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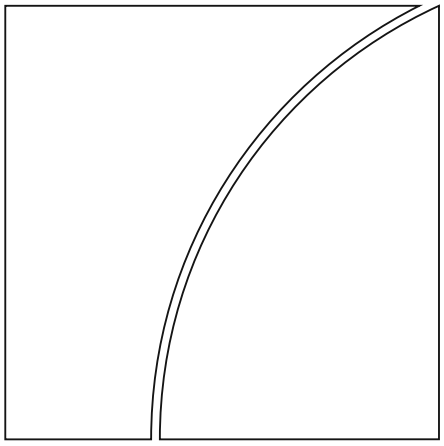

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by Frédéric Boissay, Emilia Garcia-Appendini and Steven Ongena

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Ripple effects of monetary policy*

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Abstract

Is conventional monetary policy transmitted through the demand for and supply of intermediate goods in an economy? Analyzing unique US data on corporate linkages, we document that downstream and upstream corporate financial health are instrumental for the transmission of monetary policy. Our estimates suggest that contractionary changes in monetary conditions lead to reductions in both the demand and the supply of all financially constrained business partners, thereby creating bottlenecks, which induce the linked firms themselves to curtail their own activities ("ripple effects"). Overall, our estimates suggest that changes in monetary conditions may have a quantitatively larger impact on firms' operations through the changes in demand and supply induced by constrained business partners than through the firms' own financial conditions.

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Keywords: Monetary policy transmission, supply chain, aggregate demand, cost channel.

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1 Introduction

Textbook economics argues that changes in monetary policy affect the cost of borrowing for investment, thereby altering aggregate demand (e.g. Mishkin (1996)). Besides this "interest rate" or "demand" channel of conventional monetary policy transmission, a strand of the literature contends that monetary policy actions can also exert an influence on economic activity through aggregate supply. As firms must pay their factors of production before they receive revenues from sales —and must borrow to finance these payments, changes in the monetary policy rate may affect the marginal costs of production. This so-called "cost" channel of transmission is discussed for example in Christiano et al. (1997) and Barth and Ramey (2001). Empirical testing for the demand channel typically analyzes firms' responses in terms of quantities demanded (Kashyap et al., 1993; Gertler and Gilchrist, 1994), whereas tests for the cost channel focus on the price responses by firms to changes in monetary conditions (Gaiotti and Secchi, 2006). The identification strategy usually rests on the "financial accelerator" theory (Bernanke and Gertler, 1989), and consists in testing whether financially weak firms respond more to changes in monetary conditions than healthy firms.

This paper studies how conventional monetary policy transmits through the demand and supply of intermediate goods, and more generally the role of input–output linkages as a channel for the propagation of monetary policy shocks. Firms indeed produce customized goods and rely on a variety of different and specific inputs for production. If a firm cannot substitute its financially constrained business partners easily in the face of an adverse monetary policy shock, then the fall in supply and demand may create bottlenecks and induce the firm to cut back its activity. We refer to this as the "ripple effects" of monetary policy. By shifting firms' individual supply and demand curves in the same direction, such effects may amplify the variations in aggregate output and dampen those in prices.

To study the ripple effects of monetary policy, we exploit detailed information on existing

firm supply chains and inter–sectoral input–output linkages. More particularly, we study the demand channel by analyzing how firms' sales react to changes in monetary conditions as a function of their *clients'* financial health, and we study the cost channel by analyzing the reaction of firms' purchases to changes in monetary conditions as a function of their *suppliers'* financial health. What is new in our approach is that we allow for the financial accelerator to work through the balance sheets of the firms' clients and suppliers, as well as through the firms themselves. Thus, we identify the demand and cost channels through their effects on downstream firms' demand (which should affect the studied firms' sales) and on upstream firms' supply (which should ultimately be reflected in the studied firms' purchases).

In most of our analysis, we use firm-level data from Compustat, and rely on the input-output matrices provided by the Bureau of Economic Analysis to calculate the weighted averages of the financial health in the downstream and upstream sectors buying from or selling to the firm. Using this data, we adapt the methodology in Kashyap and Stein (2000) to relate the interaction of monetary conditions and downstream (upstream) firms' financial health with firm sales (purchases). Identification of the demand channel is based on the assumption that the average financial conditions in the downstream industries are largely exogenous to an individual firms' ability to supply the product. Similarly, identification of the cost channel relies on the assumption that the average financial conditions in the upstream industries are largely exogenous to an individual firm's demand for inputs. In both cases, we also control for the variations in the firm's own supply and demand induced by changes in monetary conditions by interacting the latter with the firm's own financial conditions.

To validate our identification strategy, we use data from actually existing business relationships that are observable to us. This data allows us to measure the financial health of the firms' business partners with precision and to observe the studied firms' sales to their actual clients. With this data we identify ripple effects by introducing firm $\times$ time fixed effects to control for all firm-level, observed and unobserved time-varying factors that could affect

firms' operations, and exploiting the heterogeneity across client or supplier financial health. The key identifying assumption in this approach is that changes in monetary conditions affect the firms' sales (purchases) uniformly across clients (suppliers) (Khwaja and Mian, 2008).

Our analysis uncovers two main findings. First, the balance sheet structure of downstream and upstream firms is a salient, yet mostly overlooked, element in the transmission of monetary policy. In particular, our estimates show that firm sales fall with a tightening of monetary conditions when downstream clients have weak balance sheets, and that inputs purchased fall with a tightening of monetary conditions when suppliers have weak balance sheets. To benchmark these estimates economically, we calculate the impact of an increase of 100 basis points in the monetary reference rate; such an increase leads to a 21.7% difference in the sales growth rate of firms from clients with their coverage ratio in the 90th percentile relative to those in the 10th percentile. A similar increase in the reference rate leads to a 26.8% difference in the growth of input purchases of firms with suppliers that have coverage ratios on the 90th percentile, relative to those in the 10th percentile. These results suggest that both the demand and cost channels operating though the supply chain have a sizable impact on the studied firms' operations.

Second, our results show that changes in monetary conditions have a quantitatively larger impact on firms' operations through the changes in demand induced by clients' financial health, and through the changes in supply induced by suppliers' financial health, than through the firms' own balance sheets. Indeed, we find that, following a change in monetary conditions, a firm's purchases are affected first and foremost by the balance sheet situation of its suppliers (through the cost channel), then through the changes in demand induced by the weak financial situation of its clients (i.e., through the demand channel operating through clients), and only in third instance by the firm's own weak financial position. In terms of sales, we find that these are affected equally through the changes in demand induced by weak balance sheets of the firm's clients, and through changes in supply induced by weak balance

sheets of the suppliers. In contrast, the firm's own balance sheet only accounts for a small fraction of their changes in sales. These results suggest that both transmission channels are compounded when firms have upstream and downstream business partners with weak financial positions. Although we do not directly test for this, the results also suggest that there could be higher-order effects of the demand channel and cost channels (i.e., through clients of clients and through suppliers of suppliers).

In addition, a back-of-the-envelope calculation suggests that the cost channel may be more potent than the demand channel. Indeed, horse-race estimations show that the cost channel accounts for 45% in the variance of the firms' purchases, while the demand channel accounts for roughly 25% of the variance of firms' sales. Apart from comparing the explained variance of two different outcome variables, these rough estimates are based on reduced form equations which analyze purchases and sales separately; therefore, more precise estimations to confirm or dispute this finding could be the object of future research.

In extensions to our analysis, we find that the documented ripple effects are not undone within the supply chain itself, for example through the provision of trade credit; if anything, they are instead amplified through trade credit. Indeed, firms provide lower amounts of trade credit to financially weak clients following a monetary tightening. This result is akin to the "flight-to-quality" effect observed in the lending decisions of banks to firms, where banks are reluctant to lend to firms with weak balance sheets (Bernanke et al., 1996). In addition, estimations of impulse response functions using local projections suggest that the demand channel of transmission persists for as long as two years, while the cost channel of transmission might lead to more protracted reductions in downstream firms' economic activities.

Overall, our results suggest that bottlenecks in the supply chains, which prevent firms from swiftly switching to less constrained business partners, may magnify the effects of monetary tightening. These results are particularly relevant as the world emerges from the Covid-19

shock with higher overall levels of corporate leverage and significant supply chain disruptions.

Related literature. Ours is one among very few studies that analyze the specific transmission of monetary policy through supply chains. It bridges a gap between two strands of the literature on the aggregate propagation of shocks. The first consists of the papers that emphasize the role of input–output linkages as a mechanism for propagation and amplification of shocks (e.g. Acemoglu et al. (2012)). Boissay and Gropp (2013) and Jacobson and Von Schedvin (2015) show that upstream liquidity shocks are transmitted to customers. Caliendo et al. (2017) study the role of inter–sectoral and inter–regional trade linkages in propagating disaggregated productivity changes across US states. Barrot and Sauvagnat (2016) and Carvalho et al. (2020) leverage natural disasters to study whether firm–level shocks propagate or whether they are absorbed in production networks. Carvalho et al. (2020), in particular, provides evidence for the propagation of the 2011 Japan earthquake shock both upstream and downstream along the supply chain. In a similar way, Crosignani et al. (2020) document the propagation of a cyberattack through supply chains. Our findings suggest that such propagation mechanisms also operate for, and contribute to amplifying the effects of, monetary policy shocks. Consistently with our results, Ozdagli and Weber (2017) show that a large fraction of industry stock price reactions to changes in monetary policy can be attributed to changes in demand from downstream firms. Our contribution is to show that monetary policy can also have real effects transmitted through both downstream and upstream firms, and to uncover an instrumental role of these firms' financial health in this transmission.

Our paper also complements the literature on the transmission channels of monetary policy. Prior academic and policy research has primarily focused on how monetary policy is transmitted from financial intermediaries to firms (Bernanke and Blinder, 1988; Bernanke and Gertler, 1995; Stein, 1998; Kashyap and Stein, 2000; Van den Heuvel, 2002; Bolton and Freixas, 2006; Jiménez et al., 2012) and how changes in monetary policy affect demand by

end consumers (Calza et al., 2013; Di Maggio et al., 2017).

Our findings also relate to the recent literature documenting a key role of leverage in the transmission of shocks (Mian and Sufi, 2010; Korinek and Simsek, 2016; Mian and Sufi, 2014; Giroud and Mueller, 2017). What is new here is that we link firms and then compare the leverage effect incoming from downstream firms through a demand effect with the leverage effect at the upstream firms through a supply effect, to find that these two effects can be compounded. Our results therefore have important policy implications as they show that monetary policy can have differential effects on industrial sectors depending on the degree of leverage of firms within the supply chain.

The remainder of the paper proceeds as follows. Section 2 discusses our data and methodology, and Section 3 introduces our first estimates. Section 4 takes additional estimation steps, while Section 5 runs through various extensions of our work. Section 5 concludes.

2 Data, methodology, and summary statistics

2.1 Main sample and estimation strategy

The main source of data for our analysis consists of quarterly balance sheet information for all non-financial, non-government, publicly traded firms in the US during the period 1990 Q1 to 2016 Q4, obtained from Compustat. To measure the strength of the balance sheets of a given firm's clients and suppliers, we proceed in two stages. First, we calculate the strength of each industrial sector at the 4-digit SIC code as the average across this sector's firms. Second, we proxy for clients (suppliers) balance sheet strength with the weighted average of the financial strength of the sectors buying from (selling to) each firm. As weights, we use the fraction of this firm's sales to (or purchases from) each sector from the input-output matrices provided by the Bureau of Economic Analysis. Following the literature in this field, we use the coverage ratio (defined as the ratio of interest expenses to earnings before interest and taxes) as our main measure of financial strength; in extensions of our analysis we use the

debt to assets ratio as an alternative measure. The resulting measures of client and supplier health are admittedly rough proxies for the health of the *actual* clients and suppliers of the firm; however, the advantage of this approach is that we can obtain proxies of the upstream and downstream financial health for every firm in our sample.

To investigate whether the financial strength of downstream and upstream firms affects the transmission of monetary conditions, we closely follow the methodology in the related literature (Kashyap, 1995; Kashyap and Stein, 2000; Campello, 2002; Gomez et al., 2020), adapting it to account for the interaction of monetary conditions with clients' and suppliers' balance sheet positions, as follows:

$$\Delta \ln \text{sales}_{it} = \sum_{u=1}^{4} \alpha_s^c y_{it-u} + \sum_{u=0}^{4} \gamma_s^c \Delta r_{t-u} + \sum_{u=0}^{4} \beta_u^c \Delta r_{t-u} \overline{B^c}_{it-1} + \delta^c \overline{B^c}_{it-1} + \theta^{c\prime} X_{it-1}^c + \mu_t + \epsilon_{it} \quad (1)$$

$$\Delta \ln \text{purch}_{it} = \sum_{u=1}^{4} \alpha_s^s z_{it-u} + \sum_{u=0}^{4} \gamma_s^s \Delta r_{t-u} + \sum_{u=0}^{4} \beta_u^s \Delta r_{t-u} \overline{B^s}_{it-1} + \delta^s \overline{B^s}_{it-1} + \theta^{s\prime} X_{it-1}^s + \mu_t + \epsilon_{it} \quad (2)$$

Equation 1 examines the ripple effects of monetary conditions through the aggregate demand channel. The dependent variable, $\Delta \ln \text{sales}_{it}$, is the difference between $t-1$ and t in the natural logarithm of firm i's total sales. The focus of the demand channel is on the interaction of monetary conditions with the financial health of the firm clients. $\overline{B^c}_{it}$ is an inverse measure of the average strength of the balance sheets in the downstream industries buying from the firms, and Δr_t is our measure of monetary conditions, i.e., the difference in the monetary policy reference rate between periods $t-1$ and t. X_{it-1}^c is a vector of firm and average client controls including industry sales growth, size, debt, Tobin's Q, and property, plant and equipment.

Equation 2 analyzes the cost channel. The dependent variable, $\Delta \ln \text{purch}_{it}$, is the difference in the natural logarithm of firm i's total purchases. For the cost channel the main focus is on the interaction of monetary conditions with the financial health of the firm's suppliers. $\overline{B^s}_{it}$ is an inverse measure of the average strength of the balance sheets in the upstream

industries selling inputs to the firm. X^s_{it-1} is a vector of firm and average supplier controls including industry sales growth, size, debt, Tobin's Q, and property, plant and equipment. In both equations we always include time fixed effects to control for changes in economic activity that are common to all firms in a given period, and in more saturated estimations we also include industry fixed effects to control for time-invariant industry characteristics. We cluster the standard errors at the firm level.

Tests for the demand and cost channels focus on the sum of the coefficients of the interaction terms, $\sum_{u=0}^{4} \beta^c_u$ and $\sum_{u=0}^{4} \beta^s_u$, respectively. If there are ripple effects of monetary conditions through the aggregate demand channel, then a tightening of monetary policy should affect the demand for the firm's products more when dealing with financially weaker clients, $\sum_{u=0}^{4} \beta^c_u < 0$. Similarly, ripple effects of monetary conditions through the cost channel should imply that a tightening of monetary policy affects the amount of inputs purchased by firms buying from financially weaker firms more than for firms buying from stronger firms, or $\sum_{u=0}^{4} \beta^s_u < 0$.

As a measure of the stance of monetary policy, we use the quarterly differences in the federal funds rate, $\Delta r_t = \Delta \text{FF}$. We obtain this data from the economic data repository of the Federal Reserve Bank of St. Louis (FRED). Our estimated coefficients of interest are those on the interactions of these changes in monetary conditions with client or supplier financial health, which are plausibly exogenous to the firms' economic decisions. Admittedly, however, the changes in the fed funds could be correlated with the firms' sales and purchases due to unobserved changes in economic activity. To account for this potential impact, in extensions to our main analysis we use a series of surprise changes in the federal funds rate target from Gürkaynak et al. (2005) as an alternative measure of the stance of monetary policy.[1]

[1]Monetary policy surprises are used to account for unexpected changes in monetary conditions. The methodology to obtain these monetary surprises is detailed in Gürkaynak (2005). We thank Refet Gürkaynak for sharing the series of surprises updated until year 2017.

2.2 Estimations with supplier-client pairs

As mentioned before, Equations 1 and 2 rely on admittedly rough measures of the balance sheet strength of clients and suppliers which are based on weighted sector averages rather than on the actual balance sheet strength of firms' business partners. These measures also have limited cross-sectional variation, as they are identical for all firms in a given industrial sector. In addition, estimations of Equations 1 and 2 are potentially subject to omitted variable bias, to the extent that the included controls fail to capture time-varying unobserved supply- or demand-side factors which correlate with our variables of interest and explain a part of the variation in the dependent variables.

To overcome these issues, we use a complementary approach that relies on actual business relationships (i.e., supplier-client pairs), and hence contains the actual financial health of clients and suppliers. We obtain this sample from the Segment files of Compustat. Information gathered in these files relies on US regulations SFAS numbers 14 and 131, which require publicly listed firms in the United States to disclose, in their yearly 10-K SEC filings, the identity of clients and the sales to clients whose purchases represent more than 10% of total sales. To test for the demand channel, we retrieve from these files the text names of the firms' most important clients for the period 2000 - 2015. Using text-searching algorithms complemented with manual searches, we match the reported client names back to Compustat to obtain their balance sheet information and calculate their financial health. We refer to the resulting sample as the "(paired) client leverage sample", and we use it to test for the aggregate demand channel. Similarly, to test for the cost channel, we take each of the clients identified through this procedure, and match them to all firms (suppliers) in Compustat reporting them as an important client. We henceforth shall refer to this second paired sample as the "(paired) supplier leverage sample". To differentiate these two relationship-level samples from our baseline Compustat sample, from now on we shall refer to the latter as the "firm-level sample".

The pair-level data sets obtained from the Segment files provide us with two important advantages in terms of the identification of the ripple effects of monetary policy. First, the financial health of the firms' clients and suppliers is precisely observed, obviating the need to summarize this information through industry averages using the input-output matrices. Second and most importantly, the actual amount of sales to each client and of purchases from each suppliers is also observed, allowing us to identify ripple effects of monetary policy by exploiting the heterogeneity in the business partners' financial health while controlling for all time-varying and time-invariant unobserved characteristics of the firm itself. This approach enhances the internal validity of our estimations.

To achieve identification, we modify the above equations to accommodate the use of the pair-level data, and estimate the following equations for a firm i with clients indexed by j and suppliers indexed by k:

$$\Delta \ln \text{sales}_{ijt} = \beta^c \Delta r_t + \gamma^c \Delta r_t B_{jt-1} + \delta^c B_{jt-1} + \theta^{c\prime} X^c_{ijt-1} + \mu_{it} + \epsilon_{ijt} \tag{3}$$

$$\Delta \ln \text{purch}_{ikt} = \beta^s \Delta r_t + \gamma^s \Delta r_t B_{kt-1} + \delta^s B_{kt-1} + \theta^{s\prime} X^s_{kit-1} + \mu_{it} + \epsilon_{kit} \tag{4}$$

Equation 3 analyzes ripple effects of monetary policy through the demand channel. We estimate this equation on the paired client leverage sample. The dependent variable in this equation, $\Delta \ln \text{sales}_{ijt}$, is the change in the natural logarithm of sales from a firm i to its client j; Δr_t is the change in the monetary policy reference rate between years $t-1$ and t;[2] and B_{jt} corresponds to the actual balance sheet strength of client j. We add different sets of fixed effects to achieve identification of the ripple effects. In our least saturated specifications, we add firm fixed effects and time fixed effects to account for time-invariant supply-side factors and for changes in economic activity that affect all firms in a similar fashion. In intermediate specifications, we add the interaction of time fixed effects with the firm's industry, size, and age group, to account for changes in supply-side factors that are similar for firms in a given

[2]The pair-level sample is available with a yearly frequency.

year, industry, size, and age group (Degryse et al., 2019). Our most saturated specifications include firm × year fixed effects, μ_{it}. These fixed effects control for all time-varying and time-invariant firm characteristics. Identification in this case is achieved by comparing how demand for one firm's products changes across clients with varying degrees of balance sheet strength, while controlling all for supply-side factors, observed and unobserved, which are fixed within a given year.

Equation 4 analyzes ripple effects of monetary policy through the cost channel, which we estimate on the paired supplier leverage sample. The dependent variable is $\Delta \ln \text{purch}_{ikt} \equiv \Delta \ln \text{sales}_{kit}$, the change in the natural logarithm of the purchases of firm i from supplier k, and B_{kt-1} is the balance sheet strength of supplier k. Similarly as before, we achieve identification by adding either firm and year fixed effects, firm industry × size group × age group fixed effects, or firm × year fixed effects. In the latter specifications, identification is achieved by comparing the change in purchases of a given firm from suppliers with different degrees of financial health, while controlling for all observed and unobserved demand-side factors that are fixed within a given year.

While the paired samples provide a good framework to identify the ripple effects of monetary policy, we would like to acknowledge some of their limitations. First, clients in these samples, as well as the dependent variables in Equations 3 and 4, are observed with a yearly frequency. Therefore, we lose variation at the quarterly level that is available in the firm-level sample. Second, these samples provide an incomplete picture of the business relationships of the firms, and hence, potentially have somewhat less external validity. Indeed, the reporting regulations imply that we cannot identify clients that buy small amounts (representing less than 10% of the firms' total sales) nor aggregate clients.[3] In addition, we can only obtain the financial health for clients that are themselves publicly traded firms with financial information available in Compustat, hence excluding all potentially important clients that are

[3]In practice, the regulation to disclose only the clients accounting for more than 10% of sales is not fully binding, as we do observe a number of clients buying smaller fractions of the firms' total sales.

individuals, private firms, governments, or firms based outside of the United States. Finally, while clients in the paired client sample are, by definition, important business partners for the firms, the same is not true for suppliers in the the paired supplier sample. By construction, suppliers identified with our procedure are selling large amounts of their output to the firms, but they are not necessarily the firms' most important supplier. This potentially reduces the information content in the paired supplier leverage sample. To address this issue, in the estimation of Equation 4 we place higher weights to suppliers operating in sectors from which the firms purchase more inputs. We obtain these weights from the BEA's input-output matrices.

We deal with the trade-off between external and internal validity by estimating our main results using the firm-level sample, to maximize the external validity of our estimates, and by using the paired-level samples, to maximize the internal validity of our estimates.

2.3 Summary statistics

Table 1 contains summary statistics for the main variables used in our analysis on the firm-level sample (Panel A) and the paired-level samples (Panel B). Table A1 in the Appendix provides variable definitions. All variables have been winsorized at the 1 and 99% levels.

Panel A shows that firms in our sample have similar quarterly growth rates for sales and purchases of 0.8 and 0.9%, respectively, with a large variation. Panel A also shows that firms have slightly better financial health than their suppliers and clients (lower debt and coverage ratios, higher sales growth), but clients and suppliers are on average larger. Firms, clients and suppliers have similar values for Tobin's Q and PPE ratios.

In Panel B we observe that the average yearly sales growth from firms to their clients equals 4.2% in the client leverage sample, while average purchases growth rates from suppliers equals 4.6% in the supplier leverage sample. These quantities are of the same order of magnitude as the quarterly results in the full sample observed in Panel A, with slightly

higher values for the paired samples. Panel B also shows that the average financial health of the clients and the suppliers in the pair-level samples (as measured by the coverage ratio and debt to assets ratio) are slightly better than in the firm-level samples. In terms of size, clients in the paired client data are much larger than the average client in the firm-level data, reflecting the fact that these are important clients for large, publicly traded Compustat firms. In contrast, suppliers in the supplier leverage sample are of similar size as the suppliers in the firm-level sample.

Panel C contains a description of the monetary policy variables used in our analysis. Our main policy rate, the fed funds rate, has an average value of 2.97% throughout our sample period. This variable has a lot of variation, with values that peak at levels above 8% at the beginning of our sample period, and a long period of very low interest rates starting in 2009 and lasting until the end of our sample period. The average (median) quarterly difference in the monetary policy rate equals -10 (-0.6) basis points (bps), also with large variation across the quarters. The monetary surprises, i.e., the unexpected component of the difference in the quarterly rates, are highly correlated with the changes in the fed funds rate, with a correlation coefficient of 0.79. However, they have a lower sample variation, and their average (median) quarterly value corresponds to of -4 (-1.6) bps.

3 Results

3.1 Main results: Firm-level sample

We start by exploring whether there are ripple effects of monetary conditions through the demand channel. Table 2 contains the results of estimating Equation 1 on the firm-level sample using the coverage ratio (defined as the ratio of interest expenses to EBIT) as an inverse measure of client financial health. In this table, the (non-interacted) coefficients for Δr_t and its lags are negative, showing that changes in monetary conditions correlate with firm sales, with looser conditions related to higher sales. More importantly, the table shows that

monetary conditions can amplify the negative effect of client financial weakness on sales: coefficients for the interaction terms are either negative or not statistically different from zero. The last three rows of the table contain, respectively, the sum of the coefficients of the interaction terms, $\sum_{u=0}^{4} \beta_u^c$, the value of the F-statistic for the test of the null hypothesis $H_0 : \sum_{u=0}^{4} \beta_u^c = 0$, and its corresponding p-value. For example, in column 1, the sum of coefficients of the interaction term is equal to -0.018 with an F-statistic of 20.08; these values are slightly higher when we add controls (columns 4 to 6). Economically, the coefficients of the last column imply that a 100 bps increase in the monetary policy rate leads to a difference in growth in sales between firms selling to clients with coverage ratios in the 90th percentile (0.365) and firms selling to clients with coverage ratios in the 10th percentile (0.014) of -0.007 (= -0.021 $\times$ 0.35). This is economically relevant, corresponding to -0.007 / (0.008 $\times$ 4) = 21.7% of the average yearly change in sales. The economic relevancy of this estimate is illustrated in the top left-hand side panel of Figure 1. We obtain very similar estimates when we repeat the estimations using the clients' debt to assets ratio as an alternative measure of client financial health (Table A2). In this case, the economic significance is slightly higher and corresponds to 35.6% of the average yearly change in sales.

We next explore whether there are also ripple effects of monetary conditions through the cost channel, by estimating Equation 2 on the firm-level sample. Results are contained in Table 3. The negative coefficients for Δr_t show that monetary conditions correlate negatively with purchases, similarly to what we found for sales in the previous table. More importantly, we find that the interaction of the monetary policy rate with average suppliers' financial health is negative and statistically significant. As before, in the last rows of this table we report the sum of the coefficients of the interaction terms, $\sum_{u=0}^{4} \beta_u^s$, which is negative and highly statistically significant in all columns. The sum of coefficients in column 6 implies that an increase in the reference rate of 100 bps leads to a difference in growth in purchases between firms buying from suppliers with coverage ratios in the 90th percentile (0.312) and

firms selling to clients with coverage ratios in the 10th percentile (0.014) of -0.009 (= -0.0312 × 0.298). Thus, the cost channel is also economically relevant, accounting for 26.8% of the average yearly change in purchases. The economic relevancy of this estimate is illustrated in the top right-hand side panel of Figure 1. Table A3 repeats these baseline estimations using the suppliers' debt to assets ratio as an alternative measure of supplier financial health, yielding very similar results. The economic significance is also slightly higher when we use debt as a measure of financial health, corresponding to almost half (47.8%) of the average yearly change in sales.

One concern of the estimates in Table 2 is that results might be driven by changes in the firm's ability to supply the products induced by diverse monetary conditions. To address this issue, in Table A4 in the appendix we additionally control for the cost channel operating through the firm's balance sheet by interacting the changes in monetary conditions with the firm's size and financial health, (columns 1 and 2), and in columns 3 and 4 we additionally interact with the firm's purchases of inputs (columns 3 and 4). Symmetrically, we address the concern that the estimates in Table 3 might be driven by changes in the firm's demand for products, by controlling, in Table A5, for the interaction of changes in monetary conditions with the firm's own financial health and size (columns 1 and 2), and with differences in sales (columns 3 and 4). Our main results highlighting the ripple effects of monetary policy continue to hold in these extended estimations.

3.2 Internally valid results: Pair-level samples

In Table 4, we switch to the paired client leverage sample to explore the demand channel using actual clients of the firms. As mentioned before, in this sample downstream client financial health is observed with precision for a sample of important clients of the firms. In addition, since we can also observe the amount of sales to each client, we can control for supply-side factors by introducing increasingly saturated sets of fixed effects at the firm level:

industry × time fixed effects, to account for all time-variant factors that affect the sales in a given industry and time period (column 1), industry × size × age × time fixed effects to control for supply-side factors that could be specific to firms of different size and age groups (column 2) and finally, firm × time fixed effects to control for all supply-side factors that affect a given firm and are fixed for a given year (columns 3 to 5). In these most saturated specifications, we identify the effect of downstream leverage by exploiting the heterogeneity in financial health of clients buying from the same firm in a given year.

Results in Table 4 are fully consistent with our baseline results for the demand channel in Table 2. Indeed, the interaction of changes in monetary policy with the client coverage ratio is negative and statistically significant in all specifications. Economically, the coefficients for the interaction term of around -0.02 imply only slightly lower effects of the demand channel to the ones found in the firm-level sample: an increase of 100 bps in the monetary reference rate leads to a difference in the sales growth rate from clients with coverage ratio in the 90th percentile (corresponding to 0.37 in the client leverage sample) and those in the 10th percentile (0.019) of -0.007 (=0.02 × 0.387), or 16.7% (=-0.007/0.042) of the average yearly change in sales to a client. The economic relevancy of this estimate is illustrated in the middle left-hand side panel of Figure 1. Results are also robust to the use of a different measure of financial health (debt ratio): in Table A6 we repeat the estimations of Table 4 but using the suppliers' debt ratio as a measure of financial health, obtaining similar results. Overall, these results confirm the existence of ripple effects of monetary policy through a demand channel, using a well-identified estimation model albeit with potentially lower external validity. In addition, the similarity between the results using the pair-level data – which show that firms sell less to financially weak clients – and the firm-level data suggests that on average firms do not substitute their constrained clients with other less constrained ones to compensate for their loss in sales.

