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The Working Capital Channel

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Abstract

Firms relying on working capital raise prices following monetary tightening, and this paper demonstrates that the working capital channel plays a key role in partial and general equilibrium inflation dynamics. The working capital channel arises from firms' need to pre-fund inputs, determined by their exposure (working capital shares) and price elasticity (working capital sensitivity) to interest rate changes. Using detailed firm-product-level price data, the analysis shows that the average firm holds working capital equal to 16% of sales. For a firm with this average share, a one percentage point policy rate hike leads to a 0.48–2.56% price increase over a 3–33 month horizon.

Keywords: working capital, price setting, inflation, monetary policy, pass-through

JEL Codes: E31, E37, E52, L11

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1 Introduction

The question of why and how firms adjust prices in response to rising costs has become a key area of inquiry in the aftermath of the pandemic and the subsequent supply chain disruptions. While the price increases following the rise in interest rates have gained renewed importance in this context, there is still a lack of empirical evidence that can isolate how monetary policy influences firm-level pricing decisions from the price effects of other types of cost pressures.

The working capital channel, in particular, suggests that policy rate rises increase firms' marginal costs due to their need to pre-fund production. These higher costs are then passed through to prices, especially in firms with greater working capital requirements. This paper aims to provide a deeper understanding of this channel, in order to help assess the short- and medium-run inflationary effects of policy rate hikes, improve the calibration of prominent central bank models that already include a working capital channel ([Christiano et al., 2005](#); [Burgess et al., 2013](#); [Corbo and Strid, 2020](#)), and inform more effective monetary policy interventions based on micro-level evidence. Specifically, the main contribution of the present paper is to estimate the sensitivity of individual firms' prices to aggregate interest rate changes via the working capital channel, in isolation from other channels, and to provide firm-level evidence of the average sales-share of working capital that firms need. These parameters identified in the data can, in turn, be used in DSGE models to calibrate the working capital channel, which is currently imposed exogenously to deliver a one-to-one pass-through from marginal costs to prices upon a change in the policy rate ([Christiano et al., 2005](#); [Burgess et al., 2013](#); [Corbo and Strid, 2020](#)).

A partial equilibrium expression is derived within the framework of a modified New Keynesian model to offer microfoundations for the working capital channel, and to establish a structural equation underlying the empirical regression specification. A stylized New Keyne-

sian model is modified to incorporate the working capital channel — that is, the degree to which there is a positive comovement between prices and interest rates, captured by the working capital sensitivity parameter. The variation in firms’ working capital sensitivity arises from factors such as demand-driven sales delays, payment terms for receivables, and the choice of financing structures, stemming from the need to pre-fund a portion of their inputs in advance. The working capital sensitivity parameter represents an elasticity that captures heterogeneity in firms’ pricing behavior, given their reliance on pre-funded inputs as indicated by their working capital shares. These shares are measured as the proportion of pre-funded inputs in both the model and the data and the average working capital sensitivity is identified within the regression framework. The estimated values for the average working capital share and the working capital sensitivity parameters are then used in the calibration of the New Keynesian model of [Christiano, Eichenbaum and Evans \(2005\)](#), modified to include the working capital channel, in order to show how a micro-founded working capital channel may alter the impulse response function of aggregate inflation, keeping all other model features and parameters unchanged.

The merit of this study lies in the identification of the theory-based working capital channel using detailed micro data on monthly firm-product-level price indices and annual balance sheet information for around 2000 Swedish firms between 2002-2017. Given that the working capital shares create the exposure to the channel in a panel of firms, the empirical strategy primarily follows the Bartik-style shift-share approach, where the interest rate changes are instrumented using high-frequency shocks. The identifying assumptions in the panel instrumental variable (IV) regressions follow [Borusyak, Hull and Jaravel \(2022\)](#), who extend the framework of [Autor, Dorn and Hanson \(2016\)](#) and [Goldsmith-Pinkham, Sorkin and Swift \(2020\)](#) by using a series of exogenous shocks to achieve identification and causal inference in the Bartik-style shift-share IV setting, where firms differ in their working capital shares and the shocks are the instrumented

policy rate changes.

Additionally, the study utilizes recent developments in the local projections framework, pioneered by [Jordà \(2005\)](#), and the construction of high-frequency monetary policy shocks that can be used as innovations or instrumental variables to estimate impulse response functions on aggregate time series data ([Kuttner, 2001](#); [Gertler and Karadi, 2015](#); [Ramey, 2016](#); [Stock and Watson, 2018](#); [Plagborg-Møller and Wolf, 2021](#)). In this study, the local projections framework provides the rationale behind the exogeneity criteria for monetary policy shocks as instruments and the motivation for estimating impulse response functions at multiple time-horizons.

In the data, working capital is defined as the sum of receivables and inventories net of payables and prepayments from customers. This definition follows convention by [Barth and Ramey \(2001\)](#), but it is extended by also deducting prepayments from customers to account for sales that have been paid in advance. High-frequency monetary policy shocks are constructed and aggregated to the monthly level following the approach of [Kuttner \(2001\)](#), [Gertler and Karadi \(2015\)](#), and [Fransson and Tysklind \(2016\)](#), who adapt the methodology developed for U.S. data to the Swedish context. The potential information content of the monetary policy shocks, highlighted by [Jarociński and Karadi \(2020\)](#), is addressed in the robustness checks.

The panel IV regressions instrument repo rate changes with high-frequency shocks to compare the producer price responses of firms with high working capital-to-sales ratios to those with low ratios, across 36 monthly price-setting horizons. The regressions include month-product fixed effects as well as numerous firm-level control variables interacted with the policy rate change to further rule out potential confounding variation caused by firm-specific time-varying financial, demand and cost shocks that may affect the higher working capital firms to a larger degree.

The findings are the following. The average firm holds 16 percent working capital relative

to its sales. With respect to the working capital sensitivity, the sales-weighted regressions show that a one percentage point increase in the repo rate leads to a 3 to 16 percent increase in prices over a 3- to 33-month horizon for firms with working capital equal to their sales relative to a firm that has no working capital. The coefficient estimates are not statistically significant after 33 months. For the average firm, this implies a 0.48 to 2.56 percent increase after 3 to 33 months. The estimates suggest that switching the working capital channel on from zero to the level of the representative firm, and introducing a percentage point increase in the interest rate yields a 0.48 to 2.56 percent price increase after 3 to 33 months for the representative firm, if other processes in the economy were kept constant.

