dataset will be merged to the Annually Fundamental Compustat to obtain financial information. Due to missing values in the Annually Fundamental Compustat, we remain 7,433 supplier-customer-year observations in our final sample which is associated with 1,269 union elections in 328 unique customer firms and affecting 2,181 dependent suppliers.

Table 1 summarizes the number of elections, the number of customers, and the number of dependent suppliers in our final sample over 10 bins of vote share for unionization. We have in total of 1,269 elections, and the average eligible vote in our sample is 201.52.

Table 2 shows the distribution of union elections over the years in our sample. The number of elections has declined for the last two decades. This reflects the fact that labor unionization has gradually reduced its prominence, however, its impacts are still relevant and worth investigating. Table 3 presents the distribution of customer firms and the dependent suppliers in our sample by industries. Both customer and supplier firms in the sample are classified by the Fama-French 12

Industry codes. Consistent to the literature, in our sample union elections usually occur in the manufacturing and services firms; the number of customer firms with union elections in these two industries accounts for 39.33 percent of the total customer firms in our sample.

Table 4 is the descriptive statistics of our union elections sample. We have 1,269 elections in total with 513 elections with a winning outcome. The average eligible votes are 201.52, and 50 percent of the elections have the number of eligible votes less than 69. The customer firms with labor union elections in our sample vary in their total number of employees. On average a customer firm in our sample has about 118,697 employees while 50 percent of the firms have less than 70,000 employees.

Table 5 shows summary statistics for dependent and control variables used in the RDD models. Details on the definition and variable construction are in the Appendix. On average, the suppliers have cash and short-term investment of 13.4 percent of the total assets and repurchases on average account for 1.3 percent of the total assets. In general, in our sample, suppliers are different from their customers in terms of profitability, tangibility, firm size, and R&D investment. Customers are in a more concentrated market than suppliers.

4. Empirical Models and Validation

In this paper, we want to capture the causal effects of labor unionization at customer firms on the dependent suppliers' financial policies (cash holdings and repurchases). However, estimating such causal effects is not easy in the supply chain context due to endogeneity concerns. For instance, customer firms might experience some financial/economic difficulties such as financial crises which both motivate their workers to be unionized and affect their dependent

suppliers' financial policies. Thus, if we use a naïve approach to compare the financial policies of the suppliers in the relationship with unionized customers to the ones in the relationship with non-unionized customers, the estimation results might be confounded by endogenous factors. Fortunately, due to the fact that the union election results are determined by the majority rule, we have a sharp regression discontinuity design. Thus, to address such endogeneity concerns, we follow Lee and Lemieux (2010) to evaluate the effects of labor unionization at customer firms on the dependent suppliers' cash holdings and repurchases using regression discontinuity design (RDD) approach. The RDD estimates the effects of the treatment (unionization) within a narrow window (nearly above and nearly below) around a cutoff point which is used to assign the treatment. In the union election context, the running variable V (Vote share) that assigns the unionization status is measured by the number of votes cast for a union divided by the total votes cast. This running variable is between 0 and 1. More importantly, the treatment, unionization, is discontinuous at 0.5; a union wins if the vote share is at least 50 percent. Thus, the union setting qualifies for the key requirements of the sharp RDD approach; the running variable is continuous around the cutoff point, but the treatment is discontinuous around the cutoff point.

$$\text{Union} = \begin{cases} 1, & if\ V \geq 0.5 \\ 0, & if\ V < 0.5 \end{cases}$$

The key assumption is that for the dependent suppliers in the vicinity of the cutoff point of 0.5, the unionization status of their customers is plausibly randomized. This assumption facilitates the estimation of the causal effects of the unionization in customer firms on their dependent suppliers' financial policies. To capture the causal effects, we compare the financial policies of suppliers whose major customers barely won the elections to those of suppliers whose major customers barely lost the election.

Estimation strategies of the RDD approach require estimating two separate regressions (1) and (2) on each side of the cutoff point (Lee and Lemieux 2010). The estimated effects of the unionization status in customer firms on the dependent suppliers' financial policies are the difference between the intercepts of the two following n^{th}-order polynomial regressions:

$$Y = \alpha_L + \beta_{L,1}(V\text{-}0.5) + \beta_{L,2}(V\text{-}0.5)^2 + \ldots\ldots + \beta_{L,p}(V\text{-}0.5)^p + \varepsilon \text{ , where } V \leq 0.5 \quad (1)$$

$$Y = \alpha_R + \beta_{R,1}(V\text{-}0.5) + \beta_{R,2}(V\text{-}0.5)^2 + \ldots\ldots + \beta_{R,p}(V\text{-}0.5)^p + \varepsilon \text{ , where } V \geq 0.5 \quad (2)$$

The combined equation for (1) and (2) is as following:

$$Y = \alpha + \gamma\ Union + \beta_{L,n}.\sum_{n=1}^{p}(V-0.5)^n + \left(\beta_{R,n} - \beta_{L,n}\right).Union.\sum_{n=1}^{p}(V-0.5)^n + \varepsilon \quad (3)$$

Y is the outcome variables including cash holdings and repurchases measured at the first year after the election. The coefficient of interest is γ which is equivalent to ($\alpha_R - \alpha_L$). The equation (3) is estimated on the full sample, and thus it is called the global polynomial regression. Because the global polynomial regression is based on the linear functional form assumption for the relationship between the suppliers' outcome variables and customers' unionization as well as uses the full sample for estimation, this approach may subject to potential biases.

The existing literature recommends estimating RDD models using both the global polynomial and non-parametric methods (Gelman and Imbens 2014; Lee and Lemieux 2010). Thus, we also consider the non-parametric estimation using local linear regressions. General speaking, the local linear regressions use data within small windows around the cutoff point for estimation and can be expressed as following:

$$Y = \alpha + \gamma\ Union + \beta_L(V-0.5) + (\beta_R - \beta_L).Union.(V-0.5) + \varepsilon \quad (4)$$

where $0.5 - h \leq V \leq 0.5 + h$ (h is the bandwidth for the non-parametric estimation). Similarly, γ is the estimated effects of the union status of customer firms on the dependent suppliers' financial policies. For the optimal bandwidth (h) selection, we follow the data-driven bandwidth selection method for RDD by Calonico, Cattaneo, and Farrell (2020). We estimate the local linear regression models using triangular kernel, which gives higher weights to observations closer to the cutoff point, and uniform (rectangular) kernel, which gives the equal weights to observations within the optimal bandwidth around the cutoff point.

Before reporting the estimation results, we now perform a test of the key assumptions for the validity of the RDD models. The validity of the RDD approach is dependent on the two key assumptions. First, the union vote share (the forcing variable) is continuously distributed around the assignment cut-off point (50 percent). Second, the pre-determined outcomes and covariates are also continuously distributed around the cutoff point of 0.5. In other words, observations nearly above and nearly below the cutoff point of 0.5 are similar across the set of pre-determined outcomes and covariates. To test the first assumption, we perform the McCrary (2008) test of the density discontinuity for the running variable, Vote Share. Figure 1 shows the plot of the density distribution by McCrary (2008) test of the union vote shares using the local linear density estimation. The 95 percent confidence intervals of the estimated density for the running variable overlap around the cutoff point. Also, the McCrary (2008) test returns the p-value of 0.249, meaning there is not sufficient evidence to reject the null hypothesis that the vote share is continuously distributed around 0.5.

We first graphically analyze the relationship between vote shares for union and suppliers' cash holdings and repurchases at the end of the first year following customer union elections in Figures 2 and 3. We divide our full sample into 30 equal-sized bins of vote shares and then

calculate the average value of cash holdings and repurchases in each bin. Dots represent these mean values. We then use polynomial functions of vote shares to fit suppliers' cash holdings and repurchases. The shaded areas report the 5^{th} and 95^{th} percentile confidence intervals for the fitted lines. Figures 2 and 3 shows a distinct drop in cash holdings and a distinct jump in repurchases from the left side to the right side of the cutoff point of a vote share of 0.5, with non-overlapping confidence intervals.

5. Empirical Results

5.1 Global Polynomial Regressions

The estimation results of the equation (3) for the dependent suppliers' cash holdings are reported in Table 6. Supplier cash holdings is measured in the first year after customer union elections. All control variables are measured one year prior to customer union elections. Year and industry dummies are included on some models to control for year and industry heterogeneity. We use the Fama-French 48 industry classification to construct the industry dummies. We report the industry-clustered robust standard error in parentheses. The first three columns in Table 6 reports the first-order polynomial RDD models in which column 1 has no controls and fixed dummy variables, column 2 includes both supplier and customer control variables, and column 3 is the full model with all controls and dummies. The models in columns 4, 5, and 6 are similar to those in the first three columns except the fact that they are estimated using the second-order polynomial. Models in the last three columns are estimated using the third-order polynomial. If the shielding hypothesis dominates, then the effects of customer unionization on suppliers' cash holdings should be negative and significant. Except for the first three columns, we capture the negative and significant results at 1% level for the remaining models. According to the results in column 9,

following the unionization of major customers, the suppliers reduce their cash holdings on average by 2.1 percent. This result is consistent with the predictions under the shielding effect.

The results of the global polynomial RDD models for suppliers repurchases are reported in Table 7. The first three columns report the results of the first-order polynomial models. The next three columns, Column 4, 5, and 6, are the results of the second-order polynomial models. The last three columns are estimated using the third-order polynomial method. Columns 1, 4, and 7 have no control variables and fixed dummies. Columns 2, 5, and 8 include both supplier and customer firm characteristics. Columns 3, 6, and 9 are the full models which include all control and dummy variables. Under the shielding effect, we expect to get positive and significant results for the coefficients of Unionization. Although all coefficients are positive, only model 1 returns a positive and significant coefficient at 10% level.

Overall, the results from the global polynomial regressions suggest that following unionization in customer firms, the dependent suppliers reduce their cash holdings.