As mentioned before, suppliers in the paired supplier leverage sample are not necessarily

the most important input suppliers of the observed firms. To the extent that the products sold by the suppliers in this sample are not fundamental to the production of the downstream firms, we might expect that the financial health of the suppliers will be mostly irrelevant to the purchases of the downstream firms. This potentially reduces the information content of this sample when estimating the cost channel of transmission and might lead to an underestimation of the effect. We nevertheless try to extract meaningful information from this sample by following two alternative approaches when estimating Equation 4 on this sample: In Panel A of Table 5, we assign higher weights to observations of suppliers belonging to sectors that sell large fractions of inputs to the firm. In Panel B, we select only those suppliers in the sectors representing most of the firm's inputs. Results of these estimations show some evidence in line with the cost channel, albeit it is statistically weak. The coefficients for the interaction of the monetary policy rate with suppliers' financial health are mostly negative, but not distinguishable from zero in most cases.[4] Evidence for the cost channel is slightly stronger when we substitute the suppliers' coverage ratio with their debt ratio in Table A7 in the appendix (especially in Panel B). Overall, the evidence from this less informative sample does not contradict the results obtained in the firm-level sample, which signal the existence of ripple effects through the cost channel of transmission. The absence of strong evidence for the cost channel using the paired supplier leverage sample is most likely driven by the limited information content of this sample which, as mentioned before, does not necessarily contain the most important suppliers of the firms. This suggests an admittedly speculative qualification of our results, namely, that monetary conditions are transmitted through the supply chain mostly when *important* business partners have weak balance sheet positions.

[4]Notice that in the specifications that used the paired supplier leverage sample, the inclusion of firm $\times$ year fixed effects does not perfectly subsume the changes in the monetary policy rates. These coefficients are nevertheless uninformative, as they are capturing small differences in the yearly changes in the interest rate within a fiscal year, for different fiscal year endings. The reason for this difference with the client leverage sample is technical in nature: suppliers report their most important clients; consequently, balance sheet data is merged to the Customer Segments files using the fiscal year of the suppliers. As a result, the yearly changes in the interest rate will be slightly different for same client according to the different fiscal year end dates of its suppliers.

We unfortunately do not have the data to test this hypothesis, but it would be interesting to explore it in future research.

3.3 Dealing with concerns of endogeneity with respect to the main results

By accounting for all observed and unobserved variation in supply and demand that can have time variation through different years, the within firm-year estimations in Tables 4 and 5 are able to identify the effect of client and supplier financial health on the transmission of monetary policy (i.e., on firm sales and purchases, respectively). However, the previous estimates cannot perfectly account for changes in economic conditions that simultaneously affect the monetary policy stance, the demand for a firm's products (firm sales), and the input supplies (purchases). To deal with this issue, as an alternative measure to changes in the policy rate we use unexpected changes in the federal funds (Gürkaynak et al., 2005). As explained in more detail in Gürkaynak (2005), these surprises are calculated using changes in asset prices within short windows around the FOMC announcements, and capture changes in the target rate that are unexpected by market participants and hence exogenous to economic activity. The results of these estimations are contained in Tables A8 (for the demand channel) and A9 (for the cost channel). In both cases, the sum of the coefficients of the interaction terms of the monetary surprises with the clients' (suppliers') financial health is negative and statistically significant. These findings largely support our previous interpretation of the results, namely that our main estimated effects are due to lower demand from clients and lower production by suppliers, respectively. For completeness, Tables A10 and A11 contain estimations of Equations 3 and 4 using monetary surprises. Results are qualitatively very similar to what we had before.

Another concern, affecting only the firm-level estimations, is that our measures of client and supplier balance sheet strength are based on the average strength in the downstream and upstream industries. Therefore, they could be correlated with the firm sector's own

financial conditions to the extent that the industry sells an important fraction to, or buys an important fraction from, firms in its own industry. We deal with this issue by recalculating the measures of downstream and upstream financial health excluding the firms' own sector from the calculations. Then, we repeat the estimations of Tables 2 and 3 using these measures. Results, reported in Tables A12 and A13, remain qualitatively unchanged.

A related endogeneity concern is that upstream firms might extend trade credit to the downstream firms. This might affect our estimations for the demand channel, because trade credit provision might simultaneously affect firm sales (Daripa and Nilsen, 2011) and downstream firms' leverage (Burkart and Ellingsen, 2004; Garcia-Appendini and Montoriol-Garriga, 2013). By the same token, this might affect our estimations for the cost channel if the upstream firm has to borrow to finance the provision of trade credit. In this case, the use of trade credit by downstream firms would simultaneously affect their purchases and the upstream firms' financial health.

We deal with this issue by estimating our main equations for firms with different levels of trade credit. For the demand channel, in Table A14 we repeat the estimations contained in columns 3 to 6 of Table 2 for mutually exclusive subsamples of firms classified according to the extent of trade credit provided by the upstream firm. If there is an endogenous relationship between downstream sector leverage and upstream firm economic activity, we should find different results when upstream firms provide moderate amounts of trade credit (where the endogeneity issue should be less relevant) relative to heavy users of trade credit. We define high trade credit provision if the firms provide larger amounts of trade credit than the median firm in the sector. We measure trade credit provision using the ratio of accounts receivable to lagged assets. Columns 1 to 3 correspond to heavy users of trade credit, and columns 4 to 6 contain moderate users of trade credit. As can be seen by the last three rows in the table, results are similar to our main findings across both the subsamples of heavy and moderate users of trade credit.

Similarly, in Table A15 we focus on the cost channel and analyze a potential endogenous relation between trade credit use and upstream firm leverage. We define high trade credit use if the firms take up larger amounts of trade credit than the median value in their sector. We measure trade credit extension using the average ratio of accounts payable to lagged assets. Columns 1 to 3 correspond to firms using trade credit intensively, and columns 4 to 6 contain moderate users of trade credit. In this case, we find negative results for the coefficients for the two groups of firms which are statistically significant in columns 1 and 4 to 6; i.e., we have stronger results for the group of low users of trade credit, where the endogeneity concern should be less relevant. If anything, this suggests that any potentially endogenous relationship between upstream firms' financial health and downstream firms' purchases should bias our results of Table 3 against finding a significant result. We conclude from the analysis based on subsamples of trade credit provision and trade credit use that the main results presented in the previous sections are not due to a potential correlation between leverage in downstream and upstream sectors and firm's economic activity.

Overall, the results of all the tests of robustness contained in this section support our interpretation of the main results. In other words, the evidence in support of the existence of ripple effects of monetary policy through the supply chain is robust to several endogeneity concerns.

4 Financial accelerator and ripple effects

An implicit assumption of the analysis presented in Section 3 is the existence of a "financial accelerator" or "balance sheet channel" operating through clients' and suppliers' balance sheets. The financial accelerator refers to the idea that tight monetary conditions affect firms with weak balance sheets due to credit rationing, leading to reductions in investment, which affects demand for inputs, and production, which affects supply of inputs (Blinder, 1987; Bernanke and Gertler, 1995). In Table 6 we test for the existence of a financial accelerator

affecting firm demand by regressing the difference in firm purchases on interactions of monetary policy with the firms' own financial conditions ($\overline{B^f}$), while controlling for suppliers' and clients' average characteristics including their financial health. Consistent with the existence of a balance sheet channel operating along the demand side, we find that purchases react more negatively to tightening of monetary policy when the firms have worse financial health, i.e., $\sum_{u=0}^{4} \beta_u^f$ is always negative, and it is statistically significant in columns 2-3 and 5-6. Similarly, in Table 7 we test for the existence of a financial accelerator affecting firm supply by regressing the difference in firm sales on interactions of monetary conditions with the firms' own financial shape while controlling for suppliers' and clients' characteristics. The sum of the coefficients of the interactions of firm financial health with lags of the monetary policy rate are similarly negative and statistically significant in columns 2-3 and 5-6. Overall, these results suggest that a financial accelerator that is operating on firms' balance sheets is at the core of the ripple effects of monetary policy observed in Section 3.

A related question is whether firm outcomes are more affected by changes in monetary conditions through the ripple effects operating through client demand, through the cost channel, or by its effects on the firms' own balance sheets. To address this issue, we perform horse-race estimations of both channels, by estimating combined versions of Equations 1 and 2 that additionally include interactions of the monetary policy rate and the firm's own financial conditions. By comparing the sum of the coefficients of the interaction of monetary policy rate with the firm's own, its clients', and its suppliers' financial conditions, we can estimate which of the channels is more important for the transmission of monetary policy. Results of these estimations are contained in Table 8 for firm sales as the dependent variable, and in Table 9 for firm purchases as the dependent variable. In both tables, we find that the coefficients of the interaction of monetary policy with financial health are negative for firm, supplier and client financial health; however they are statistically and economically weaker for the former. The coefficient estimates of Table 8 imply that a monetary policy

tightening has similar effects on sales when clients and suppliers have high coverage ratios. Economically, a 100 bps increase in the monetary policy rate leads to a higher reduction in sales when clients and suppliers are in bad financial health than when they are healthy; the differential reduction corresponds to around 25% of the average yearly change in sales. For the cost channel, on the other hand, the coefficient estimates of Table 9 imply that the effect of a 100 bps on the monetary base rate leads to stronger effects on purchases when the suppliers are highly levered (accounting for 44% of the yearly average change in purchases). However, highly levered clients have also a significant impact on firm purchases (30% of the yearly average change in purchases). Once we account for the financial situation of clients and suppliers, the effect of the firms' own balance sheet on its own sales and purchases is much lower, accounting for 6% of the average yearly change in sales and 5% of the yearly average change in purchases.[5] These results suggest that ripple effects of transmission of monetary policy can be compounded depending on the financial situation of firms, their clients, and their suppliers. Figure 1 illustrates the economic relevancy of these estimates. The bottom left-hand side panel corresponds to the estimates in Table 8, while the bottom right-hand side panel corresponds to the ones in Table 9.

5 Extensions

5.1 The role of trade credit

In this section we investigate the role of trade credit in the propagation of monetary shocks. Existing theories yield ambiguous predictions about whether trade credit can amplify or mitigate the transmission mechanisms documented in the previous sections. Following a monetary tightening, firms with weak balance sheets might desire to resort to trade credit

[5]These calculations are based on estimating the difference in sales between firms, clients, or suppliers with coverage ratios at the 90th and 10th percentile values, respectively, in a similar fashion as we did in Section 3. The 90th and 10th percentiles in the distribution of financial health are 0.69 and -0.30 for firms; 0.31 and 0.014 for suppliers, and 0.36 and 0.014 for clients. Firms' coverage ratios have much more variation than clients' and suppliers' coverage ratios, as the latter values are averages based on all firms in the same industry.

to compensate for the loss of their purchasing ability, especially if they are unable to borrow from other sources (Biais and Gollier, 1997; Burkart and Ellingsen, 2004). Suppliers might be willing to provide this trade credit required by downstream firms in order to dampen the drop in their own sales (Daripa and Nilsen, 2011), especially if they have access to cash or funding from other sources (Garcia-Appendini and Montoriol-Garriga, 2013; Adelino et al., 2021). These theories would imply that trade credit mitigates the drop in demand driven by changes in monetary policy. On the other hand, a tightening of monetary policy could affect the ability of suppliers' themselves to provide trade credit, and suppliers might be unwilling to provide credit to financially weak clients – especially if they perceive that their clients' financial difficulties are not temporary (Cuñat, 2007; Wilner, 2000). If this is the case, suppliers would not increase, and they might actually decrease the amount of trade credit provided to their clients.

To explore this issue, we analyze whether trade credit provision and trade credit use changes with changes in monetary policy, as a function of the financial health of clients and suppliers. That is, in Table 10 we estimate Equation 1 substituting the dependent variable with the change in trade credit provided to clients, and in Table 11 we estimate Equation 2 substituting the dependent variable with the change in trade credit use. We approximate these variables with the difference between $t-1$ and t in accounts receivables divided by assets or with the difference between $t-1$ and t in accounts payable divided by lagged assets, respectively.

Results in Table 10 show that firms with clients that have weak financial health provide lower amounts of trade credit following a monetary tightening, relative to firms that have financially strong clients. These findings suggest that trade credit provision might actually contribute to the demand channel of transmission of monetary policy, i.e., suppliers seem reluctant to lend to firms with weak balance sheets when monetary policy tightens. This result is similar to the flight-to-quality effect that has been documented for banks (Bernanke

et al., 1996).

Regarding the cost channel, results in Table 11 do not show any relevant effect of supplier leverage on the use of trade credit by downstream firms. The sum of the coefficients for the interaction terms are negative, but are only statistically different from zero in the specifications without controls. Thus, trade credit does not seem to play an important role for the cost channel of transmission of monetary policy.

5.2 Local projections

We next investigate how the ripple effects documented in our main analysis evolve over time, by estimating impulse response functions using local projections (Jordà, 2005). Specifically, we substitute the dependent variable in Equation 1 with the cumulative increase in log of sales h quarters ahead, $\Delta y_{i,t+h} = \dfrac{\ln \text{sales}_{i,t+h} - \ln \text{sales}_{i,t-1}}{h+1}$ for $h = 0, 1, 2, ..., 12$ (and similarly for the cumulative increase in purchases $\Delta z_{1,t+h}$ in Equation 2).[6] We summarize the results of this exercise by plotting the sum of the coefficients of the interaction of the monetary policy rate with the leverage of the firm's clients and suppliers, and 95% confidence intervals, in Figure 2. Results show that the demand channel of monetary policy leads to a decrease in firm sales which is statistically negative (at the 95% level) two years after the adjustment of the reference rate, but this decrease is small and not statistically indistinguishable from zero afterwards. In contrast, the cost channel of monetary policy leads to a larger and permanent decrease in purchases, which remains statistically significant 3 years after the changes in the monetary policy rate. In fact, the estimated coefficient for the sum of the interaction terms 12 quarters after the shock is -0.011, which is approximately one-third of the size of the immediate effect.

[6] We normalize the cumulative increase in the dependent variable dividing by the number of periods to remove potential trends in sales and purchases. Local projections for the demand channel and the cost channel are estimated using the same controls as in column 6 of Tables 2 and 3, respectively.

5.3 Prices

The previous sections demonstrate that, by shifting the supply and demand curves in the same direction, the demand and cost channels can amplify the effect of monetary policy on aggregate output. Another implication of the shifting of these curves in the same direction is a potential dampening of the effect of monetary policy on prices (see Figure A1). Our databases do not contain information about prices, which is why our main analysis focuses on quantities. However, our firm-level data does allow us to observe the firms' margins and markups, which can be used as a signal of pricing behaviour. In this section, we use this information as an admittedly noisy proxy of prices to analyze how these are affected by changes in demand and supply of financially constrained clients and suppliers induced by changes in monetary policy.

Table A16 in the Appendix contains the results of performing regressions in the spirit of those in Tables 8 and 9, but using the difference in the gross margin (defined as the difference between sales and cost of goods sold divided by sales) as the dependent variable.[7] Consistently with a shifting of the supply and demand curves in the same direction following changes in monetary policy, we find that the sum of the coefficients of the interaction terms have opposite signs for the demand and supply channels. A tightening of monetary policy leads to statistically significant higher average margins for firms in industries with more constrained suppliers. This result can be explained by factors such as the studied firms' price stickiness relative to their suppliers and clients. For example, if the firms in our sample can adjust their prices faster than their suppliers, then they will pass on the rise in their production costs and fall in activity faster, and their markups will go up. Symmetrically, we find that the sum of the coefficients of the interaction term is negative for the demand channel. Note that the relevant result here is not that markups move in one particular direction, but rather that they move in *opposite* directions through the demand and cost channels. We see this

[7]Results using markups and net margins are qualitatively very similar to those described here.

result as further validating our identification of these two distinct channels. In unreported results, we also find that the demand channel leads to a statistically significant reduction in the quarterly difference in markups (defined as the ratio of the difference between sales and cost of goods sold and the cost of goods sold) or net margins (net income divided by sales), and opposite signs for the cost channel.

5.4 The zero lower bound

A concern about our main estimations is that the effective monetary policy rate reached the zero lower bound (ZLB) in the aftermath of the Great Financial Crisis. During the ZLB period, variations in the Federal Funds rate are not suitable to measure the monetary policy stance, as policymakers resorted to unconventional tools of monetary policy. To deal with this issue, we (i) repeat our estimations over our complete sample period using variations in the longer-term 2-year Treasury bond rate, and (ii) exclude the ZLB period (observations from 2009:Q1 to 2016:Q4) from our original estimation sample. Results of replicating the regressions in columns 4-6 of Tables 8 and 9 with the 2-year Treasury rate are contained in Table A17, and results of excluding the ZLB period from our original estimations are contained in Table A18. Results are qualitatively very similar to our original estimations.

6 Conclusions

In this paper, we show that the health of firms in downstream and upstream sectors is instrumental in transmitting demand and supply shocks driven by changes in monetary policy. Underlying our findings is a financial accelerator mechanism, in which a tightening of monetary policy leads firms with weak financial health to reduce their supply of products and their demand for inputs more sharply than firms with better financial health. The decreased supply and demand by these weak firms ripples through the supply chain, as their suppliers are themselves affected through an aggregate demand channel of monetary policy, and their

clients are affected themselves through a cost channel of monetary policy.

Our findings suggest that the economic activity of firms with weak financial health is more affected by the ripple effects of changes in monetary conditions transmitted by weak clients and suppliers through the demand and cost channels, than through changes in the costs of financing due to their own financial situation. We also show that trade credit provision does not play an important role in mitigating these transmission mechanisms, and that the ripple effects induced by the cost channel of transmission might be protracted. Importantly, our results are robust to an estimation method that can control for unobserved demand-side factors that are constant within a given year.

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7 Tables

Table 1: Summary statistics

Variable	N	mean	p50	sd
Panel A: Firm-level sample				
Firm variables:				
$\Delta \ln \text{sales}_i$	613,093	0.008	0.006	0.215
$\Delta \ln \text{purch}_i$	557,562	0.009	0.005	0.260
Tobin's Q	500,408	3.316	1.441	9.501
Size	500,408	4.962	4.955	2.545
PPE ratio	500,408	0.313	0.225	0.269
Industry sales growth (%, yearly)	500,408	0.981	0.242	2.428
Coverage ratio	382,329	0.122	0.047	1.015
Debt ratio	589,526	0.315	0.213	0.541
Weighted client sector averages:				
Client average Tobin's Q	500,408	3.218	2.837	1.612
Client average size	500,408	5.583	5.460	0.969
Client average PPE ratio	500,408	0.310	0.290	0.119
Client average industry sales growth (%)	500,408	0.715	0.429	1.188
Client average coverage ratio	613,093	0.179	0.167	0.207
Client average debt ratio	613,093	0.345	0.339	0.072
Weighted supplier sector averages:				
Supplier average Tobin's Q	460,216	3.565	3.272	1.638
Supplier average size	460,216	5.356	5.320	0.681
Supplier average PPE ratio	460,216	0.310	0.297	0.100
Supplier average industry sales growth (%)	460,216	0.812	0.502	1.086
Supplier average coverage ratio	557,562	0.155	0.145	0.157
Supplier average debt ratio	557,562	0.327	0.322	0.058
Panel B: Pair-level samples				
Client leverage sample:				
$\Delta \ln \text{sales}_{ij}$	26,133	0.042	0.036	0.521
Client Tobin's Q	20,860	1.879	1.436	1.676
Client size	26,133	9.352	9.882	1.670
Client PPE ratio	26,115	0.346	0.301	0.226
Client industry growth	26,132	0.942	0.166	2.987
Client debt ratio	26,103	0.274	0.263	0.178
Client coverage ratio	26,133	0.161	0.110	0.341
Supplier leverage sample:				
$\Delta \ln \text{purch}_{ik}$	5,025	0.046	0.022	0.574
Supplier Tobin's Q	3,840	2.274	1.494	3.161
Supplier size	5,023	5.504	5.515	2.260
Supplier PPE ratio	5,023	0.396	0.322	0.290
Supplier industry growth	5,025	1.798	0.401	4.102
Supplier debt ratio	5,006	0.271	0.244	0.287

Continued on next page

Table 1 – *Continued from previous page*

Variable	**N**	**mean**	**p50**	**sd**
Supplier coverage ratio	5,025	0.132	0.080	0.550
Panel C: Monetary policy variables				
Federal Funds (level)	108	2.970	3.091	2.390
ΔFF (quarterly)	108	-0.098	-0.006	0.382
Surprise (quarterly)	108	-0.040	-0.016	0.062
2-y Treasury rate (level)	108	3.383	3.664	2.317
Δ 2-y Treasury rate (quarterly)	108	-0.132	-0.099	0.351

Note: This table contains summary statistics for the main variables used in this paper. In Panel A, data correspond to the firm-level, quarterly frequency sample obtained from Compustat. In this sample, information about the firms' clients and suppliers is obtained by averaging the variables at the sector level, and computing a weighted average of these values across sectors buying from or selling to each firm. Weights are obtained from the Input-Output matrices provided by the Bureau of Economic Analysis. Data for Panel B is from the Customer Segment Files in Compustat. Information in this sample corresponds to actual client-supplier relationships; client and supplier variables are constructed from balance sheet information obtained from Compustat. The client leverage sample corresponds to supplier-client pairs where the supplier firm reports a firm in Compustat as an important client. The supplier leverage sample corresponds to client-supplier pairs where the client is reported by the supplier to be an important client, and the supplier belongs to an industry supplying large fractions of input to the client. Panel C contains the quarterly distribution of the monetary policy variables over the period 1990:Q1 to 2016:Q4. Please refer to Section 2 for more details about the construction of the samples, and to Table A1 for variable definitions.

Table 2: Demand channel estimations on the firm-level sample.

	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta \ln \text{sales}_{t-1}$	-0.259***	-0.260***	-0.260***	-0.260***	-0.261***	-0.261***
	(-74.457)	(-69.975)	(-70.031)	(-74.733)	(-70.155)	(-70.204)
$\Delta \ln \text{sales}_{t-2}$	-0.219***	-0.215***	-0.215***	-0.220***	-0.216***	-0.216***
	(-46.918)	(-43.690)	(-43.716)	(-47.082)	(-43.841)	(-43.865)
$\Delta \ln \text{sales}_{t-3}$	-0.153***	-0.151***	-0.151***	-0.154***	-0.152***	-0.152***
	(-52.812)	(-49.426)	(-49.447)	(-53.175)	(-49.706)	(-49.718)
$\Delta \ln \text{sales}_{t-4}$	0.338***	0.317***	0.317***	0.337***	0.316***	0.316***
	(62.243)	(56.575)	(56.570)	(62.216)	(56.400)	(56.397)
Δr_t	-0.004**	-0.004*	-0.004*	-0.003*	-0.004*	-0.004*
	(-1.988)	(-1.825)	(-1.813)	(-1.766)	(-1.921)	(-1.906)
Δr_{t-1}	0.007***	0.007***	0.007***	0.007***	0.007***	0.007***
	(3.134)	(2.894)	(2.821)	(3.051)	(2.988)	(2.901)
Δr_{t-2}	0.001	-0.003	-0.002	0.000	-0.003	-0.002
	(0.226)	(-1.075)	(-0.961)	(0.097)	(-1.044)	(-0.977)
Δr_{t-3}	-0.001	0.001	0.001	-0.001	0.001	0.001
	(-0.364)	(0.534)	(0.468)	(-0.287)	(0.435)	(0.399)
Δr_{t-4}	-0.002	-0.001	-0.001	-0.002	-0.001	-0.001
	(-1.407)	(-0.641)	(-0.631)	(-1.250)	(-0.660)	(-0.645)
Cl. coverage ratio ($\overline{B^c}$)	0.001	0.001	0.002	-0.000	0.000	0.001
	(0.580)	(0.435)	(1.149)	(-0.224)	(0.068)	(0.589)
$\overline{B^c} \times \Delta \text{r}_t$	0.005	0.003	0.003	0.005	0.003	0.003
	(0.996)	(0.478)	(0.505)	(1.065)	(0.564)	(0.617)
$\overline{B^c} \times \Delta \text{r}_{t-1}$	-0.023***	-0.025***	-0.024***	-0.023***	-0.025***	-0.024***
	(-3.418)	(-3.329)	(-3.224)	(-3.519)	(-3.415)	(-3.300)
$\overline{B^c} \times \Delta \text{r}_{t-2}$	0.006	0.011	0.009	0.007	0.012	0.011
	(0.894)	(1.382)	(1.219)	(1.033)	(1.539)	(1.433)
$\overline{B^c} \times \Delta \text{r}_{t-3}$	-0.007	-0.006	-0.005	-0.007	-0.007	-0.006
	(-1.092)	(-0.851)	(-0.738)	(-1.201)	(-0.970)	(-0.877)
$\overline{B^c} \times \Delta \text{r}_{t-4}$	0.001	-0.005	-0.005	0.001	-0.005	-0.005
	(0.139)	(-0.998)	(-1.004)	(0.163)	(-0.870)	(-0.889)
Industry growth		0.000***	0.000**		0.001***	0.001***
		(3.310)	(2.299)		(4.654)	(3.633)
Tobin's Q		0.001***	0.001***		0.001***	0.001***
		(19.864)	(19.766)		(20.328)	(20.084)
Size		0.003***	0.003***		0.003***	0.003***
		(23.833)	(23.616)		(22.237)	(22.126)
PPE ratio		0.011***	0.014***		0.016***	0.016***
		(9.580)	(10.647)		(10.704)	(10.649)
Debt ratio		-0.007***	-0.007***		-0.007***	-0.007***
		(-12.789)	(-12.871)		(-12.534)	(-12.471)
Cl. industry growth			0.001***			0.001***
			(2.792)			(2.917)
Client Tobin's Q			0.000**			0.001***
			(2.025)			(3.465)

Continued on next page

Table 2 – *Continued from previous page*

	(1)	(2)	(3)	(4)	(5)	(6)
Client size			0.001*			0.001
			(1.795)			(0.927)
Client PPE ratio			-0.016***			0.001
			(-3.948)			(0.214)
Observations	613,093	500,408	500,408	613,093	500,408	500,408
R^2	0.285	0.266	0.266	0.286	0.267	0.267
Time FE	Y	Y	Y	Y	Y	Y
Industry FE				Y	Y	Y
$\sum_{u=0}^{4} \beta_u^c$	-0.0177	-0.0226	-0.0222	-0.0177	-0.0217	-0.0209
F-statistic	20.08	25.15	24.18	19.99	23.21	21.32
p-value	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Note: This table contains coefficient estimates for Equation 1. The sample corresponds to all non-financial, non-government public firms in the US in the period 1990Q1 to 2016Q4. The dependent variable is the quarterly difference in the log of sales. The main independent variables are: the quarterly difference in the monetary policy rate and four of its lags, the average clients' coverage ratio (lagged one quarter), and the interaction between the differences in the monetary policy rates and the average lagged client coverage ratio. Changes in monetary policy are the quarterly differences in the federal funds rate. Firm-level control variables are the average yearly growth in sales in the firms' industry, and lagged values of Tobin's Q, firm size, debt to assets ratio, and the ratio of PPE to total assets. Client controls include: client average industry growth rate and lagged values of client average Tobin's Q, client average size, and client average PPE to assets ratio. All variables are defined in Table A1. The last three rows of this table contain, respectively: the sum of the coefficients of the interaction terms, an F-statistic for the null hypothesis that the sum of this coefficients equals zero, and its corresponding p-value. Standard errors are clustered at the firm level.
***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table 3: Cost channel estimations on the firm-level sample.