In addition, the estimates indicate that the relationship between working capital sensitivity and the working capital share is concave: firms with relatively larger working capital holdings are less responsive to interest rate changes. The data suggest that this is likely because larger firms tend to hold less working capital relative to their sales while exhibiting higher working capital sensitivity — that is, a higher coefficient for price pass-through via the working capital channel. This pattern is consistent with the observation that larger firms are able to maintain lower working capital shares due to more efficient management of inventories and cash reserves (Koumanakos, 2008; Gaur et al., 2014; Bates et al., 2009; Fresard and Krapl, 2013; Almeida et al., 2014), as well as their ability to secure more favorable contractual terms from downstream firms, such as larger prepayments (Inderst and Wey, 2007). The finding of a higher working capital sensitivity among larger firms also aligns with other firm behaviors: under strategic competition, larger firms are more inclined to adjust prices in order to preserve their market shares (Edmond, Midrigan and Xu, 2015, 2023), and they are more likely to rely on floating-rate financial arrangements (Antràs and Foley, 2015), which make their financing costs more directly sensitive to interest rates. An important implication of this concave relationship is that

sales-weighted average estimates provide a more relevant basis for calibrating working capital sensitivity than simple unweighted averages.

Multiple robustness checks are implemented to address two main concerns. First, to investigate pre-trends in price setting, impulse responses are estimated in inverse to compare whether high and low working capital firms adjust prices differently prior to the policy rate change. As an additional check, lagged price changes are included in the main specification as controls. The results remain robust to both specifications.

The second exercise is to assess whether alternative financial mechanisms unrelated to policy rate changes, such as the customer markets theory ([Gilchrist, Schoenle, Sim and Zakrajsek, 2017](#)) or the presence of financial frictions ([Duca, Montero, Riggi and Zizza, 2018](#)), may confound and bias the estimates for the working capital channel. Empirically, cash holding shares correlate positively with working capital, while short-term debt shares show no clear relationship. Including interaction terms between these variables and policy rate changes does not alter the working capital coefficients. Yet, consistent with [Gilchrist et al. \(2017\)](#), firms with lower cash and higher debt ratios raise their prices more.

This study complements the analysis of [Barth and Ramey \(2001\)](#), who provide indirect evidence of the working capital channel by examining monetary policy transmission to wages and producer prices using an industry-level VAR. By leveraging firm-level data, this paper offers direct evidence on how policy rate changes affect prices via the working capital channel.

The paper, however, is most closely related to the study of [Gaiotti and Secchi \(2006\)](#), who use firm-level data on Italian firms' working capital cost shares and annual prices to estimate the pass-through of bank lending rates and repo rate changes using a shift-share framework. A key distinction is that their estimation relies on changes in lending rates that may be considered endogenous, while this study instruments repo rate changes using high-frequency mon-

etary policy shocks, combining the local projections (Jordà, 2005; Gertler and Karadi, 2015; Plagborg-Møller and Wolf, 2021) and the most recent Bartik-instrument (Goldsmith-Pinkham et al., 2020; Borusyak et al., 2022) methodologies. Furthermore, unlike Gaiotti and Secchi (2006), who analyze annual price responses, this paper provides evidence on short-, medium-, and long-run price effects using monthly data, aligning the investigated time frame with Christiano et al. (2005) on the relevance of the working capital channel’s short- to medium-run dynamics. Additionally, while Gaiotti and Secchi (2006) define working capital as a share of operating costs, this study follows Barth and Ramey (2001) in scaling by sales.

This paper also differs from studies on credit market frictions (Gilchrist and Zakrajšek, 2012) and credit supply shocks during financial crises (Kim, 2021; Renkin and Zuellig, 2022), which examine how credit supply disruptions affect firm pricing. While these studies focus on bank lending rates, this paper isolates the price effects of policy rate changes under normal economic conditions with functioning credit supply systems. Although this analysis does not provide further analysis on the general equilibrium consequences of the working capital channel, such as whether this mechanism can explain the “missing disinflation puzzle” (Gilchrist et al., 2017), it quantifies the strength of the supply-side mechanism, offering guidance for calibrating price pass-through in general equilibrium models.

The paper is structured as follows. Section 2 explains the theoretical framework. Section 3 describes the data used for the empirical analysis and reviews important statistics about the firms’ working capital shares, their distribution and the firms’ underlying observed characteristics. Section 4 outlines the estimation method. Section 5 presents and discusses the main results and the relevant robustness checks. Section 6 examines heterogeneous treatment effects in the working capital price pass-through based on financial and size differences across firms. Examining the heterogeneous treatment effects helps compare the findings to those of Gilchrist

et al. (2017). Section 7 concludes the paper.

2 The working capital channel in the New Keynesian model

This section describes the working capital channel in the New Keynesian model of [Christiano, Eichenbaum and Evans \(2005\)](#) in order to provide the microfoundations for the channel and a structural equation supporting the econometric specification. The model is modified to account for the possibility that only part of firms' marginal costs are pre-funded and to illustrate the extent to which changes in these costs are passed through to prices – capturing the central mechanism of the working capital channel.

Firm-level price setting The first modification relative to the formulation in [Christiano et al. \(2005\)](#) is that only a fraction $(1 - \alpha_i)$ of the firm's marginal costs may be pre-funded, while the remaining marginal costs may be financed via cash flows that are not impacted by policy rate changes, for example prepayments from customers. The firm-level $1 - \alpha_i$ shares and the economy average share $1 - \alpha$ can be directly measured in the microdata¹.

The second modification is the introduction of the parameter δ_i , which governs the sensitivity of marginal costs, and ultimately prices, to interest rates. The parameter δ_i captures heterogeneity in firms' price responses to interest rate changes, reflecting differences in firms' financial structures, demand-driven sales delays, payment terms for receivables, and other factors influencing the elasticity of prices to interest rates due to firms' pre-funding needs. Such factors may include firm size, financial contract duration, customer (payment) behavior, position in the supply chain, and the efficiency of inventory and cash reserve management. The

¹The introduction of the shares to the model is akin to [Gaiotti and Secchi \(2006\)](#), who motivate their shift-share econometric exercise with a similar modification to the theoretical pricing equation that includes partly pre-funded wages and material costs. [Barth and Ramey \(2001\)](#) follow [Christiano et al. \(2005\)](#) in assuming fully pre-funded wages in the model, i.e., $1 - \alpha = 1$.

larger δ_i is, the more sensitive, or responsive, the marginal cost of the firm is to changes in the gross nominal interest rate $1 + i_t$. Thus, the firm pays a firm-specific interest rate $(1 + i_t)^{\delta_i}$ on its pre-funded variable input cost M_t and the share of this input is $1 - \alpha_i$. Both δ_i and $1 - \alpha_i$ have subscript i because they may differ between firms (or types of firms).