5.2 Local Linear Regressions

We estimate the local linear regressions within small windows around the cutoff point using the optimal bandwidths selected by the data-driven method developed by Calonico, Cattaneo, and Farrell (2020). The local linear regression estimation results for supplier cash holdings are reported in Table 8. We report the results using both triangular and uniform (rectangular) kernel distributions. We also estimate the local linear models using 75 and 125 percent of the optimal bandwidth to examine whether the results are sensitive to different degrees of bandwidths. Columns 1 and 3 are the models without any covariates and dummies while the

results of the full models with supplier and customer firm characteristics, and fixed dummies are reported in Columns 2 and 4. The estimation results seem to be similar across these columns, and they are all statistically significant. The model with the optimal bandwidth of 0.090 in Column 2 will later be used for the robustness tests. This model estimates a decline in supplier cash holdings by 3% of total assets after customer unionization or about 22% of the sample mean of 13.4% (see Table 5). The results are similar to those in the global polynomial regressions.

The estimation results of the local linear regressions for supplier repurchases are reported in Table 9. Columns 1 and 2 are models using triangular kernel while Columns 3 and 4 are using uniform kernel distribution. Columns 1 and 3 have no covariates and fixed effect dummies, and Columns 2 and 4 are reporting estimation results for the full models with all supplier and customer firm characteristics and fixed effect dummies. After controlling supplier and customer firm characteristics and fixed dummies, we find positive and significant effects in most of the full models. Our baseline model in column 2 shows an increase in repurchases of 0.5% of total assets after customer unionization or about 38% of the sample mean of 1.3% (see Table 5). These results support the shielding effect. Figure 2 shows a decrease in supplier cash holdings and a jump in supplier repurchases right above the cutoff point of 0.5.

Overall, both the global polynomial and local linear regressions suggest that given the unionization in customer firms, the dependent suppliers tighten their financial policies (decreasing cash holdings and increase stock repurchases) to shield their assets from rent extraction by unionized customers.

The validity of the RDD results is dependent on the key assumption that pre-determined outcomes and covariates are continuous around the cutoff point of 0.5. To test this assumption, we perform local linear regressions for all pre-determined outcomes (cash holdings and repurchases

at time t-1) and all other covariates using the optimal bandwidths reported in Table 8 and 9. The estimation results are reported in Table 10. In each model, one of the pre-determined outcomes and covariates is entered as the dependent variable into the model, and we examine these dependent variables in the relationship with customer unionization to see whether there is a significant discontinuity of these pre-determined outcomes and covariates around the cutoff using the optimal bandwidths reported in Table 8 and 9. Most of the models return a non-significant coefficient. This means the pre-determined outcomes and covariates are continuous within a narrow window around the cutoff point.

6. Robustness Tests

In this section, we perform several robustness tests. First, because optimal bandwidth selection is very important for local linear regressions, we might not find similar results if we use a different method of selecting the optimal bandwidths. To address this concern, we run the same local linear models as in Table 8 and 9 but with a different method of optimal bandwidth selection. We apply the data-driven method by Imbens and Kalyanaraman (2012) to select the optimal bandwidths. The results for the local linear regressions using the method by Imbens and Kalyanaraman (2012) are reported in Table 11 and 12. Despite using the different optimal bandwidths, we still find the similar results as in Table 8 and 9. Thus, our results are robust to different bandwidth selection methods.

Second, there is a concern that our results are driven by negative shocks such as finance crises that make customer firms unionized and also affect supplier financial policies. Regarding this concern, we remove observations in the time of financial crises from the sample. We follow the definition of crises by Bekaert et al (2014) to exclude the union elections happening in 1998,

2007, 2008, and 2009. Then, we repeat the models with the same optimal bandwidths in Table 8 and 9. The results estimated by the reduced sample are reported in Table 13 and 14. We again still find the similar results as we estimate with the full sample. Therefore, our estimation results are not driven by financial crises.

6.1 Reverse Causality

There is a possibility that the results we find are driven by the reverse causality. That is, due to some changes in the suppliers' financial policies which might negatively affect both the customer firms and the customers' workers, the affected customers' employees then vote for a union to protect themselves from such negative impacts. If this happens, then the suppliers' cash holdings and repurchases in one year prior to the elections would probably have the predictive power for the likelihood of the unionization at the customer firms. This basically follows the Granger causality relationship. To address this concern, we predict the unionization in customer firms using linear probability, logit, and probit models in which the dependent variable is the dummy of unionization in the customer firms, and the main independent variables are respectively suppliers' cash holdings repurchases measured in one year prior to the elections. We also include other control variables for supplier and customer firm characteristics. The estimation results are reported in Table 15. We do not see a significant association between supplier cash holdings and repurchases one year prior to the elections and customer unionization. We also compute the AUC (Area Under the Curve) score for the logit predictive model, and it returns a score of 0.6702, meaning that supplier financial policies one year prior to union elections poorly predict the unionization. Overall, we do not find significant evidence to support the (Granger) reverse causal relationship between the customers' unionization and the suppliers' cash holdings and repurchases.

6.2 Placebo Tests

Another concern is if the results are purely driven by chance. Our estimation results (a decline in supplier cash holdings and a jump in repurchases) should be driven by the discontinuity of the treatment around the cutoff point of 0.5. However, if the results are driven by chance, then we should have the coefficients significantly different from 0 when estimating the same models but with different thresholds. To address this concern, we perform placebo tests for the cash holdings and repurchases models. We randomly generate 10,000 fake cutoff points between 0 and 1 excluding 0.5 and perform local linear models with all covariates and fixed effect dummies to estimate the effect of customer unionization on cash holdings and repurchases using the fake thresholds. We repeat this procedure 10,000 times to obtain the large distribution of the estimated coefficients with those randomized fake cutoff points. These estimated coefficients are centered around 0 as shown in Figure 4, suggesting that the effect of customer unionization is largely absent as the original cutoff point of 0.5 is excluded. Also, we perform a T-test for the null hypothesis that the true mean of the estimated coefficients using the fake cutoff points is equal to 0. The T-tests return p-values of 0.314, and 0.364 for cash holdings and repurchases models respectively, so we fail to reject the null. Together, the evidence confirms that our results are not driven by chance.

7. Cross-sectional Analyses and Firm Performance

In this section, we conduct a number of cross-sectional tests further exploring the effects of unionization at a firm on its dependent suppliers' cash holdings and repurchases. Finally, we examine whether customer unionization affects its dependent supplier's performance.

7.1 Relationship Duration

We examine the variation of the effects of customer unionization on supplier financial flexibility across different degrees of supplier-customer relationship duration. Generally speaking, both customers and suppliers make relationship-specific investments to establish and maintain their business relationship, so the longer their business relationship is, the bigger such investments are made. Thus, it is much more difficult for suppliers to exit such long-term relationships without hurting themselves. Therefore, given the long-term relationship with customers, suppliers have pressure to induce customers to keep their investments in such a relationship, so suppliers are more likely to relax their financial flexibility following customer unionization. In contrast, suppliers with short-term business relationships with their customers have lower pressure to maintain such relationships because of lower costs for them to exit the relationship. Thus, these suppliers are more likely to reduce their financial flexibility to mitigate rent extraction following customer unionization. To test this, using the number of years during which transactions between customers and suppliers are reported in the Compustat Segments data as a proxy of supplier-customer relationship duration, we construct a variable called Relationship Duration which is equal to 1 if their relationship duration is longer the median of the sample and 0 otherwise. We later partition our full sample into two sub-groups on long vs short Relationship Duration, and run the local linear regressions with the same optimal bandwidths estimated in Table 8 and 9. Our results are reported in Table 16. In the sub-group of long-term supplier-customer relationship, we see positive, insignificant and negative, significant coefficients of cash holdings and repurchases respectively, meaning that following customer unionization, the dependent suppliers relax their financial flexibility by reducing stock repurchases by 1.1 percentage. In contrast, in the sub-group of short-term supplier-customer relationship, following customer unionization, dependent suppliers tighten

their financial flexibility by both reducing cash holdings and increasing repurchases to reduce rent extraction from their unionized customers.

7.2 Supplier-Customer Distance

Many studies show that geographic proximity has impacts on various corporate policies such as dividend policies (John et al. 2011), investment (Giroud 2013), and corporate governance (Kang and Kim 2008). Specifically, supplier-customer geographic proximity is found to have impacts on supplier's investment efficiency (Wu et al. 2022), risk-taking behavior (Huang and Fan 2022), and innovation (Chu, Tian and Wang 2019) because of stronger information sharing between customers and their neighboring suppliers. Thus, customers with unionization are more likely to signal their neighboring suppliers about their situation to get better contract terms. In turn, the neighboring suppliers are more likely to reduce their financial flexibility to improve their negotiating power. To test this, we use suppliers' and customers' headquarter city and state information to extract the associated geographic longitude and latitude coordinates from which we measure the distance in meters between suppliers and customers, and we construct a variable, called Supplier-Customer Distance, that equals 1 if the distance between suppliers and customers is greater than the median of the sample and equals 0 otherwise. We then partition our sample based on Supplier-Customer Distance and estimate local linear regressions with the same optimal bandwidths from the main models in Table 8 and 9 for both cash holdings and repurchases on each of these two sub-samples. The results are reported in Table 17. Consistent to our predictions, given the customer unionization, the neighboring suppliers reduce their cash holdings by 3.3 percent points and increase their stock repurchases by 1.2 percent points while the suppliers far away from the unionized customers do not have significant changes in their two financial policies.