	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta \ln \text{purch}_{t-1}$	-0.372***	-0.376***	-0.376***	-0.373***	-0.377***	-0.377***
	(-108.309)	(-102.833)	(-102.841)	(-108.395)	(-102.921)	(-102.939)
$\Delta \ln \text{purch}_{t-2}$	-0.237***	-0.238***	-0.238***	-0.238***	-0.239***	-0.239***
	(-57.842)	(-54.018)	(-54.025)	(-57.982)	(-54.136)	(-54.141)
$\Delta \ln \text{purch}_{t-3}$	-0.145***	-0.146***	-0.146***	-0.146***	-0.147***	-0.147***
	(-48.861)	(-45.952)	(-45.961)	(-49.131)	(-46.152)	(-46.154)
$\Delta \ln \text{purch}_{t-4}$	0.123***	0.113***	0.113***	0.123***	0.112***	0.112***
	(31.088)	(27.241)	(27.204)	(30.896)	(27.065)	(27.044)
Δr_t	-0.008***	-0.008***	-0.008***	-0.007***	-0.008***	-0.008***
	(-2.984)	(-2.783)	(-2.715)	(-2.609)	(-2.758)	(-2.720)
Δr_{t-1}	0.015***	0.015***	0.014***	0.014***	0.015***	0.014***
	(4.603)	(4.160)	(4.004)	(4.290)	(4.122)	(3.995)
Δr_{t-2}	-0.004	-0.008**	-0.008**	-0.004	-0.008**	-0.008**
	(-1.251)	(-2.216)	(-2.115)	(-1.325)	(-2.098)	(-2.056)
Δr_{t-3}	-0.001	0.001	0.001	-0.001	0.001	0.001
	(-0.319)	(0.408)	(0.358)	(-0.288)	(0.212)	(0.251)
Δr_{t-4}	0.000	0.001	0.001	0.001	0.001	0.001
	(0.097)	(0.418)	(0.402)	(0.230)	(0.485)	(0.425)
Supp. cov. ratio ($\overline{B^s}$)	-0.000	0.004	0.007**	0.001	0.003	0.004*
	(-0.054)	(1.482)	(2.562)	(0.468)	(1.187)	(1.692)
$\overline{B^s} \times \Delta \text{r}_t$	0.007	0.004	0.004	0.005	0.004	0.003
	(0.844)	(0.462)	(0.417)	(0.678)	(0.402)	(0.363)
$\overline{B^s} \times \Delta \text{r}_{t-1}$	-0.020*	-0.028**	-0.025**	-0.018	-0.027**	-0.025*
	(-1.755)	(-2.172)	(-1.969)	(-1.573)	(-2.121)	(-1.927)
$\overline{B^s} \times \Delta \text{r}_{t-2}$	-0.006	0.000	-0.001	-0.006	-0.000	-0.000
	(-0.520)	(0.002)	(-0.058)	(-0.510)	(-0.019)	(-0.005)
$\overline{B^s} \times \Delta \text{r}_{t-3}$	0.007	0.008	0.009	0.008	0.010	0.009
	(0.663)	(0.688)	(0.741)	(0.760)	(0.793)	(0.733)
$\overline{B^s} \times \Delta \text{r}_{t-4}$	-0.018**	-0.020**	-0.019**	-0.018**	-0.020**	-0.019**
	(-2.217)	(-2.091)	(-2.023)	(-2.182)	(-2.119)	(-1.997)
Industry growth		0.001***	-0.000		0.001***	0.000
		(5.626)	(-0.173)		(5.073)	(0.174)
Tobin's Q		0.001***	0.001***		0.001***	0.001***
		(18.181)	(17.943)		(18.627)	(18.386)
Size		0.004***	0.004***		0.004***	0.004***
		(26.235)	(26.456)		(25.150)	(25.174)
PPE ratio		0.022***	0.027***		0.027***	0.027***
		(15.252)	(15.082)		(12.759)	(12.736)
Debt ratio		-0.016***	-0.016***		-0.016***	-0.016***
		(-18.864)	(-18.867)		(-18.379)	(-18.223)
Supp. ind. growth			0.004***			0.004***
			(7.402)			(7.694)
Supplier Tobin's Q			0.001**			0.002***
			(2.545)			(4.347)

Continued on next page

Table 3 – *Continued from previous page*

	(1)	(2)	(3)	(4)	(5)	(6)
Supplier size			-0.001*			-0.000
			(-1.700)			(-0.181)
Supplier PPE ratio			-0.018***			-0.002
			(-3.447)			(-0.276)
Observations	557,562	460,216	460,216	557,562	460,216	460,216
R^2	0.181	0.180	0.180	0.182	0.180	0.180
Time FE	Y	Y	Y	Y	Y	Y
Industry FE				Y	Y	Y
$\sum_{u=0}^{4} \beta_u^s$	-0.0302	-0.0349	-0.0321	-0.0281	-0.0340	-0.0312
F-statistic	20.09	21.27	18.06	17.27	20.17	17.04
p-value	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Note: This table contains coefficient estimates for Equation 2. The sample corresponds to all non-financial, non-government public firms in the US in the period 1990Q1 to 2016Q4. The dependent variable is the quarterly difference in the log of purchases. The main independent variables are: the quarterly difference in the monetary policy rate and four of its lags, the average suppliers' coverage ratio (lagged one quarter), and the interaction between the differences in the monetary policy rates and the average lagged supplier coverage ratio. Changes in monetary policy are the quarterly differences in the federal funds rate. Firm-level control variables are the average yearly growth in sales in the firms' industry, and lagged values of Tobin's Q, firm size, debt to assets ratio, and the ratio of PPE to total assets. Supplier controls include: supplier average industry growth rate and lagged values of supplier average Tobin's Q, supplier average size, and supplier average PPE to assets ratio. All variables are defined in Table A1. The last three rows of this table contain, respectively: the sum of the coefficients of the interaction terms, an F-statistic for the null hypothesis that the sum of this coefficients equals zero, and its corresponding p-value. Standard errors are clustered at the firm level.
***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table 4: Demand channel estimations on the paired client sample.

	(1)	(2)	(3)	(4)	(5)	(6)
Δr_t	0.004	0.009	0.014	0.021		
	(0.299)	(0.702)	(0.861)	(1.210)		
Client coverage ratio	-0.020	-0.012	-0.010	-0.010	-0.006	-0.020
	(-1.614)	(-1.032)	(-0.604)	(-0.624)	(-0.365)	(-1.116)
Client coverage ratio $\times$ Δr_t	-0.015*	-0.014*	-0.019*	-0.025**	-0.020**	-0.029**
	(-1.868)	(-1.760)	(-1.782)	(-2.066)	(-1.964)	(-2.487)
Client industry growth		-0.005**		-0.005**		-0.008*
		(-2.536)		(-2.152)		(-1.864)
Client Tobin's Q		0.005		0.004		0.000
		(1.189)		(0.745)		(0.056)
Client size		0.002		-0.007		-0.018**
		(0.410)		(-1.154)		(-2.204)
Client PPE ratio		-0.016		0.008		0.059
		(-0.436)		(0.211)		(1.244)
Client monopsony		0.852***		0.973***		1.283***
		(19.790)		(16.561)		(12.141)
Supplier monopoly		0.375***		0.223**		0.154
		(4.758)		(2.169)		(1.078)
Observations	26,133	20,506	19,927	14,738	12,200	8,251
R^2	0.056	0.144	0.385	0.463	0.591	0.643
Industry $\times$ year FE	Y	Y				
Industry $\times$ size $\times$ age $\times$ year FE			Y	Y		
Firm $\times$ Year FE					Y	Y

Note: This table contains coefficient estimates for Equation 3. The sample corresponds to non-financial, non-government public firms in the US and their most important clients as reported in the Compustat Segment files for years 1990 through 2015. The dependent variable is $\Delta \ln \text{sales}_{ijt}$, or sales from firm i to client j in year t. The main independent variables are: the yearly difference in the monetary policy rate, the client's coverage ratio (lagged one year), and the interaction between these two variables. Changes in monetary policy are the yearly differences in the federal funds rate. Estimations include industry times year fixed effects (columns 1 and 2), firm industry $\times$ size group $\times$ age group $\times$ year fixed effects (columns 3 and 4), and firm $\times$ year fixed effects (columns 5 and 6). Columns 3 and 4 include controls for the client's industry growth rate and lagged values of client's Tobin's Q, size, and PPE. Columns 5 and 6 additionally control for client monopsony and supplier monopoly power. Standard errors are double clustered at the supplier and client level.
***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table 5: Cost channel estimations on the paired supplier sample.

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Observations weighted using BEA input matrices						
Δr_t	0.000	0.028	-0.002	0.026	-0.028	-0.024
	(0.000)	(0.564)	(-0.051)	(0.710)	(-0.789)	(-0.763)
Supplier coverage ratio	0.007	0.019	0.017	0.045	-0.010	-0.003
	(0.379)	(0.766)	(0.632)	(1.348)	(-0.568)	(-0.176)
Supplier coverage $\times$ Δr_t	-0.028*	-0.030	-0.012	-0.017	0.000	0.004
	(-1.838)	(-1.483)	(-0.577)	(-0.663)	(0.013)	(0.230)
Supplier industry sales growth		0.000		0.001		0.000
		(0.087)		(0.236)		(0.069)
Supplier Tobin's Q		0.025*		0.029**		0.030**
		(1.830)		(2.172)		(2.023)
Supplier size		0.037**		0.022*		0.022**
		(2.365)		(1.885)		(2.027)
Supplier PPE		-0.070		0.097		0.115
		(-0.603)		(1.117)		(1.262)
Client monopsony		1.013***		1.051***		1.107***
		(9.771)		(9.015)		(10.046)
Supplier monopoly		0.218		0.124		-0.148
		(0.781)		(0.397)		(-0.573)
Observations	21,076	16,501	18,813	14,679	16,628	12,813
R^2	0.299	0.398	0.433	0.551	0.630	0.717
Industry $\times$ year FE	Y	Y				
Industry $\times$ size $\times$ age $\times$ year FE			Y	Y		
Firm $\times$ Year FE					Y	Y
Panel B: Suppliers in important sectors						
Δr_t	-0.025	-0.021	-0.015	-0.014	-0.006	0.000
	(-0.870)	(-0.681)	(-0.476)	(-0.407)	(-0.167)	(0.012)
Supplier coverage ratio	-0.029*	-0.024	-0.039**	-0.036*	-0.030	-0.021
	(-1.795)	(-1.376)	(-2.162)	(-1.795)	(-1.352)	(-0.848)
Supplier coverage $\times$ Δr_t	0.008	-0.003	-0.000	-0.009	-0.002	0.002
	(0.628)	(-0.198)	(-0.004)	(-0.659)	(-0.147)	(0.116)
Supplier industry growth		0.011		0.004		0.005
		(1.580)		(0.470)		(0.270)
Supplier Tobin's Q		0.008**		0.005		0.006
		(2.575)		(1.329)		(1.559)
Supplier size		0.023***		0.024***		0.024***
		(4.018)		(3.748)		(3.248)
Supplier PPE		-0.026		-0.064		-0.046
		(-0.416)		(-0.941)		(-0.563)
Client monopsony		0.784***		0.749***		0.741***
		(17.353)		(15.310)		(12.394)

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Table 5 – *Continued from previous page*

	(1)	(2)	(3)	(4)	(5)	(6)
Supplier monopoly		0.299**		0.267		0.163
		(2.538)		(1.325)		(0.737)
Observations	5,025	3,744	4,381	3,232	3,759	2,658
R^2	0.096	0.182	0.171	0.236	0.318	0.378
Industry × year FE	Y	Y				
Industry × size × age × year FE			Y	Y		
Firm × Year FE					Y	Y

Note: This table contains coefficient estimates for Equation 4. This sample consists of non-financial, non-government public US firms and their suppliers such that firms are reported to be important clients of the suppliers and suppliers disclose the names of their clients in the Compustat Segment files between years 1990 through 2015. Estimations in Panel A weigh each supplier observation with the fraction of inputs purchased by the firm from suppliers in that sector. Estimations in Panel B only contain suppliers belonging to industries that account for up to 75% of the inputs used in the firms' main industry. The dependent variable is $\Delta \ln \text{purch}_{ikt}$, or purchases by firm i from supplier k in year t. The main independent variables are: the yearly difference in the monetary policy rate, the supplier's coverage ratio (lagged one year), and the interaction between these two variables. Changes in monetary policy are the yearly differences in the federal funds rate. Estimations include industry times year fixed effects (columns 1 and 2), firm industry × size group × age group × year fixed effects (columns 3 and 4), and firm × year fixed effects (columns 5 and 6). Columns 3 and 4 include controls for supplier's industry growth rate and lagged values of supplier Tobin's Q, size, and PPE. Columns 5 and 6 additionally control for client monopsony and supplier monopoly power. Standard errors are double clustered at the supplier and client level.
***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table 6: Financial accelerator and firm purchases.

	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta \ln \text{purch}_{t-1}$	-0.368***	-0.370***	-0.371***	-0.369***	-0.371***	-0.371***
	(-88.054)	(-83.317)	(-83.346)	(-88.170)	(-83.421)	(-83.497)
$\Delta \ln \text{purch}_{t-2}$	-0.247***	-0.245***	-0.245***	-0.249***	-0.246***	-0.246***
	(-50.390)	(-46.925)	(-46.954)	(-50.557)	(-47.063)	(-47.112)
$\Delta \ln \text{purch}_{t-3}$	-0.147***	-0.145***	-0.145***	-0.148***	-0.146***	-0.146***
	(-40.755)	(-37.567)	(-37.605)	(-41.075)	(-37.790)	(-37.856)
$\Delta \ln \text{purch}_{t-4}$	0.129***	0.118***	0.118***	0.128***	0.117***	0.117***
	(27.496)	(23.933)	(23.862)	(27.257)	(23.758)	(23.695)
Δr_t	-0.006**	0.002	0.002	-0.005*	0.002	0.003
	(-2.095)	(0.407)	(0.565)	(-1.879)	(0.502)	(0.666)
Δr_{t-1}	0.014***	-0.004	-0.004	0.013***	-0.004	-0.004
	(4.600)	(-0.641)	(-0.630)	(4.362)	(-0.732)	(-0.723)
Δr_{t-2}	-0.006**	-0.006	-0.005	-0.007**	-0.007	-0.006
	(-2.074)	(-1.063)	(-0.951)	(-2.099)	(-1.176)	(-1.049)
Δr_{t-3}	0.002	-0.011*	-0.012*	0.002	-0.010	-0.011*
	(0.555)	(-1.748)	(-1.835)	(0.631)	(-1.628)	(-1.741)
Δr_{t-4}	-0.002	0.004	0.005	-0.002	0.004	0.004
	(-0.653)	(0.895)	(0.980)	(-0.548)	(0.811)	(0.877)
Coverage ratio ($\overline{B^f}$)	0.001	-0.000	-0.000	0.001	-0.000	-0.000
	(1.217)	(-0.873)	(-0.802)	(1.282)	(-0.729)	(-0.682)
$\overline{B^f} \times \Delta \text{r}_t$	0.001	0.002	0.002	0.001	0.002	0.002
	(0.701)	(1.123)	(1.094)	(0.730)	(1.131)	(1.117)
$\overline{B^f} \times \Delta \text{r}_{t-1}$	-0.001	-0.003	-0.003	-0.001	-0.003	-0.003
	(-0.432)	(-1.061)	(-1.039)	(-0.451)	(-1.011)	(-1.004)
$\overline{B^f} \times \Delta \text{r}_{t-2}$	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(-0.302)	(-0.461)	(-0.500)	(-0.301)	(-0.491)	(-0.519)
$\overline{B^f} \times \Delta \text{r}_{t-3}$	0.001	0.002	0.002	0.001	0.002	0.002
	(0.347)	(0.567)	(0.609)	(0.330)	(0.569)	(0.582)
$\overline{B^f} \times \Delta \text{r}_{t-4}$	-0.001	-0.003	-0.003	-0.001	-0.002	-0.002
	(-0.658)	(-1.255)	(-1.274)	(-0.621)	(-1.225)	(-1.225)
Size		0.004***	0.004***		0.004***	0.004***
		(21.774)	(21.661)		(22.281)	(22.084)
Size $\times \Delta \text{r}_t$		-0.002**	-0.002**		-0.002***	-0.002***
		(-2.431)	(-2.508)		(-2.638)	(-2.805)
Size $\times \Delta \text{r}_{t-1}$		0.003***	0.003***		0.003***	0.003***
		(3.452)	(3.355)		(3.588)	(3.530)
Size $\times \Delta \text{r}_{t-2}$		-0.000	-0.001		-0.000	-0.000
		(-0.494)	(-0.591)		(-0.296)	(-0.398)
Size $\times \Delta \text{r}_{t-3}$		0.003***	0.003***		0.003**	0.003***
		(2.638)	(2.785)		(2.439)	(2.634)
Size $\times \Delta \text{r}_{t-4}$		-0.001	-0.001		-0.001	-0.001
		(-0.927)	(-1.001)		(-0.830)	(-0.919)
Industry growth		0.001***	0.000		0.001***	0.000

Continued on next page

Table 6 – *Continued from previous page*

	(1)	(2)	(3)	(4)	(5)	(6)
		(5.873)	(0.291)		(4.956)	(0.013)
Tobin's Q		0.000***	0.000***		0.000***	0.000***
		(7.108)	(6.526)		(8.151)	(7.674)
PPE ratio		0.020***	0.023***		0.024***	0.026***
		(12.204)	(10.866)		(10.317)	(10.697)
Cl. industry growth			0.002***			0.002***
			(3.296)			(3.230)
Client Tobin's Q			0.001*			0.000
			(1.945)			(1.047)
Client size			0.001			0.002
			(1.443)			(1.218)
Client PPE ratio			0.001			-0.043***
			(0.174)			(-4.538)
Client debt ratio			0.001			0.023***
			(0.128)			(2.804)
Supp. industry growth			0.003***			0.004***
			(5.183)			(5.869)
Supplier Tobin's Q			0.002***			0.003***
			(3.671)			(6.044)
Supplier Size			0.000			0.001
			(0.444)			(0.904)
Supplier PPE ratio			-0.015**			0.023**
			(-2.261)			(2.462)
Supplier debt ratio			-0.041***			-0.051***
			(-4.261)			(-4.788)
Observations	355,070	300,805	300,805	355,070	300,805	300,805
R^2	0.189	0.185	0.185	0.190	0.186	0.186
Time FE	Y	Y	Y	Y	Y	Y
Industry FE				Y	Y	Y
$\sum_{u=0}^{4} \beta_u^f$	-0.000802	-0.00282	-0.00283	-0.000775	-0.00268	-0.00272
F-statistic	0.410	3.653	3.669	0.385	3.277	3.381
p-value	0.522	0.0560	0.0554	0.535	0.0703	0.0660

Note: The dependent variable is the quarterly difference in the log of firm purchases. The main independent variables are: the quarterly difference in the monetary policy rate and four of its lags, the firm's coverage ratio (lagged one quarter), and the interaction between the differences in the monetary policy rates and the lagged coverage ratio. Changes in monetary policy are the quarterly differences in the federal funds rate. Firm-level control variables include firm size and its interactions with lags of the monetary policy rate. The rest of the controls are as before. All variables are defined in Table A1. The last three rows of this table contain, respectively: the sum of the coefficients of the interaction terms, an F-statistic for the null hypothesis that the sum of this coefficients equals zero, and its corresponding p-value. Standard errors are clustered at the firm level.

***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table 7: Financial accelerator and firm sales.

	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta \ln \text{sales}_{t-1}$	-0.261***	-0.260***	-0.260***	-0.262***	-0.260***	-0.261***
	(-61.829)	(-58.239)	(-58.370)	(-62.031)	(-58.366)	(-58.494)
$\Delta \ln \text{sales}_{t-2}$	-0.230***	-0.222***	-0.223***	-0.231***	-0.223***	-0.224***
	(-41.057)	(-38.139)	(-38.201)	(-41.143)	(-38.208)	(-38.295)
$\Delta \ln \text{sales}_{t-3}$	-0.157***	-0.151***	-0.151***	-0.158***	-0.151***	-0.152***
	(-44.500)	(-41.089)	(-41.124)	(-44.733)	(-41.244)	(-41.302)
$\Delta \ln \text{sales}_{t-4}$	0.345***	0.318***	0.318***	0.344***	0.317***	0.317***
	(53.826)	(48.325)	(48.330)	(53.829)	(48.239)	(48.213)
Δr_t	-0.002	0.000	0.001	-0.002	0.000	0.001
	(-1.161)	(0.097)	(0.178)	(-1.048)	(0.143)	(0.247)
Δr_{t-1}	0.007***	-0.005	-0.005	0.007***	-0.005	-0.005
	(3.168)	(-1.250)	(-1.269)	(3.101)	(-1.301)	(-1.309)
Δr_{t-2}	-0.000	-0.002	-0.002	-0.000	-0.003	-0.002
	(-0.122)	(-0.589)	(-0.488)	(-0.066)	(-0.685)	(-0.589)
Δr_{t-3}	-0.001	-0.015***	-0.015***	-0.002	-0.014***	-0.015***
	(-0.544)	(-3.279)	(-3.351)	(-0.611)	(-3.138)	(-3.218)
Δr_{t-4}	-0.004**	0.002	0.002	-0.004**	0.001	0.001
	(-2.103)	(0.508)	(0.559)	(-1.989)	(0.384)	(0.443)
Coverage ratio ($\overline{B^f}$)	-0.000	-0.001*	-0.001*	-0.000	-0.001*	-0.001*
	(-0.601)	(-1.812)	(-1.863)	(-0.641)	(-1.709)	(-1.698)
$\overline{B^f} \times \Delta \text{r}_t$	-0.001	0.001	0.001	-0.001	0.001	0.001
	(-0.514)	(0.654)	(0.647)	(-0.567)	(0.626)	(0.628)
$\overline{B^f} \times \Delta \text{r}_{t-1}$	0.000	-0.002	-0.002	0.000	-0.002	-0.002
	(0.249)	(-0.846)	(-0.852)	(0.291)	(-0.779)	(-0.785)
$\overline{B^f} \times \Delta \text{r}_{t-2}$	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(-0.381)	(-0.371)	(-0.388)	(-0.345)	(-0.383)	(-0.410)
$\overline{B^f} \times \Delta \text{r}_{t-3}$	0.001	0.001	0.001	0.001	0.001	0.001
	(0.620)	(0.553)	(0.569)	(0.542)	(0.518)	(0.533)
$\overline{B^f} \times \Delta \text{r}_{t-4}$	-0.002	-0.002*	-0.002*	-0.002	-0.002*	-0.002*
	(-1.328)	(-1.716)	(-1.719)	(-1.251)	(-1.653)	(-1.645)
Size		0.003***	0.003***		0.003***	0.003***
		(21.149)	(20.693)		(20.122)	(19.624)
Size $\times \Delta \text{r}_t$		-0.001*	-0.001*		-0.001*	-0.001**
		(-1.748)	(-1.770)		(-1.887)	(-1.980)
Size $\times \Delta \text{r}_{t-1}$		0.003***	0.003***		0.003***	0.003***
		(3.853)	(3.818)		(3.973)	(3.928)
Size $\times \Delta \text{r}_{t-2}$		0.000	-0.000		0.000	0.000
		(0.088)	(-0.014)		(0.268)	(0.175)
Size $\times \Delta \text{r}_{t-3}$		0.003***	0.003***		0.003***	0.003***
		(3.465)	(3.567)		(3.250)	(3.391)
Size $\times \Delta \text{r}_{t-4}$		-0.001**	-0.001**		-0.001*	-0.001*
		(-2.055)	(-2.069)		(-1.885)	(-1.922)
Industry growth		0.001***	0.000***		0.001***	0.001***

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Table 7 – *Continued from previous page*

	(1)	(2)	(3)	(4)	(5)	(6)
		(5.204)	(2.634)		(5.891)	(3.088)
Tobin's Q		0.000***	0.000***		0.000***	0.000***
		(14.181)	(13.406)		(14.911)	(13.937)
PPE ratio		0.006***	0.010***		0.011***	0.013***
		(4.463)	(5.961)		(6.425)	(7.190)
Client industry growth			0.001*			0.001**
			(1.849)			(2.082)
Client Tobin's Q			0.000			0.000
			(0.053)			(1.319)
Client size			0.001			0.002**
			(0.797)			(2.199)
Client PPE ratio			0.001			-0.019**
			(0.279)			(-2.459)
Client debt ratio			0.022***			0.032***
			(4.044)			(4.908)
Supplier industry growth			0.001**			0.001***
			(2.141)			(3.154)
Supplier Tobin's Q			0.001***			0.002***
			(3.467)			(5.594)
Supplier Size			0.002**			0.002**
			(2.556)			(1.972)
Supplier PPE ratio			-0.023***			-0.009
			(-4.051)			(-1.192)
Supplier debt ratio			-0.023***			-0.028***
			(-2.890)			(-3.190)
Observations	382,329	321,909	321,909	382,329	321,909	321,909
R^2	0.306	0.277	0.277	0.307	0.278	0.278
Time FE	Y	Y	Y	Y	Y	Y
Industry FE				Y	Y	Y
$\sum_{u=0}^{4} \beta_u^f$	-0.00129	-0.00273	-0.00276	-0.00127	-0.00265	-0.00266
F-statistic	1.788	5.863	5.964	1.742	5.506	5.569
p-value	0.181	0.0155	0.0146	0.187	0.0190	0.0183

Note: The dependent variable is the quarterly difference in the log of firm sales. The main independent variables are: the quarterly difference in the monetary policy rate and four of its lags, the firm's coverage ratio (lagged one quarter), and the interaction between the differences in the monetary policy rates and the lagged coverage ratio. Changes in monetary policy are the quarterly differences in the federal funds rate. Firm-level control variables are firm size and its interactions with lags of the monetary policy rate. The rest of controls are as before. All variables are defined in Table A1. The last three rows of this table contain, respectively: the sum of the coefficients of the interaction terms, an F-statistic for the null hypothesis that the sum of this coefficients equals zero, and its corresponding p-value. Standard errors are clustered at the firm level.

***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table 8: Financial accelerator and ripple effects on firm sales.

	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta \ln \text{sales}_{t-1}$	-0.261***	-0.260***	-0.260***	-0.262***	-0.260***	-0.261***
	(-61.871)	(-58.287)	(-58.412)	(-62.068)	(-58.410)	(-58.539)
$\Delta \ln \text{sales}_{t-2}$	-0.230***	-0.222***	-0.223***	-0.231***	-0.223***	-0.224***
	(-41.079)	(-38.161)	(-38.209)	(-41.167)	(-38.230)	(-38.308)
$\Delta \ln \text{sales}_{t-3}$	-0.157***	-0.151***	-0.151***	-0.158***	-0.152***	-0.152***
	(-44.510)	(-41.097)	(-41.130)	(-44.740)	(-41.250)	(-41.298)
$\Delta \ln \text{sales}_{t-4}$	0.345***	0.318***	0.318***	0.344***	0.317***	0.317***
	(53.830)	(48.327)	(48.348)	(53.832)	(48.239)	(48.236)
Δr_t	-0.004	-0.001	-0.001	-0.003	-0.000	-0.000
	(-1.358)	(-0.273)	(-0.197)	(-1.137)	(-0.132)	(-0.006)
Δr_{t-1}	0.012***	-0.000	-0.000	0.012***	-0.001	-0.001
	(3.552)	(-0.034)	(-0.107)	(3.443)	(-0.123)	(-0.221)
Δr_{t-2}	-0.002	-0.004	-0.004	-0.002	-0.005	-0.004
	(-0.482)	(-0.882)	(-0.839)	(-0.503)	(-1.000)	(-0.945)
Δr_{t-3}	-0.002	-0.016***	-0.016***	-0.002	-0.015***	-0.015***
	(-0.646)	(-3.097)	(-3.087)	(-0.629)	(-2.957)	(-2.961)
Δr_{t-4}	0.002	0.008**	0.008**	0.002	0.008**	0.008**
	(0.633)	(2.247)	(2.228)	(0.768)	(2.149)	(2.141)
Coverage ratio ($\overline{B^f}$)	-0.000	-0.001**	-0.001**	-0.000	-0.001*	-0.001*
	(-0.758)	(-1.987)	(-2.025)	(-0.703)	(-1.820)	(-1.832)
$\overline{B^f} \times \Delta \text{r}_t$	-0.001	0.001	0.001	-0.001	0.001	0.001
	(-0.556)	(0.614)	(0.608)	(-0.593)	(0.601)	(0.604)
$\overline{B^f} \times \Delta \text{r}_{t-1}$	0.001	-0.001	-0.001	0.001	-0.001	-0.001
	(0.485)	(-0.638)	(-0.648)	(0.521)	(-0.578)	(-0.592)
$\overline{B^f} \times \Delta \text{r}_{t-2}$	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(-0.480)	(-0.476)	(-0.481)	(-0.455)	(-0.496)	(-0.506)
$\overline{B^f} \times \Delta \text{r}_{t-3}$	0.001	0.001	0.001	0.001	0.001	0.001
	(0.601)	(0.533)	(0.553)	(0.534)	(0.503)	(0.518)
$\overline{B^f} \times \Delta \text{r}_{t-4}$	-0.001	-0.002	-0.002	-0.001	-0.002	-0.002
	(-1.006)	(-1.409)	(-1.419)	(-0.927)	(-1.348)	(-1.354)
Supp. coverage ($\overline{B^s}$)	0.002	0.002	0.002	-0.001	-0.001	-0.001
	(0.631)	(0.755)	(0.521)	(-0.300)	(-0.176)	(-0.217)
$\overline{B^s} \times \Delta \text{r}_t$	0.005	0.006	0.007	0.003	0.005	0.005
	(0.534)	(0.643)	(0.699)	(0.320)	(0.522)	(0.514)
$\overline{B^s} \times \Delta \text{r}_{t-1}$	-0.010	-0.011	-0.010	-0.009	-0.010	-0.008
	(-0.793)	(-0.712)	(-0.674)	(-0.660)	(-0.642)	(-0.554)
$\overline{B^s} \times \Delta \text{r}_{t-2}$	-0.001	0.006	0.006	-0.002	0.005	0.006
	(-0.109)	(0.413)	(0.419)	(-0.182)	(0.369)	(0.402)
$\overline{B^s} \times \Delta \text{r}_{t-3}$	0.026*	0.019	0.019	0.027**	0.020	0.019
	(1.941)	(1.271)	(1.239)	(2.032)	(1.328)	(1.272)
$\overline{B^s} \times \Delta \text{r}_{t-4}$	-0.051***	-0.052***	-0.051***	-0.053***	-0.053***	-0.051***
	(-5.331)	(-4.750)	(-4.697)	(-5.528)	(-4.850)	(-4.732)

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Table 8 – *Continued from previous page*

	(1)	(2)	(3)	(4)	(5)	(6)
$\overline{B^c} \times \Delta r_t$	0.004	0.001	0.001	0.003	-0.000	-0.001
	(0.540)	(0.118)	(0.076)	(0.483)	(-0.002)	(-0.072)
Cl. coverage ($\overline{B^c}$)	0.004**	0.005**	0.006***	0.003	0.005**	0.006***
	(2.250)	(2.271)	(2.875)	(1.597)	(2.134)	(2.785)
$\overline{B^c} \times \Delta r_{t-1}$	-0.023**	-0.022**	-0.021*	-0.023**	-0.022**	-0.020*
	(-2.273)	(-2.035)	(-1.931)	(-2.302)	(-1.997)	(-1.846)
$\overline{B^c} \times \Delta r_{t-2}$	0.011	0.006	0.005	0.013	0.007	0.006
	(1.110)	(0.518)	(0.460)	(1.309)	(0.664)	(0.542)
$\overline{B^c} \times \Delta r_{t-3}$	-0.018*	-0.009	-0.009	-0.020*	-0.011	-0.010
	(-1.694)	(-0.767)	(-0.729)	(-1.934)	(-0.874)	(-0.812)
$\overline{B^c} \times \Delta r_{t-4}$	0.007	0.000	0.001	0.008	0.001	0.001
	(0.944)	(0.024)	(0.077)	(1.080)	(0.106)	(0.117)
Industry growth		0.001***	0.000***		0.001***	0.001***
		(5.219)	(2.622)		(5.842)	(3.033)
PPE ratio		0.006***	0.010***		0.011***	0.013***
		(4.605)	(6.133)		(6.468)	(7.072)
Tobin's Q		0.000***	0.000***		0.000***	0.000***
		(14.200)	(13.622)		(14.906)	(14.038)
Size		0.003***	0.003***		0.003***	0.003***
		(21.050)	(21.124)		(20.119)	(19.676)
Size $\times \Delta r_t$		-0.001*	-0.001*		-0.001*	-0.001*
		(-1.697)	(-1.750)		(-1.837)	(-1.936)
Size $\times \Delta r_{t-1}$		0.003***	0.003***		0.003***	0.003***
		(3.892)	(3.875)		(4.012)	(3.966)
Size $\times \Delta r_{t-2}$		0.000	0.000		0.000	0.000
		(0.129)	(0.120)		(0.302)	(0.289)
Size $\times \Delta r_{t-3}$		0.003***	0.003***		0.003***	0.003***
		(3.381)	(3.381)		(3.175)	(3.233)
Size $\times \Delta r_{t-4}$		-0.001*	-0.001*		-0.001*	-0.001*
		(-1.906)	(-1.892)		(-1.743)	(-1.775)
Supplier industry growth			0.001**			0.001***
			(2.422)			(3.285)
Supplier Tobin's Q			0.001***			0.002***
			(2.665)			(4.468)
Supplier size			0.002**			0.002
			(2.424)			(1.583)
Supplier PPE ratio			-0.026***			-0.015**
			(-4.506)			(-2.056)
Client industry growth			0.001			0.001*
			(1.624)			(1.860)
Client Tobin's Q			0.000*			0.001***
			(1.667)			(3.679)
Client size			0.000			0.003***
			(0.473)			(2.627)

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Table 8 – *Continued from previous page*

	(1)	(2)	(3)	(4)	(5)	(6)
Client PPE ratio			0.003			-0.017**
			(0.544)			(-2.211)
Observations	382,329	321,909	321,909	382,329	321,909	321,909
R^2	0.306	0.277	0.277	0.307	0.278	0.278
Time FE	Y	Y	Y	Y	Y	Y
Industry FE				Y	Y	Y
$\sum_{u=0}^{4} \beta_u^f$	-0.000755	-0.00219	-0.00220	-0.000724	-0.00211	-0.00213
F-statistic	0.612	3.750	3.786	0.564	3.472	3.529
p-value	0.434	0.0528	0.0517	0.453	0.0625	0.0603
$\sum_{u=0}^{4} \beta_u^s$	-0.0323	-0.0305	-0.0292	-0.0341	-0.0316	-0.0293
F-statistic	20.26	14.46	13.18	22.64	15.54	13.44
p-value	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
$\sum_{u=0}^{4} \beta_u^c$	-0.0187	-0.0247	-0.0237	-0.0188	-0.0242	-0.0236
F-statistic	10.12	14.34	13.11	10.26	13.68	12.96
p-value	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Note: The sample corresponds to all non-financial, non-government public firms in the US in the period 1990Q1 to 2016Q4. The dependent variable is the quarterly difference in the log of sales. The main independent variables are: the quarterly difference in the monetary policy rate and four of its lags, the coverage ratio of firms, clients, and suppliers (lagged one quarter), and the interaction between the differences in the monetary policy rates and the coverage ratios. Changes in monetary policy are the quarterly differences in the federal funds rate. Firm-level control variables are: size and its interaction with monetary policy rates, the average yearly growth in sales in the firms' industry, lagged values of Tobin's Q, and the ratio of PPE to total assets. Client and supplier controls include: average industry growth rate and lagged values of average Tobin's Q, average size, and average PPE to assets ratio. All variables are defined in Table A1. The last nine rows of this table contain, respectively: the sum of the coefficients of the interaction terms of firm, supplier, and clients financial health, an F-statistic for the null hypothesis that the sum of this coefficients equals zero, and its corresponding p-value. Standard errors are clustered at the firm level.
***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table 9: Financial accelerator and ripple effects on firm purchases.