In comparison to the previous literature, [Barth and Ramey \(2001\)](#) and [Gaiotti and Secchi \(2006\)](#) estimate a coefficient on the price effect of interest rate changes using working capital shares. However, this coefficient is not explicitly integrated into their theoretical models. In their models, the pass-through is governed solely by the Cobb-Douglas input shares, and, in the case of [Barth and Ramey \(2001\)](#), by the working capital shares in addition to the input shares. Their reduced form regression specifications, therefore, estimate a response parameter — analogous to what is referred to here as δ — without explicitly discussing the role of this parameter in their model framework. In the general equilibrium setup, the frameworks of [Christiano et al. \(2005\)](#); [Corbo and Strid \(2020\)](#); [Burgess et al. \(2013\)](#) include a working capital channel that is not calibrated to the data. Hence, the implicit assumption in these models is that $1 - \alpha = 1$ and $\delta = 1$.

With these two additional modifications, the nominal marginal cost of the firm is

$$(1) \quad \widetilde{MC}_{it} = \left(\frac{1}{\alpha_i} \right)^{\alpha_i} \left(\frac{1}{1 - \alpha_i} \right)^{1 - \alpha_i} (R_t^k)^{\alpha_i} (N_t(1 + i_t)^{\delta_i})^{1 - \alpha_i} \frac{1}{A_t},$$

where N_t and R_t^k denote the prices of pre-funded and non-pre-funded inputs, respectively, and A_t is the aggregate productivity. The firm's detailed cost structure and the derivations of the firm's marginal cost function is presented in Appendix [A.1](#). Equation (1) describes that the firm's marginal cost is a function of the aggregate interest rate i to a firm-specific degree of sensitivity, given by δ_i and the share of the pre-funded input $1 - \alpha_i$. A higher δ_i implies a larger pass-through of a rise in the interest rate to the marginal cost, leading to higher expenses for firms as interest rates climb. If the firm has only pre-funded inputs with $\alpha_i = 0$ and $\delta_i = 1$, the

pass-through is one-to-one. In contrast, if $\delta_i = 2$, a 10 percentage point increase in the policy rate i_t yields a 20 percentage point increase in the firm's marginal costs. Hence, with a higher δ_i , the firm's costs are more sensitive to changes in the interest rate. Similarly, a larger share of the pre-funded input, $1 - \alpha_i$, amplifies the pass-through of interest rate changes to marginal costs.

Inserting the log of the marginal cost function (1) into the price-setting equation yields

$$(2) \quad p_{i,t}^* = \mu + (1 - \theta\beta) \sum_{k=0}^{\infty} (\theta\beta)^k E_{i,t}[(1 - \alpha_i)\delta_i R_{t+k|t} + mc_{i,t+k|t}^n],$$

where θ is the Calvo-style price stickiness parameter and $mc_{i,t}^n$ are the marginal costs exclusive of financing costs. The derivations of Equation (2) are presented in Appendix A.2. Equation (2) shows that price stickiness θ acts as a constant shifter to all firms and therefore does not impact individual firms differentially. This assumption is relaxed in the econometric framework by the use of fixed effects which account for differences in price setting characteristics unrelated to the working capital channel. These mechanisms may be firm and product-specific price stickiness or strategic behavior, which are not included in this stylized model framework.

In the flexible price model with $\theta = 0$, and assuming that interest rates follow a random walk, $\Delta R_t = \epsilon_t$, a closed-form solution can be derived in which the firm's price changes in proportion to its working capital share $1 - \alpha_i$ and sensitivity δ_i upon a monetary policy shock

$$(3) \quad \pi_{t,i} \equiv p_{i,t}^* - p_{i,t-1} = \delta_i (1 - \alpha_i) \Delta R_t = \delta_i (1 - \alpha_i) \epsilon_t.$$

Equation (3) also assumes that interest rate changes do not directly affect the firm's non-pre-funded marginal costs ($\partial mc_{i,t}^n / \partial R_t = 0$), and that the only source of perturbation to the economy is the policy rate change at t ($mc_{i,t+k}^n|t = mc_{i,t+k}^n$). These assumptions are stylized and serve to bring the model predictions in line with the regression framework, where orthogonality of other processes is maintained by instrument exogeneity and appropriate control variables.

Equation (3) shows that firms with higher working capital shares and sensitivity will increase their prices more than their counterparts who rely on pre-funding less and have lower sensitivity. According to Equation (3), an average (or a firm-type-specific) δ can be identified using data on producer price changes $\pi_{t,i}$, the working capital shares $1 - \alpha_i$ and the monetary policy shocks, if other firm-level processes are kept constant. This pricing equation can be directly mapped into the empirical specification, where the parameter δ captures the core of the working capital channel, namely, the responsiveness of prices to interest rate changes, while the working capital shares enable identification and anchor the magnitude of the estimates to reflect the behavior of the average firm.

Furthermore, Equation (3) specifies that the price change is caused by changes in the interest rate and not its level. The regression design therefore uses data on the percentage price change and the percentage change in the interest rate².

Aggregate inflation To simulate the predictions of the model where price stickiness is present, the economy average producer price inflation is expressed as a function of the average value for δ and $1 - \alpha$ in the price setting equation

$$(4) \quad \pi_{t+k} = (1 - \theta)(1 - \theta\beta) (1 - \alpha) \delta \left[E_t \sum_{k=0}^{\infty} (\theta\beta)^k \Delta R_{t+k} \right].$$

The derivations are included in Appendix A.2. Equation (4) predicts that the magnitude of the price pass-through of interest rates increases with the firms' sensitivity to interest rate changes δ , the working capital share $1 - \alpha$ and also with the persistence of the shock to the interest rate.