7.3 Supplier Specialization

We next examine the variation of the effects of customer unionization on supplier financial policies by the degree of supplier specialization (or specificity) to capture the net effects of customer unionization. Following Barrot and Sauvagnat (2016), we measure supplier specificity using the number of supplier patents in 3 years prior to the customer union elections. We call a supplier highly specific if its number of patents 3 years prior to its customer union elections is greater than the sample median. Suppliers with high specificity produce high specific products which usually target a small group of customers. Thus, these suppliers tend to make relationship-specific investments to maintain long-term business relationships with their customers. Under the relationship-specific investment effect, following unionization in customers, dependent suppliers with high specificity are more likely to relax their financial policies to maintain their customer commitment. Thus, we expect that the effects of customer unionization on supplier cash holdings and repurchases are mainly explained by the relationship-specific investment theory, that is, we expect to see a positive (negative or no effect) and significant effect for cash holdings (repurchases). For suppliers with low specificity, they tend to produce generic products, so their pressure to make such relationship-specific investments is low. Thus, we predict that the behavior of suppliers with low specificity regarding cash holdings and repurchases is primarily explained by the shielding effect. In other words, we expect to see negative (positive) effects of customer unionization on supplier cash holdings (repurchases). Our results are reported in Table 18. As our predictions, we see a positive and significant coefficient of 2.4 percentage points of customer unionization on supplier cash holdings if suppliers are highly specific. The relationship-specific investment theory dominates in this group. In contrast, when suppliers are less specific, suppliers reduce their cash holdings by 5 percentage points following their customer unionization as

predicted by the shieling effect. Similarly, the coefficients of customer unionization on supplier repurchases reflect our prediction although they are not statistically significant. Overall, these results suggest that the effects of customer unionization on supplier cash holdings reported in Table 8 and 9 are a net effect.

7.4 Customer Share

If the unionized customers are important to the dependent suppliers, the unionized customers are more likely to seek rents from the dependent suppliers. Thus, the dependent suppliers are more likely to strategically tighten their financial policies to mitigate such rent-extraction from their unionized customers. To test this, we partition the whole sample into 2 subsamples based on the portion of supplier' total net sales to a given customer. We partition the sample using the median value of this fraction, that is, a customer share is high if supplier's sales to the customer bigger than the median of the full sample. Then, we perform the non-parametric models using the triangular kernel distribution and the associated optimal bandwidths in Table 8 and 9 for cash holdings and repurchases. We report the results of these models on Table 19. We expect to see the stronger effect of customer unionization on the sample of high customer share under the shielding effect. As our prediction, we see a decline of supplier cash holding by 5.1 percentage points after the customer unionization while we do not get a significant effect in the group of small customer size. In the models of repurchases, we cannot confirm our prediction. Overall, the results confirm the prediction that the union effects of labor unionization at customer firms on the dependent suppliers' cash holdings are stronger if the unionized customers are more important to the suppliers.

7.5 Customer Market Concentration

We examine the effects of customer unionization on supplier cash holdings and repurchases over different degrees of customer market concentration. If customers are in a more concentrated market, it is costly and difficult for the dependent suppliers to find a substitute customer. Thus, following the unionization in their customer firms, these suppliers are more likely to strategically tighten their financial policies to reduce rent extraction. In contrast, suppliers that work with customers in a less concentrated market have less pressure to change their cash holdings and repurchases. Thus, the shielding effect predicts a stronger effect of customer unionization on the group of high customer market concentration. We measure the customer market concentration using customers' Herfindahl-Hirschman Index (HHI) based on customer 2-digit SIC codes. We define that a customer is in a highly concentrated market if its HHI is bigger than the median of the sample. The estimation results are reported in Table 20. Again, the supplier behavior regarding their cash holdings confirms our predictions by the shielding effect. We see a bigger reduction in supplier cash holdings in the sub-sample of high customer HHI while we do not see significant results as predicted for repurchases models.

7.6 Firm Performance

In this section, we want to test whether the effects of customer unionization on the dependent suppliers' cash holdings and repurchases are driven by the reduction in the dependent suppliers' performance following customer unionization. We estimate the effects of unionization at the customer firms on the dependent suppliers' operating margin, ratio of cost of goods sold to sales, and Tobin's Q. The estimation results are reported in Table 21. Overall, we do not find any evidence showing the effects of unionization on the dependent suppliers' performance.

8. Summary and Conclusion

This paper examines the causal effect of labor unionization of customer firms on their dependent suppliers' financial flexibility, measured by cash holdings and repurchases. Suppliers' reaction to customers' unionization is shaped by two opposite, non-mutually exclusive hypotheses: shielding and relationship-specific investment. The shielding hypothesis predicts that faced with the threat of rent-seeking behavior by a major customer following its labor unionization, a dependent supplier will reduce its financial flexibility. In contrast, the relationship-specific investment theory predicts an increase in the dependent suppliers' financial flexibility following unionization at a major customer firm to induce the customer to maintain their investment in the relationship.

We employ the RDD approach to estimate the effect of customer unionization on the dependent suppliers' financial policies. In the full sample, dependent suppliers decrease their cash holdings by 3 percentage points and increase their repurchases by 0.5 percentage points to prevent the unionized customers from rent-seeking. These effects are even larger when the unionized customer (1) is more important to the supplier, (2) is in a more concentrated industry, (3) is located near the supplier, and (4) has had a short relationship with the supplier. These effects generally reverse for suppliers with greater specific investment or longer relationship duration. Our findings suggest that overall, the shielding effect dominates: dependent suppliers reduce their financial flexibility by reducing cash holdings and increasing repurchases to protect the firm from the threat of rent extraction by their newly unionized customers. But for suppliers with greater specific investment or longer relationship with the customer, the specific investment effect dominates: suppliers increase their financial flexibility to preserve their relationship-specific investment in the customer.

Finally, the usual caveat of the RDD approach applies here too. Our identification strategy is based on observations barely passing or barely losing the vote share cutoff of 0.5. This strategy has good local validity but may not hold in the full sample.

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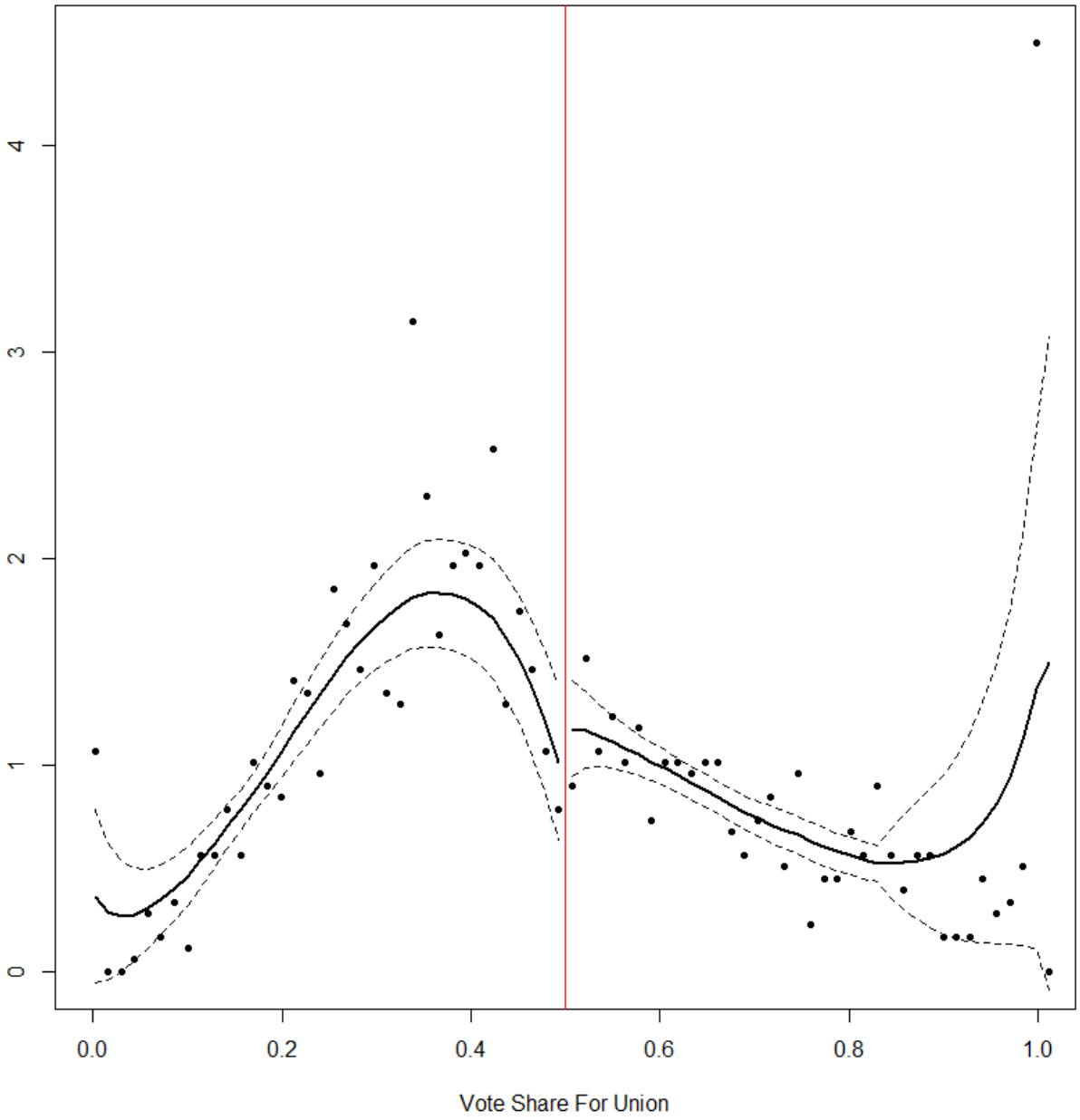

Figure 1
Density of Union Vote Shares

This figure shows the density distribution of the union vote shares following McCrary (2008). The horizontal axis is the percentage of votes for unionization. The dots represent the observed density, and the solid curves plot the local linear density estimate with 95% interval confidence.