	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta \ln \text{purch}_{t-1}$	-0.368***	-0.370***	-0.370***	-0.369***	-0.371***	-0.371***
	(-88.083)	(-83.358)	(-83.363)	(-88.198)	(-83.461)	(-83.520)
$\Delta \ln \text{purch}_{t-2}$	-0.247***	-0.245***	-0.245***	-0.249***	-0.246***	-0.246***
	(-50.407)	(-46.948)	(-46.939)	(-50.571)	(-47.083)	(-47.108)
$\Delta \ln \text{purch}_{t-3}$	-0.147***	-0.145***	-0.145***	-0.148***	-0.146***	-0.146***
	(-40.750)	(-37.573)	(-37.572)	(-41.065)	(-37.793)	(-37.827)
$\Delta \ln \text{purch}_{t-4}$	0.129***	0.118***	0.118***	0.128***	0.117***	0.117***
	(27.490)	(23.926)	(23.885)	(27.254)	(23.754)	(23.715)
Δr_t	-0.004	0.004	0.005	-0.003	0.005	0.006
	(-1.066)	(0.800)	(0.928)	(-0.828)	(0.968)	(1.139)
Δr_{t-1}	0.020***	0.005	0.004	0.019***	0.004	0.003
	(4.296)	(0.742)	(0.653)	(4.085)	(0.606)	(0.501)
Δr_{t-2}	-0.010**	-0.012*	-0.011	-0.011**	-0.012*	-0.012*
	(-2.171)	(-1.755)	(-1.645)	(-2.221)	(-1.858)	(-1.736)
Δr_{t-3}	-0.001	-0.014*	-0.014*	-0.000	-0.013*	-0.013*
	(-0.104)	(-1.920)	(-1.942)	(-0.071)	(-1.838)	(-1.843)
Δr_{t-4}	0.007*	0.013**	0.013**	0.008**	0.013**	0.012**
	(1.935)	(2.465)	(2.468)	(2.071)	(2.399)	(2.366)
Coverage ratio ($\overline{B^f}$)	0.001	-0.000	-0.000	0.001	-0.000	-0.000
	(1.351)	(-0.817)	(-0.859)	(1.360)	(-0.695)	(-0.726)
$\overline{B^f} \times \Delta \text{r}_t$	0.001	0.002	0.002	0.001	0.002	0.002
	(0.798)	(1.212)	(1.200)	(0.838)	(1.234)	(1.238)
$\overline{B^f} \times \Delta \text{r}_{t-1}$	-0.000	-0.002	-0.002	-0.001	-0.002	-0.002
	(-0.198)	(-0.813)	(-0.817)	(-0.224)	(-0.770)	(-0.779)
$\overline{B^f} \times \Delta \text{r}_{t-2}$	-0.001	-0.002	-0.002	-0.001	-0.002	-0.002
	(-0.459)	(-0.641)	(-0.658)	(-0.461)	(-0.671)	(-0.688)
$\overline{B^f} \times \Delta \text{r}_{t-3}$	0.001	0.002	0.002	0.001	0.002	0.002
	(0.264)	(0.509)	(0.540)	(0.241)	(0.504)	(0.521)
$\overline{B^f} \times \Delta \text{r}_{t-4}$	-0.000	-0.002	-0.002	-0.000	-0.002	-0.002
	(-0.277)	(-0.944)	(-0.963)	(-0.229)	(-0.910)	(-0.925)
Supplier coverage ($\overline{B^s}$)	-0.008**	-0.005	-0.002	-0.005	-0.006	-0.004
	(-2.377)	(-1.437)	(-0.661)	(-1.563)	(-1.551)	(-1.145)
$\overline{B^s} \times \Delta \text{r}_t$	-0.036***	-0.034***	-0.034***	-0.038***	-0.036***	-0.036***
	(-3.186)	(-2.696)	(-2.670)	(-3.373)	(-2.867)	(-2.876)
$\overline{B^s} \times \Delta \text{r}_{t-1}$	0.028	0.012	0.014	0.031*	0.014	0.016
	(1.592)	(0.619)	(0.711)	(1.734)	(0.719)	(0.807)
$\overline{B^s} \times \Delta \text{r}_{t-2}$	-0.018	-0.002	-0.004	-0.020	-0.005	-0.004
	(-0.995)	(-0.116)	(-0.179)	(-1.090)	(-0.234)	(-0.190)
$\overline{B^s} \times \Delta \text{r}_{t-3}$	0.040**	0.028	0.028	0.042**	0.031	0.028
	(2.150)	(1.381)	(1.358)	(2.251)	(1.496)	(1.382)
$\overline{B^s} \times \Delta \text{r}_{t-4}$	-0.066***	-0.059***	-0.057***	-0.066***	-0.059***	-0.056***
	(-5.012)	(-3.997)	(-3.877)	(-5.052)	(-4.024)	(-3.841)

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Table 9 – *Continued from previous page*

	(1)	(2)	(3)	(4)	(5)	(6)
Client coverage ($\overline{B^c}$)	-0.001	-0.001	0.001	-0.001	0.000	0.004
	(-0.261)	(-0.488)	(0.292)	(-0.235)	(0.083)	(1.300)
$\overline{B^c} \times \Delta r_t$	0.021**	0.014	0.014	0.021**	0.014	0.013
	(2.131)	(1.321)	(1.298)	(2.143)	(1.268)	(1.157)
$\overline{B^c} \times \Delta r_{t-1}$	-0.064***	-0.066***	-0.064***	-0.065***	-0.065***	-0.062***
	(-4.715)	(-4.317)	(-4.174)	(-4.738)	(-4.262)	(-4.055)
$\overline{B^c} \times \Delta r_{t-2}$	0.039***	0.037**	0.036**	0.042***	0.039***	0.036**
	(2.952)	(2.518)	(2.437)	(3.148)	(2.679)	(2.451)
$\overline{B^c} \times \Delta r_{t-3}$	-0.020	-0.009	-0.008	-0.022	-0.009	-0.008
	(-1.507)	(-0.563)	(-0.506)	(-1.592)	(-0.611)	(-0.542)
$\overline{B^c} \times \Delta r_{t-4}$	0.001	-0.009	-0.008	-0.000	-0.009	-0.008
	(0.059)	(-0.835)	(-0.795)	(-0.040)	(-0.848)	(-0.790)
Size		0.004***	0.004***		0.004***	0.004***
		(21.833)	(21.655)		(22.306)	(22.125)
Size $\times \Delta r_t$		-0.002**	-0.002**		-0.002**	-0.002***
		(-2.359)	(-2.438)		(-2.561)	(-2.704)
Size $\times \Delta r_{t-1}$		0.003***	0.003***		0.004***	0.003***
		(3.549)	(3.450)		(3.682)	(3.609)
Size $\times \Delta r_{t-2}$		-0.001	-0.001		-0.000	-0.000
		(-0.543)	(-0.559)		(-0.350)	(-0.373)
Size $\times \Delta r_{t-3}$		0.003***	0.003***		0.003**	0.003**
		(2.599)	(2.643)		(2.399)	(2.494)
Size $\times \Delta r_{t-4}$		-0.001	-0.001		-0.001	-0.001
		(-0.790)	(-0.838)		(-0.694)	(-0.774)
Industry growth		0.001***	0.000		0.001***	0.000
		(5.834)	(0.476)		(4.941)	(0.081)
PPE ratio		0.020***	0.023***		0.025***	0.026***
		(12.225)	(11.257)		(10.357)	(10.627)
Tobin's Q		0.000***	0.000***		0.000***	0.000***
		(7.096)	(6.485)		(8.126)	(7.666)
Supplier industry growth			0.003***			0.004***
			(5.406)			(6.007)
Supplier Tobin's Q			0.001**			0.002***
			(2.224)			(4.324)
Supplier size			0.000			0.001
			(0.412)			(0.544)
Supplier PPE ratio			-0.018***			0.012
			(-2.673)			(1.360)
Client industry growth			0.002***			0.002***
			(3.218)			(3.067)
Client Tobin's Q			0.001**			0.001**
			(2.181)			(2.516)
Client size			0.001			0.002*
			(1.169)			(1.709)

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Table 9 – *Continued from previous page*

	(1)	(2)	(3)	(4)	(5)	(6)
Client PPE ratio			0.002			-0.045***
			(0.260)			(-4.717)
Observations	355,070	300,805	300,805	355,070	300,805	300,805
R^2	0.189	0.185	0.185	0.190	0.186	0.186
Time FE	Y	Y	Y	Y	Y	Y
Industry FE				Y	Y	Y
$\sum_{u=0}^{4} \beta_u^f$	-3.61e-05	-0.00203	-0.00205	-1.70e-05	-0.00189	-0.00193
F-statistic	0.000829	1.884	1.923	0.000184	1.638	1.700
p-value	0.977	0.170	0.166	0.989	0.201	0.192
$\sum_{u=0}^{4} \beta_u^s$	-0.0518	-0.0543	-0.0521	-0.0517	-0.0548	-0.0519
F-statistic	29.96	28.09	25.91	30.12	28.69	25.86
p-value	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
$\sum_{u=0}^{4} \beta_u^c$	-0.0243	-0.0322	-0.0300	-0.0240	-0.0306	-0.0300
F-statistic	10.12	14.42	12.50	9.788	12.91	12.47
p-value	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Note: The sample corresponds to all non-financial, non-government public firms in the US in the period 1990Q1 to 2016Q4. The dependent variable is the quarterly difference in the log of purchases. The main independent variables are: the quarterly difference in the monetary policy rate and four of its lags, the coverage ratio of firms, clients, and suppliers (lagged one quarter), and the interaction between the differences in the monetary policy rates and the coverage ratios. Changes in monetary policy are the quarterly differences in the federal funds rate. Firm-level control variables are: size and its interaction with monetary policy rates, the average yearly growth in sales in the firms' industry, lagged values of Tobin's Q, and the ratio of PPE to total assets. Client and supplier controls include: average industry growth rate and lagged values of average Tobin's Q, average size, and average PPE to assets ratio. All variables are defined in Table A1. The last nine rows of this table contain, respectively: the sum of the coefficients of the interaction terms of firm, supplier, and clients financial health, an F-statistic for the null hypothesis that the sum of this coefficients equals zero, and its corresponding p-value. Standard errors are clustered at the firm level. ***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table 10: Demand channel and trade credit provision by upstream firms.

	(1)	(2)	(3)	(4)	(5)	(6)
ΔAR_{t-1}	-0.211***	-0.214***	-0.214***	-0.212***	-0.214***	-0.214***
	(-52.660)	(-50.258)	(-50.257)	(-52.825)	(-50.419)	(-50.429)
ΔAR_{t-2}	-0.132***	-0.131***	-0.131***	-0.133***	-0.132***	-0.132***
	(-26.625)	(-24.866)	(-24.863)	(-26.878)	(-25.049)	(-25.048)
ΔAR_{t-3}	-0.083***	-0.084***	-0.084***	-0.084***	-0.085***	-0.085***
	(-23.436)	(-22.070)	(-22.066)	(-23.797)	(-22.332)	(-22.335)
ΔAR_{t-4}	0.217***	0.211***	0.211***	0.215***	0.210***	0.210***
	(38.156)	(35.944)	(35.947)	(37.957)	(35.819)	(35.823)
Δr_t	-0.001*	-0.001**	-0.001**	-0.001**	-0.001***	-0.001***
	(-1.674)	(-2.331)	(-2.300)	(-2.133)	(-2.608)	(-2.585)
Δr_{t-1}	0.002***	0.002***	0.002***	0.002***	0.002***	0.002***
	(3.569)	(3.532)	(3.453)	(3.772)	(3.605)	(3.515)
Δr_{t-2}	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(-0.689)	(-0.520)	(-0.434)	(-0.469)	(-0.467)	(-0.394)
Δr_{t-3}	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(-0.593)	(-0.091)	(-0.140)	(-0.775)	(-0.073)	(-0.129)
Δr_{t-4}	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(-0.484)	(-0.117)	(-0.105)	(-0.688)	(-0.236)	(-0.220)
Client coverage ($\overline{B^c}$)	-0.001***	-0.001	-0.000	-0.001***	-0.001*	-0.001
	(-2.721)	(-1.591)	(-1.176)	(-2.595)	(-1.656)	(-1.300)
$\overline{B^c} \times \Delta r_t$	0.002*	0.002*	0.002*	0.002*	0.002*	0.002*
	(1.880)	(1.738)	(1.738)	(1.945)	(1.833)	(1.852)
$\overline{B^c} \times \Delta r_{t-1}$	-0.006***	-0.005***	-0.005***	-0.006***	-0.005***	-0.005***
	(-3.508)	(-2.970)	(-2.874)	(-3.479)	(-2.988)	(-2.873)
$\overline{B^c} \times \Delta r_{t-2}$	-0.001	-0.003	-0.003*	-0.001	-0.003	-0.003
	(-0.942)	(-1.616)	(-1.720)	(-0.833)	(-1.508)	(-1.595)
$\overline{B^c} \times \Delta r_{t-3}$	-0.001	-0.000	-0.000	-0.001	-0.001	-0.000
	(-0.335)	(-0.261)	(-0.185)	(-0.431)	(-0.298)	(-0.206)
$\overline{B^c} \times \Delta r_{t-4}$	-0.001	-0.001	-0.001	-0.000	-0.001	-0.001
	(-0.509)	(-0.431)	(-0.442)	(-0.399)	(-0.418)	(-0.444)
Industry growth		-0.000	-0.000*		0.000	-0.000
		(-0.954)	(-1.872)		(0.326)	(-0.410)
Tobin's Q		0.000***	0.000***		0.000***	0.000***
		(11.932)	(11.910)		(12.364)	(12.346)
Size		0.000***	0.000***		0.000***	0.000***
		(9.976)	(9.904)		(9.440)	(9.537)
PPE ratio		-0.001***	-0.001***		0.002***	0.001***
		(-4.974)	(-2.707)		(4.343)	(4.113)
Debt ratio		-0.002***	-0.002***		-0.002***	-0.002***
		(-10.861)	(-10.874)		(-10.777)	(-10.759)
Cl. industry growth			0.000***			0.000***
			(3.348)			(3.022)
Client Tobin's Q			0.000			0.000
			(0.591)			(0.386)

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Table 10 – *Continued from previous page*

	(1)	(2)	(3)	(4)	(5)	(6)
Client size			0.000			-0.000
			(0.154)			(-1.603)
Client PPE ratio			-0.001			0.003**
			(-1.370)			(2.166)
Observations	596,728	492,826	492,826	596,728	492,826	492,826
R^2	0.125	0.124	0.124	0.125	0.125	0.125
Year FE	Y	Y	Y	Y	Y	Y
Industry FE				Y	Y	Y
$\sum_{u=0}^{4} \beta_u^c$	-0.00602	-0.00684	-0.00675	-0.00575	-0.00661	-0.00642
F-statistic	38.52	39.11	38.13	34.90	36.37	34.30
p-value	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Note: The sample corresponds to all non-financial, non-government public firms in the US in the period 1990Q1 to 2016Q4. The dependent variable is the difference trade credit provision to clients (difference in accounts receivable divided by lagged assets). The main independent variables are: the quarterly difference in the monetary policy rate and four of its lags, the average clients' coverage ratio (lagged one quarter), and the interaction between the differences in the monetary policy rates and the average lagged client coverage ratio. Changes in monetary policy are the quarterly differences in the federal funds rate. Firm-level control variables are the average yearly growth in sales in the firms' industry, and lagged values of Tobin's Q, firm size, debt to assets ratio, and the ratio of PPE to total assets. Client controls include: client average industry growth rate and lagged values of client average Tobin's Q, client average size, and client average PPE to assets ratio. All variables are defined in Table A1. The last three rows of this table contain, respectively: the sum of the coefficients of the interaction terms, an F-statistic for the null hypothesis that the sum of this coefficients equals zero, and its corresponding p-value. Standard errors are clustered at the firm level.
***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table 11: Cost channel and take-up of trade credit by downstream firms.

	(1)	(2)	(3)	(4)	(5)	(6)
ΔAP_{t-1}	-0.096***	-0.132***	-0.132***	-0.097***	-0.133***	-0.133***
	(-14.756)	(-22.013)	(-22.036)	(-14.884)	(-22.052)	(-22.055)
ΔAP_{t-2}	-0.001	-0.038***	-0.038***	-0.002	-0.039***	-0.039***
	(-0.179)	(-6.536)	(-6.559)	(-0.319)	(-6.650)	(-6.652)
ΔAP_{t-3}	-0.023***	-0.052***	-0.052***	-0.024***	-0.053***	-0.053***
	(-3.949)	(-9.680)	(-9.707)	(-4.090)	(-9.795)	(-9.798)
ΔAP_{t-4}	0.253***	0.213***	0.213***	0.252***	0.212***	0.212***
	(39.990)	(34.729)	(34.714)	(39.900)	(34.666)	(34.664)
Δr_t	0.000	0.000	0.000	0.000	0.000	0.000
	(0.901)	(0.259)	(0.345)	(0.895)	(0.408)	(0.409)
Δr_{t-1}	-0.001	0.000	0.000	-0.001	0.000	0.000
	(-1.171)	(0.189)	(0.131)	(-1.083)	(0.233)	(0.221)
Δr_{t-2}	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(-0.238)	(-0.544)	(-0.605)	(-0.144)	(-0.589)	(-0.592)
Δr_{t-3}	0.000	0.000	0.000	0.000	0.000	0.000
	(0.438)	(0.477)	(0.586)	(0.049)	(0.321)	(0.353)
Δr_{t-4}	0.001*	0.001	0.001	0.001*	0.001	0.001
	(1.910)	(1.057)	(0.994)	(1.947)	(1.314)	(1.265)
Supp. coverage ($\overline{B^s}$)	0.001	0.002***	0.002***	0.001*	0.001***	0.001**
	(1.527)	(4.010)	(3.950)	(1.730)	(2.639)	(2.535)
$\overline{B^s} \times \Delta r_t$	0.004**	0.002	0.002	0.004**	0.003	0.003
	(2.359)	(1.385)	(1.309)	(2.432)	(1.576)	(1.555)
$\overline{B^s} \times \Delta r_{t-1}$	-0.002	-0.001	-0.001	-0.002	-0.001	-0.001
	(-0.955)	(-0.502)	(-0.466)	(-0.866)	(-0.489)	(-0.475)
$\overline{B^s} \times \Delta r_{t-2}$	-0.002	-0.001	-0.001	-0.002	-0.001	-0.001
	(-0.738)	(-0.306)	(-0.244)	(-0.746)	(-0.351)	(-0.319)
$\overline{B^s} \times \Delta r_{t-3}$	-0.001	-0.001	-0.002	-0.001	-0.002	-0.002
	(-0.668)	(-0.694)	(-0.793)	(-0.545)	(-0.728)	(-0.773)
$\overline{B^s} \times \Delta r_{t-4}$	-0.002	-0.001	-0.001	-0.001	-0.001	-0.001
	(-1.185)	(-0.519)	(-0.409)	(-0.943)	(-0.454)	(-0.402)
Industry growth		-0.000***	-0.000***		-0.000***	-0.000***
		(-3.448)	(-3.766)		(-2.729)	(-3.163)
Tobin's Q		0.001***	0.001***		0.001***	0.001***
		(20.472)	(20.471)		(20.376)	(20.376)
Size		-0.001***	-0.001***		-0.001***	-0.001***
		(-13.552)	(-13.844)		(-14.162)	(-14.174)
PPE ratio		0.001***	0.000		0.001**	0.001*
		(4.484)	(0.106)		(2.123)	(1.748)
Debt ratio		0.004***	0.004***		0.004***	0.004***
		(5.849)	(5.833)		(5.632)	(5.610)
Supp. industry growth			0.000**			0.000*
			(2.167)			(1.729)
Supplier Tobin's Q			-0.000			-0.000
			(-0.803)			(-0.064)

Continued on next page

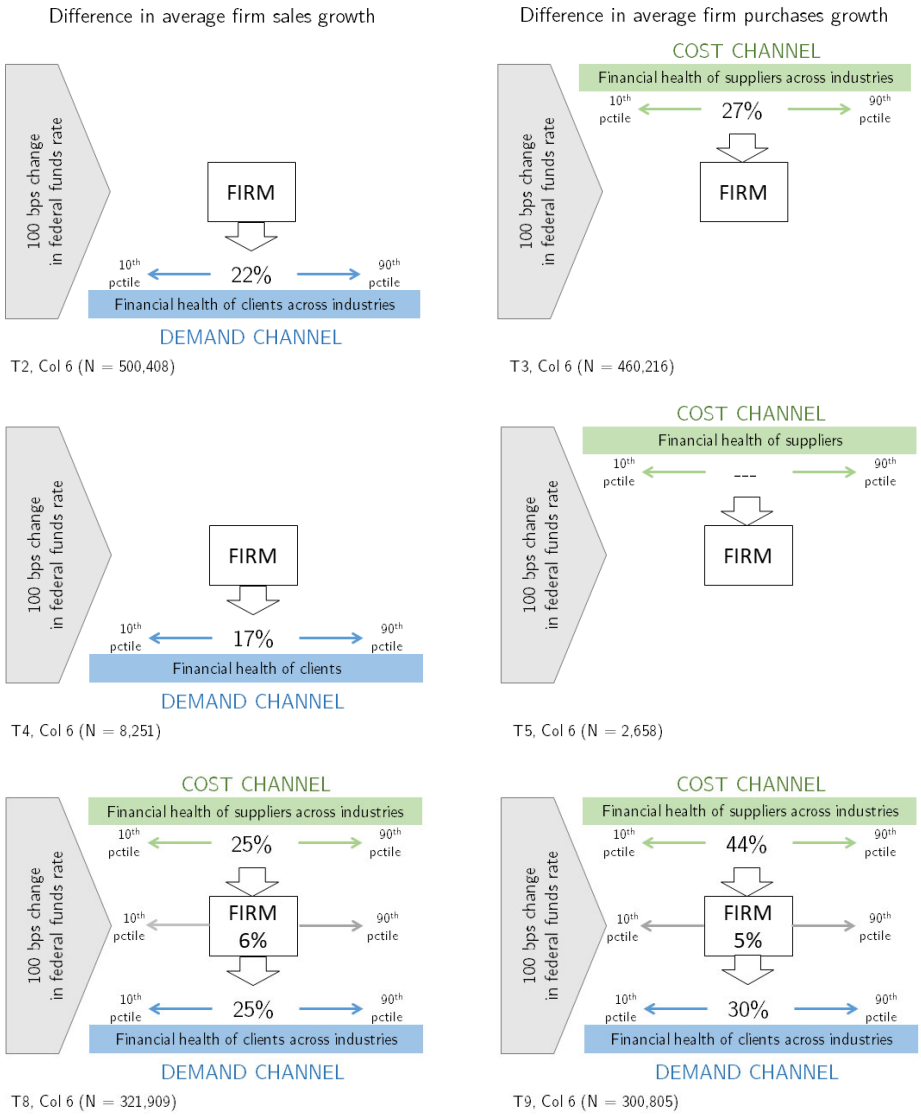
Table 11 – *Continued from previous page*

	(1)	(2)	(3)	(4)	(5)	(6)
Supplier size			0.000			0.000
			(1.568)			(0.955)
Supplier PPE ratio			0.006***			0.004**
			(4.062)			(2.202)
Observations	606,258	501,048	501,048	606,258	501,048	501,048
R^2	0.078	0.108	0.109	0.079	0.109	0.109
Time FE	Y	Y	Y	Y	Y	Y
Industry FE				Y	Y	Y
$\sum_{u=0}^{4} \beta_u^s$	-0.00319	-0.00188	-0.00181	-0.00227	-0.00159	-0.00152
F-statistic	5.895	1.594	1.470	2.996	1.134	1.045
p-value	0.0152	0.207	0.225	0.0835	0.287	0.307

Note: The sample corresponds to all non-financial, non-government public firms in the US in the period 1990Q1 to 2016Q4. The dependent variable is the difference trade credit taken from suppliers (difference in accounts payable divided by lagged assets). The main independent variables are: the quarterly difference in the monetary policy rate and four of its lags, the average suppliers' coverage ratio (lagged one quarter), and the interaction between the differences in the monetary policy rates and the average lagged supplier coverage ratio. Changes in monetary policy are the quarterly differences in the federal funds rate. Firm-level control variables are the average yearly growth in sales in the firms' industry, and lagged values of Tobin's Q, firm size, debt to assets ratio, and the ratio of PPE to total assets. Supplier controls include: supplier average industry growth rate and lagged values of supplier average Tobin's Q, supplier average size, and supplier average PPE to assets ratio. All variables are defined in Table A1. The last three rows of this table contain, respectively: the sum of the coefficients of the interaction terms, an F-statistic for the null hypothesis that the sum of this coefficients equals zero, and its corresponding p-value. Standard errors are clustered at the firm level.