²Within the general equilibrium DSGE and the VAR modeling framework, the impulse responses estimate aggregate relations between inflation, wages, employment, interest rates, money supply and so on. In these models, the overtime evolution in the *level* of these variables is depicted, see for example Christiano et al. (2005). Therefore, the local projections literature also estimates the relation between aggregate inflation and policy rates in levels, instrumented by monetary policy shocks (Ramey, 2016; Stock and Watson, 2018; Plagborg-Møller and Wolf, 2021). The firm-level equation in expression (2) explicitly ties the level of prices to the level of interest rates, and thus the aggregate producer price inflation in Equation (4) to the change in the interest rate. This study focuses on estimating the specification most relevant at the firm level using microdata, with a robustness check addressing the change-level specification.

Furthermore, it is assumed that the interest rate and the marginal cost follow random walks

$$\Delta R_t = \epsilon_t ; \quad \epsilon_t \sim N(0, \sigma_\epsilon),$$

$$\Delta mc_t^n = v_t ; \quad v_t \sim N(0, \sigma_v),$$

so that the optimal reset price follows a random walk $p_t^* = p_{t-1}^* + (1 - \alpha) \delta \Delta R_t + \Delta mc_t^n$.

Using Equation (19), the price response after an innovation to R_t can be written as

$$(5) \quad p_t - p_{t-1} = (1 - \theta)(p_{t-1}^* - p_{t-1} + (1 - \alpha)\delta\epsilon_t).$$

Considering longer price setting horizons and a single unexpected and permanent shock this can be generalized to

$$(6) \quad p_{t+k} - p_{t-1} = (1 - \theta^{k+1})(p_{t-1}^* - p_{t-1}) + (1 - \theta^{k+1})(1 - \alpha)\delta\epsilon_t.$$

The derivation of Equation (6) is shown in Appendix A.3.

To clarify the role of price stickiness, the pass-through of interest rate changes to prices is simulated under alternative calibrations of θ . Figures 1a and 1b show the price response to a permanent unitary interest rate shock ϵ_t for $\theta = 0.4, 0.5, 0.6$, with $\delta = 1, 2$ and $1 - \alpha = 1$. The case in Figure 1a with $\theta = 0.6$ corresponds to the implicit calibration of the working capital channel in Christiano, Eichenbaum and Evans (2005), assuming a one-to-one pass-through.

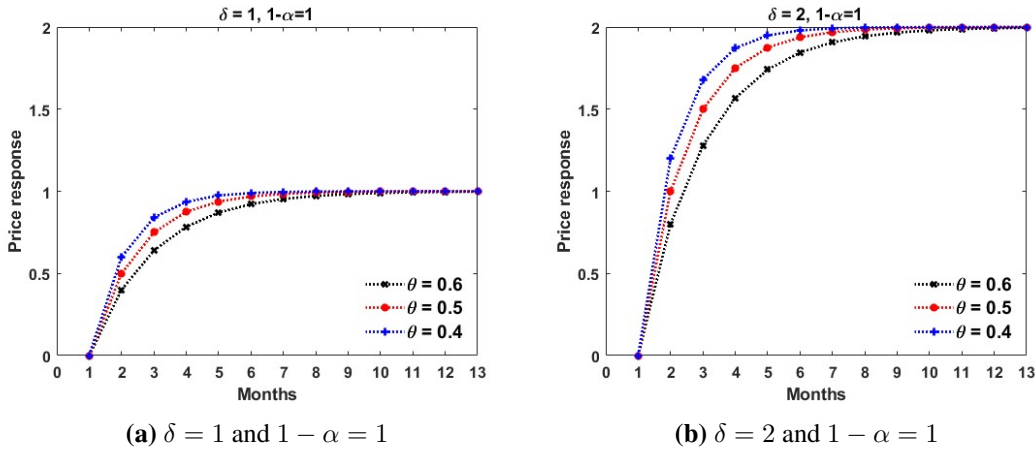


Figure 1: The effect of a permanent interest rate shock on the price with varying degrees of price stickiness and working capital channel.

Comparing Figures 1a and 1b shows that price stickiness θ governs how fast prices adjust to their new level and the working capital sensitivity δ with the working capital share $1 - \alpha$ disciplines the magnitude of the maximum price response. Hence, price stickiness determines how fast firms change prices, i.e., the shape of the response, and the working capital channel determines its level or upper bound.

3 Data

Three datasets are merged to study the working capital channel: firm-product-level monthly domestic price indices of a sample of firms that produce in Sweden (1992-2017), the annual balance sheets of all Swedish firms, and monthly high-frequency shocks available between 2002 October - 2017 December. The microdata sets on firms are obtained from Statistics Sweden (SCB, 2018). The STINA overnight swap rates that are used to construct the high-frequency shocks are downloaded from Refinitiv.

The merged dataset consists of a series of monthly firm-product level price indices, monthly monetary policy shocks and annual firm-level balance sheet items for 1,922 Swedish firms for the period 2002m10-2017m12. To remove outliers in the variables of interest, the final dataset excludes the top and bottom one percentile in log price changes. The lagged working capital-to-sales ratio excludes values below -1 and above 1, which is less than one percent of the sample. Extreme price changes and extreme values of working capital are thought to represent reporting mistakes by firms. Additionally, one extreme value of the monetary policy shock series during the financial crisis falls outside the typical variation in the series and is therefore excluded from the data. Table 1 in Appendix A.4 shows the summary statistics of the main variables.

Working capital The average working capital-to-sales ratio is 0.16, which means that firms on average have an equivalent of 16 percent of sales in the form of inventories and receivables net of prepayments and payables. It is a precise data moment that can be used in model calibration and compared with the sales share of cash holdings, debt, variable costs and other firm characteristics to assess patterns in observable variables that may affect the sensitivity of firms' prices to interest rate changes. The working capital-to-sales ratio can also be interpreted as the delay the firm experiences between producing the good and getting paid for it. The average ratio implies an approximately two-month delay in receiving payments.

In comparison, the industry-level study of [Barth and Ramey \(2001\)](#) reports a larger stock of receivables and inventories, equivalent to 11 months of final sales in the manufacturing industry. One reason why their measure of working capital is higher is that their variable does not include prepayments from customers. It is also likely that their industry-level data are constructed from a selection of larger firms in specific industries within the manufacturing sector, whereas the Swedish data contain a representative sample of small and large firms which are not all from the manufacturing sector. Using data on Italian firms, [Gaiotti and Secchi \(2006\)](#) report that the average working capital to total annual operating cost ratio is 0.33, which is more comparable to the average working capital-to-sales ratio observed among Swedish firms.