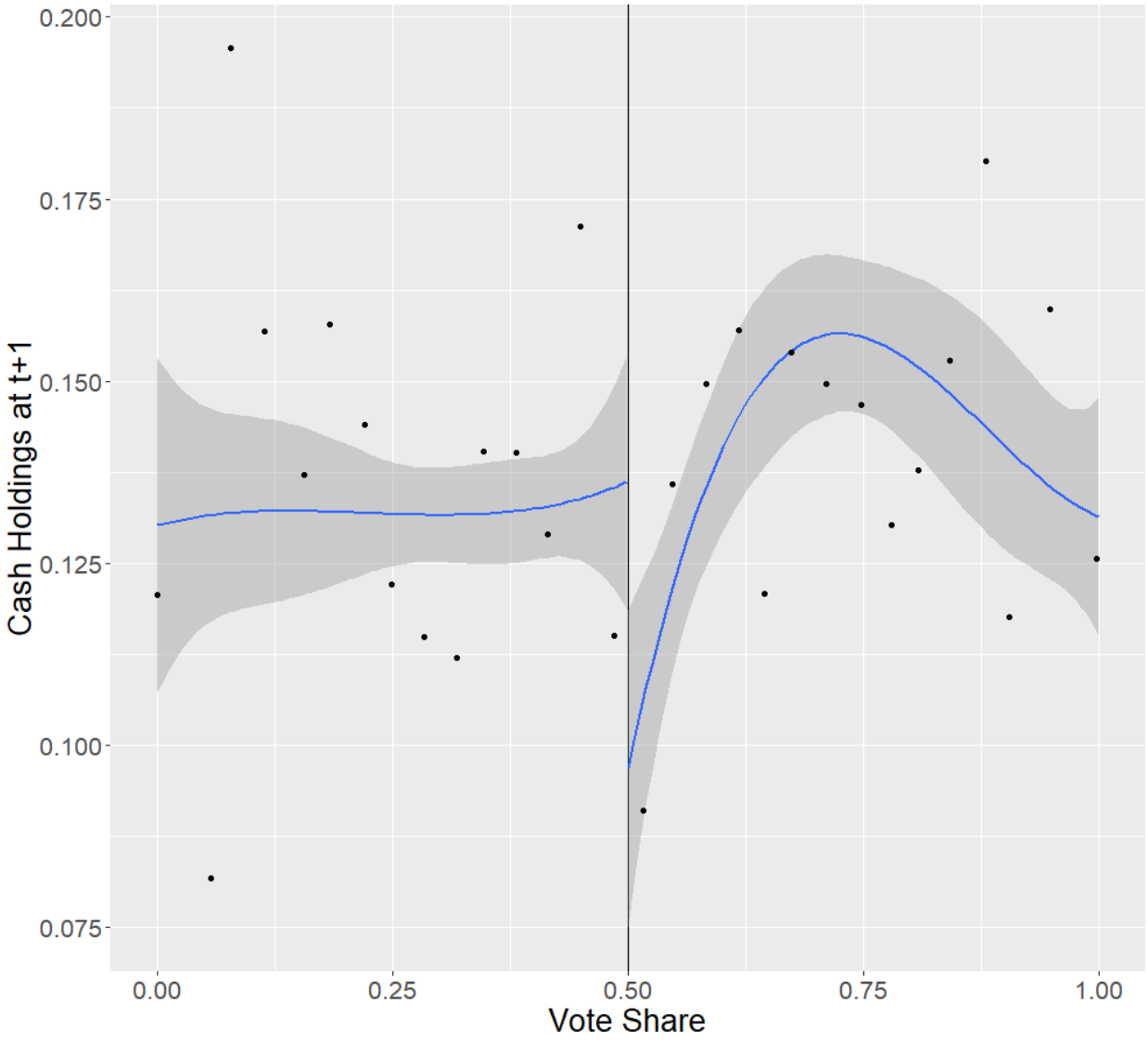

Figure 2
Suppliers' Cash Holdings

This figure shows suppliers' cash holdings one year after customer unionization. The horizontal axis is the vote share for union. Dots are the average cash holdings for each of 15 equally sized bins. The solid curve represents the fitted line estimated by the third-order polynomial regression. The shaded area represents the 5^{th} and 95^{th} percentile confidence intervals of the polynomial estimation.

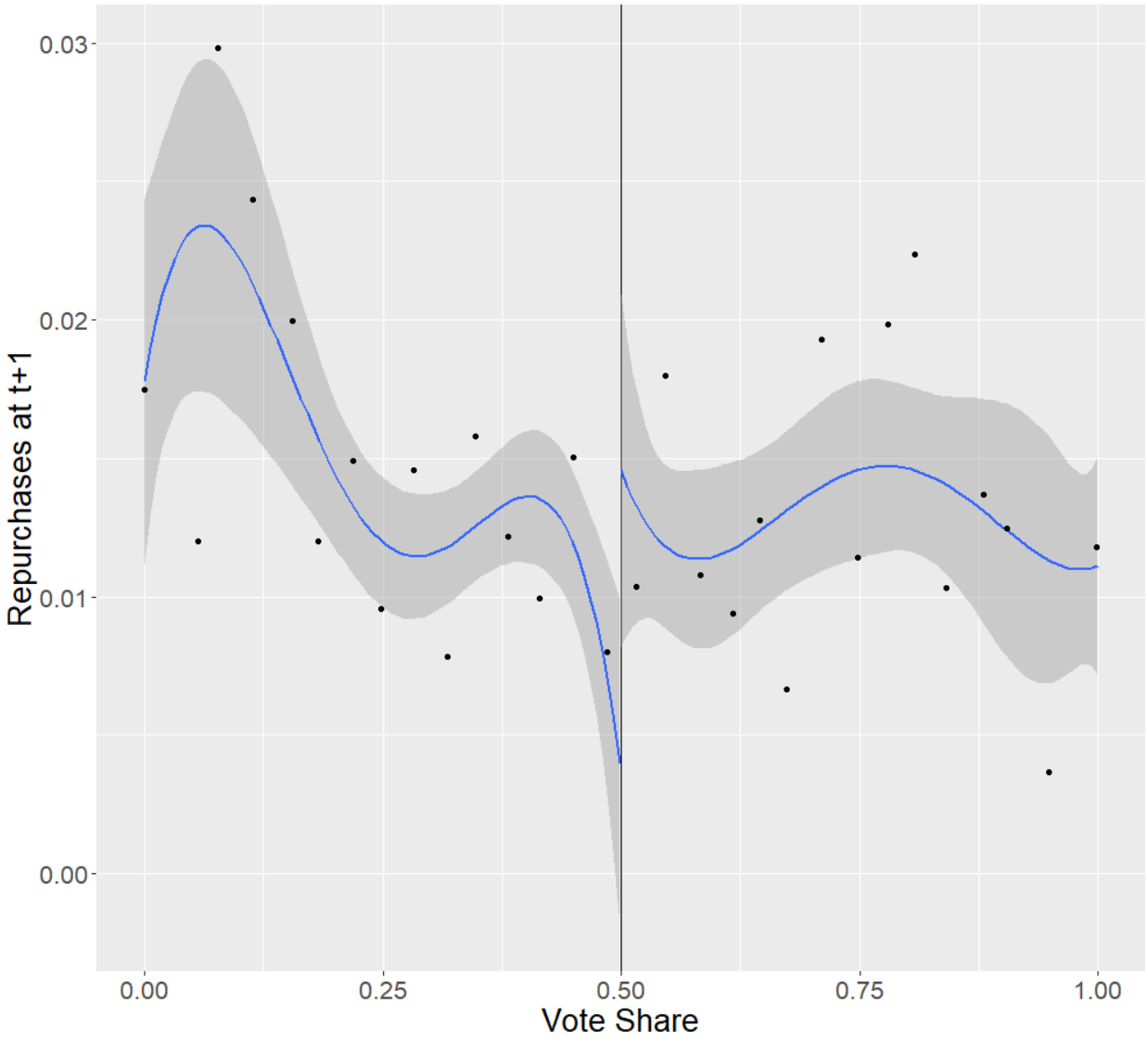

Figure 3
Suppliers' Stock Repurchases

This figure shows suppliers' stock repurchases one year after customer unionization. The horizontal axis is the vote share for union. Dots are the conditional means of stock repurchases for each of 15 equally sized bins. The solid curve represents the fitted line estimated by the fourth-order polynomial regression. The shaded area represents the 5^{th} and 95^{th} percentile confidence intervals of the polynomial estimation.