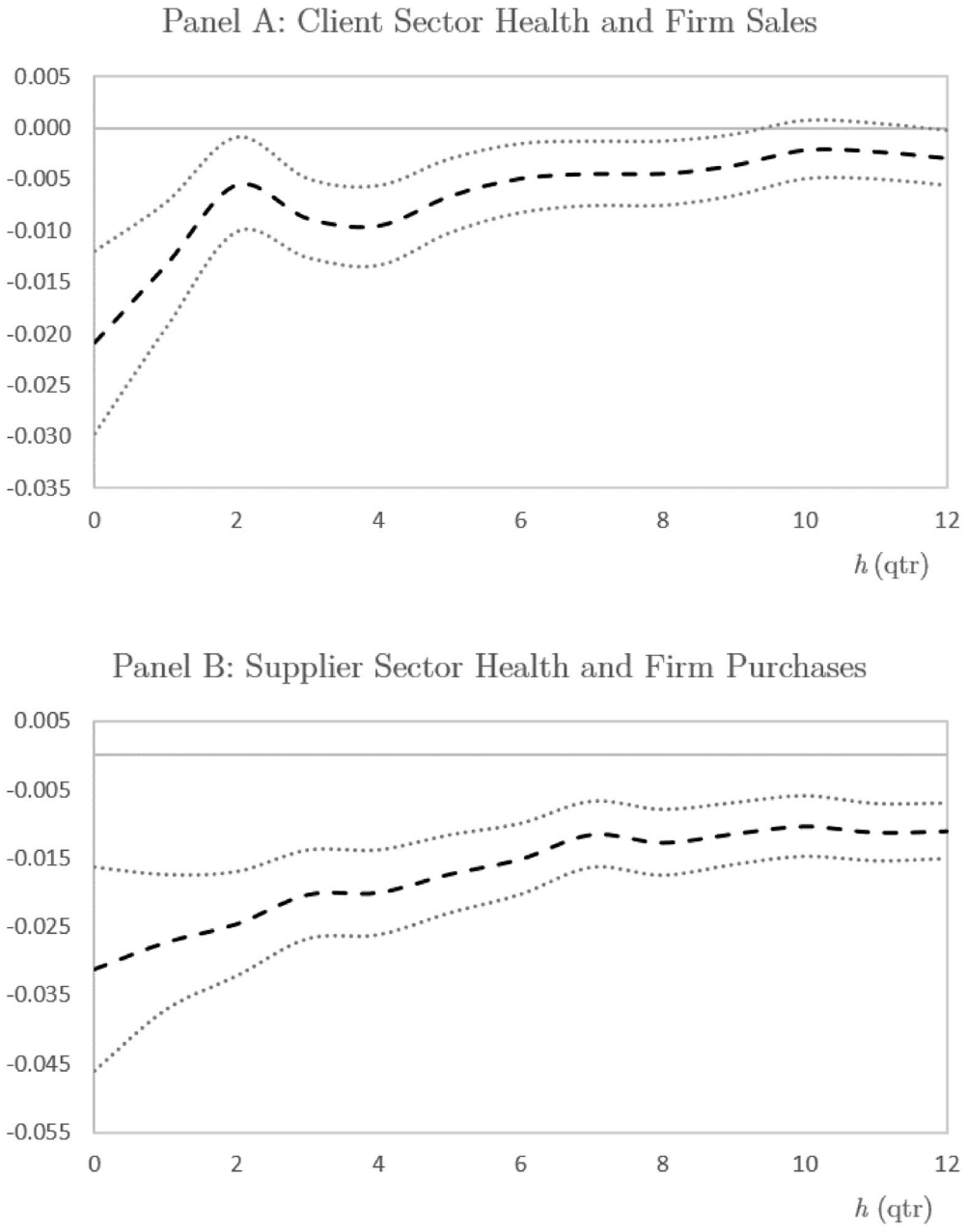
***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Figure 1: Economic significance of estimates



Note: This figure summarizes the economic relevancy assessments of the sum of estimated coefficients of the interaction terms $\sum_{u=0}^{4} \beta_u$ for Equations 1 (left-hand side column) and 2 (right-hand side column). Estimated coefficients correspond to those in column 6 of Tables 2 and 3 (top row); 4 and 5 (middle row); and 8 and 9 (bottom row).

Figure 2: Local projections



Note: This figure shows the sums of the coefficients for the interaction terms $\sum_{u=0}^{4} \beta_u$ (dark broken lines), and their 95% confidence intervals (dotted lines), for local projections in quarters $h = 0, 1, ...12$ (horizontal axis). In Panel A, the dependent variable is $\Delta y_{i,t+h} = \ln \text{sales}_{i,t+h} - \ln \text{sales}_{i,t-1}$ and independent variables are as in column 6 of Table 2. In Panel B, the dependent variable is $\Delta z_{i,t+h} = \ln \text{purch}_{i,t+h} - \ln \text{purch}_{i,t-1}$ and independent variables are those in column 6 of Table 3.The dependent variables are scaled by $h + 1$ to remove potential trends in sales and purchases.

Online Appendix

Table A1: Variable definitions

Variable	Definition
$\Delta \ln \text{sales}_i$	$\ln \text{sales}_{it} - \ln \text{sales}_{it-1}$ (Compustat variable SALE)
$\Delta \ln \text{purch}_i$	$\ln \text{purchases}_{it} - \ln \text{purchases}_{it-1}$, where purchases are defined as $\text{Inventories}_t - \text{Inventories}_{t-1} + \text{Cost of goods sold}_t$ (Compustat INVT and COGS)
Δr_t	$\text{Fed Funds Rate}_t - \text{Fed Funds Rate}_{t-1}$ (from FRED)
Surprise_t	Sum of all surprise changes in the federal funds target rate between $t-1$ and t (provided by Refet Gürkaynak)
Coverage ratio	Interest expenses/EBIT (Compustat XINT/(OIBDP − DP))
Debt ratio	Debt in current liabilities plus long-term debt, divided by total assets (Compustat (DLC + DLTT) / AT)
Tobin's Q	Total assets plus market value of equity minus book value of equity divided by total assets (Compustat {AT + CSHO × PRCC_F − [AT − (LT + PSTKL) + TXDITC]}/AT).
Size	Natural logarithm of real assets, ln (AT/CPI) where CPI is the consumer price index (from FRED)
PPE ratio	Ratio of property, plant, and equipment (Compustat PPENT) to total assets (AT)
Sales growth	Ratio of the difference in sales between $t-1$ and t to lagged sales (Compustat SALE)
Industry growth	Average sales growth for firms in the same 3-digit SIC industry code
Client $\overline{X}$	$\sum w_k x_k$, where k are all industries buying from the firm, x_k is the equally-weighted average value of X (winsorized at the 1 and 99 percent levels) of all firms in the (4-digit SIC-code) downstream industry, and w_k are sales from the sector of the firm to each downstream industry, divided by total sales of the sector (obtained from the BEA).
Supplier $\overline{X}$	$\sum w_k x_k$, where k are all industries selling to the firm, x_k is the equally-weighted average value of X (winsorized at the 1 and 99 percent levels) of all firms in the (4-digit SIC-code) upstream industry, and w_k are input purchases by the sector of the firm from each upstream industry, divided by total input purchases of the sector (obtained from the BEA).
ΔAR_t	$\text{Accounts receivable}_t - \text{Accounts receivable}_{t-1}$ (RECTR), scaled by lagged assets. If variable RECTR is missing, we use variable RECT
ΔAP_t	$\text{Accounts payable}_t - \text{Accounts payable}_{t-1}$ (APQ), scaled by lagged assets.
$\Delta \ln \text{sales}_{ijt}$	$\ln \text{sales}_{ijt} - \ln \text{sales}_{ijt-1}$, where sales_{ij} are sales from firm i to client j (Compustat Segment Files variable SALECS)
Client monopsony	Ratio of sales_{ij} to total sales_i (Segment variable SALECS and Compustat SALE)
Supplier monopoly	Ratio of sales_{ki} to total purchases_i (Segment variable SALECS and purchases from Compustat, defined as above)

Table A2: Demand channel on firm-level sample. Financial health = Debt.

	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta \ln \text{sales}_{t-1}$	-0.259***	-0.260***	-0.261***	-0.260***	-0.261***	-0.261***
	(-74.448)	(-69.978)	(-70.037)	(-74.725)	(-70.162)	(-70.210)
$\Delta \ln \text{sales}_{t-2}$	-0.219***	-0.215***	-0.215***	-0.220***	-0.216***	-0.216***
	(-46.932)	(-43.706)	(-43.730)	(-47.090)	(-43.855)	(-43.876)
$\Delta \ln \text{sales}_{t-3}$	-0.153***	-0.151***	-0.151***	-0.154***	-0.152***	-0.152***
	(-52.803)	(-49.420)	(-49.440)	(-53.162)	(-49.699)	(-49.709)
$\Delta \ln \text{sales}_{t-4}$	0.338***	0.317***	0.317***	0.337***	0.316***	0.316***
	(62.242)	(56.579)	(56.575)	(62.219)	(56.407)	(56.403)
Δr_t	-0.008	-0.008	-0.007	-0.008	-0.008	-0.006
	(-1.505)	(-1.306)	(-1.134)	(-1.410)	(-1.377)	(-1.094)
Δr_{t-1}	0.018**	0.017**	0.017**	0.017**	0.018**	0.017**
	(2.428)	(2.204)	(2.111)	(2.351)	(2.251)	(2.094)
Δr_{t-2}	-0.005	-0.003	-0.002	-0.003	-0.003	-0.002
	(-0.637)	(-0.408)	(-0.269)	(-0.435)	(-0.349)	(-0.252)
Δr_{t-3}	-0.001	-0.007	-0.007	-0.003	-0.008	-0.008
	(-0.143)	(-0.787)	(-0.793)	(-0.420)	(-0.976)	(-0.955)
Δr_{t-4}	0.016***	0.022***	0.022***	0.017***	0.023***	0.024***
	(2.722)	(3.425)	(3.480)	(2.925)	(3.587)	(3.693)
Client debt ($\overline{B^c}$)	0.015***	0.016***	0.017***	0.013***	0.015***	0.013**
	(3.768)	(3.564)	(3.623)	(2.929)	(3.176)	(2.441)
$\overline{B^c} \times \Delta \text{r}_t$	0.017	0.014	0.012	0.017	0.015	0.011
	(1.147)	(0.879)	(0.710)	(1.135)	(0.938)	(0.658)
$\overline{B^c} \times \Delta \text{r}_{t-1}$	-0.045**	-0.045**	-0.043*	-0.044**	-0.045**	-0.042*
	(-2.151)	(-1.974)	(-1.887)	(-2.112)	(-2.007)	(-1.857)
$\overline{B^c} \times \Delta \text{r}_{t-2}$	0.018	0.008	0.005	0.014	0.007	0.005
	(0.864)	(0.328)	(0.192)	(0.640)	(0.302)	(0.205)
$\overline{B^c} \times \Delta \text{r}_{t-3}$	-0.002	0.020	0.020	0.004	0.023	0.023
	(-0.110)	(0.863)	(0.866)	(0.183)	(1.009)	(0.989)
$\overline{B^c} \times \Delta \text{r}_{t-4}$	-0.052***	-0.070***	-0.071***	-0.054***	-0.073***	-0.074***
	(-3.334)	(-3.992)	(-4.046)	(-3.493)	(-4.146)	(-4.253)
Industry growth		0.000***	0.000**		0.001***	0.000***
		(3.271)	(2.058)		(4.688)	(3.451)
Tobin's Q		0.001***	0.001***		0.001***	0.001***
		(19.851)	(19.794)		(20.314)	(20.121)
Size		0.003***	0.002***		0.003***	0.003***
		(23.234)	(22.968)		(22.150)	(22.088)
PPE ratio		0.011***	0.014***		0.016***	0.017***
		(10.034)	(11.116)		(10.791)	(10.784)
Debt ratio		-0.007***	-0.007***		-0.007***	-0.007***
		(-13.182)	(-13.279)		(-12.726)	(-12.634)
Cl. industry growth			0.001***			0.001***
			(3.388)			(3.368)
Client Tobin's Q			0.000			0.001**
			(0.955)			(2.259)

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Table A2 – *Continued from previous page*

	(1)	(2)	(3)	(4)	(5)	(6)
Client size			0.001**			0.001
			(2.003)			(0.600)
Client PPE ratio			-0.018***			-0.003
			(-4.409)			(-0.446)
Observations	613,093	500,408	500,408	613,093	500,408	500,408
R^2	0.285	0.266	0.266	0.286	0.267	0.267
Time FE	Y	Y	Y	Y	Y	Y
Industry FE				Y	Y	Y
$\sum_{u=0}^{4} \beta_u^c$	-0.0631	-0.0724	-0.0772	-0.0639	-0.0722	-0.0780
F-statistic	23.37	24.56	27.34	23.92	24.44	27.92
p-value	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Note: This table contains coefficient estimates for Equation 1. The sample corresponds to all non-financial, non-government public firms in the US in the period 1990Q1 to 2016Q4. The dependent variable is the quarterly difference in the log of sales. The main independent variables are: the quarterly difference in the monetary policy rate and four of its lags, the average clients' debt to assets ratio (lagged one quarter), and the interaction between the differences in the monetary policy rates and the average lagged client debt to assets ratio. Changes in monetary policy are the quarterly differences in the federal funds rate. Firm-level control variables are the average yearly growth in sales in the firms' industry, and lagged values of Tobin's Q, firm size, debt to assets ratio, and the ratio of PPE to total assets. Client controls include: client average industry growth rate and lagged values of client average Tobin's Q, client average size, and client average PPE to assets ratio. All variables are defined in Table A1. The last three rows of this table contain, respectively: the sum of the coefficients of the interaction terms, an F-statistic for the null hypothesis that the sum of this coefficients equals zero, and its corresponding p-value. Standard errors are clustered at the firm level.
***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A3: Cost channel on firm-level sample. Financial health = Debt.

	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta \ln \text{purch}_{t-1}$	-0.372***	-0.376***	-0.376***	-0.373***	-0.377***	-0.377***
	(-108.312)	(-102.846)	(-102.857)	(-108.403)	(-102.931)	(-102.958)
$\Delta \ln \text{purch}_{t-2}$	-0.237***	-0.238***	-0.238***	-0.238***	-0.239***	-0.239***
	(-57.840)	(-54.019)	(-54.031)	(-57.984)	(-54.137)	(-54.153)
$\Delta \ln \text{purch}_{t-3}$	-0.145***	-0.146***	-0.146***	-0.146***	-0.147***	-0.147***
	(-48.872)	(-45.970)	(-45.983)	(-49.154)	(-46.175)	(-46.189)
$\Delta \ln \text{purch}_{t-4}$	0.123***	0.113***	0.112***	0.123***	0.112***	0.112***
	(31.081)	(27.225)	(27.185)	(30.879)	(27.044)	(27.015)
Δr_t	-0.012	-0.006	-0.002	-0.011	-0.006	-0.004
	(-1.500)	(-0.632)	(-0.254)	(-1.388)	(-0.620)	(-0.437)
Δr_{t-1}	0.040***	0.032**	0.032**	0.039***	0.032**	0.033***
	(3.519)	(2.524)	(2.469)	(3.442)	(2.499)	(2.579)
Δr_{t-2}	-0.020*	-0.034***	-0.034**	-0.021*	-0.033**	-0.033**
	(-1.656)	(-2.597)	(-2.537)	(-1.803)	(-2.508)	(-2.513)
Δr_{t-3}	0.024*	0.039**	0.038**	0.026*	0.037**	0.037**
	(1.786)	(2.521)	(2.475)	(1.951)	(2.386)	(2.376)
Δr_{t-4}	0.004	0.005	0.003	0.004	0.005	0.004
	(0.394)	(0.451)	(0.301)	(0.437)	(0.495)	(0.400)
Supplier debt ($\overline{B^s}$)	-0.011	-0.017**	-0.021**	-0.023***	-0.025***	-0.040***
	(-1.540)	(-2.054)	(-2.448)	(-2.938)	(-2.747)	(-4.203)
$\overline{B^s} \times \Delta \text{r}_t$	0.018	-0.004	-0.015	0.018	-0.005	-0.010
	(0.753)	(-0.156)	(-0.541)	(0.735)	(-0.167)	(-0.356)
$\overline{B^s} \times \Delta \text{r}_{t-1}$	-0.087***	-0.069*	-0.067*	-0.087***	-0.068*	-0.071*
	(-2.618)	(-1.808)	(-1.760)	(-2.605)	(-1.786)	(-1.871)
$\overline{B^s} \times \Delta \text{r}_{t-2}$	0.045	0.081**	0.079**	0.050	0.078**	0.079**
	(1.288)	(2.067)	(2.020)	(1.420)	(2.004)	(2.023)
$\overline{B^s} \times \Delta \text{r}_{t-3}$	-0.072*	-0.108**	-0.106**	-0.078*	-0.103**	-0.103**
	(-1.803)	(-2.360)	(-2.318)	(-1.953)	(-2.256)	(-2.247)
$\overline{B^s} \times \Delta \text{r}_{t-4}$	-0.021	-0.021	-0.016	-0.021	-0.022	-0.019
	(-0.742)	(-0.679)	(-0.517)	(-0.741)	(-0.709)	(-0.609)
Industry growth		0.001***	-0.000		0.001***	0.000
		(5.476)	(-0.345)		(4.954)	(0.073)
Tobin's Q		0.001***	0.001***		0.001***	0.001***
		(18.202)	(17.908)		(18.655)	(18.353)
Size		0.004***	0.004***		0.004***	0.004***
		(26.269)	(26.492)		(25.222)	(25.186)
PPE ratio		0.022***	0.026***		0.027***	0.027***
		(15.298)	(14.870)		(12.822)	(12.749)
Debt ratio		-0.016***	-0.016***		-0.016***	-0.016***
		(-18.753)	(-18.691)		(-18.302)	(-18.088)
Supp. industry growth			0.004***			0.004***
			(7.391)			(7.633)
Supplier Tobin's Q			0.001***			0.002***
			(2.884)			(5.428)

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Table A3 – *Continued from previous page*

	(1)	(2)	(3)	(4)	(5)	(6)
Supplier size			-0.001			0.000
			(-1.143)			(0.453)
Supplier PPE ratio			-0.018***			0.004
			(-3.456)			(0.474)
Observations	557,562	460,216	460,216	557,562	460,216	460,216
R^2	0.181	0.180	0.180	0.182	0.180	0.181
Time FE	Y	Y	Y	Y	Y	Y
Industry FE				Y	Y	Y
$\sum_{u=0}^{4} \beta_u^s$	-0.117	-0.121	-0.125	-0.118	-0.119	-0.123
F-statistic	25.48	20.93	22.06	26.08	20.24	21.48
p-value	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Note: This table contains coefficient estimates for Equation 2. The sample corresponds to all non-financial, non-government public firms in the US in the period 1990Q1 to 2016Q4. The dependent variable is the quarterly difference in the log of purchases. The main independent variables are: the quarterly difference in the monetary policy rate and four of its lags, the average suppliers' debt to assets ratio (lagged one quarter), and the interaction between the differences in the monetary policy rates and the average lagged supplier debt to assets ratio. Changes in monetary policy are the quarterly differences in the federal funds rate. Firm-level control variables are the average yearly growth in sales in the firms' industry, and lagged values of Tobin's Q, firm size, debt to assets ratio, and the ratio of PPE to total assets. Supplier controls include: supplier average industry growth rate and lagged values of supplier average Tobin's Q, supplier average size, and supplier average PPE to assets ratio. All variables are defined in Table A1. The last three rows of this table contain, respectively: the sum of the coefficients of the interaction terms, an F-statistic for the null hypothesis that the sum of this coefficients equals zero, and its corresponding p-value. Standard errors are clustered at the firm level. ***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A4: Demand channel on firm-level sample. Controlling for cost channel.

	(1)	(2)	(3)	(4)
$\Delta \ln \text{sales}_{t-1}$	-0.260***	-0.261***	-0.370***	-0.371***
	(-58.336)	(-58.480)	(-72.092)	(-72.152)
$\Delta \ln \text{sales}_{t-2}$	-0.222***	-0.223***	-0.270***	-0.270***
	(-38.166)	(-38.266)	(-45.149)	(-45.193)
$\Delta \ln \text{sales}_{t-3}$	-0.151***	-0.152***	-0.203***	-0.204***
	(-41.118)	(-41.297)	(-45.458)	(-45.558)
$\Delta \ln \text{sales}_{t-4}$	0.318***	0.317***	0.239***	0.239***
	(48.322)	(48.219)	(37.755)	(37.710)
Δr_t	-0.000	0.000	-0.003	-0.003
	(-0.008)	(0.126)	(-0.948)	(-0.876)
Δr_{t-1}	-0.002	-0.002	-0.002	-0.003
	(-0.402)	(-0.475)	(-0.641)	(-0.675)
Δr_{t-2}	-0.003	-0.004	0.002	0.002
	(-0.744)	(-0.910)	(0.590)	(0.472)
Δr_{t-3}	-0.014***	-0.013***	-0.010**	-0.009**
	(-2.935)	(-2.765)	(-2.297)	(-2.201)
Δr_{t-4}	0.003	0.002	0.000	-0.000
	(0.829)	(0.696)	(0.090)	(-0.010)
Client coverage ratio ($\overline{B^c}$)	0.007***	0.007***	0.008***	0.006***
	(3.383)	(2.968)	(3.940)	(2.834)
$\overline{B^c} \times \Delta \text{r}_t$	0.002	0.000	-0.001	-0.002
	(0.238)	(0.065)	(-0.181)	(-0.316)
$\overline{B^c} \times \Delta \text{r}_{t-1}$	-0.022**	-0.021**	-0.004	-0.003
	(-2.039)	(-1.964)	(-0.435)	(-0.347)
$\overline{B^c} \times \Delta \text{r}_{t-2}$	0.006	0.007	-0.006	-0.004
	(0.505)	(0.677)	(-0.566)	(-0.382)
$\overline{B^c} \times \Delta \text{r}_{t-3}$	-0.005	-0.006	-0.004	-0.005
	(-0.386)	(-0.503)	(-0.356)	(-0.495)
$\overline{B^c} \times \Delta \text{r}_{t-4}$	-0.009	-0.009	-0.006	-0.006
	(-1.145)	(-1.060)	(-0.882)	(-0.792)
Firm coverage ratio ($\overline{B^f}$)	-0.001**	-0.001*	-0.000	-0.000
	(-1.985)	(-1.815)	(-1.062)	(-0.991)
$\overline{B^f} \times \Delta \text{r}_t$	0.001	0.001	-0.000	-0.000
	(0.641)	(0.617)	(-0.027)	(-0.039)
$\overline{B^f} \times \Delta \text{r}_{t-1}$	-0.001	-0.001	0.001	0.001
	(-0.680)	(-0.617)	(0.534)	(0.571)
$\overline{B^f} \times \Delta \text{r}_{t-2}$	-0.001	-0.001	-0.001	-0.001
	(-0.461)	(-0.487)	(-0.617)	(-0.630)
$\overline{B^f} \times \Delta \text{r}_{t-3}$	0.001	0.001	0.001	0.001
	(0.615)	(0.587)	(0.494)	(0.454)
$\overline{B^f} \times \Delta \text{r}_{t-4}$	-0.002*	-0.002	-0.002	-0.002
	(-1.680)	(-1.616)	(-1.553)	(-1.504)

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Table A4 – *Continued from previous page*

	(1)	(2)	(3)	(4)
Firm size	0.003***	0.003***	0.002***	0.002***
	(20.804)	(19.945)	(14.056)	(12.587)
Size × Δr_t	-0.001*	-0.001*	0.000	0.000
	(-1.775)	(-1.926)	(0.522)	(0.418)
Size × Δr_{t-1}	0.003***	0.003***	0.001	0.001
	(3.884)	(3.987)	(1.533)	(1.592)
Size × Δr_{t-2}	0.000	0.000	0.000	0.000
	(0.117)	(0.302)	(0.460)	(0.563)
Size × Δr_{t-3}	0.003***	0.003***	0.002**	0.002**
	(3.420)	(3.221)	(2.362)	(2.262)
Size × Δr_{t-4}	-0.001**	-0.001*	-0.000	-0.000
	(-1.966)	(-1.811)	(-0.966)	(-0.868)
Industry growth	0.001***	0.001***	0.000***	0.001***
	(4.195)	(4.822)	(2.899)	(3.883)
PPE ratio	0.008***	0.012***	-0.001	0.002
	(5.311)	(6.694)	(-0.958)	(1.126)
Tobin's Q	0.000***	0.000***	0.000***	0.000***
	(13.794)	(14.405)	(10.263)	(10.454)
Client industry growth	0.001**	0.001***	0.000	0.001
	(2.292)	(2.623)	(0.938)	(1.594)
Client Tobin's Q	0.001**	0.001***	0.000	0.001***
	(2.397)	(4.603)	(1.412)	(3.805)
Client size	0.000	0.003**	0.000	0.003***
	(0.164)	(2.463)	(0.154)	(3.184)
Client PPE ratio	-0.006	-0.018**	-0.007*	-0.003
	(-1.233)	(-2.366)	(-1.720)	(-0.507)
$\Delta \ln \text{purch}_t$			0.345***	0.345***
			(73.365)	(73.315)
$\Delta \ln \text{purch}_{t-1}$			0.242***	0.242***
			(53.961)	(53.930)
$\Delta \ln \text{purch}_{t-2}$			0.140***	0.140***
			(33.519)	(33.515)
$\Delta \ln \text{purch}_{t-3}$			0.087***	0.088***
			(25.059)	(25.074)
$\Delta \ln \text{purch}_{t-4}$			0.004	0.005
			(1.473)	(1.504)
$\Delta r_t \times \Delta \ln \text{purch}_t$			0.013**	0.013**
			(2.190)	(2.182)
$\Delta r_{t-1} \times \Delta \ln \text{purch}_{t-1}$			0.005	0.005
			(0.909)	(0.917)
$\Delta r_{t-2} \times \Delta \ln \text{purch}_{t-2}$			0.011**	0.011**
			(2.547)	(2.553)
$\Delta r_{t-3} \times \Delta \ln \text{purch}_{t-3}$			0.006	0.007
			(1.500)	(1.529)

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Table A4 – *Continued from previous page*

	(1)	(2)	(3)	(4)
$\Delta r_{-4} \times \Delta \ln purch_{t-4}$			0.008**	0.009**
			(2.123)	(2.166)
Observations	321,909	321,909	300,109	300,109
R^2	0.277	0.278	0.439	0.439
Time FE	Y	Y	Y	Y
Industry FE		Y		Y
$\sum_{u=0}^{4} \beta_u^c$	-0.0284	-0.0276	-0.0210	-0.0200
F-statistic	18.99	17.94	13.38	12.15
p-value	< 0.01	< 0.01	< 0.01	< 0.01

Note: This table contains coefficient estimates for Equation 1. The sample corresponds to all non-financial, non-government public firms in the US in the period 1990Q1 to 2016Q4. The dependent variable is the quarterly difference in the log of sales. The main independent variables are: the quarterly difference in the monetary policy rate and four of its lags, the average clients' debt to assets ratio (lagged one quarter), and the interaction between the differences in the monetary policy rates and the average lagged client debt to assets ratio. Changes in monetary policy are the quarterly differences in the federal funds rate. Firm-level control variables are the average yearly growth in sales in the firms' industry, and lagged values of Tobin's Q, firm size, debt to assets ratio, and the ratio of PPE to total assets. Client controls include: client average industry growth rate and lagged values of client average Tobin's Q, client average size, and client average PPE to assets ratio. All variables are defined in Table A1. The last three rows of this table contain, respectively: the sum of the coefficients of the interaction terms, an F-statistic for the null hypothesis that the sum of this coefficients equals zero, and its corresponding p-value. Standard errors are clustered at the firm level.
***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A5: Cost channel on firm-level sample. Controlling for demand channel.