The working capital-to-sales ratio displays a large cross-sectional variation across firms in the economy. Figures [2a](#) and [2b](#) show the distribution of firms' average working capital-to-sales ratio in the sample (1,922 firms) and in the manufacturing sector within the sample (1,746 firms), respectively. Because 91 percent of firms in the sample are producers of goods in the manufacturing sector, the working capital distribution looks similar across Figures [2a](#) and [2b](#). Most firms have a working capital share of sales between 0.1-0.3 and only a few percent of firms have values above 0.4.

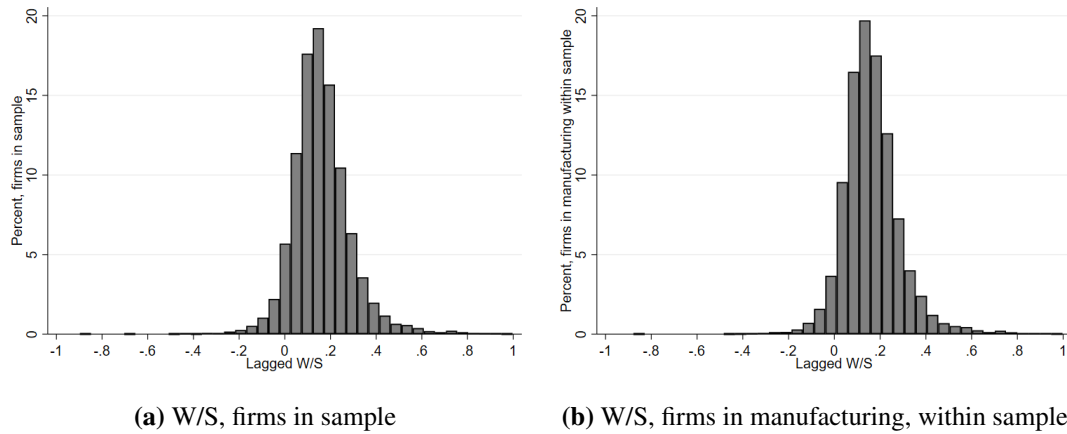


Figure 2: Distribution of the working capital-to-sales ratio in the sample.

There is also a large variation in firms' working-capital-to-sales ratios within industries. Figures 13a and 13b in Appendix A.4 show the variation within the 2-digit product group of iron and steel articles and vehicles, which are large industries in Sweden, populated by many firms. The largest mass of firms that produce iron and steel articles seems to hold 10-20 percent of sales in working capital, with their working capital shares mostly below 30 percent.

Figure 3 shows the working capital-to-sales ratios over time across some example industries that produce different HS2 products. Firms that produce apparel have one of the largest working capital shares (0.4), whereas firms that produce meat products have one of the lowest (0.1).

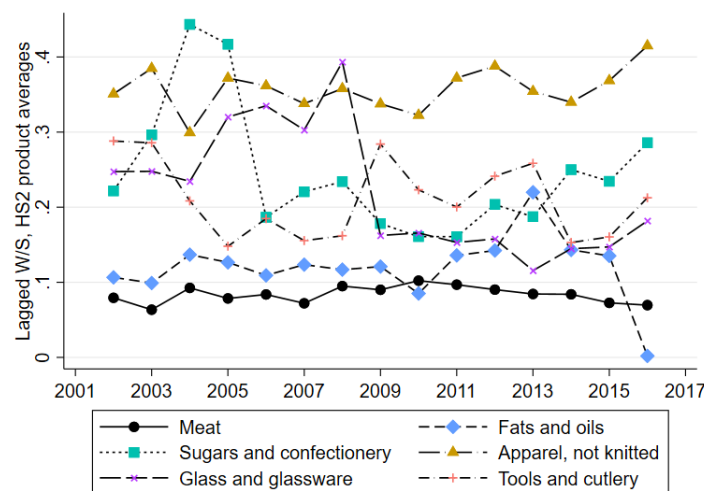


Figure 3: The average working capital-to-sales ratios across 2-digit (HS2) product groups.

Working capital and other firm characteristics Figure 4 explores whether observable firm characteristics correlate with working capital holdings. These correlations may indicate how firms' choices influence their price sensitivity to interest rate changes and provide candidates for alternative channels that could introduce bias in the estimation. As shown in Figure 4a, firms with negative working capital-to-sales ratios — indicative of substantial prepayments from customers — tend to have significantly higher average sales (5–8 billion SEK). Moreover, there is a somewhat negative relationship between firm size and working capital holdings.