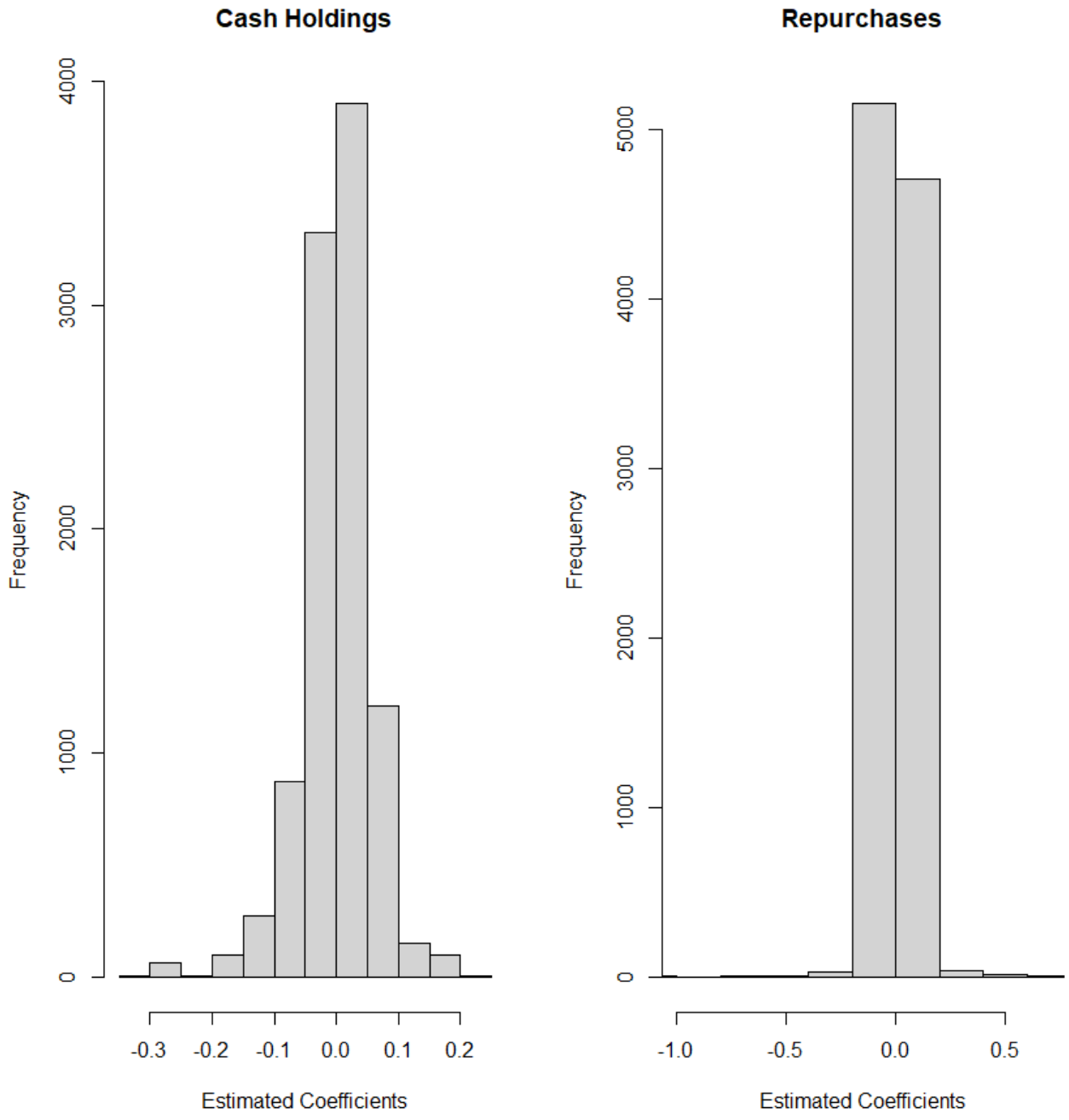

Figure 4
Placebo Test for Cash Holdings

This figure is the histogram of the distribution of the estimated coefficients using RDD non-parametric models (Triangular kernel method) for cash holdings and repurchases from the placebo tests.

Table 1. Election Distributions Over Different Levels of Vote Share

Range		Vote Share			No. Elections	Avg. Eligible Votes	Affecting	
>	≤	Mean	Min	Max			No. Customers	No. Suppliers
0	0.1	0.036	0	0.1	36	63.44	35	218
0.1	0.2	0.159	0.108	0.2	89	348.9	71	368
0.2	0.3	0.256	0.202	0.3	190	230.8	119	414
0.3	0.4	0.354	0.301	0.4	248	233.4	138	777
0.4	0.5	0.443	0.402	0.5	195	201	113	952
0.5	0.6	0.549	0.502	0.6	139	262.5	93	801
0.6	0.7	0.649	0.601	0.7	113	94.49	83	523
0.7	0.8	0.752	0.703	0.8	78	70	59	399
0.8	0.9	0.851	0.808	0.9	67	43.36	51	332
0.9	1	0.987	0.909	1	114	239.16	69	327
				Total	1,269	201.52		

Note: This table reports the distribution of 1,269 unions elections of customer firms in our full sample over 10 ranges of Vote Share. It also shows the number of affected customers and affected suppliers in each range of Vote share.

Table 2. Distribution of Union Elections Over the Years

Year	No. Elections	Avg. Vote Share	Avg. Eligible Votes	No. Customers	No. Suppliers
1979	6	0.449	447.500	6	17
1980	28	0.456	178.179	28	179
1981	1	0.320	457.000	1	33
1983	14	0.542	52.000	14	107
1984	31	0.514	273.677	31	176
1985	35	0.415	147.743	35	268
1986	32	0.463	145.625	32	187
1987	29	0.454	194.552	29	193
1988	32	0.455	360.844	32	202
1989	44	0.496	334.318	44	235
1990	34	0.474	126.088	34	242
1991	33	0.478	362.061	33	230
1992	36	0.402	143.167	36	229
1993	51	0.443	265.451	51	302
1994	50	0.458	210.020	50	342
1995	50	0.404	210.900	50	310
1996	59	0.427	196.492	59	284
1997	55	0.463	191.745	55	360
1998	41	0.500	270.024	41	186
1999	41	0.378	232.390	41	214
2000	45	0.514	256.733	45	242
2001	49	0.473	518.837	49	272
2002	45	0.488	219.467	45	192
2003	48	0.447	144.125	48	180
2004	45	0.463	153.467	45	191
2005	32	0.464	91.094	32	184
2006	29	0.659	92.517	29	119
2007	24	0.507	83.292	24	120
2008	30	0.552	77.767	30	108
2009	21	0.504	120.333	21	102
2010	30	0.527	111.300	30	137
2011	23	0.486	131.913	23	85
2012	15	0.601	118.333	15	73
2013	16	0.559	105.125	16	53
2014	21	0.594	340.143	21	62
2015	14	0.692	44.071	14	39
2016	17	0.607	62.588	17	65
2017	14	0.633	103.071	14	43
2018	16	0.546	116.375	16	41
2019	17	0.630	79.529	17	48
2020	14	0.609	100.143	14	36
2021	2	0.436	49.500	2	2

Note: This table reports the distribution of 1,269 union elections of customer firms by years. It also reports the average Vote Share, average eligible votes, the number of customers and suppliers for each year.

Table 3. Industry Distribution

Fama-French 12	Industries	No. Customer	%	No. Suppliers	%
1	Consumer Nondurables	27	8.23%	237	10.87%
2	Consumer Durables	23	7.01%	149	6.83%
3	Manufacturing	53	16.16%	379	17.38%
4	Energy, Oil, Gas, and Coal Extraction and Products	24	7.32%	187	8.57%
5	Chemicals and Allied Products	18	5.49%	53	2.43%
6	Business Equipment	21	6.40%	531	24.35%
7	Telephone and Television Transmission	32	9.76%	81	3.71%
9	Wholesale, Retail, and Some Services	76	23.17%	113	5.18%
10	Healthcare, Medical Equipment, and Drugs	20	6.10%	181	8.30%
12	Others	34	10.37%	270	12.38%
Total		328		2,181	

Note: This table shows the distributions of 328 unique customer firms and 2,181 unique suppliers by the Fama-French 12 industry classification (finance and utility industries are excluded).

Table 4. Summary Statistics on Union Elections

Statistic	N	Mean	St. Dev.	25%	Median	75%
Vote Share	1,269	0.485	0.25	0.303	0.426	0.647
Eligible Votes	1,269	201.52	661.696	23	69	179
Unionization	1,269	0.404	0.491	0	0	1
Customers' Employees ('000)	1,269	118.697	147.258	31	70.2	144

Note: This table reports the descriptive summary of our union election sample. The number of observations, means, standard deviations, 25-percentiles, medians, and 75-percentiles are reported. Unionization is a dummy variable, equal 1 if an election wins and 0 otherwise. The number of customer employees is also reported in thousands.

Table 5. Descriptive Statistics of Dependent and Control Variables

Statistic	N	Mean	St. Dev.	25%	Median	75%
Dependent Variables						
Cash Holdings	7,433	0.134	0.172	0.016	0.061	0.188
Repurchases	7,433	0.013	0.046	0.000	0.000	0.003
COGS/SALE	7,433	0.805	3.588	0.559	0.699	0.796
Operating Margin	7,433	-0.129	4.644	0.041	0.100	0.158
Tobin's Q	6,768	1.740	1.880	1.011	1.282	1.848
Control Variables						
Suppliers						
Profitability	7,433	0.090	0.234	0.057	0.125	0.185
Tangibility	7,433	0.290	0.223	0.116	0.231	0.405
Firm Size	7,433	4.815	2.161	3.268	4.647	6.310
Capital Investment	7,433	0.069	0.079	0.023	0.046	0.086
Efficiency	7,433	0.877	5.601	0.557	0.697	0.789
R&D	7,433	0.043	0.103	0.000	0.004	0.044
Suppliers' HHI	7,433	0.073	0.072	0.036	0.057	0.076
Customers						
Profitability	7,433	0.136	0.056	0.095	0.134	0.168
Tangibility	7,433	0.343	0.182	0.204	0.336	0.484
Firm Size	7,433	10.481	1.353	9.706	10.517	11.395
Capital Investment	7,433	0.071	0.043	0.035	0.067	0.097
Efficiency	7,433	0.737	0.136	0.683	0.77	0.830
R&D	7,433	0.020	0.024	0.000	0.008	0.036
Customers' HHI	7,433	0.094	0.072	0.054	0.073	0.103

Note: This table reports the summary statistics of the variables of interest in our samples including dependent variables measured in the first year after the customer union elections, suppliers and customer firm characteristics measured one year prior to the union elections. The details of variable definitions and construction are provided in the Appendix.