	(1)	(2)	(3)	(4)
$\Delta \ln \text{purch}_{t-1}$	-0.370***	-0.371***	-0.485***	-0.486***
	(-83.338)	(-83.461)	(-89.936)	(-89.987)
$\Delta \ln \text{purch}_{t-2}$	-0.245***	-0.246***	-0.304***	-0.304***
	(-46.947)	(-47.076)	(-54.251)	(-54.324)
$\Delta \ln \text{purch}_{t-3}$	-0.145***	-0.146***	-0.204***	-0.204***
	(-37.576)	(-37.805)	(-43.341)	(-43.448)
$\Delta \ln \text{purch}_{t-4}$	0.118***	0.117***	0.030***	0.029***
	(23.906)	(23.728)	(6.513)	(6.420)
Δr_t	0.006	0.007	0.010**	0.010**
	(1.352)	(1.504)	(2.345)	(2.455)
Δr_{t-1}	-0.003	-0.004	-0.002	-0.002
	(-0.435)	(-0.557)	(-0.298)	(-0.392)
Δr_{t-2}	-0.008	-0.008	-0.008	-0.008
	(-1.173)	(-1.263)	(-1.420)	(-1.488)
Δr_{t-3}	-0.014**	-0.014**	-0.005	-0.005
	(-2.046)	(-1.968)	(-0.829)	(-0.778)
Δr_{t-4}	0.012**	0.012**	0.010**	0.010**
	(2.387)	(2.289)	(2.229)	(2.154)
Supplier coverage ratio ($\overline{B^s}$)	-0.002	-0.004	-0.004	-0.005
	(-0.602)	(-1.083)	(-1.409)	(-1.561)
$\overline{B^s} \times \Delta \text{r}_t$	-0.029**	-0.032**	-0.038***	-0.040***
	(-2.303)	(-2.528)	(-3.743)	(-3.899)
$\overline{B^s} \times \Delta \text{r}_{t-1}$	-0.007	-0.005	0.012	0.013
	(-0.373)	(-0.239)	(0.702)	(0.787)
$\overline{B^s} \times \Delta \text{r}_{t-2}$	0.012	0.012	0.001	0.001
	(0.614)	(0.596)	(0.034)	(0.031)
$\overline{B^s} \times \Delta \text{r}_{t-3}$	0.023	0.024	0.016	0.016
	(1.171)	(1.198)	(0.946)	(0.945)
$\overline{B^s} \times \Delta \text{r}_{t-4}$	-0.059***	-0.059***	-0.025**	-0.025**
	(-4.126)	(-4.115)	(-2.046)	(-1.984)
Firm coverage ratio ($\overline{B^f}$)	-0.000	-0.000	-0.001	-0.000
	(-0.854)	(-0.691)	(-1.197)	(-1.070)
$\overline{B^f} \times \Delta \text{r}_t$	0.002	0.002	0.002	0.002
	(1.259)	(1.279)	(1.046)	(1.062)
$\overline{B^f} \times \Delta \text{r}_{t-1}$	-0.003	-0.003	-0.003	-0.003
	(-1.032)	(-0.982)	(-1.215)	(-1.194)
$\overline{B^f} \times \Delta \text{r}_{t-2}$	-0.002	-0.002	0.000	0.000
	(-0.524)	(-0.554)	(0.100)	(0.084)
$\overline{B^f} \times \Delta \text{r}_{t-3}$	0.002	0.002	0.000	0.000
	(0.490)	(0.479)	(0.085)	(0.098)
$\overline{B^f} \times \Delta \text{r}_{t-4}$	-0.002	-0.002	-0.000	-0.000
	(-0.978)	(-0.938)	(-0.227)	(-0.221)

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Table A5 – *Continued from previous page*

	(1)	(2)	(3)	(4)
Size	0.004***	0.004***	0.001***	0.002***
	(21.815)	(22.180)	(10.281)	(11.667)
Size × Δr_t	-0.002**	-0.002***	-0.001**	-0.001**
	(-2.431)	(-2.656)	(-2.176)	(-2.355)
Size × Δr_{t-1}	0.003***	0.003***	0.002*	0.002**
	(3.405)	(3.544)	(1.959)	(2.081)
Size × Δr_{t-2}	-0.001	-0.000	-0.000	-0.000
	(-0.524)	(-0.337)	(-0.305)	(-0.167)
Size × Δr_{t-3}	0.003***	0.003**	0.002*	0.002*
	(2.633)	(2.486)	(1.832)	(1.732)
Size × Δr_{t-4}	-0.001	-0.001	-0.001*	-0.001*
	(-0.875)	(-0.793)	(-1.765)	(-1.723)
Industry growth	0.000	0.000	-0.000*	-0.000**
	(1.167)	(0.707)	(-1.719)	(-2.426)
PPE ratio	0.024***	0.025***	0.019***	0.018***
	(11.894)	(10.299)	(10.899)	(8.854)
Tobin's Q	0.000***	0.000***	0.000	0.000*
	(6.662)	(7.829)	(0.861)	(1.789)
$\Delta \ln \text{sales}_t$			0.604***	0.603***
			(84.274)	(84.196)
$\Delta \ln \text{sales}_{t-1}$			0.340***	0.339***
			(53.238)	(53.182)
$\Delta \ln \text{sales}_{t-2}$			0.202***	0.202***
			(33.554)	(33.516)
$\Delta \ln \text{sales}_{t-3}$			0.203***	0.203***
			(33.711)	(33.647)
$\Delta \ln \text{sales}_{t-4}$			0.010*	0.009*
			(1.893)	(1.855)
$\Delta r_t \times \Delta \ln \text{sales}_t$			0.003	0.002
			(0.345)	(0.313)
$\Delta r_{t-1} \times \Delta \ln \text{sales}_{t-1}$			-0.012	-0.013*
			(-1.626)	(-1.681)
$\Delta r_{t-2} \times \Delta \ln \text{sales}_{t-2}$			-0.012*	-0.012*
			(-1.761)	(-1.791)
$\Delta r_{t-3} \times \Delta \ln \text{sales}_{t-3}$			-0.004	-0.004
			(-0.637)	(-0.674)
$\Delta r_{t-4} \times \Delta \ln \text{sales}_{t-4}$			-0.001	-0.001
			(-0.198)	(-0.227)
Supplier industry growth	0.003***	0.004***	0.002***	0.003***
	(6.198)	(6.897)	(4.765)	(5.123)
Supplier Tobin's Q	0.001***	0.002***	0.000	0.001*
	(2.772)	(4.547)	(0.575)	(1.762)
Supplier size	-0.000	0.001	-0.001**	-0.002
	(-0.003)	(0.381)	(-2.004)	(-1.443)

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Table A5 – *Continued from previous page*

	(1)	(2)	(3)	(4)
Supplier PPE ratio	-0.016***	0.001	0.008	0.023***
	(-2.839)	(0.108)	(1.578)	(3.245)
Observations	300,805	300,805	300,109	300,109
R^2	0.185	0.186	0.371	0.371
Time FE	Y	Y	Y	Y
Indudstry FE		Y		Y
$\sum_{u=0}^{4} \beta_u^s$	-0.0602	-0.0600	-0.0356	-0.0351
F-statistic	35.24	35.10	17.43	16.99
p-value	< 0.01	< 0.01	< 0.01	< 0.01

Note: This table contains coefficient estimates for Equation 2. The sample corresponds to all non-financial, non-government public firms in the US in the period 1990Q1 to 2016Q4. The dependent variable is the quarterly difference in the log of purchases. The main independent variables are: the quarterly difference in the monetary policy rate and four of its lags, the average suppliers' debt to assets ratio (lagged one quarter), and the interaction between the differences in the monetary policy rates and the average lagged supplier debt to assets ratio. Changes in monetary policy are the quarterly differences in the federal funds rate. Firm-level control variables are the average yearly growth in sales in the firms' industry, and lagged values of Tobin's Q, firm size, debt to assets ratio, and the ratio of PPE to total assets. Supplier controls include: supplier average industry growth rate and lagged values of supplier average Tobin's Q, supplier average size, and supplier average PPE to assets ratio. All variables are defined in Table A1. The last three rows of this table contain, respectively: the sum of the coefficients of the interaction terms, an F-statistic for the null hypothesis that the sum of this coefficients equals zero, and its corresponding p-value. Standard errors are clustered at the firm level. ***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A6: Demand channel on paired client sample. Financial health = Debt.

	(1)	(2)	(3)	(4)	(5)	(6)
Δr_t	0.009	0.020	0.017	0.026		
	(0.660)	(1.522)	(1.078)	(1.525)		
Client debt ratio	-0.076***	-0.081***	-0.094***	-0.086**	-0.051	-0.032
	(-2.806)	(-2.832)	(-2.964)	(-2.186)	(-1.241)	(-0.582)
Client debt ratio $\times$ Δr_t	-0.025	-0.046**	-0.030	-0.042*	-0.015	-0.012
	(-1.357)	(-2.387)	(-1.346)	(-1.844)	(-0.521)	(-0.417)
Client ind. growth		-0.005***		-0.006**		-0.007*
		(-2.786)		(-2.275)		(-1.720)
Client Tobin's Q		0.004		0.002		0.000
		(1.133)		(0.548)		(0.073)
Client size		0.004		-0.004		-0.015*
		(0.986)		(-0.639)		(-1.863)
Client PPE		-0.014		-0.001		0.068
		(-0.431)		(-0.024)		(1.469)
Client monopsony		0.859***		0.974***		1.286***
		(20.218)		(17.076)		(12.339)
Supplier monopoly		0.375***		0.268***		0.204
		(4.886)		(2.627)		(1.421)
Observations	27,247	21,096	20,973	15,314	13,009	8,825
R^2	0.056	0.145	0.378	0.459	0.584	0.639
Industry $\times$ year FE	Y	Y				
Industry $\times$ size $\times$ age $\times$ year FE			Y	Y		
Firm $\times$ Year FE					Y	Y

Note: This table contains coefficient estimates for Equation 3. The sample corresponds to non-financial, non-government public firms in the US and their most important clients as reported in the Compustat Segment files for years 1990 through 2015. Columns 1 to 3 correspond to years 1990 to 2008, and columns 4 to 6 correspond to 2009-2015. The dependent variable is $\Delta \ln \text{sales}_{ijt}$, or sales from firm i to client j in year t. The main independent variables are: the yearly difference in the monetary policy rate, the client's coverage ratio (lagged one year), and the interaction between these two variables. Changes in monetary policy are the yearly differences in the federal funds rate. Firm-level controls are: client's industry growth rate, lagged values of client's Tobin's Q, size, and PPE, client monopsony and supplier monopoly power. In addition, estimations contain industry times year fixed effects (columns 1 and 4), firm industry $\times$ size group $\times$ age group $\times$ year fixed effects (columns 2 and 5), and firm $\times$ year fixed effects (columns 3 and 6). Standard errors are double clustered at the supplier and client level.
***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A7: Cost channel on paired supplier sample. Supplier health = Debt.

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Observations weighted using BEA input matrix						
Δr_t	0.001	0.034	-0.012	0.019	-0.013	-0.011
	(0.014)	(0.638)	(-0.237)	(0.324)	(-0.268)	(-0.190)
Supplier debt ratio	-0.085	-0.123	-0.060	-0.113	-0.069	-0.193
	(-1.335)	(-1.300)	(-0.656)	(-0.829)	(-0.675)	(-1.199)
Supplier debt $\times$ Δr_t	-0.029	-0.058	-0.058	-0.090	-0.094	-0.117
	(-0.710)	(-1.231)	(-1.041)	(-1.336)	(-1.455)	(-1.582)
Supplier industry growth		0.001		0.001		0.002
		(0.280)		(0.456)		(0.590)
Supplier Tobin's Q		0.020		0.022		0.025*
		(1.535)		(1.632)		(1.733)
Supplier size		0.037**		0.021*		0.025**
		(2.568)		(1.667)		(2.050)
Supplier PPE		-0.064		0.066		0.041
		(-0.578)		(0.661)		(0.455)
Client monopsony		1.040***		1.025***		1.051***
		(10.389)		(11.949)		(16.276)
Supplier monopoly		0.200		0.013		-0.260
		(0.759)		(0.051)		(-1.273)
Observations	22,438	17,713	20,089	15,812	17,847	13,898
R-squared	0.269	0.372	0.403	0.509	0.597	0.668
Industry $\times$ year FE	Y	Y				
Industry $\times$ size $\times$ age $\times$ year FE			Y	Y		
Firm $\times$ year FE					Y	Y
Panel B: Suppliers in most important input sectors						
Δr_t	-0.010	-0.005	-0.007	-0.009	-0.003	0.003
	(-0.367)	(-0.163)	(-0.226)	(-0.259)	(-0.084)	(0.071)
Supplier debt ratio	-0.025	-0.001	-0.025	-0.003	-0.045	0.016
	(-0.858)	(-0.035)	(-0.731)	(-0.072)	(-1.159)	(0.322)
Supplier debt $\times$ Δr_t	-0.047**	-0.039*	-0.009	-0.009	-0.013	-0.039
	(-2.271)	(-1.729)	(-0.346)	(-0.303)	(-0.437)	(-1.168)
Supplier industry growth		0.011		0.003		0.002
		(1.489)		(0.314)		(0.088)
Supplier Tobin's Q		0.007**		0.006		0.008*
		(2.368)		(1.593)		(1.768)
Supplier size		0.025***		0.025***		0.025***
		(4.428)		(3.883)		(3.396)
Supplier PPE		-0.039		-0.074		-0.058
		(-0.630)		(-1.091)		(-0.723)
Client monopsony		0.779***		0.739***		0.738***
		(17.680)		(15.548)		(12.871)

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Table A7 – *Continued from previous page*

	(1)	(2)	(3)	(4)	(5)	(6)
Supplier monopoly		0.225**		0.260		0.185
		(2.066)		(1.290)		(0.826)
Observations	5,400	4,080	4,695	3,502	4,046	2,894
R-squared	0.091	0.175	0.165	0.229	0.311	0.369
Industry × year FE	Y	Y				
Industry × size × age × year FE			Y	Y		
Firm × year FE					Y	Y

Note: This table contains coefficient estimates for Equation 4. This sample consists of non-financial, non-government public US firms and their suppliers, such that firms are reported to be important clients of the suppliers, suppliers disclose the names of their clients in the Compustat Segment files between years 1990 through 2015, and the suppliers belong to industries that account for up to 75% of the inputs used in the firms' main industry . The dependent variable is $\Delta \ln \text{purchases}_{ikt}$, or purchases by firm i from supplier k in year t. The main independent variables are: the yearly difference in the monetary policy rate, the supplier's debt ratio (lagged one year), and the interaction between these two variables. Changes in monetary policy are the yearly differences in the federal funds rate. Firm-level controls are: industry times year fixed effects (column 1), firm industry × size group × age group × year fixed effects (column 2), and firm × year fixed effects (columns 3 to 5). Columns 4 and 5 include controls for supplier's industry growth rate and lagged values of supplier Tobin's Q, size, and PPE. Column 5 additionally control for client monopsony and supplier monopoly power. Standard errors are double clustered at the supplier and client level.***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A8: Demand channel on firm-level sample. Monetary surprises.

	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta \ln \text{sales}_{t-1}$	-0.260***	-0.261***	-0.261***	-0.260***	-0.261***	-0.261***
	(-73.653)	(-69.312)	(-69.373)	(-73.918)	(-69.481)	(-69.535)
$\Delta \ln \text{sales}_{t-2}$	-0.218***	-0.214***	-0.215***	-0.219***	-0.215***	-0.216***
	(-46.211)	(-43.126)	(-43.153)	(-46.368)	(-43.273)	(-43.299)
$\Delta \ln \text{sales}_{t-3}$	-0.153***	-0.151***	-0.151***	-0.154***	-0.152***	-0.152***
	(-52.184)	(-48.915)	(-48.937)	(-52.537)	(-49.180)	(-49.193)
$\Delta \ln \text{sales}_{t-4}$	0.335***	0.315***	0.315***	0.335***	0.314***	0.314***
	(61.325)	(55.810)	(55.803)	(61.297)	(55.642)	(55.637)
Surprise_t	-0.002	-0.002	-0.002	-0.000	-0.002	-0.003
	(-0.240)	(-0.229)	(-0.243)	(-0.045)	(-0.286)	(-0.345)
Surprise_{t-1}	0.006	0.007	0.006	0.007	0.007	0.006
	(0.855)	(0.840)	(0.720)	(0.939)	(0.875)	(0.781)
Surprise_{t-2}	0.004	0.001	0.001	0.004	0.002	0.001
	(0.573)	(0.137)	(0.138)	(0.568)	(0.212)	(0.149)
Surprise_{t-3}	-0.007	-0.003	-0.003	-0.007	-0.004	-0.004
	(-1.120)	(-0.456)	(-0.487)	(-1.140)	(-0.590)	(-0.614)
Surprise_{t-4}	-0.026***	-0.017**	-0.018**	-0.025***	-0.019***	-0.019***
	(-4.175)	(-2.527)	(-2.569)	(-3.906)	(-2.698)	(-2.715)
Client coverage ($\overline{B^c}$)	0.001	0.001	0.002	-0.001	0.000	0.001
	(0.709)	(0.603)	(1.337)	(-0.316)	(0.044)	(0.620)
$\overline{B^c} \times \text{Surprise}_t$	-0.037*	-0.021	-0.020	-0.038*	-0.025	-0.021
	(-1.787)	(-0.888)	(-0.846)	(-1.851)	(-1.064)	(-0.904)
$\overline{B^c} \times \text{Surprise}_{t-1}$	-0.032	-0.047*	-0.043*	-0.036*	-0.051**	-0.048*
	(-1.505)	(-1.896)	(-1.745)	(-1.691)	(-2.068)	(-1.957)
$\overline{B^c} \times \text{Surprise}_{t-2}$	-0.015	-0.013	-0.013	-0.017	-0.015	-0.013
	(-0.842)	(-0.599)	(-0.609)	(-0.942)	(-0.714)	(-0.626)
$\overline{B^c} \times \text{Surprise}_{t-3}$	0.004	-0.006	-0.006	0.005	-0.004	-0.004
	(0.217)	(-0.337)	(-0.323)	(0.292)	(-0.204)	(-0.206)
$\overline{B^c} \times \text{Surprise}_{t-4}$	0.024	0.011	0.012	0.023	0.013	0.014
	(1.525)	(0.619)	(0.671)	(1.460)	(0.716)	(0.770)
Industry growth		0.000***	0.000**		0.001***	0.001***
		(3.264)	(2.174)		(4.760)	(3.632)
Tobin's Q		0.001***	0.001***		0.001***	0.001***
		(19.489)	(19.405)		(19.956)	(19.707)
Size		0.003***	0.003***		0.003***	0.003***
		(23.294)	(23.085)		(21.702)	(21.578)
PPE ratio		0.010***	0.014***		0.016***	0.016***
		(9.122)	(10.357)		(10.270)	(10.228)
Debt ratio		-0.007***	-0.007***		-0.007***	-0.007***
		(-12.392)	(-12.479)		(-12.178)	(-12.112)
Cl. industry growth			0.001***			0.001***
			(3.075)			(3.307)
Client Tobin's Q			0.000*			0.001***
			(1.880)			(3.442)

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Table A8 – *Continued from previous page*

	(1)	(2)	(3)	(4)	(5)	(6)
Client size			0.001*			0.001
			(1.667)			(1.227)
Client PPE ratio			-0.016***			0.001
			(-4.011)			(0.121)
Observations	594,356	486,858	486,858	594,356	486,858	486,858
R^2	0.283	0.264	0.264	0.284	0.265	0.265
Time FE	Y	Y	Y	Y	Y	Y
Industry FE				Y	Y	Y
$\sum_{u=0}^{4} \beta_u^c$	-0.0571	-0.0755	-0.0699	-0.0640	-0.0819	-0.0726
F-statistic	5.881	7.960	6.808	7.348	9.319	7.320
p-value	0.0153	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Note: This table contains coefficient estimates for Equation 1. The sample corresponds to all non-financial, non-government public firms in the US in the period 1990Q1 to 2016Q4.The dependent variable is the quarterly difference in the log of sales. The main independent variables are: the quarterly difference in the monetary policy rate and four of its lags, the average clients' coverage ratio (lagged one quarter), and the interaction between the differences in the monetary policy rates and the average lagged client coverage ratio. Changes in monetary policy are quarterly monetary policy surprises. Firm-level control variables are the average yearly growth in sales in the firms' industry, and lagged values of Tobin's Q, firm size, debt to assets ratio, and the ratio of PPE to total assets. Client controls include: client average industry growth rate and lagged values of client average Tobin's Q, client average size, and client average PPE to assets ratio. All variables are defined in Table A1. The last three rows of this table contain, respectively: the sum of the coefficients of the interaction terms, an F-statistic for the null hypothesis that the sum of this coefficients equals zero, and its corresponding p-value. Standard errors are clustered at the firm level. ***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A9: Cost channel on firm-level sample. Monetary surprises.

	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta \ln \text{purch}_{t-1}$	-0.372***	-0.376***	-0.376***	-0.372***	-0.377***	-0.377***
	(-107.322)	(-101.890)	(-101.899)	(-107.409)	(-101.970)	(-101.989)
$\Delta \ln \text{purch}_{t-2}$	-0.236***	-0.237***	-0.237***	-0.237***	-0.238***	-0.238***
	(-57.198)	(-53.508)	(-53.513)	(-57.338)	(-53.624)	(-53.628)
$\Delta \ln \text{purch}_{t-3}$	-0.145***	-0.146***	-0.146***	-0.146***	-0.146***	-0.147***
	(-48.516)	(-45.666)	(-45.673)	(-48.782)	(-45.858)	(-45.861)
$\Delta \ln \text{purch}_{t-4}$	0.123***	0.112***	0.112***	0.122***	0.112***	0.112***
	(30.756)	(26.934)	(26.899)	(30.568)	(26.765)	(26.744)
Surprise_t	-0.010	-0.011	-0.010	-0.007	-0.011	-0.011
	(-0.944)	(-0.970)	(-0.896)	(-0.646)	(-0.946)	(-0.952)
Surprise_{t-1}	0.011	0.007	0.005	0.010	0.006	0.005
	(1.026)	(0.594)	(0.462)	(0.926)	(0.492)	(0.444)
Surprise_{t-2}	0.020*	0.018	0.017	0.018*	0.019	0.017
	(1.881)	(1.494)	(1.415)	(1.664)	(1.548)	(1.443)
Surprise_{t-3}	-0.004	0.000	-0.000	-0.004	-0.001	-0.001
	(-0.455)	(0.038)	(-0.033)	(-0.454)	(-0.071)	(-0.127)
Surprise_{t-4}	0.007	0.018*	0.018*	0.008	0.018*	0.017
	(0.774)	(1.777)	(1.712)	(0.903)	(1.704)	(1.630)
Supplier coverage ($\overline{B^s}$)	-0.001	0.002	0.006*	0.000	0.001	0.003
	(-0.333)	(0.822)	(1.936)	(0.124)	(0.444)	(1.054)
$\overline{B^s} \times \text{Surprise}_t$	-0.053*	-0.017	-0.023	-0.059*	-0.025	-0.028
	(-1.725)	(-0.508)	(-0.685)	(-1.906)	(-0.730)	(-0.832)
$\overline{B^s} \times \text{Surprise}_{t-1}$	0.056	0.031	0.037	0.058*	0.034	0.036
	(1.643)	(0.833)	(0.984)	(1.713)	(0.916)	(0.967)
$\overline{B^s} \times \text{Surprise}_{t-2}$	-0.039	-0.051	-0.045	-0.033	-0.055	-0.046
	(-1.289)	(-1.446)	(-1.256)	(-1.092)	(-1.535)	(-1.306)
$\overline{B^s} \times \text{Surprise}_{t-3}$	-0.018	-0.035	-0.029	-0.018	-0.032	-0.028
	(-0.612)	(-1.056)	(-0.889)	(-0.598)	(-0.971)	(-0.830)
$\overline{B^s} \times \text{Surprise}_{t-4}$	-0.029	-0.025	-0.019	-0.021	-0.024	-0.018
	(-0.963)	(-0.738)	(-0.548)	(-0.682)	(-0.707)	(-0.520)
Industry growth		0.001***	-0.000		0.001***	0.000
		(5.553)	(-0.311)		(5.132)	(0.139)
Tobin's Q		0.001***	0.001***		0.001***	0.001***
		(17.871)	(17.622)		(18.313)	(18.060)
Size		0.004***	0.004***		0.004***	0.004***
		(25.804)	(26.006)		(24.651)	(24.670)
PPE ratio		0.021***	0.026***		0.026***	0.026***
		(14.666)	(14.513)		(12.280)	(12.249)
Debt ratio		-0.015***	-0.015***		-0.015***	-0.015***
		(-18.403)	(-18.411)		(-17.944)	(-17.789)
Supp. industry growth			0.004***			0.004***
			(7.562)			(7.876)
Supplier Tobin's Q			0.001***			0.002***
			(2.716)			(4.599)

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Table A9 – *Continued from previous page*

	(1)	(2)	(3)	(4)	(5)	(6)
Supplier size			-0.001			-0.000
			(-1.323)			(-0.057)
Supplier PPE ratio			-0.018***			-0.001
			(-3.493)			(-0.146)
Observations	540,966	448,026	448,026	540,966	448,026	448,026
R^2	0.181	0.180	0.180	0.181	0.180	0.180
Time FE	Y	Y	Y	Y	Y	Y
Industry FE				Y	Y	Y
$\sum_{u=0}^{4} \beta_u^s$	-0.0838	-0.0976	-0.0791	-0.0722	-0.101	-0.0837
F-statistic	3.677	4.164	2.732	2.724	4.454	3.036
p-value	0.0552	0.0413	0.0984	0.0989	0.0348	0.0815

Note: This table contains coefficient estimates for Equation 2. The sample corresponds to all non-financial, non-government public firms in the US in the period 1990Q1 to 2016Q4.The dependent variable is the quarterly difference in the log of purchases. The main independent variables are: the quarterly difference in the monetary policy rate and four of its lags, the average suppliers' coverage ratio (lagged one quarter), and the interaction between the differences in the monetary policy rates and the average lagged supplier coverage ratio. Changes in monetary policy are the quarterly differences in the federal funds rate. Firm-level control variables are the average yearly growth in sales in the firms' industry, and lagged values of Tobin's Q, firm size, debt to assets ratio, and the ratio of PPE to total assets. Supplier controls include: supplier average industry growth rate and lagged values of supplier average Tobin's Q, supplier average size, and supplier average PPE to assets ratio. All variables are defined in Table A1. The last three rows of this table contain, respectively: the sum of the coefficients of the interaction terms, an F-statistic for the null hypothesis that the sum of this coefficients equals zero, and its corresponding p-value. Standard errors are clustered at the firm level. ***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A10: Demand channel on paired client sample. Monetary surprises.

	(1)	(2)	(3)	(4)	(5)	(6)
Surprise$_t$	0.007	-0.006	-0.022	0.013		
	(0.106)	(-0.085)	(-0.192)	(0.107)		
Client coverage ratio	-0.020	-0.010	-0.008	-0.007	-0.010	-0.027
	(-1.390)	(-0.684)	(-0.420)	(-0.348)	(-0.517)	(-1.297)
Cl. coverage × Surprise$_t$	-0.100*	-0.078	-0.110	-0.146	-0.173**	-0.256**
	(-1.646)	(-1.353)	(-1.615)	(-1.500)	(-2.269)	(-2.551)
Client industry growth		-0.005**		-0.005**		-0.008*
		(-2.386)		(-2.153)		(-1.956)
Client Tobin's Q		0.005		0.004		0.001
		(1.191)		(0.767)		(0.089)
Client size		0.003		-0.007		-0.015*
		(0.757)		(-1.227)		(-1.908)
Client PPE		-0.027		-0.002		0.074
		(-0.729)		(-0.052)		(1.601)
Client monopsony		0.855***		0.970***		1.265***
		(19.765)		(16.263)		(12.117)
Supplier monopoly		0.370***		0.194*		0.109
		(4.846)		(1.917)		(0.814)
Observations	25,359	19,834	19,336	14,241	11,899	8,018
R^2	0.057	0.145	0.387	0.464	0.594	0.645
Industry × year FE	Y	Y				
Industry × size × age × year FE				Y	Y	
Firm × Year FE					Y	Y

Note: This table contains coefficient estimates for Equation 3. The sample corresponds to non-financial, non-government public firms in the US and their most important clients as reported in the Compustat Segment files for years 1990 through 2015. The dependent variable is $\Delta \ln \text{sales}_{ijt}$, or sales from firm i to client j in year t. The main independent variables are: the yearly difference in the monetary policy rate, the client's coverage ratio (lagged one year), and the interaction between these two variables. Changes in monetary policy are yearly monetary surprises. Firm-level controls are: industry times year fixed effects (column 1), firm industry × size group × age group × year fixed effects (column 2), and firm × year fixed effects (columns 3 to 5). Columns 4 and 5 include controls for the client's industry growth rate and lagged values of client's Tobin's Q, size, and PPE. Column 5 additionally controls for client monopsony and supplier monopoly power. Standard errors are double clustered at the supplier and client level.
***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A11: Cost channel on paired supplier sample. Monetary surprises

	(1)	(2)	(3)	(4)	(5)	(6)
Surprise_t	0.005	-0.103	-0.080	-0.219	-0.162	-0.301
	(0.029)	(-0.544)	(-0.408)	(-1.027)	(-0.779)	(-1.290)
Supp. coverage ratio	-0.031*	-0.024	-0.041**	-0.033	-0.029	-0.014
	(-1.794)	(-1.272)	(-2.100)	(-1.556)	(-1.237)	(-0.543)
Supplier coverage $\times$ Surprise_t	-0.051	-0.105	-0.070	-0.107	-0.094	-0.052
	(-0.742)	(-1.404)	(-1.011)	(-1.396)	(-1.022)	(-0.479)
Supp. industry growth		0.013*		0.007		0.004
		(1.784)		(0.764)		(0.237)
Supplier Tobin's Q		0.008***		0.005		0.007
		(2.619)		(1.316)		(1.632)
Supplier size		0.022***		0.022***		0.021***
		(3.812)		(3.317)		(2.770)
Supplier PPE ratio		-0.033		-0.066		-0.040
		(-0.525)		(-0.940)		(-0.469)
Client monopsony		0.802***		0.769***		0.760***
		(17.431)		(15.396)		(12.471)
Supplier monopoly		0.325***		0.301		0.213
		(2.657)		(1.398)		(0.898)
Observations	4,820	3,619	4,185	3,112	3,581	2,559
R^2	0.098	0.187	0.172	0.239	0.320	0.382
Industry $\times$ year FE	Y	Y				
Industry $\times$ size $\times$ age $\times$ year FE			Y	Y		
Firm $\times$ Year FE					Y	Y

Note: This table contains coefficient estimates for Equation 4. This sample consists of non-financial, non-government public US firms and their suppliers, such that firms are reported to be important clients of the suppliers, suppliers disclose the names of their clients in the Compustat Segment files between years 1990 through 2015, and the suppliers belong to industries that account for up to 75% of the inputs used in the firms' main industry. The dependent variable is $\Delta \ln \text{purch}_{ikt}$, or purchases by firm i from supplier k in year t. The main independent variables are: the yearly difference in the monetary policy rate, the supplier's coverage ratio (lagged one year), and the interaction between these two variables. Changes in monetary policy are the yearly monetary surprises. Firm-level controls are: industry times year fixed effects (column 1), firm industry $\times$ size group $\times$ age group $\times$ year fixed effects (column 2), and firm $\times$ year fixed effects (columns 3 to 5). Columns 4 and 5 include controls for supplier's industry growth rate and lagged values of supplier Tobin's Q, size, and PPE. Column 5 additionally control for client monopsony and supplier monopoly power. Standard errors are double clustered at the supplier and client level.
***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A12: Demand channel, excluding own sector from client leverage.