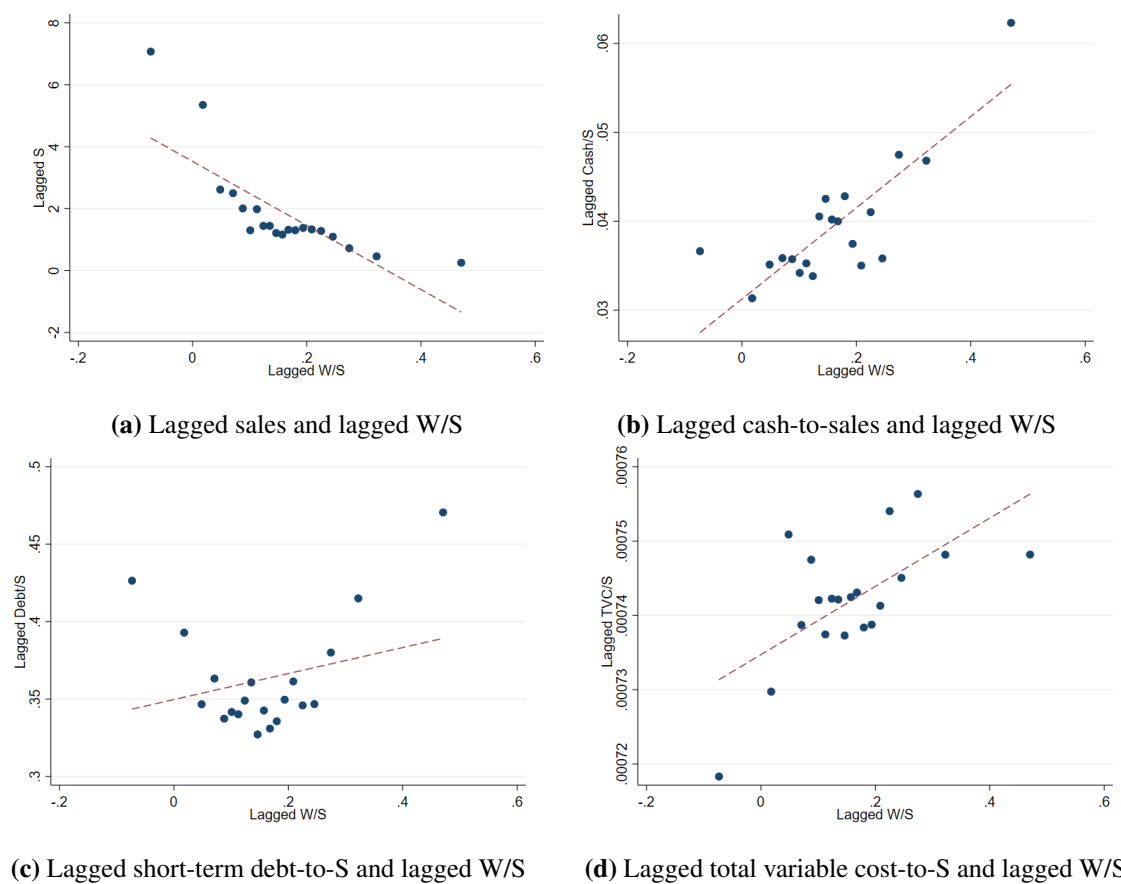


Figure 4: Binscatter of firms lagged sales and sales ratios of cash holdings, short-term debt and total variable cost on the y axis and the lagged working capital-to-sales ratio on the x axis. Sales in 4a are in billions of SEK.

There are multiple reasons why larger firms can require relatively less working capital in their production. Larger firms can manage inventories more efficiently through bulk purchasing, just-in-time inventory practices, and sophisticated inventory management systems

(Koumanakos, 2008; Gaur, Kesavan and Raman, 2014). This reduces the need to hold large inventories relative to their sales volume, minimizing the share of working capital tied up in stock. Large firms may also be older and have more stable and predictable cash flows, enabling them to align inflows with outflows more effectively (Bates, Kahle and Stulz, 2009; Fresard and Krapf, 2013; Almeida, Campello, Cunha and Weisbach, 2014). This reduces the need for pre-funding variable costs, as they can better match expenses to incoming revenues. In addition, larger firms, due to their scale economies, possess greater bargaining power, enabling them to negotiate better terms with downstream firms, such as favorable payment conditions (Inderst and Wey, 2007).

The negative correlation in the left tail of the working capital-to-sales distribution is the reason why the main specification includes the interaction between lagged sales and interest rate changes as a shift-share control variable. This composite variable should account for the possibility that policy rate changes may affect larger firms' prices to a different degree due to reasons other than the working capital channel.

In addition, Figures 4b-4d show the correlation between firms' lagged cash-to-sales, short-term debt-to-sales and total variable cost-to-sales ratios along the working capital share distribution. Cash holdings and variable costs appear to have a positive correlation, whereas short-term debt does not seem to have a clear positive or negative relation with the working capital ratio. The positive correlation may reflect the notion that firms with higher variable costs tend to hold more cash to manage day-to-day operational liquidity needs. In contrast, short-term debt may be driven by external financing conditions or firm-specific credit constraints, making its relationship with the working capital shares less systematic.

These variables are included in a robustness exercise to address potential bias from alternative financial channels. In addition, further regressions assess heterogeneity in working capital

pass-through coefficients between firms with high and low levels of cash holdings, variable costs, and short-term debt — providing evidence on whether financial characteristics influence the strength of the channel.

To further examine the correlation between observed variables and the working capital shares, Figure 5 provides an overview of firm characteristics across quartiles of the working capital-to-sales ratio over time. Firms in the first (fourth) quartile with the lowest (highest) working capital ratios have about 10-15 (25-30) percent of sales tied up in working capital.