Table 6. Unionized Customers and Suppliers' Cash Holdings

	Dependent variable:								
	Cash Holdings								
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**
Unionization	-0.003	0.008	0.003	-0.028***	-0.022***	-0.017***	-0.039***	-0.041***	-0.021***
	(0.010)	(0.007)	(0.006)	(0.008)	(0.006)	(0.006)	(0.011)	(0.009)	(0.007)
Vote Margin	0.007	0.023	0.026	0.019	0.136***	0.128**	0.056	0.288**	0.148
	(0.029)	(0.020)	(0.018)	(0.079)	(0.049)	(0.051)	(0.195)	(0.135)	(0.134)
Vote Margin^2				0.026	0.250***	0.232**	0.220	1.039	0.332
				(0.142)	(0.089)	(0.097)	(0.912)	(0.674)	(0.636)
Vote Margin^3							0.261	1.066	0.134
							(1.229)	(0.932)	(0.834)
Unionization* Vote Margin	0.023	-0.029	-0.034	0.335**	0.132	0.031	0.561	0.336	0.095
	(0.032)	(0.023)	(0.023)	(0.167)	(0.110)	(0.086)	(0.405)	(0.326)	(0.306)
Unionization* Vote Margin^2				-0.650***	-0.779***	-0.555***	-2.164	-3.350***	-1.072
				(0.217)	(0.166)	(0.128)	(1.425)	(0.949)	(0.704)
Unionization* Vote Margin^3							1.435	1.224	0.402
							(2.370)	(1.835)	(1.768)
Constant	0.134***	0.274***	0.274***	0.135***	0.288***	0.291***	0.136***	0.291***	0.292***
	(0.015)	(0.038)	(0.023)	(0.015)	(0.039)	(0.025)	(0.016)	(0.037)	(0.025)
Supplier Controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Customer Controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Year Dummies	No	No	Yes	No	No	Yes	No	No	Yes
Industry Dummies	No	No	Yes	No	No	Yes	No	No	Yes
Observations	7,433	7,433	7,433	7,433	7,433	7,433	7,433	7,433	7,433
Adjusted R^2	0.0002	0.237	0.324	0.002	0.239	0.324	0.002	0.239	0.324

Note: This table reports the first-, second-, and third- order global polynomial RDD models in which the dependent variable is *Cash Holdings* measured at the first year after the election. *Unionization* is a dummy variable, equal 1 if a union election wins and 0 otherwise. Vote Margin is Vote Share for unionization from the cutoff point of 0.5. Supplier and Customer controls include *Profitability, Tangibility, Firm Size, Capital Investment, Efficiency,* and *R&D Investment* all measured one year prior to the year of elections. Details of the variable definitions are in the Appendix. The Fama-French 48-industry classification is used to construct the industry dummies. Supplier controls, customer controls, year dummies, and industry dummies are included in some models. Industry-clustered robust standard errors are reported in parentheses. Symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Table 7. Unionized Customers and Suppliers' Repurchases

	Dependent variable:								
	Repurchases								
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**
Unionization	0.003*	0.002	0.002	0.002	0.001	0.002	0.004	0.003	0.004
	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.003)
Vote Margin	-0.017***	-0.012**	-0.010	-0.014	-0.001	-0.008	-0.043	-0.015	0.015
	(0.007)	(0.006)	(0.006)	(0.014)	(0.018)	(0.017)	(0.038)	(0.038)	(0.040)
Vote Margin^2				0.007	0.024	0.004	-0.146	-0.045	0.127
				(0.028)	(0.033)	(0.035)	(0.190)	(0.178)	(0.194)
Vote Margin^3							-0.207	-0.093	0.169
							(0.255)	(0.234)	(0.253)
Unionization* Vote Margin	0.016*	0.009	0.001	0.032	0.011	0.001	0.024	-0.038	-0.097*
	(0.009)	(0.009)	(0.009)	(0.028)	(0.030)	(0.030)	(0.052)	(0.049)	(0.052)
Unionization* Vote Margin^2				-0.045	-0.049	-0.008	0.297	0.334	0.247
				(0.058)	(0.056)	(0.058)	(0.295)	(0.272)	(0.273)
Unionization* Vote Margin^3							-0.035	-0.312	-0.651**
							(0.351)	(0.302)	(0.303)
Constant	0.010***	0.016*	0.092	0.010***	0.017*	0.092	0.009***	0.017*	0.093
	(0.002)	(0.009)	(0.061)	(0.002)	(0.009)	(0.061)	(0.002)	(0.009)	(0.062)
Supplier controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Customer controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Year Dummies	No	No	Yes	No	No	Yes	No	No	Yes
Industry Dummies	No	No	Yes	No	No	Yes	No	No	Yes
Observations	7,433	7,433	7,433	7,433	7,433	7,433	7,433	7,433	7,433
Adjusted R^2	0.001	0.030	0.055	0.001	0.029	0.055	0.001	0.029	0.055

Note: This table reports the first-, second-, and third- order global polynomial RDD models in which the dependent variable is *Repurchases* measured at the first year after the election elections. Unionization is a dummy variable, equal 1 if a union election wins and 0 otherwise. Vote Margin is the vote share for unionization from the cutoff point of 0.5. Supplier and Customer controls include *Profitability*, *Tangibility*, *Firm Size*, *Capital Investment*, *Efficiency*, and *R&D Investment* all measured one year prior to the year of elections. Details of the variable definitions are in the Appendix. The Fama-French 48-industry classification is used to construct the industry dummies. Supplier controls, customer controls, year dummies, and industry dummies are included in some models. Industry-clustered standard errors are reported in parentheses. Symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Table 8. Local-Linear RDD Models for Cash Holdings

	(1)	(2)	(3)	(4)
Optimal Bandwidth	-0.033**	-0.030***	-0.029*	-0.024***
	(0.016)	(0.008)	(0.016)	(0.009)
Observations	1747	1747	1524	1524
75% Optimal Bandwidth	-0.032*	-0.041***	-0.035*	-0.061***
	(0.018)	(0.009)	(0.018)	(0.010)
Observations	1260	1260	1110	1110
125% Optimal Bandwidth	-0.044***	-0.033***	-0.048***	-0.030***
	(0.015)	(0.007)	(0.015)	(0.010)
Observations	2288	2288	1888	1888
Supplier Control	No	Yes	No	Yes
Customer Control	No	Yes	No	Yes
Industry Dummies	No	Yes	No	Yes
Year Dummies	No	Yes	No	Yes
Kernel Distribution	Triangular	Triangular	Uniform	Uniform
Optimal Bandwidth	0.090	0.090	0.077	0.077
75% Optimal Bandwidth	0.068	0.068	0.058	0.058
125% Optimal Bandwidth	0.113	0.113	0.096	0.096

Note: This table reports the local linear RDD regression models in which the dependent variable is *Cash Holdings* measured at the first year after the election elections. The optimal bandwidths are estimated using the data-driven method by Calonico, Cattaneo, and Farrell (2020). Supplier and Customer controls include *Profitability*, *Tangibility*, *Firm Size*, *Capital Investment*, *Efficiency*, and *R&D Investment* all measured in the year of elections. Details of the variable definitions are in the Appendix. The Fama-French 48-industry classification is used to construct the industry dummies. Supplier controls, customer controls, year dummies, and industry dummies are included in some models. Industry-clustered robust standard errors are reported in parentheses. Symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Table 9. Local-Linear RDD Models for Repurchases

	(1)	(2)	(3)	(4)
Optimal Bandwidth	0.004	0.005**	0.006*	0.005*
	(0.003)	(0.002)	(0.003)	(0.003)
Observations	1566	1566	1885	1885
75% Optimal Bandwidth	0.003	0.008***	0.006*	0.005*
	(0.003)	(0.003)	(0.004)	(0.003)
Observations	1175	1175	1303	1303
125% Optimal Bandwidth	0.003	0.005**	0.004	0.007***
	(0.003)	(0.002)	(0.003)	(0.003)
Observations	2147	2147	2386	2386
Supplier Control	No	Yes	No	Yes
Customer Control	No	Yes	No	Yes
Industry Dummies	No	Yes	No	Yes
Year Dummies	No	Yes	No	Yes
Kernel Distribution	Triangular	Triangular	Uniform	Uniform
Optimal Bandwidth	0.083	0.083	0.095	0.095
75% Optimal Bandwidth	0.062	0.062	0.071	0.071
125% Optimal Bandwidth	0.104	0.104	0.119	0.119

Note: This table reports the local linear global RDD regression models in which the dependent variable is *Repurchases* measured at the first year after the election elections. The optimal bandwidths are estimated using the data-driven method by Calonico, Cattaneo, and Farrell (2020). Supplier and Customer controls include *Profitability*, *Tangibility*, *Firm Size*, *Capital Investment*, *Efficiency*, and *R&D Investment* all measured one year prior to the year of elections. Details of the variable definitions are in the Appendix. The Fama-French 48-industry classification is used to construct the industry dummies. Supplier controls, customer controls, year dummies, and industry dummies are included in some models. Industry-clustered robust standard errors are reported in parentheses. Symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Table 10. Continuity Test of Pre-determined Outcomes and Covariates

	Cash Holdings Models		Repurchases Models	
Suppliers'	**Triangular**	**Uniform**	**Triangular**	**Uniform**
Cash Holdings$_{(t-1)}$	-0.021 (0.015)	-0.028 (0.017)		
Repurchases$_{(t-1)}$			0.005 (0.004)	0.001 (0.004)
Profitability$_{(t-1)}$	0.004 (0.011)	-0.005 (0.011)	0.006 (0.011)	0.000 (0.010)
Tangibility$_{(t-1)}$	-0.012 (0.012)	-0.005 (0.014)	-0.013 (0.012)	-0.013 (0.012)
Firm Size$_{(t-1)}$	-0.062 (0.162)	-0.115 (0.176)	-0.058 (0.166)	-0.057 (0.154)
Capital Investment$_{(t-1)}$	-0.009* (0.005)	-0.012* (0.007)	-0.008* (0.005)	-0.012* (0.007)
Efficiency$_{(t-1)}$	-0.436 (0.266)	-0.488 (0.356)	-0.438* (0.279)	-0.416 (0.531)
R&D Investment$_{(t-1)}$	-0.011 (0.011)	-0.010 (0.011)	-0.012 (0.011)	-0.001 (0.004)
Customers'				
Profitability$_{(t-1)}$	-0.002 (0.003)	0.002 (0.003)	-0.003 (0.003)	-0.002 (0.003)
Tangibility$_{(t-1)}$	0.009 (0.012)	0.017 (0.015)	0.017 (0.012)	0.003 (0.009)
Firm Size$_{(t-1)}$	-0.130 (0.081)	-0.063 (0.096)	-0.080 (0.080)	-0.247** (0.123)
Capital Investment$_{(t-1)}$	0.001 (0.002)	-0.002 (0.002)	0.002 (0.002)	-0.002 (0.003)
Efficiency$_{(t-1)}$	0.001 (0.007)	0.015 (0.010)	-0.005 (0.007)	0.010 (0.008)
R&D Investment$_{(t-1)}$	0.001 (0.001)	0.000 (0.001)	0.002 (0.001)	0.004** (0.002)
Optimal Bandwidths	**0.090**	**0.077**	**0.083**	**0.095**