	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta \ln \text{sales}_{t-1}$	-0.259***	-0.260***	-0.260***	-0.260***	-0.261***	-0.261***
	(-74.457)	(-69.975)	(-70.027)	(-74.733)	(-70.155)	(-70.200)
$\Delta \ln \text{sales}_{t-2}$	-0.219***	-0.215***	-0.215***	-0.220***	-0.216***	-0.216***
	(-46.918)	(-43.690)	(-43.714)	(-47.083)	(-43.842)	(-43.864)
$\Delta \ln \text{sales}_{t-3}$	-0.153***	-0.151***	-0.151***	-0.154***	-0.152***	-0.152***
	(-52.811)	(-49.424)	(-49.443)	(-53.175)	(-49.705)	(-49.716)
$\Delta \ln \text{sales}_{t-4}$	0.338***	0.317***	0.317***	0.337***	0.316***	0.316***
	(62.243)	(56.576)	(56.571)	(62.217)	(56.401)	(56.397)
Δr_t	-0.003*	-0.004*	-0.004*	-0.003*	-0.004*	-0.004*
	(-1.917)	(-1.797)	(-1.791)	(-1.699)	(-1.898)	(-1.888)
Δr_{t-1}	0.007***	0.007***	0.006***	0.006***	0.007***	0.007***
	(3.019)	(2.797)	(2.729)	(2.937)	(2.893)	(2.815)
Δr_{t-2}	0.001	-0.002	-0.002	0.001	-0.002	-0.002
	(0.366)	(-0.913)	(-0.797)	(0.236)	(-0.876)	(-0.813)
Δr_{t-3}	-0.001	0.001	0.001	-0.001	0.001	0.001
	(-0.386)	(0.538)	(0.458)	(-0.302)	(0.433)	(0.390)
Δr_{t-4}	-0.003	-0.001	-0.001	-0.002	-0.001	-0.001
	(-1.440)	(-0.717)	(-0.700)	(-1.279)	(-0.729)	(-0.707)
Client coverage ($\overline{B^c}$)	0.001	0.000	0.002	-0.000	0.000	0.001
	(0.489)	(0.325)	(1.137)	(-0.263)	(0.049)	(0.621)
$\overline{B^c} \times \Delta \text{r}_t$	0.004	0.002	0.002	0.004	0.003	0.003
	(0.849)	(0.410)	(0.436)	(0.927)	(0.504)	(0.560)
$\overline{B^c} \times \Delta \text{r}_{t-1}$	-0.021***	-0.023***	-0.023***	-0.022***	-0.024***	-0.023***
	(-3.219)	(-3.158)	(-3.055)	(-3.324)	(-3.248)	(-3.139)
$\overline{B^c} \times \Delta \text{r}_{t-2}$	0.004	0.008	0.007	0.005	0.009	0.009
	(0.636)	(1.088)	(0.920)	(0.776)	(1.232)	(1.128)
$\overline{B^c} \times \Delta \text{r}_{t-3}$	-0.006	-0.006	-0.005	-0.007	-0.007	-0.006
	(-1.040)	(-0.852)	(-0.715)	(-1.160)	(-0.961)	(-0.854)
$\overline{B^c} \times \Delta \text{r}_{t-4}$	0.001	-0.004	-0.005	0.001	-0.004	-0.004
	(0.199)	(-0.849)	(-0.872)	(0.214)	(-0.737)	(-0.766)
Industry growth		0.000***	0.000**		0.001***	0.001***
		(3.291)	(2.495)		(4.637)	(3.836)
Tobin's Q		0.001***	0.001***		0.001***	0.001***
		(19.864)	(19.754)		(20.328)	(20.084)
Size		0.003***	0.003***		0.003***	0.003***
		(23.846)	(23.713)		(22.239)	(22.149)
PPE ratio		0.011***	0.014***		0.016***	0.016***
		(9.573)	(10.593)		(10.703)	(10.645)
Debt ratio		-0.007***	-0.007***		-0.007***	-0.007***
		(-12.787)	(-12.856)		(-12.536)	(-12.472)
Cl. industry growth			0.001**			0.001**
			(2.393)			(2.544)
Client Tobin's Q			0.001**			0.001***
			(2.408)			(3.699)

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Table A12 – *Continued from previous page*

	(1)	(2)	(3)	(4)	(5)	(6)
Client size			0.001			0.001
			(1.468)			(0.623)
Client PPE ratio			-0.015***			0.002
			(-3.539)			(0.373)
Observations	613,093	500,408	500,408	613,093	500,408	500,408
R^2	0.285	0.266	0.266	0.286	0.267	0.267
Time FE	Y	Y	Y	Y	Y	Y
Industry FE				Y	Y	Y
$\sum_{u=0}^{4} \beta_u^c$	-0.0182	-0.0231	-0.0227	-0.0183	-0.0224	-0.0215
F-statistic	21.43	26.60	25.55	21.57	24.84	22.84
p-value	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Note: This table contains coefficient estimates for Equation 1. The sample corresponds to all non-financial, non-government public firms in the US in the period 1990Q1 to 2016Q4. The dependent variable is the quarterly difference in the log of sales. The main independent variables are: the quarterly difference in the monetary policy rate and four of its lags, the average clients' coverage ratio (lagged one quarter), and the interaction between the differences in the monetary policy rates and the average lagged client coverage ratio. Changes in monetary policy are the quarterly differences in the federal funds rate. Firm-level control variables are the average yearly growth in sales in the firms' industry, and lagged values of Tobin's Q, firm size, debt to assets ratio, and the ratio of PPE to total assets. Client controls include: client average industry growth rate and lagged values of client average Tobin's Q, client average size, and client average PPE to assets ratio. In the computation of all client variables we exclude the firm's sector. All variables are defined in Table A1. The last three rows of this table contain, respectively: the sum of the coefficients of the interaction terms, an F-statistic for the null hypothesis that the sum of this coefficients equals zero, and its corresponding p-value. Standard errors are clustered at the firm level.
***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A13: Cost channel, excluding own sector from supplier leverage.

	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta \ln \text{purch}_{t-1}$	-0.372***	-0.376***	-0.376***	-0.372***	-0.377***	-0.377***
	(-108.309)	(-102.832)	(-102.838)	(-108.394)	(-102.919)	(-102.942)
$\Delta \ln \text{purch}_{t-2}$	-0.237***	-0.238***	-0.238***	-0.238***	-0.239***	-0.239***
	(-57.847)	(-54.022)	(-54.020)	(-57.987)	(-54.141)	(-54.142)
$\Delta \ln \text{purch}_{t-3}$	-0.145***	-0.146***	-0.146***	-0.146***	-0.147***	-0.147***
	(-48.864)	(-45.956)	(-45.964)	(-49.134)	(-46.157)	(-46.158)
$\Delta \ln \text{purch}_{t-4}$	0.123***	0.113***	0.112***	0.123***	0.112***	0.112***
	(31.084)	(27.233)	(27.191)	(30.891)	(27.057)	(27.038)
Δr_t	-0.006**	-0.006**	-0.006**	-0.005*	-0.006**	-0.006**
	(-2.192)	(-1.966)	(-1.969)	(-1.855)	(-1.974)	(-1.974)
Δr_{t-1}	0.013***	0.013***	0.013***	0.012***	0.013***	0.013***
	(3.979)	(3.568)	(3.511)	(3.745)	(3.583)	(3.516)
Δr_{t-2}	-0.004	-0.008**	-0.008**	-0.004	-0.008**	-0.008**
	(-1.123)	(-2.165)	(-2.107)	(-1.282)	(-2.080)	(-2.067)
Δr_{t-3}	0.001	0.004	0.004	0.001	0.003	0.003
	(0.238)	(1.091)	(1.004)	(0.345)	(0.922)	(0.913)
Δr_{t-4}	-0.001	-0.000	-0.000	-0.001	-0.000	-0.000
	(-0.411)	(-0.157)	(-0.100)	(-0.308)	(-0.090)	(-0.059)
Supplier coverage ($\overline{B^s}$)	-0.003	-0.002	-0.001	-0.005**	-0.004	-0.003
	(-1.491)	(-0.906)	(-0.211)	(-2.028)	(-1.481)	(-1.070)
$\overline{B^s} \times \Delta \text{r}_t$	-0.006	-0.010	-0.010	-0.006	-0.010	-0.010
	(-0.718)	(-1.122)	(-1.079)	(-0.809)	(-1.124)	(-1.102)
$\overline{B^s} \times \Delta \text{r}_{t-1}$	-0.010	-0.017	-0.016	-0.009	-0.018	-0.016
	(-0.843)	(-1.328)	(-1.247)	(-0.796)	(-1.361)	(-1.253)
$\overline{B^s} \times \Delta \text{r}_{t-2}$	-0.010	-0.002	-0.003	-0.008	-0.002	-0.002
	(-0.829)	(-0.165)	(-0.214)	(-0.669)	(-0.129)	(-0.135)
$\overline{B^s} \times \Delta \text{r}_{t-3}$	-0.002	-0.004	-0.003	-0.002	-0.004	-0.003
	(-0.167)	(-0.342)	(-0.242)	(-0.215)	(-0.297)	(-0.279)
$\overline{B^s} \times \Delta \text{r}_{t-4}$	-0.010	-0.010	-0.010	-0.010	-0.010	-0.010
	(-1.296)	(-1.045)	(-1.080)	(-1.197)	(-1.067)	(-1.064)
Industry growth		0.001***	0.001***		0.001***	0.001***
		(5.555)	(3.075)		(5.053)	(3.398)
Tobin's Q		0.001***	0.001***		0.001***	0.001***
		(18.157)	(17.993)		(18.618)	(18.349)
Size		0.004***	0.004***		0.004***	0.004***
		(26.274)	(26.898)		(25.182)	(25.376)
PPE ratio		0.022***	0.028***		0.027***	0.027***
		(15.189)	(16.306)		(12.774)	(13.064)
Debt ratio		-0.016***	-0.016***		-0.016***	-0.016***
		(-18.842)	(-18.738)		(-18.365)	(-18.176)
Supp. industry growth			0.001			0.001*
			(1.082)			(1.687)
Supplier Tobin's Q			0.002***			0.002***
			(4.253)			(5.373)

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Table A13 – *Continued from previous page*

	(1)	(2)	(3)	(4)	(5)	(6)
Supplier size			-0.001			-0.001
			(-1.287)			(-1.011)
Supplier PPE ratio			-0.028***			-0.014*
			(-5.163)			(-1.704)
Observations	557,562	460,216	460,216	557,562	460,216	460,216
R^2	0.181	0.180	0.180	0.182	0.180	0.180
Time FE	Y	Y	Y	Y	Y	Y
Industry FE				Y	Y	Y
$\sum_{u=0}^{4} \beta_u^s$	-0.0370	-0.0430	-0.0413	-0.0351	-0.0426	-0.0408
F-statistic	29.70	31.77	29.36	26.55	31.09	28.65
p-value	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Note: This table contains coefficient estimates for Equation 2. The sample corresponds to all non-financial, non-government public firms in the US in the period 1990Q1 to 2016Q4. The dependent variable is the quarterly difference in the log of purchases. The main independent variables are: the quarterly difference in the monetary policy rate and four of its lags, the average suppliers' coverage ratio (lagged one quarter), and the interaction between the differences in the monetary policy rates and the average lagged supplier coverage ratio. Changes in monetary policy are the quarterly differences in the federal funds rate. Firm-level control variables are the average yearly growth in sales in the firms' industry, and lagged values of Tobin's Q, firm size, debt to assets ratio, and the ratio of PPE to total assets. Supplier controls include: supplier average industry growth rate and lagged values of supplier average Tobin's Q, supplier average size, and supplier average PPE to assets ratio. In the computation of all supplier variables we exclude the firm's sector. All variables are defined in Table A1. The last three rows of this table contain, respectively: the sum of the coefficients of the interaction terms, an F-statistic for the null hypothesis that the sum of this coefficients equals zero, and its corresponding p-value. Standard errors are clustered at the firm level.
***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A14: Demand channel; sectors with high vs low trade credit provision.

	(1)	(2)	(3)	(4)	(5)	(6)
	High TC provision			Low TC provision		
$\Delta \ln \text{sales}_{t-1}$	-0.262***	-0.261***	-0.261***	-0.261***	-0.265***	-0.265***
	(-57.110)	(-54.173)	(-54.260)	(-54.517)	(-51.378)	(-51.375)
$\Delta \ln \text{sales}_{t-2}$	-0.238***	-0.232***	-0.232***	-0.199***	-0.198***	-0.198***
	(-40.260)	(-38.027)	(-38.092)	(-36.964)	(-33.040)	(-33.049)
$\Delta \ln \text{sales}_{t-3}$	-0.165***	-0.163***	-0.164***	-0.142***	-0.140***	-0.140***
	(-41.817)	(-39.016)	(-39.075)	(-37.255)	(-34.814)	(-34.818)
$\Delta \ln \text{sales}_{t-4}$	0.366***	0.346***	0.346***	0.302***	0.278***	0.278***
	(54.426)	(51.368)	(51.363)	(45.224)	(39.120)	(39.113)
Δr_t	-0.002	-0.003	-0.003	-0.007**	-0.008***	-0.008***
	(-0.790)	(-1.026)	(-0.983)	(-2.536)	(-2.601)	(-2.615)
Δr_{t-1}	0.009***	0.010***	0.009***	0.004	0.005	0.005
	(3.062)	(2.967)	(2.800)	(1.321)	(1.496)	(1.475)
Δr_{t-2}	-0.001	-0.003	-0.002	0.003	-0.001	-0.001
	(-0.414)	(-0.798)	(-0.648)	(1.001)	(-0.314)	(-0.297)
Δr_{t-3}	-0.001	-0.001	-0.001	-0.002	0.002	0.002
	(-0.290)	(-0.266)	(-0.328)	(-0.677)	(0.463)	(0.443)
Δr_{t-4}	-0.005**	-0.003	-0.003	0.001	0.000	0.000
	(-2.100)	(-1.104)	(-1.082)	(0.250)	(0.143)	(0.151)
Client coverage ($\overline{B^c}$)	-0.003	-0.002	-0.000	0.001	0.002	0.002
	(-1.358)	(-0.896)	(-0.006)	(0.509)	(0.724)	(1.029)
$\overline{B^c} \times \Delta \text{r}_t$	0.013**	0.008	0.008	-0.002	0.001	0.001
	(2.060)	(1.061)	(1.163)	(-0.335)	(0.063)	(0.106)
$\overline{B^c} \times \Delta \text{r}_{t-1}$	-0.033***	-0.029***	-0.027***	-0.013	-0.022**	-0.021**
	(-3.524)	(-2.791)	(-2.609)	(-1.433)	(-2.021)	(-1.986)
$\overline{B^c} \times \Delta \text{r}_{t-2}$	0.012	0.015	0.014	0.005	0.010	0.010
	(1.252)	(1.432)	(1.260)	(0.556)	(0.940)	(0.900)
$\overline{B^c} \times \Delta \text{r}_{t-3}$	-0.018**	-0.015	-0.013	0.002	0.000	0.001
	(-2.073)	(-1.494)	(-1.353)	(0.193)	(0.028)	(0.077)
$\overline{B^c} \times \Delta \text{r}_{t-4}$	0.006	-0.001	-0.001	-0.007	-0.010	-0.010
	(0.996)	(-0.089)	(-0.099)	(-0.970)	(-1.330)	(-1.348)
Industry growth		0.001***	0.001***		0.001***	0.001***
		(6.075)	(4.371)		(2.919)	(2.682)
Tobin's Q		0.001***	0.001***		0.001***	0.001***
		(11.661)	(11.555)		(21.420)	(21.201)
Size		0.001***	0.001***		0.004***	0.004***
		(7.170)	(7.246)		(20.038)	(19.935)
PPE ratio		0.036***	0.036***		0.016***	0.016***
		(12.570)	(12.578)		(7.264)	(7.086)
Debt ratio		-0.010***	-0.010***		-0.006***	-0.006***
		(-10.269)	(-10.257)		(-7.987)	(-7.961)
Cl. industry growth			0.003***			0.000
			(5.927)			(0.415)

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Table A14 – *Continued from previous page*

	(1)	(2)	(3)	(4)	(5)	(6)
	High TC provision			Low TC provision		
Client Tobin's Q			0.002***			0.001***
			(3.668)			(2.656)
Client size			0.001			0.000
			(0.580)			(0.229)
Client PPE ratio			-0.006			0.008
			(-0.567)			(0.793)
Observations	302,025	249,093	249,093	293,710	240,574	240,574
R^2	0.329	0.308	0.308	0.247	0.231	0.231
Time FE	Y	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	Y	Y
$\sum_{u=0}^{4} \beta_u^c$	-0.0193	-0.0210	-0.0190	-0.0154	-0.0208	-0.0201
F-statistic	11.72	10.93	8.892	6.936	9.595	8.914
p-value	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01

Note: This table contains coefficient estimates for Equation 1. The sample corresponds to all non-financial, non-government public firms in the US. Observations in columns 1-3 correspond to firms in industries providing high levels of trade credit to clients, and in columns 4-6 to firms in industries providing low levels of trade credit to clients. The dependent variable is the quarterly difference in the log of sales. The main independent variables are: the quarterly difference in the monetary policy rate and four of its lags, the average clients' coverage ratio (lagged one quarter), and the interaction between the differences in the monetary policy rates and the average lagged client coverage ratio. Changes in monetary policy are the quarterly differences in the federal funds rate. Firm-level control variables are the average yearly growth in sales in the firms' industry, and lagged values of Tobin's Q, firm size, debt to assets ratio, and the ratio of PPE to total assets. Client controls include: client average industry growth rate and lagged values of client average Tobin's Q, client average size, and client average PPE to assets ratio. All variables are defined in Table A1. The last three rows of this table contain, respectively: the sum of the coefficients of the interaction terms, an F-statistic for the null hypothesis that the sum of this coefficients equals zero, and its corresponding p-value. Standard errors are clustered at the firm level.
***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A15: Cost channel; sectors with high vs low trade credit take-up.

	(1)	(2)	(3)	(4)	(5)	(6)
		High TC use			Low TC use	
$\Delta \ln \text{purch}_{t-1}$	-0.373***	-0.379***	-0.379***	-0.373***	-0.376***	-0.376***
	(-83.917)	(-80.099)	(-80.127)	(-79.636)	(-74.840)	(-74.842)
$\Delta \ln \text{purch}_{t-2}$	-0.245***	-0.245***	-0.245***	-0.230***	-0.232***	-0.232***
	(-48.544)	(-45.737)	(-45.762)	(-41.335)	(-38.543)	(-38.537)
$\Delta \ln \text{purch}_{t-3}$	-0.150***	-0.150***	-0.150***	-0.142***	-0.144***	-0.144***
	(-38.725)	(-36.115)	(-36.135)	(-34.689)	(-32.557)	(-32.553)
$\Delta \ln \text{purch}_{t-4}$	0.129***	0.118***	0.118***	0.112***	0.101***	0.101***
	(26.383)	(23.158)	(23.134)	(21.284)	(18.214)	(18.205)
Δr_t	-0.004	-0.007*	-0.007*	-0.010***	-0.009**	-0.009**
	(-1.209)	(-1.802)	(-1.752)	(-2.735)	(-2.268)	(-2.255)
Δr_{t-1}	0.014***	0.014***	0.013***	0.013***	0.015***	0.015***
	(3.063)	(2.807)	(2.703)	(3.011)	(3.060)	(3.007)
Δr_{t-2}	-0.004	-0.009*	-0.009*	-0.002	-0.004	-0.004
	(-0.887)	(-1.680)	(-1.687)	(-0.498)	(-0.875)	(-0.845)
Δr_{t-3}	-0.004	-0.000	0.000	-0.001	-0.001	-0.001
	(-0.743)	(-0.028)	(0.038)	(-0.137)	(-0.207)	(-0.204)
Δr_{t-4}	0.001	-0.000	-0.000	0.000	0.004	0.004
	(0.347)	(-0.044)	(-0.103)	(0.065)	(0.987)	(0.976)
Supplier coverage ($\overline{B^s}$)	-0.002	-0.000	0.001	0.007**	0.009***	0.010***
	(-0.702)	(-0.076)	(0.179)	(2.030)	(2.601)	(2.878)
$\overline{B^s} \times \Delta \text{r}_t$	0.006	0.002	0.002	0.006	0.006	0.006
	(0.560)	(0.182)	(0.162)	(0.571)	(0.484)	(0.466)
$\overline{B^s} \times \Delta \text{r}_{t-1}$	-0.020	-0.024	-0.021	-0.013	-0.026	-0.024
	(-1.253)	(-1.320)	(-1.167)	(-0.791)	(-1.440)	(-1.357)
$\overline{B^s} \times \Delta \text{r}_{t-2}$	0.002	0.008	0.009	-0.021	-0.017	-0.017
	(0.105)	(0.450)	(0.505)	(-1.250)	(-0.972)	(-0.967)
$\overline{B^s} \times \Delta \text{r}_{t-3}$	0.005	0.008	0.006	0.013	0.017	0.017
	(0.352)	(0.429)	(0.346)	(0.933)	(1.045)	(1.023)
$\overline{B^s} \times \Delta \text{r}_{t-4}$	-0.016	-0.012	-0.010	-0.021*	-0.031**	-0.030**
	(-1.385)	(-0.865)	(-0.722)	(-1.880)	(-2.436)	(-2.399)
Industry growth		0.001***	0.000		0.001***	0.000
		(4.286)	(0.602)		(3.102)	(0.136)
Tobin's Q		0.001***	0.001***		0.002***	0.002***
		(12.584)	(12.312)		(13.307)	(13.245)
Size		0.004***	0.004***		0.006***	0.006***
		(16.628)	(16.487)		(21.724)	(21.822)
PPE ratio		0.033***	0.034***		0.027***	0.028***
		(10.448)	(10.432)		(9.005)	(9.165)
Debt ratio		-0.014***	-0.014***		-0.031***	-0.031***
		(-14.526)	(-14.438)		(-13.003)	(-12.931)
Supplier industry growth			0.005***			0.003***
			(6.393)			(4.109)

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Table A15 – *Continued from previous page*

	(1)	(2)	(3)	(4)	(5)	(6)
		High TC use			Low TC use	
Supplier Tobin's Q			0.002***			0.001**
			(3.514)			(2.271)
Supplier size			0.003*			-0.002
			(1.804)			(-0.791)
Supplier PPE ratio			-0.018			-0.009
			(-1.465)			(-0.663)
Observations	274,766	227,590	227,590	277,681	230,377	230,377
R^2	0.188	0.188	0.188	0.178	0.177	0.177
Time FE	Y	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	Y	Y
$\sum_{u=0}^{4} \beta_u^s$	-0.0226	-0.0172	-0.0132	-0.0344	-0.0508	-0.0493
F-statistic	5.310	2.341	1.375	13.56	24.50	23.23
p-value	0.0212	0.126	0.241	< 0.01	< 0.01	< 0.01

Note: This table contains coefficient estimates for Equation 2. The sample corresponds to all non-financial, non-government public firms in the US. Observations in columns 1-3 correspond to firms in industries using high levels of trade credit, and in columns 4-6 to firms in industries using low levels of trade credi. The dependent variable is the quarterly difference in the log of purchases. The main independent variables are: the quarterly difference in the monetary policy rate and four of its lags, the average clients' coverage ratio (lagged one quarter), and the interaction between the differences in the monetary policy rates and the average lagged client coverage ratio. Changes in monetary policy are the quarterly differences in the federal funds rate. Firm-level control variables are the average yearly growth in sales in the firms' industry, and lagged values of Tobin's Q, firm size, debt to assets ratio, and the ratio of PPE to total assets. Client controls include: client average industry growth rate and lagged values of client average Tobin's Q, client average size, and client average PPE to assets ratio. All variables are defined in Table A1. The last three rows of this table contain, respectively: the sum of the coefficients of the interaction terms, an F-statistic for the null hypothesis that the sum of this coefficients equals zero, and its corresponding p-value. Standard errors are clustered at the firm level.

***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A16: Ripple effects of monetary policy and firm pricing behavior.

	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta \ln \text{margin}_{t-1}$	-0.317***	-0.319***	-0.319***	-0.317***	-0.319***	-0.319***
	(-29.226)	(-28.522)	(-28.523)	(-29.242)	(-28.544)	(-28.543)
$\Delta \ln \text{margin}_{t-2}$	-0.124***	-0.124***	-0.124***	-0.124***	-0.125***	-0.125***
	(-11.565)	(-11.230)	(-11.231)	(-11.574)	(-11.241)	(-11.244)
$\Delta \ln \text{margin}_{t-3}$	-0.076***	-0.076***	-0.076***	-0.076***	-0.076***	-0.076***
	(-7.668)	(-7.492)	(-7.490)	(-7.676)	(-7.502)	(-7.504)
$\Delta \ln \text{margin}_{t-4}$	0.041***	0.038***	0.038***	0.042***	0.038***	0.038***
	(4.828)	(4.303)	(4.302)	(4.844)	(4.311)	(4.304)
Δr_t	0.002	-0.004	-0.005	0.001	-0.005	-0.005
	(0.172)	(-0.156)	(-0.203)	(0.116)	(-0.186)	(-0.208)
Δr_{t-1}	-0.012	-0.007	-0.006	-0.012	-0.007	-0.006
	(-0.820)	(-0.199)	(-0.176)	(-0.837)	(-0.202)	(-0.183)
Δr_{t-2}	0.006	-0.004	-0.007	0.007	-0.003	-0.006
	(0.425)	(-0.123)	(-0.199)	(0.468)	(-0.091)	(-0.177)
Δr_{t-3}	0.021	0.035	0.036	0.021	0.035	0.036
	(1.462)	(0.991)	(1.016)	(1.499)	(0.994)	(1.013)
Δr_{t-4}	-0.029***	-0.069***	-0.069***	-0.029***	-0.069***	-0.069***
	(-2.665)	(-2.755)	(-2.770)	(-2.692)	(-2.769)	(-2.771)
Coverage ratio ($\overline{B^f}$)	-0.000	0.000	0.000	-0.001	0.000	0.000
	(-0.624)	(0.188)	(0.262)	(-0.818)	(0.119)	(0.166)
$\overline{B^f} \times \Delta \text{r}_t$	-0.003	-0.002	-0.002	-0.003	-0.002	-0.002
	(-1.089)	(-0.695)	(-0.667)	(-1.108)	(-0.738)	(-0.706)
$\overline{B^f} \times \Delta \text{r}_{t-1}$	0.003	0.001	0.002	0.003	0.002	0.002
	(0.714)	(0.343)	(0.361)	(0.686)	(0.351)	(0.374)
$\overline{B^f} \times \Delta \text{r}_{t-2}$	-0.000	-0.000	-0.000	0.000	-0.000	-0.000
	(-0.035)	(-0.047)	(-0.050)	(0.018)	(-0.006)	(-0.026)
$\overline{B^f} \times \Delta \text{r}_{t-3}$	-0.001	-0.001	-0.001	-0.002	-0.001	-0.001
	(-0.453)	(-0.201)	(-0.245)	(-0.498)	(-0.250)	(-0.276)
$\overline{B^f} \times \Delta \text{r}_{t-4}$	0.004**	0.004	0.004	0.004**	0.004	0.004
	(1.989)	(1.541)	(1.608)	(1.992)	(1.575)	(1.630)
Supplier coverage ($\overline{B^s}$)	0.012	0.016*	0.008	0.010	0.013	0.011
	(1.638)	(1.826)	(1.002)	(1.439)	(1.580)	(1.338)
$\overline{B^s} \times \Delta \text{r}_t$	-0.004	0.006	0.007	-0.002	0.009	0.008
	(-0.158)	(0.207)	(0.212)	(-0.086)	(0.279)	(0.262)
$\overline{B^s} \times \Delta \text{r}_{t-1}$	-0.025	-0.019	-0.023	-0.024	-0.018	-0.020
	(-0.585)	(-0.377)	(-0.450)	(-0.556)	(-0.352)	(-0.388)
$\overline{B^s} \times \Delta \text{r}_{t-2}$	0.045	0.034	0.037	0.043	0.030	0.031
	(1.023)	(0.631)	(0.690)	(0.974)	(0.562)	(0.579)
$\overline{B^s} \times \Delta \text{r}_{t-3}$	-0.060	-0.065	-0.062	-0.063	-0.067	-0.062
	(-1.529)	(-1.416)	(-1.348)	(-1.606)	(-1.462)	(-1.359)
$\overline{B^s} \times \Delta \text{r}_{t-4}$	0.087***	0.110***	0.104***	0.088***	0.111***	0.106***
	(2.748)	(3.280)	(3.114)	(2.787)	(3.316)	(3.153)

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Table A16 – *Continued from previous page*

	(1)	(2)	(3)	(4)	(5)	(6)
Client coverage ratio ($\overline{B^c}$)	0.001	0.003	-0.004	0.003	0.005	-0.006
	(0.163)	(0.410)	(-0.521)	(0.384)	(0.599)	(-0.695)
$\overline{B^c} \times \Delta r_t$	0.018	0.022	0.021	0.018	0.023	0.021
	(0.605)	(0.644)	(0.618)	(0.632)	(0.666)	(0.601)
$\overline{B^c} \times \Delta r_{t-1}$	0.027	0.040	0.030	0.028	0.041	0.031
	(0.698)	(0.877)	(0.675)	(0.730)	(0.899)	(0.694)
$\overline{B^c} \times \Delta r_{t-2}$	-0.077**	-0.091**	-0.085*	-0.081**	-0.094**	-0.084*
	(-2.111)	(-2.088)	(-1.955)	(-2.209)	(-2.148)	(-1.933)
$\overline{B^c} \times \Delta r_{t-3}$	-0.015	-0.019	-0.022	-0.012	-0.016	-0.020
	(-0.422)	(-0.450)	(-0.526)	(-0.342)	(-0.390)	(-0.477)
$\overline{B^c} \times \Delta r_{t-4}$	0.028	0.027	0.025	0.028	0.027	0.024
	(1.166)	(0.937)	(0.881)	(1.137)	(0.935)	(0.851)
Size		-0.000	-0.000		-0.000	-0.000
		(-0.332)	(-0.447)		(-0.393)	(-0.573)
Size $\times \Delta r_t$		0.000	0.000		0.000	0.000
		(0.067)	(0.079)		(0.058)	(0.060)
Size $\times \Delta r_{t-1}$		-0.002	-0.001		-0.002	-0.001
		(-0.370)	(-0.252)		(-0.362)	(-0.265)
Size $\times \Delta r_{t-2}$		0.004	0.004		0.004	0.004
		(0.913)	(0.919)		(0.908)	(0.923)
Size $\times \Delta r_{t-3}$		-0.003	-0.003		-0.003	-0.003
		(-0.635)	(-0.691)		(-0.631)	(-0.678)
Size $\times \Delta r_{t-4}$		0.006*	0.007**		0.006*	0.007**
		(1.945)	(2.006)		(1.935)	(1.984)
Industry growth		-0.003***	-0.000		-0.002**	0.000
		(-3.065)	(-0.298)		(-2.242)	(0.155)
PPE ratio		0.012**	0.011		0.014	0.012
		(2.243)	(1.615)		(1.521)	(1.340)
Tobin's Q		0.002***	0.002***		0.002***	0.002***
		(2.907)	(3.026)		(3.035)	(3.064)
Supplier industry growth			-0.005***			-0.005**
			(-2.963)			(-2.486)
Supplier Tobin's Q			-0.001			-0.000
			(-1.039)			(-0.186)
Supplier size			0.002			0.000
			(0.730)			(0.015)
Supplier PPE ratio			-0.009			-0.005
			(-0.561)			(-0.201)
Client industry growth			-0.008***			-0.008***
			(-4.645)			(-4.365)
Client Tobin's Q			-0.000			0.000
			(-0.380)			(0.204)
Client size			0.002			0.008
			(0.975)			(1.485)