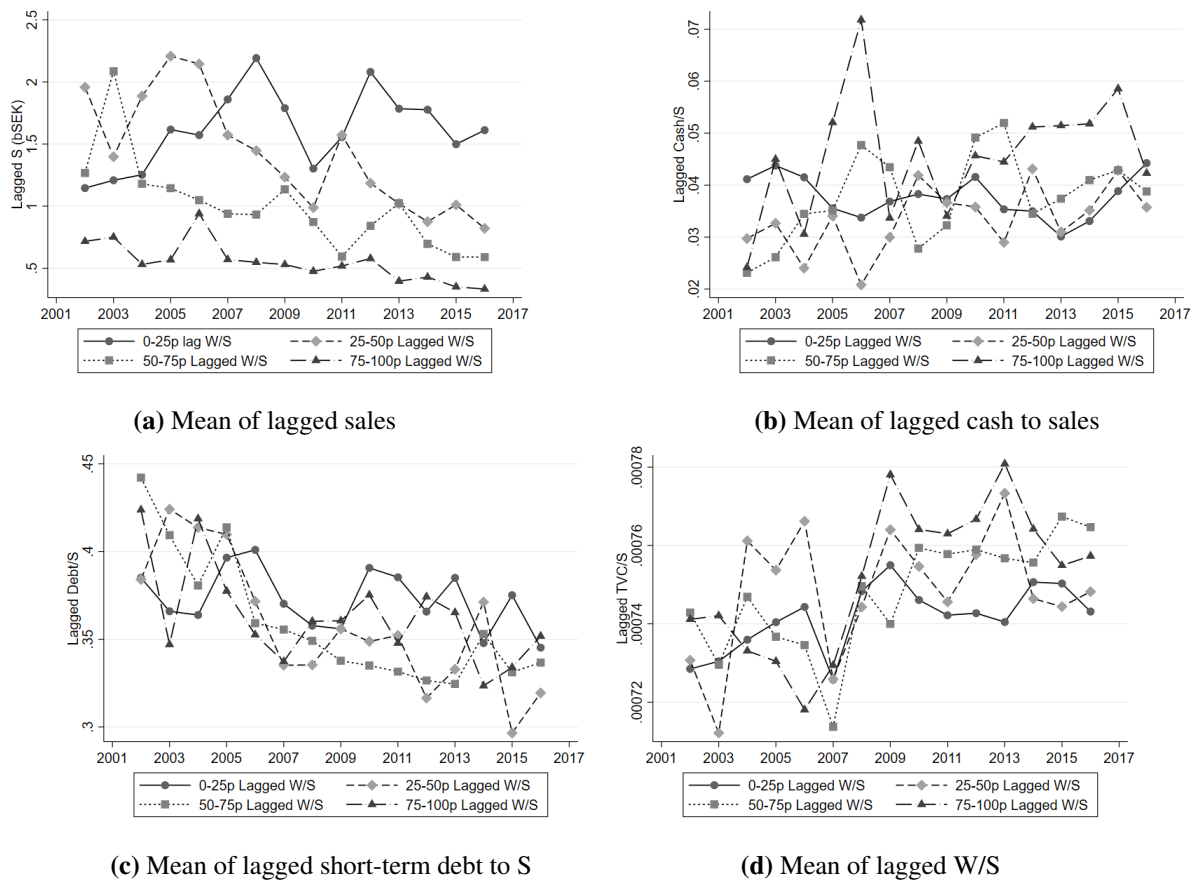


Figure 5: Time trend of lagged W/S, sales, cash to sales and short-term debt to sales across quartiles of lagged W/S.

In Figure 5a, sales continue to show a negative correlation with working capital, whereas Figures 5b-5d do not display a negative correlation between the working capital shares and other firm characteristics. Cash-to-sales, debt-to-sales and variable cost-to-sales appear to be rather uniformly behaved over time across the quartiles of the working capital ratio distribution.

Sample and the population To assess the representativeness of the sample, it is possible to compare the number of companies in the price sample and the entire Swedish economy between 2002-2017, as well as the sales share of the sample relative to the manufacturing sector and the entire economy. The statistics are included in Table 2 in Appendix A.4. The price sample covers 17 percent of total non-financial economic activity, but it is most representative of the manufacturing sector by including 57 percent of sales, delivered by 5.5 percent of firms that have at least 2 employees. The sample is most representative of companies that hire workers and employ at least 2 employees, implying that companies used for self-employment or created for individual tax purposes are excluded from the analysis.

Working capital shares in the sample and the population Figures 6a and 6b display the working-capital-to-sales ratio in the entire population of non-financial companies and in the manufacturing sector. The difference between the sample (Figure 2a) and the population of firms in Figure 6a is that there are more zero values in the population coming from firms with fewer than two employees. Figure 6c confirms that the number of zero values is significantly reduced when companies with no employees are excluded, and most importantly, that the shape of the working capital share distribution in the sample and in the population appears to be largely similar.

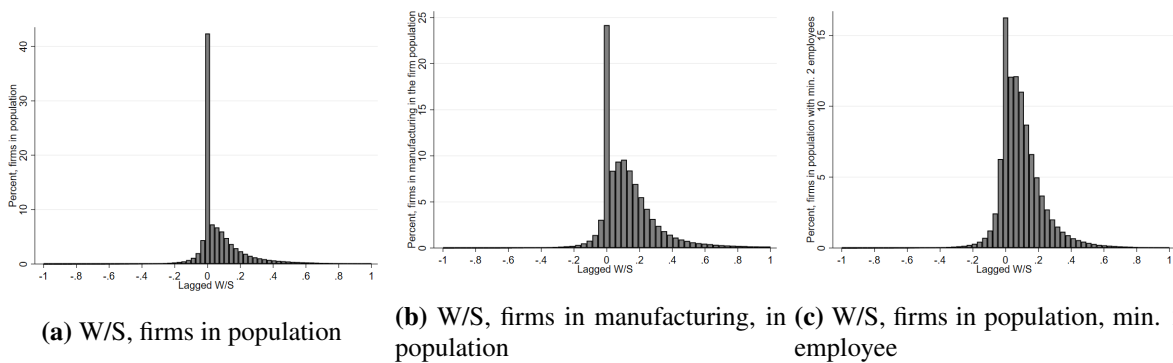


Figure 6: Distribution of the working capital-to-sales ratio in the population.

Firm characteristics in the sample and the population The average working capital share in the entire economy, including firms with no employees, is smaller, on average 0.07. Similarly, average sales in the sample are much higher than those in both the manufacturing sector and the broader economy. This pattern is typical of samples that focus on more established firms with multiple employees. Further firm characteristics for comparison are included in Table 3 in Appendix A.4.

Firm-product-level price indices and price changes The estimation utilizes the HMPI, or home price index, series to focus specifically on price setting in the domestic market, thereby excluding price changes driven by exchange rate fluctuations in import and export prices.

The price index data are constructed from a survey of firm-level prices³. The observations considered in this paper are at the firm-2-digit-product level due to limitations in accessing price data at a finer level. The HMPI price index at the firm-2-digit HS product level is an arithmetically weighted average of the specific firm's price ratios for its surveyed products. The price ratios are defined as $p_{t,i,s}/p_{b,i,s}$, where $p_{t,i,s}$ is the price of firm i 's product s in period t and $p_{b,i,s}$ is the price of firm i 's product s in the base period. If a firm has just one item at the 2-digit HS level, then the index is equal to an individual price ratio (SCB, 2022). A full list of the two-digit product groups is published by the UN (2016). The dataset includes multiple HMPI observations for firms that produce in different 2-digit product groups. In the data, 85 percent of the firms produce in one product group and 11 percent produce in two product groups. The

³The sample of price-reporting firms is drawn from the population of firms with a turnover greater than 10 million SEK (SCB, 2022). The true population of prices consists of producer prices of transactions, or product offerings, made in a year by Swedish firms. A product offering is the combination of an enterprise and a product to be priced for sale during the year. Prices for around 6000 product offerings are collected on a monthly basis. The sample of prices covers over 43 percent of all transactions in terms of value in SEK (SCB, 2022). Product offerings with large transaction values are always included in the sample, whereas smaller product offerings are drawn stratum by stratum, where a stratum includes one or more 5-digit product groups. The product groups are defined according to the Harmonized System (HS). The observations on product offerings across strata are drawn so that the sample of product prices is representative of the product prices posted by firms in each 5-digit HS group, i.e., the probabilistic draw is weighted by the value of products sold in the 5-digit HS group (SCB, 2022).

remaining 4 percent of firms produce in three to six product groups. The HMPI index series is quality adjusted by the Swedish Statistics Agency; and therefore, it should exclude price changes that result from a change in quality ([SCB, 2018](#)).