Note: This table reports the continuity test for the pre-determined outcomes and covariates at the optimal bandwidths for the models in Table 8 & 9. These pre-determine outcomes and covariates one-by-one are estimated using the local linear models. Industry-clustered robust standard errors are reported in parentheses. Symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Table 11. Cash Holdings Models with Imbens and Kalyanaraman (2012) Method

	(1)	(2)	(3)	(4)
Optimal Bandwidth	-0.040***	-0.027***	-0.041***	-0.026***
	(0.014)	(0.006)	(0.014)	(0.008)
Observations	5338	5338	4143	4143
75% Optimal Bandwidth	-0.049***	-0.026***	-0.070***	-0.025***
	(0.015)	(0.006)	(0.010)	(0.007)
Observations	3991	3991	3153	3153
125% Optimal Bandwidth	-0.039***	-0.026***	-0.037***	-0.025***
	(0.014)	(0.005)	(0.009)	(0.006)
Observations	6024	6024	5234	5234
Supplier Control	No	Yes	No	Yes
Customer Control	No	Yes	No	Yes
Industry Dummies	No	Yes	No	Yes
Year Dummies	No	Yes	No	Yes
Kernel Distribution	Triangular	Triangular	Uniform	Uniform
Optimal Bandwidth	0.262	0.262	0.206	0.206
75% Optimal Bandwidth	0.197	0.197	0.155	0.155
125% Optimal Bandwidth	0.328	0.328	0.258	0.258

Note: This table reports the local linear RDD regression models in which the dependent variable is *Cash Holdings* measured at the first year after the election elections. The optimal bandwidths are estimated using the data-driven method by Imbens and Kalyanaraman (2012). Supplier and Customer controls include *Profitability*, *Tangibility*, *Firm Size*, *Capital Investment*, *Efficiency*, and *R&D Investment* all measured in the year of elections. Details of the variable definitions are in the Appendix. The Fama-French 48-industry classification is used to construct the industry dummies. Supplier controls, customer controls, year dummies, and industry dummies are included in some models. Industry-clustered robust standard errors are reported in parentheses. Symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Table 12. Repurchase Models with Imbens and Kalyanaraman (2012) Method

	Model 1	Model 2	Model 3	Model 4
Optimal Bandwidth	0.005**	0.004**	0.007***	0.005**
	(0.002)	(0.002)	(0.002)	(0.002)
Observations	6688	6688	6023	6023
75% Optimal Bandwidth	0.007**	0.007***	0.007**	0.007***
	(0.003)	(0.002)	(0.003)	(0.002)
Observations	5858	5858	4834	4834
125% Optimal Bandwidth	0.003	0.002	0.002	0.002
	(0.002)	(0.002)	(0.002)	(0.002)
Observations	7433	7433	6679	6679
Supplier Control	No	Yes	No	Yes
Customer Control	No	Yes	No	Yes
Industry Dummies	No	Yes	No	Yes
Year Dummies	No	Yes	No	Yes
Kernel Distribution	Triangular	Triangular	Uniform	Uniform
Optimal Bandwidth	0.417	0.417	0.327	0.327
75% Optimal Bandwidth	0.313	0.313	0.245	0.245
125% Optimal Bandwidth	0.521	0.521	0.409	0.409

Note: This table reports the local linear global RDD regression models in which the dependent variable is *Repurchases* measured at the first year after the union elections. The optimal bandwidths are estimated using the data-driven method by Imbens and Kalyanaraman (2012). Supplier and Customer controls include *Profitability*, *Tangibility*, *Firm Size*, *Capital Investment*, *Efficiency*, and *R&D Investment* all measured in the year of elections. Details of the variable definitions are in the Appendix. The Fama-French 48-industry classification is used to construct the industry dummies. Supplier controls, customer controls, year dummies, and industry dummies are included in some models. Industry-clustered robust standard errors are reported in parentheses. Symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Table 13. Cash Holdings Excluding Crisis Years

	Model 1	Model 2	Model 3	Model 4
Optimal Bandwidth	-0.033**	-0.031***	-0.033**	-0.031***
	(0.016)	(0.008)	(0.016)	(0.009)
Observations	1601	1601	1413	1413
75% Optimal Bandwidth	-0.051***	-0.042***	-0.045**	-0.065***
	(0.018)	(0.009)	(0.018)	(0.010)
Observations	1179	1179	1045	1045
125% Optimal Bandwidth	-0.045***	-0.026***	-0.047***	-0.022**
	(0.015)	(0.008)	(0.015)	(0.010)
Observations	2129	2129	1741	1741
Supplier Control	No	Yes	No	Yes
Customer Control	No	Yes	No	Yes
Industry Dummies	No	Yes	No	Yes
Year Dummies	No	Yes	No	Yes
Kernel Distribution	Triangular	Triangular	Uniform	Uniform
Optimal Bandwidth	0.090	0.090	0.077	0.077
75% Optimal Bandwidth	0.068	0.068	0.058	0.058
125% Optimal Bandwidth	0.113	0.113	0.096	0.096

Note: This table reports the local linear RDD regression models using the sample without the crisis years. The dependent variable is *Cash Holdings* measured in the first year after the election elections. The optimal bandwidths are estimated using the data-driven method by Calonico, Cattaneo, and Farrell (2020). Supplier and Customer controls include *Profitability*, *Tangibility*, *Firm Size*, *Capital Investment*, *Efficiency*, and *R&D Investment* all measured in the year of elections. Details of the variable definitions are in the Appendix. The Fama-French 48-industry classification is used to construct the industry dummies. Supplier controls, customer controls, year dummies, and industry dummies are included in some models. Industry-clustered robust standard errors are reported in parentheses. Symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Table 14. Repurchases Excluding Crisis Years

	Model 1	Model 2	Model 3	Model 4
Optimal Bandwidth	0.004	0.007***	0.008**	0.006**
	(0.003)	(0.002)	(0.003)	(0.003)
Observations	1442	1442	1738	1738
75% Optimal Bandwidth	0.004	0.010***	0.001	0.008**
	(0.003)	(0.002)	(0.004)	(0.003)
Observations	1110	1110	1222	1222
125% Optimal Bandwidth	0.005	0.007***	0.005	0.006**
	(0.003)	(0.002)	(0.003)	(0.003)
Observations	1989	1989	2209	2209
Supplier Control	No	Yes	No	Yes
Customer Control	No	Yes	No	Yes
Industry Dummies	No	Yes	No	Yes
Year Dummies	No	Yes	No	Yes
Kernel Distribution	Triangular	Triangular	Uniform	Uniform
Optimal Bandwidth	0.083	0.083	0.095	0.095
75% Optimal Bandwidth	0.062	0.062	0.071	0.071
125% Optimal Bandwidth	0.104	0.104	0.119	0.119

Note: This table reports the local linear RDD regression models using the sample without the crisis years. The dependent variable is *Repurchases* measured at the first year after the election elections. Supplier and Customer controls include *Profitability*, *Tangibility*, *Firm Size*, *Capital Investment*, *Efficiency*, and *R&D Investment* all measured in the year of elections. Details of the variable definitions are in the Appendix. The Fama-French 48-industry classification is used to construct the industry dummies. Supplier controls, customer controls, year dummies, and industry dummies are included in some models. Industry-clustered robust standard errors are reported in parentheses. Symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Table 15. Granger Reverse Causality Test

	Unionization		
	OLS	*logistic*	*probit*
Cash Holdings$_{(t-1)}$	0.054	0.247	0.159
	(0.038)	(0.175)	(0.107)
Repurchases$_{(t-1)}$	0.020	0.097	0.062
	(0.083)	(0.390)	(0.236)
Supplier Book Leverage$_{(t-1)}$	-0.052**	-0.247**	-0.151**
	(0.024)	(0.115)	(0.069)
Supplier Profitability$_{(t-1)}$	-0.042	-0.189	-0.119
	(0.028)	(0.131)	(0.079)
Supplier Tangibility$_{(t-1)}$	0.191***	0.869***	0.537***
	(0.034)	(0.155)	(0.094)
Supplier Firm Size$_{(t-1)}$	0.020***	0.091***	0.056***
	(0.003)	(0.013)	(0.008)
Supplier Efficiency$_{(t-1)}$	-0.0005	-0.002	-0.001
	(0.001)	(0.005)	(0.003)
Supplier R&D$_{(t-1)}$	0.092	0.419	0.253
	(0.064)	(0.290)	(0.177)
Supplier Capital Investment$_{(t-1)}$	0.089	0.395	0.230
	(0.085)	(0.382)	(0.235)
Customer Profitability$_{(t-1)}$	-0.101	-0.326	-0.250
	(0.124)	(0.571)	(0.347)
Customer Tangibility$_{(t-1)}$	-0.279***	-1.310***	-0.768***
	(0.046)	(0.217)	(0.131)
Customer Firm Size$_{(t-1)}$	0.024***	0.114***	0.065***
	(0.004)	(0.021)	(0.012)
Customer Efficiency$_{(t-1)}$	-0.244***	-1.062***	-0.656***
	(0.044)	(0.199)	(0.122)
Customer R&D$_{(t-1)}$	1.002***	4.573***	2.900***
	(0.252)	(1.140)	(0.697)
Customer Capital Investment$_{(t-1)}$	0.708***	3.221***	1.879***
	(0.182)	(0.838)	(0.510)
Constant	0.159**	-1.573***	-0.912***
	(0.067)	(0.310)	(0.188)
Observations	7,261	7,261	7,261
Adjusted R^2	0.039		
Log Likelihood		-4,546.426	-4,548.109
AIC		9,124.852	9,128.217

Note: This table reports the Granger reverse causality test. The dependent variable is Unionization. Symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Table 16. Unionization and Supplier-Customer Relationship Duration