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Table A16 – *Continued from previous page*

	(1)	(2)	(3)	(4)	(5)	(6)
Client PPE ratio			0.004			0.021
			(0.252)			(0.968)
Observations	341,423	284,661	284,661	341,423	284,661	284,661
R^2	0.098	0.098	0.099	0.098	0.099	0.099
Time FE	Y	Y	Y	Y	Y	Y
Industry FE				Y	Y	Y
$\sum_{u=0}^{4} \beta_u^f$	0.00238	0.00201	0.00215	0.00227	0.00198	0.00212
F-statistic	2.007	1.135	1.290	1.825	1.093	1.257
p-value	0.157	0.287	0.256	0.177	0.296	0.262
$\sum_{u=0}^{4} \beta_u^s$	0.0427	0.0661	0.0631	0.0418	0.0655	0.0632
F-statistic	3.418	6.360	5.794	3.292	6.225	5.777
p-value	0.0645	0.0117	0.0161	0.0697	0.0126	0.0162
$\sum_{u=0}^{4} \beta_u^c$	-0.0191	-0.0218	-0.0307	-0.0187	-0.0206	-0.0286
F-statistic	1.070	0.982	1.915	1.016	0.867	1.648
p-value	0.301	0.322	0.166	0.314	0.352	0.199

Note: The sample corresponds to all non-financial, non-government public firms in the US. The dependent variable is the quarterly difference in the gross margin, where the gross margin is defined as the ratio of the difference in sales and cost of goods sold to sales. The main independent variables are: the quarterly difference in the monetary policy rate and four of its lags, the average firm, clients', and suppliers' coverage ratio (lagged one quarter), and the interaction between the differences in the monetary policy rates and the average lagged coverage ratios. Changes in monetary policy are the quarterly differences in the federal funds rate. Firm-level control variables are the average yearly growth in sales in the firms' industry, and lagged values of Tobin's Q, firm size, debt to assets ratio, and the ratio of PPE to total assets. Client controls include: client average industry growth rate and lagged values of client average Tobin's Q, client average size, and client average PPE to assets ratio. All variables are defined in Table A1. The last nine rows of this table contain, respectively: the sum of the coefficients of the interaction terms of firm, supplier, and clients financial health, an F-statistic for the null hypothesis that the sum of this coefficients equals zero, and its corresponding p-value. Standard errors are clustered at the firm level.
***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A17: 2-year Treasury bond rates as measure of monetary policy

Dep. var.:	(1)	(2)	(3)	(4)	(5)	(6)
		$\Delta \ln \text{sales}_t$			$\Delta \ln \text{purch}_t$	
$\Delta \ln \text{sales}_{t-1}$	-0.262***	-0.260***	-0.261***			
	(-62.084)	(-58.424)	(-58.557)			
$\Delta \ln \text{sales}_{t-2}$	-0.231***	-0.223***	-0.224***			
	(-41.191)	(-38.271)	(-38.351)			
$\Delta \ln \text{sales}_{t-3}$	-0.158***	-0.152***	-0.152***			
	(-44.775)	(-41.308)	(-41.358)			
$\Delta \ln \text{sales}_{t-4}$	0.344***	0.317***	0.317***			
	(53.824)	(48.226)	(48.223)			
$\Delta \ln \text{purch}_{t-1}$				-0.369***	-0.371***	-0.371***
				(-88.206)	(-83.434)	(-83.495)
$\Delta \ln \text{purch}_{t-2}$				-0.249***	-0.246***	-0.246***
				(-50.588)	(-47.106)	(-47.131)
$\Delta \ln \text{purch}_{t-3}$				-0.149***	-0.146***	-0.146***
				(-41.092)	(-37.824)	(-37.858)
$\Delta \ln \text{purch}_{t-4}$				0.128***	0.117***	0.117***
				(27.243)	(23.745)	(23.707)
$\Delta\tilde{r}_t$	-0.007***	-0.002	-0.002	-0.013***	-0.003	-0.002
	(-3.138)	(-0.794)	(-0.616)	(-4.431)	(-0.687)	(-0.489)
$\Delta\tilde{r}_{t-1}$	0.003	-0.002	-0.002	0.013***	0.001	0.001
	(1.133)	(-0.491)	(-0.566)	(4.065)	(0.269)	(0.216)
$\Delta\tilde{r}_{t-2}$	0.005*	0.002	0.002	0.003	0.004	0.004
	(1.947)	(0.623)	(0.654)	(0.954)	(0.794)	(0.832)
$\Delta\tilde{r}_{t-3}$	0.008***	-0.009***	-0.009***	0.007**	-0.013***	-0.013***
	(3.698)	(-2.856)	(-2.854)	(2.545)	(-2.963)	(-2.866)
$\Delta\tilde{r}_{t-4}$	-0.003	-0.001	-0.001	-0.002	0.002	0.002
	(-1.428)	(-0.276)	(-0.263)	(-0.838)	(0.569)	(0.572)
Coverage ratio ($\overline{B^f}$)	-0.000	-0.001	-0.001	0.001	-0.000	-0.000
	(-0.432)	(-1.308)	(-1.322)	(1.298)	(-0.596)	(-0.626)
$\overline{B^f} \times \Delta\tilde{r}_t$	-0.001	0.000	0.000	0.001	0.002	0.002
	(-0.848)	(0.381)	(0.375)	(0.828)	(1.530)	(1.520)
$\overline{B^f} \times \Delta\tilde{r}_{t-1}$	0.001	-0.000	-0.000	0.000	-0.001	-0.001
	(0.558)	(-0.188)	(-0.202)	(0.255)	(-0.645)	(-0.648)
$\overline{B^f} \times \Delta\tilde{r}_{t-2}$	-0.000	-0.001	-0.001	-0.000	-0.000	-0.001
	(-0.435)	(-0.385)	(-0.401)	(-0.231)	(-0.263)	(-0.284)
$\overline{B^f} \times \Delta\tilde{r}_{t-3}$	0.000	-0.001	-0.001	0.000	-0.001	-0.001
	(0.018)	(-0.716)	(-0.736)	(0.213)	(-0.392)	(-0.410)
$\overline{B^f} \times \Delta\tilde{r}_{t-4}$	0.000	0.000	0.000	-0.001	-0.001	-0.001
	(0.184)	(0.329)	(0.359)	(-0.569)	(-0.597)	(-0.578)
Supplier coverage ($\overline{B^s}$)	0.001	0.001	0.001	-0.005	-0.006	-0.004
	(0.199)	(0.413)	(0.333)	(-1.467)	(-1.488)	(-1.124)
$\overline{B^s} \times \Delta\tilde{r}_t$	0.013*	0.015*	0.014*	-0.002	-0.005	-0.007

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Table A17 – *Continued from previous page*

Dep. var.:	(1)	(2) $\Delta \ln \text{sales}_t$	(3)	(4)	(5) $\Delta \ln \text{purch}_t$	(6)
	(1.906)	(1.944)	(1.748)	(-0.227)	(-0.476)	(-0.709)
$\overline{B^s} \times \Delta\tilde{r}_{t-1}$	-0.021***	-0.018*	-0.017*	-0.031***	-0.027**	-0.026**
	(-2.591)	(-1.863)	(-1.707)	(-2.798)	(-2.162)	(-2.022)
$\overline{B^s} \times \Delta\tilde{r}_{t-2}$	0.003	0.009	0.010	0.002	-0.004	-0.003
	(0.418)	(0.973)	(1.040)	(0.191)	(-0.380)	(-0.254)
$\overline{B^s} \times \Delta\tilde{r}_{t-3}$	-0.009	-0.011	-0.010	-0.006	-0.003	-0.002
	(-1.206)	(-1.193)	(-1.074)	(-0.601)	(-0.275)	(-0.207)
$\overline{B^s} \times \Delta\tilde{r}_{t-4}$	-0.008	-0.011	-0.011	-0.022***	-0.024***	-0.023**
	(-1.303)	(-1.471)	(-1.426)	(-2.692)	(-2.578)	(-2.505)
Client coverage ($\overline{B^c}$)	0.004**	0.006***	0.008***	0.001	0.002	0.005*
	(1.995)	(2.662)	(3.358)	(0.257)	(0.557)	(1.775)
$\overline{B^c} \times \Delta\tilde{r}_t$	0.003	0.002	0.001	0.020***	0.017**	0.016**
	(0.505)	(0.366)	(0.233)	(2.794)	(2.157)	(1.964)
$\overline{B^c} \times \Delta\tilde{r}_{t-1}$	0.008	0.009	0.011	-0.016**	-0.016*	-0.013
	(1.232)	(1.295)	(1.525)	(-2.059)	(-1.784)	(-1.449)
$\overline{B^c} \times \Delta\tilde{r}_{t-2}$	-0.010	-0.016**	-0.017**	-0.011	-0.014	-0.015
	(-1.621)	(-2.213)	(-2.302)	(-1.324)	(-1.464)	(-1.570)
$\overline{B^c} \times \Delta\tilde{r}_{t-3}$	-0.010	-0.011	-0.011	-0.008	-0.008	-0.008
	(-1.599)	(-1.531)	(-1.481)	(-0.994)	(-0.865)	(-0.857)
$\overline{B^c} \times \Delta\tilde{r}_{t-4}$	-0.009*	-0.009	-0.009	-0.003	-0.003	-0.003
	(-1.826)	(-1.567)	(-1.592)	(-0.441)	(-0.411)	(-0.431)
Industry growth		0.001***	0.000***		0.001***	-0.000
		(5.766)	(2.877)		(4.847)	(-0.064)
PPE ratio		0.011***	0.013***		0.024***	0.026***
		(6.466)	(7.055)		(10.326)	(10.598)
Tobin's Q		0.000***	0.000***		0.000***	0.000***
		(14.514)	(13.639)		(7.850)	(7.392)
Size		0.003***	0.003***		0.004***	0.004***
		(18.969)	(18.560)		(21.189)	(21.047)
Size $\times \Delta\tilde{r}_t$		-0.001***	-0.001***		-0.002***	-0.002***
		(-3.251)	(-3.309)		(-4.186)	(-4.249)
Size $\times \Delta\tilde{r}_{t-1}$		0.001*	0.001		0.002***	0.002***
		(1.713)	(1.567)		(3.398)	(3.176)
Size $\times \Delta\tilde{r}_{t-2}$		0.000	0.000		-0.000	-0.000
		(0.690)	(0.672)		(-0.393)	(-0.407)
Size $\times \Delta\tilde{r}_{t-3}$		0.004***	0.003***		0.004***	0.004***
		(7.665)	(7.585)		(6.013)	(5.870)
Size $\times \Delta\tilde{r}_{t-4}$		-0.000	-0.000		-0.000	-0.000
		(-0.883)	(-0.785)		(-0.854)	(-0.738)
Supplier industry growth			0.001***			0.004***
			(3.360)			(6.036)
Supplier Tobin's Q			0.002***			0.002***
			(4.433)			(4.229)

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Table A17 – *Continued from previous page*

Dep. var.:	(1)	(2)	(3)	(4)	(5)	(6)
		$\Delta \ln \text{sales}_t$			$\Delta \ln \text{purch}_t$	
Supplier size			0.002			0.001
			(1.613)			(0.474)
Supplier PPE ratio			-0.015*			0.013
			(-1.933)			(1.410)
Client industry growth			0.001**			0.002***
			(2.048)			(3.167)
Client Tobin's Q			0.001***			0.001***
			(3.826)			(2.590)
Client size			0.003**			0.002
			(2.568)			(1.634)
Client PPE ratio			-0.017**			-0.045***
			(-2.219)			(-4.708)
Observations	382,329	321,909	321,909	355,070	300,805	300,805
R^2	0.307	0.278	0.278	0.190	0.186	0.186
Time FE	Y	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	Y	Y
$\sum_{u=0}^{4} \beta_u^f$	-0.000480	-0.000869	-0.000906	0.000712	-0.000825	-0.000887
F-statistic	0.178	0.420	0.458	0.230	0.214	0.248
p-value	0.673	0.517	0.499	0.632	0.644	0.619
$\sum_{u=0}^{4} \beta_u^s$	-0.0221	-0.0153	-0.0133	-0.0584	-0.0633	-0.0611
F-statistic	6.383	2.462	1.867	27.95	26.96	25.21
p-value	0.0115	0.117	0.172	< 0.01	< 0.01	< 0.01
$\sum_{u=0}^{4} \beta_u^c$	-0.0191	-0.0246	-0.0242	-0.0184	-0.0237	-0.0233
F-statistic	7.577	10.25	9.849	4.069	5.485	5.266
p-value	< 0.01	< 0.01	< 0.01	0.0437	0.0192	0.0218

Note: The sample corresponds to all non-financial, non-government public firms in the US. The dependent variable in columns 1-3 is $\Delta \ln$ sales, and in columns 4-6 it is $\Delta \ln$ purch. The main independent variables are: $\Delta \tilde{r}$, the quarterly difference in the 2-year Treasury bond rate (and four of its lags), the average firm, clients', and suppliers' coverage ratio (lagged one quarter), and the interaction between the differences in the monetary policy rates and the average lagged coverage ratios. Changes in monetary policy are the quarterly differences in the federal funds rate. Firm-level control variables are the average yearly growth in sales in the firms' industry, and lagged values of Tobin's Q, firm size, debt to assets ratio, and the ratio of PPE to total assets. Client controls include: client average industry growth rate and lagged values of client average Tobin's Q, client average size, and client average PPE to assets ratio. All variables are defined in Table A1. The last nine rows of this table contain, respectively: the sum of the coefficients of the interaction terms of firm, supplier, and clients financial health, an F-statistic for the null hypothesis that the sum of this coefficients equals zero, and its corresponding p-value. Standard errors are clustered at the firm level.
***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Table A18: Estimations excluding the ZLB period

Dep. var.:	(1)	(2) $\Delta \ln \text{sales}_t$	(3)	(4)	(5) $\Delta \ln \text{purch}_t$	(6)
$\Delta \ln \text{sales}_{t-1}$	-0.254***	-0.255***	-0.255***			
	(-53.935)	(-49.894)	(-49.910)			
$\Delta \ln \text{sales}_{t-2}$	-0.237***	-0.232***	-0.232***			
	(-38.727)	(-35.433)	(-35.483)			
$\Delta \ln \text{sales}_{t-3}$	-0.157***	-0.152***	-0.152***			
	(-38.242)	(-34.441)	(-34.444)			
$\Delta \ln \text{sales}_{t-4}$	0.370***	0.341***	0.341***			
	(54.929)	(47.909)	(47.932)			
$\Delta \ln \text{purch}_{t-1}$				-0.335***	-0.335***	-0.335***
				(-66.735)	(-61.709)	(-61.746)
$\Delta \ln \text{purch}_{t-2}$				-0.235***	-0.232***	-0.232***
				(-40.839)	(-37.192)	(-37.180)
$\Delta \ln \text{purch}_{t-3}$				-0.135***	-0.132***	-0.132***
				(-31.293)	(-28.131)	(-28.127)
$\Delta \ln \text{purch}_{t-4}$				0.145***	0.131***	0.131***
				(25.968)	(21.892)	(21.891)
Δr_t	0.004	-0.002	-0.002	0.001	0.001	0.002
	(1.324)	(-0.437)	(-0.445)	(0.348)	(0.243)	(0.348)
Δr_{t-1}	0.001	0.001	0.001	0.015***	0.012*	0.012*
	(0.309)	(0.202)	(0.154)	(3.094)	(1.759)	(1.684)
Δr_{t-2}	0.010***	0.000	0.000	-0.009*	-0.015**	-0.015**
	(2.617)	(0.046)	(0.056)	(-1.653)	(-2.041)	(-1.968)
Δr_{t-3}	-0.011**	-0.019***	-0.019***	-0.003	-0.013	-0.013
	(-2.544)	(-3.093)	(-3.088)	(-0.480)	(-1.550)	(-1.536)
Δr_{t-4}	0.003	0.012***	0.012***	0.005	0.016***	0.016***
	(0.825)	(2.839)	(2.811)	(1.133)	(2.649)	(2.615)
Coverage ratio ($\overline{B^f}$)	-0.000	-0.001*	-0.001*	0.000	-0.000	-0.000
	(-0.550)	(-1.760)	(-1.772)	(0.603)	(-0.654)	(-0.654)
$\overline{B^f} \times \Delta \text{r}_t$	-0.000	0.001	0.001	0.002	0.003*	0.003*
	(-0.368)	(0.482)	(0.485)	(1.335)	(1.699)	(1.703)
$\overline{B^f} \times \Delta \text{r}_{t-1}$	0.000	-0.002	-0.002	-0.003	-0.005*	-0.005*
	(0.088)	(-0.863)	(-0.861)	(-1.178)	(-1.646)	(-1.651)
$\overline{B^f} \times \Delta \text{r}_{t-2}$	-0.000	-0.000	-0.000	0.001	0.001	0.001
	(-0.137)	(-0.011)	(-0.020)	(0.531)	(0.292)	(0.280)
$\overline{B^f} \times \Delta \text{r}_{t-3}$	0.000	0.000	0.000	-0.002	-0.001	-0.001
	(0.204)	(0.084)	(0.094)	(-0.701)	(-0.355)	(-0.343)
$\overline{B^f} \times \Delta \text{r}_{t-4}$	-0.001	-0.002	-0.002	0.000	-0.001	-0.001
	(-0.671)	(-0.981)	(-0.968)	(0.020)	(-0.569)	(-0.568)
Supplier coverage ($\overline{B^s}$)	-0.011***	-0.013***	-0.013***	-0.010**	-0.010**	-0.009**
	(-3.700)	(-3.712)	(-3.707)	(-2.527)	(-2.352)	(-2.176)
$\overline{B^s} \times \Delta \text{r}_t$	-0.012	-0.011	-0.010	-0.046***	-0.041***	-0.042***

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Table A18 – *Continued from previous page*

Dep. var.:	(1)	(2)	(3)	(4)	(5)	(6)
		$\Delta \ln \text{sales}_t$			$\Delta \ln \text{purch}_t$	
	(-1.427)	(-1.085)	(-1.008)	(-3.943)	(-3.178)	(-3.257)
$\overline{B^s} \times \Delta r_{t-1}$	0.020	0.022	0.022	0.041**	0.023	0.025
	(1.517)	(1.448)	(1.461)	(2.285)	(1.143)	(1.219)
$\overline{B^s} \times \Delta r_{t-2}$	-0.023*	-0.018	-0.018	-0.021	-0.004	-0.004
	(-1.715)	(-1.145)	(-1.121)	(-1.112)	(-0.197)	(-0.168)
$\overline{B^s} \times \Delta r_{t-3}$	0.030**	0.020	0.020	0.024	0.005	0.003
	(2.079)	(1.214)	(1.199)	(1.175)	(0.230)	(0.148)
$\overline{B^s} \times \Delta r_{t-4}$	-0.035***	-0.030**	-0.029**	-0.032**	-0.018	-0.017
	(-3.470)	(-2.574)	(-2.517)	(-2.283)	(-1.139)	(-1.059)
Client coverage ($\overline{B^c}$)	-0.004*	-0.005*	-0.005	-0.008**	-0.010***	-0.009**
	(-1.839)	(-1.748)	(-1.641)	(-2.382)	(-2.717)	(-2.362)
$\overline{B^c} \times \Delta r_t$	-0.007	-0.013	-0.013	0.012	0.002	0.002
	(-0.965)	(-1.601)	(-1.641)	(1.283)	(0.206)	(0.164)
$\overline{B^c} \times \Delta r_{t-1}$	-0.006	-0.008	-0.007	-0.061***	-0.064***	-0.062***
	(-0.646)	(-0.680)	(-0.595)	(-4.461)	(-4.167)	(-4.033)
$\overline{B^c} \times \Delta r_{t-2}$	-0.003	-0.006	-0.007	0.041***	0.042***	0.040**
	(-0.279)	(-0.531)	(-0.575)	(2.778)	(2.652)	(2.540)
$\overline{B^c} \times \Delta r_{t-3}$	-0.013	-0.005	-0.005	-0.021	-0.015	-0.014
	(-1.114)	(-0.408)	(-0.357)	(-1.404)	(-0.878)	(-0.852)
$\overline{B^c} \times \Delta r_{t-4}$	0.018**	0.013	0.013	0.012	0.007	0.007
	(2.223)	(1.418)	(1.364)	(1.117)	(0.641)	(0.661)
Industry growth		0.000*	0.000		-0.001**	-0.001***
		(1.841)	(1.250)		(-2.053)	(-3.588)
PPE ratio		0.018***	0.018***		0.022***	0.021***
		(7.659)	(7.471)		(6.972)	(6.660)
Tobin's Q		0.000***	0.000***		0.000***	0.000***
		(11.950)	(11.588)		(8.530)	(8.444)
Size		0.004***	0.004***		0.005***	0.005***
		(20.292)	(19.971)		(20.421)	(20.118)
Size $\times \Delta r_t$		0.001**	0.001**		0.000	0.000
		(2.146)	(2.126)		(0.134)	(0.078)
Size $\times \Delta r_{t-1}$		0.000	0.000		0.001	0.001
		(0.426)	(0.419)		(1.454)	(1.371)
Size $\times \Delta r_{t-2}$		0.001	0.001		-0.000	-0.000
		(1.617)	(1.627)		(-0.141)	(-0.152)
Size $\times \Delta r_{t-3}$		0.002**	0.002**		0.003**	0.003***
		(2.470)	(2.459)		(2.554)	(2.595)
Size $\times \Delta r_{t-4}$		-0.002***	-0.002***		-0.002***	-0.002***
		(-3.595)	(-3.538)		(-2.853)	(-2.863)
Supplier industry growth			0.001			0.002**
			(0.864)			(2.485)
Supplier Tobin's Q			0.002***			0.001*
			(3.259)			(1.797)

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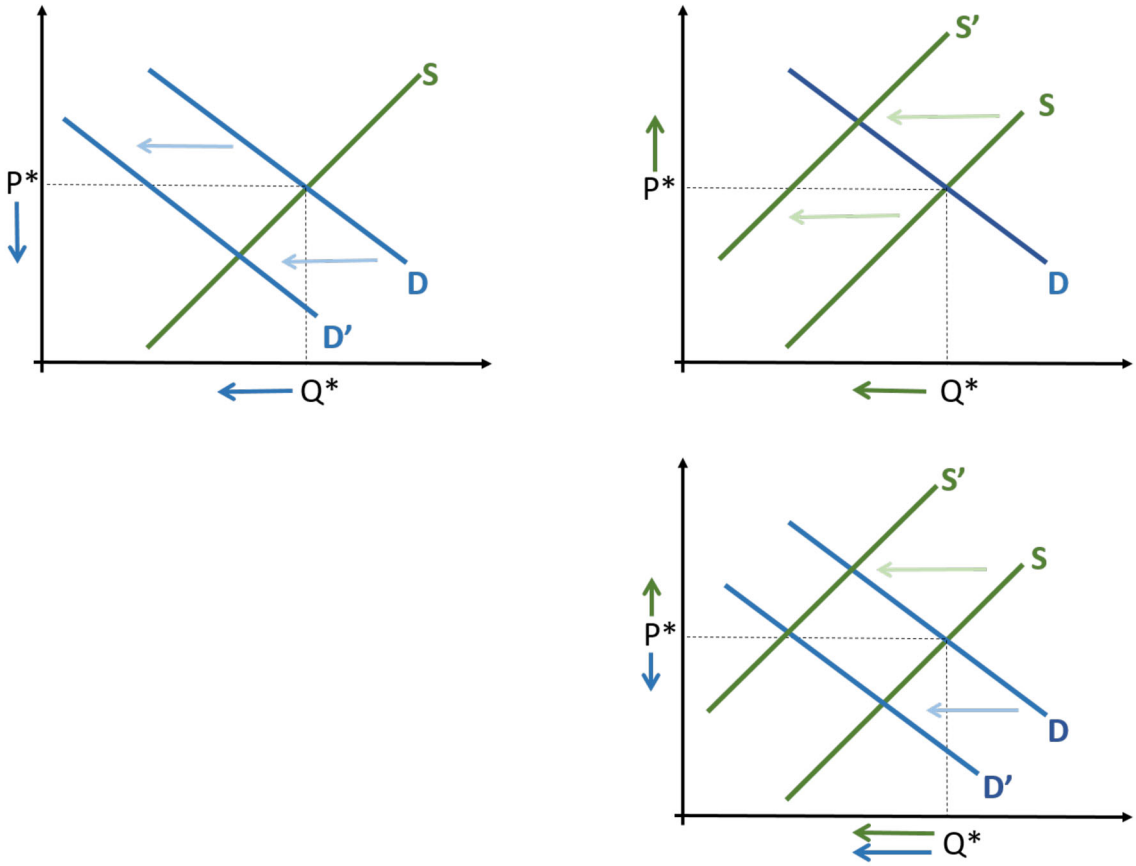
Table A18 – *Continued from previous page*

Dep. var.:	(1)	(2)	(3)	(4)	(5)	(6)
		$\Delta \ln \text{sales}_t$			$\Delta \ln \text{purch}_t$	
Supplier size			0.001			0.000
			(0.939)			(0.096)
Supplier PPE ratio			-0.005			0.027**
			(-0.546)			(2.186)
Client industry growth			0.000			0.001**
			(0.158)			(2.324)
Client Tobin's Q			0.000			-0.000
			(0.709)			(-0.592)
Client size			0.000			0.001
			(0.099)			(0.663)
Client PPE ratio			0.012			-0.021*
			(1.224)			(-1.682)
Observations	231,661	190,640	190,640	213,117	177,055	177,055
R^2	0.330	0.300	0.300	0.175	0.167	0.167
Time FE	Y	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	Y	Y
$\sum_{u=0}^{4} \beta_u^f$	-0.00106	-0.00252	-0.00248	-0.00121	-0.00294	-0.00293
F-statistic	1.111	4.538	4.423	0.876	3.684	3.671
p-value	0.292	0.0332	0.0355	0.349	0.0550	0.0554
$\sum_{u=0}^{4} \beta_u^s$	-0.0211	-0.0162	-0.0144	-0.0345	-0.0347	-0.0342
F-statistic	8.482	3.991	3.159	13.01	11.32	11
p-value	< 0.01	0.0458	0.0755	< 0.01	< 0.01	< 0.01
$\sum_{u=0}^{4} \beta_u^c$	-0.0107	-0.0189	-0.0186	-0.0174	-0.0277	-0.0270
F-statistic	3.281	8.340	8.050	4.826	10.07	9.536
p-value	0.0701	< 0.01	< 0.016	0.0281	< 0.01	< 0.01

Note: The sample corresponds to all non-financial, non-government public firms in the US, and the sample period corresponds to 1990:Q1 to 2008:Q4. The dependent variable in columns 1-3 is $\Delta \ln \text{sales}$, and in columns 4-6 it is $\Delta \ln \text{purch}$. The main independent variables are: Δr, the quarterly difference in the Federal Funds rate (and four of its lags), the average coverage ratio of firms, their clients, and their suppliers (lagged one quarter), and the interaction between the differences in the monetary policy rates and the average lagged coverage ratios. Changes in monetary policy are the quarterly differences in the federal funds rate. Firm-level control variables are the average yearly growth in sales in the firms' industry, and lagged values of Tobin's Q, firm size, debt to assets ratio, and the ratio of PPE to total assets. Client controls include: client average industry growth rate and lagged values of client average Tobin's Q, client average size, and client average PPE to assets ratio. All variables are defined in Table A1. The last nine rows of this table contain, respectively: the sum of the coefficients of the interaction terms of firm, supplier, and clients financial health, an F-statistic for the null hypothesis that the sum of this coefficients equals zero, and its corresponding p-value. Standard errors are clustered at the firm level.

***, **, and * indicate statistical significance at the 1, 5, and 10 percent levels, respectively.

Figure A1: Monetary policy transmission channels



Note: This figure illustrates how an increase in the monetary policy rate is transmitted through the demand and cost channels of transmission. The demand channel of transmission shifts the demand curve of constrained customers from D to D', reducing equilibrium quantities Q^* and prices P^* (upper left-hand side figure). The cost channel of transmission shifts the supply curve of constrained suppliers from S to S', reducing equilibrium quantities but increasing prices (upper right-hand side figure). When both channels are at work, both the demand and the supply curve of constrained business partners shift to the left, reducing equilibrium quantities but with an ambiguous effect on prices (lower right hand-side figure).

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