	Cash Holdings		**Repurchases**	
	Long	**Short**	**Long**	**Short**
Unionization	0.009	-0.068***	-0.011***	0.011***
	(0.011)	(0.013)	(0.002)	(0.004)
Observations	975	772	863	703
Kernel	Triangular	Triangular	Triangular	Triangular
Optimal Bandwidth	0.090	0.090	0.083	0.083
Supplier Controls	Yes	Yes	Yes	Yes
Customer Controls	Yes	Yes	Yes	Yes
Industries Dummies	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes

Note: This table reports the local linear RDD regression models for subsamples by Relationship Duration which is equal 1 if the duration of the relationship between suppliers and customers is longer than the median of the sample and 0 otherwise. The dependent variables are *Cash Holdings* and *Repurchases* measured in the first year after the elections. The optimal bandwidths (h = 0.090 for models of Cash Holdings and h = 0.083 for models of Repurchases) are estimated using the data-driven method by Calonico, Cattaneo, and Farrell (2020) in Table 8 & 9. The triangular kernel distribution is used for the models in this table. Supplier and Customer controls include *Profitability*, *Tangibility*, *Firm Size*, *Capital Investment*, *Efficiency*, and *R&D Investment* all measured one year prior to the year of elections. Details of the variable definitions are in the Appendix. The Fama-French 48-industry classification is used to construct the industry dummies. Industry-clustered robust standard errors are reported in parentheses. Symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Table 17. Unionization and Supplier-Customer Distance

	Cash Holdings		Repurchases	
	Far	**Near**	**Far**	**Near**
Unionization	-0.022	-0.033***	-0.009	0.012***
	(0.017)	(0.011)	(0.006)	(0.003)
Observations	604	812	540	726
Kernel	Triangular	Triangular	Triangular	Triangular
Optimal Bandwidth	0.090	0.090	0.083	0.083
Supplier Controls	Yes	Yes	Yes	Yes
Customer Controls	Yes	Yes	Yes	Yes
Industries Dummies	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes

Note: This table reports the local linear RDD regression models for subsamples by Supplier-Customer Distance which equals 1 if the distance between suppliers and customers is greater than the sample median, and equals 0 otherwise. The dependent variables are *Cash Holdings* and *Repurchases* measured in the first year after the elections. The optimal bandwidths (h = 0.090 for models of Cash Holdings and h = 0.083 for models of Repurchases) are estimated using the data-driven method by Calonico, Cattaneo, and Farrell (2020) in Table 8 & 9. The triangular kernel distribution is used for the models in this table. Supplier and Customer controls include *Profitability*, *Tangibility*, *Firm Size*, *Capital Investment*, *Efficiency*, and *R&D Investment* all measured one year prior to the year of elections. Details of the variable definitions are in the Appendix. The Fama-French 48-industry classification is used to construct the industry dummies. Industry-clustered robust standard errors are reported in parentheses. Symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Table 18. Unionization and Supplier Specificity

	Cash Holdings		Repurchases	
	High	**Low**	**High**	**Low**
Unionization	0.024**	-0.050***	0.000	0.005
	(0.010)	(0.012)	(0.003)	(0.004)
Observations	676	1071	612	954
Kernel	Triangular	Triangular	Triangular	Triangular
Optimal Bandwidth	0.090	0.090	0.083	0.083
Supplier Controls	Yes	Yes	Yes	Yes
Customer Controls	Yes	Yes	Yes	Yes
Industries Dummies	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes

Note: This table reports the local linear RDD regression models for subsamples by Customer HHI which is equal 1 if the customer HHI is bigger than the median of the sample and 0 otherwise. The dependent variables are *Cash Holdings* and *Repurchases* measured in the first year after the elections. The optimal bandwidths (h = 0.090 for models of Cash Holdings and h = 0.083 for models of Repurchases) are estimated using the data-driven method by Calonico, Cattaneo, and Farrell (2020) in Table 8 & 9. The triangular kernel distribution is used for the models in this table. Supplier and Customer controls include *Profitability*, *Tangibility*, *Firm Size*, *Capital Investment*, *Efficiency*, and *R&D Investment* all measured one year prior to the year of elections. Details of the variable definitions are in the Appendix. The Fama-French 48-industry classification is used to construct the industry dummies. Industry-clustered robust standard errors are reported in parentheses. Symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Table 19. Unionization and Customer Share

	Cash Holdings		Repurchases	
	Big	**Small**	**Big**	**Small**
Unionization	-0.051***	-0.013	0.002	0.004
	(0.011)	(0.010)	(0.003)	(0.003)
Observations	891	856	792	774
Kernel	Triangular	Triangular	Triangular	Triangular
Optimal Bandwidth	0.090	0.090	0.083	0.083
Supplier Controls	Yes	Yes	Yes	Yes
Customer Controls	Yes	Yes	Yes	Yes
Industries Dummies	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes

Note: This table reports the local linear RDD regression models for subsamples by Customer Share which is equal 1 if the portion of suppliers' sales to a given customer is bigger than the median of the sample and 0 otherwise. The dependent variables are *Cash Holdings* and *Repurchases* measured in the first year after the elections. The optimal bandwidths (h = 0.090 for models of Cash Holdings and h = 0.083 for models of Repurchases) are estimated using the data-driven method by Calonico, Cattaneo, and Farrell (2020) in Table 8 & 9. The triangular kernel distribution is used for the models in this table. Supplier and Customer controls include *Profitability*, *Tangibility*, *Firm Size*, *Capital Investment*, *Efficiency*, and *R&D Investment* all measured one year prior to the year of elections. Details of the variable definitions are in the Appendix. The Fama-French 48-industry classification is used to construct the industry dummies. Industry-clustered robust standard errors are reported in parentheses. Symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Table 20. Unionization and Customer Market Concentration

	Cash Holdings		Repurchases	
	High	**Low**	**High**	**Low**
Unionization	-0.068***	-0.034***	-0.014	-0.001
	(0.013)	(0.010)	(0.011)	(0.002)
Observations	752	995	666	900
Kernel	Triangular	Triangular	Triangular	Triangular
Optimal Bandwidth	0.090	0.090	0.083	0.083
Supplier Controls	Yes	Yes	Yes	Yes
Customer Controls	Yes	Yes	Yes	Yes
Industries Dummies	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes

Note: This table reports the local linear RDD regression models for subsamples by Customer Market Concentration which is equal 1 if the customer HHI is bigger than the median of the sample and 0 otherwise. The dependent variables are *Cash Holdings* and *Repurchases* measured in the first year after the elections. The optimal bandwidths (h = 0.090 for models of Cash Holdings and h = 0.083 for models of Repurchases) are estimated using the data-driven method by Calonico, Cattaneo, and Farrell (2020) in Table 8 & 9. The triangular kernel distribution is used for the models in this table. Supplier and Customer controls include *Profitability*, *Tangibility*, *Firm Size*, *Capital Investment*, *Efficiency*, and *R&D Investment* all measured one year prior to the year of elections. Details of the variable definitions are in the Appendix. The Fama-French 48-industry classification is used to construct the industry dummies. Industry-clustered robust standard errors are reported in parentheses. Symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Table 21. Unionization and Supplier Performance

	Operating Margin		COGS/Sale		Tobin's Q	
Optimal Bandwidth	0.454	0.015	-0.382	0.142	-0.140	-0.243
	(0.282)	(0.041)	(0.270)	(0.218)	(0.131)	(0.152)
Observations	1296	981	1546	3013	2179	1495
75% Optimal Bandwidth	0.030	0.032	-0.482**	-0.091	-0.232*	-0.225
	(0.027)	(0.028)	(0.209)	(0.119)	(0.140)	(0.178)
Observations	1031	808	1116	2253	1569	1114
125% Optimal Bandwidth	0.334	0.605	-0.286	0.109	-0.113	-0.153
	(0.255)	(0.478)	(0.203)	(0.249)	(0.100)	(0.130)
Observations	1694	1202	2090	3807	2818	2037
Supplier Control	Yes	Yes	Yes	Yes	Yes	Yes
Customer Control	Yes	Yes	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Kernel Distribution	Triangular	Uniform	Triangular	Uniform	Triangular	Uniform
Optimal Bandwidth	0.070	0.051	0.080	0.144	0.120	0.087
75% Optimal Bandwidth	0.053	0.038	0.060	0.108	0.090	0.065
125% Optimal Bandwidth	0.088	0.064	0.100	0.180	0.150	0.109

Note: This table reports the local linear models for suppliers' performance. The dependent variables are O*perating Margin*, *COGS/Sales*, and *Tobin's Q* measured in the first year after the elections. The optimal bandwidths are estimated using the data-driven method by Calonico, Cattaneo, and Farrell (2020). The triangular and uniform kernel distributions are used for the models in this table. Supplier and Customer controls include *Profitability*, *Tangibility*, *Firm Size*, *Capital Investment*, *Efficiency*, and *R&D Investment* all measured one year prior to the year of elections. Details of the variable definitions are in the Appendix. The Fama-French 48-industry classification is used to construct the industry dummies. Industry-clustered robust standard errors are reported in parentheses. Symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% level, respectively.

Appendix

Table A1 provides information regarding variable definitions and how they are constructed.

Table A1 Variable Definitions

Variables	**Variable Code**	**Sources**
Dependent Variables		
Cash Holdings	Che/at	Compustat
Repurchases	Prstkc/at	Compustat
Profitability	Ebitda/at	Compustat
Tangibility	Ppent/at	Compustat
Firm Size	Log(at)	Compustat
Capital Investment	Capx/at	Compustat
Efficiency	Cogs/at	Compustat
R&D Investment	Max(xrd,0)/at	Compustat
Operating Margin	Oibdp/sale	Compustat
Tobin's Q	(at + prcc*csho-(seq+txdb+itcb-pstk))/at	Compustat
HHI	The sum of squared market share within each 2-digit SIC industry.	Compustat
Specificity	The number of patents in 3 years prior to the union elections	Kogan et al (2017)
Union Variables		
Unionization	a dummy variable, equal 1 if a labor union is certified and 0 otherwise.	NLRB Thomas J. Homes' Website National Archive Catalog
Vote Share	votes for unions/total votes cast	NLRB Thomas J. Homes' Website National Archive Catalog