Price changes are defined as log changes in the index. They are multiplied by 100 so that a one percent change appears as one. The summary statistics in Table 1 in Appendix A.4 show that the monthly price changes range between -45 and 45 percent. At longer horizons, price changes range between -10 and 13 percent. The standard deviation of price changes becomes larger at a longer price setting horizon and the average price change becomes increasingly skewed towards more positive price changes.

High-frequency monetary policy shocks The procedure for constructing high-frequency shocks follows the approach of [Fransson and Tysklind \(2016\)](#) and [Iversen and Tysklind \(2017\)](#), who adapt [Kuttner's \(2001\)](#) method for Sweden. End-of-day STINA (Stockholm Tomorrow Next Intrabank Average) swap data, available since 2002, are used to estimate the shocks. These overnight swaps have the STIBOR T/N interest rate as the basis for the floating leg, which in turn is the repo rate plus a fixed risk premium of 10 basis points. STINA swaps are short-term interest-rate swaps, denominated in Swedish kronor, with a maturity of up to and including one year. The STINA swap rate that refers to a one-month contract is used in this study because one-week contracts may be too short to capture all days between the announcement and the consequent repo rate change. The Riksbank's monetary policy announcements take place at 9:30 a.m., with changes in the closing STINA rates observed thereafter. Note that the shocks are defined daily. Because the construction of the shocks follows a standard methodology used by analysts at the Swedish Central Bank, details and summary statistics are left for Appendix A.5.

4 Estimation and identification

This section estimates the price effect of a policy rate change via the working capital channel, described in Equation (3), using microdata on prices, working capital shares, repo rate changes and high-frequency shocks.

The identification strategy adopts the Bartik IV shift-share approach of [Borusyak, Hull and Jaravel \(2022\)](#), building on the foundational work of [Autor, Dorn and Hanson \(2016\)](#) and [Goldsmith-Pinkham, Sorkin and Swift \(2020\)](#), as well as recent advances in instrumenting interest rate changes using high-frequency monetary policy shocks ([Jordà, 2005](#); [Gertler and Karadi, 2015](#); [Ramey, 2016](#); [Stock and Watson, 2018](#); [Plagborg-Møller and Wolf, 2021](#))⁴. In particular, [Borusyak et al. \(2022\)](#) specify that identification in their panel data Bartik IV framework requires the “shifters” to be a sequence of exogenous shocks, or at least conditionally random given the inclusion of additional shift-share control variables. Identification therefore relies on the assumption that high-frequency monetary policy shocks are plausibly random in the presence of appropriate control variables, consistent with the view in [Jordà \(2005\)](#), [Gertler and Karadi \(2015\)](#), [Ramey \(2016\)](#), [Stock and Watson \(2018\)](#), and [Plagborg-Møller and Wolf \(2021\)](#), though recent findings in [Bernanke et al. \(2005\)](#) and [Jarociński and Karadi \(2020\)](#) suggest that including additional controls for commodity prices and accounting for the information content of policy rate changes may still be warranted. As such, these latter two modifications are implemented as robustness tests.

Using the firm-product level micro data, IV regressions for $k \in [0, 36]$ price setting horizons are estimated to investigate the pass-through of interest rate changes to prices and its duration via the working capital channel. The notation refers to firm i , HS2-product j , HS1-product J ,

⁴The study of [Gaiotti and Secchi \(2006\)](#) also uses the shift-share framework utilizing working capital shares and annual interest rate changes as the “shifters”, but they do not use Together, the direct and the indirect channels may amplify the short-run impact of monetary policy, introducing a form of financial accelerator, and illustrate multiple random shocks as instruments, and their estimation strategy relies on firm-level control variables.

month t and horizon k . The IV regression is specified as

$$(7) \quad \begin{aligned} p_{i,j,t+k} - p_{i,j,t-1} = & \beta_{1,k} \left(\frac{W_{i,t-12}}{S_{i,t-12}} \times \Delta R_t \right) + \beta_{2,k} \left(\frac{W_{i,t-12}}{S_{i,t-12}} \right) \\ & + \xi_{1,k}(S_{i,t-12} \times \Delta R_t) + \gamma_{J,t,k} + \varepsilon_{1,k,i,j,t} \end{aligned}$$

with the first stage

$$(8) \quad \left(\frac{W_{i,t-12}}{S_{i,t-12}} \times \Delta R_t \right) = \beta_{3,k} \left(\frac{W_{i,t-12}}{S_{i,t-12}} \times \epsilon_t \right) + \gamma_{J,t,k} + \varepsilon_{2,k,i,t},$$

where subscript k is retained because k first stage equations are estimated for the k horizons as the number of observations slightly declines in the first stage as k increases. This change in the sample reflects that some firms do not have price changes over longer horizons. The reduced form is

$$(9) \quad \begin{aligned} p_{i,j,t+k} - p_{i,j,t-1} = & \beta_{4,k} \left(\frac{W_{i,t-12}}{S_{i,t-12}} \times \epsilon_t \right) + \beta_{5,k} \left(\frac{W_{i,t-12}}{S_{i,t-12}} \right) \\ & + \xi_{2,k}(S_{i,t-12} \times \epsilon_t) + \gamma_{J,t,k} + \varepsilon_{1,k,i,j,t} \end{aligned}$$

In Equation (7), the average price effect via the working capital channel is identified by comparing the price changes of firms with high and low working capital holdings relative to sales after a series of changes in the repo rate instrumented by the monetary policy shocks. Subscript t refers to the months between 2002 October - 2017 December; and $t - 12$ denotes lagged balance sheet variables from the previous calendar year. $p_{i,j,t+k} - p_{i,j,t-1}$ is the log change in the firm-product-specific home market price index (HMPI) from a month before to k months ahead. ϵ_t denotes the estimated monetary policy shock.

$\frac{W_{i,t-12}}{S_{i,t-12}}$ is the annual working capital-to-sales ratio of firm i in $t - 12$, i.e., its ratio in the preceding year. $W_{i,t-12}$ is the firm's working capital, defined as the sum of inventories and receivables net of payables and prepayments from customers. Lagged working capital shares are used to eliminate confounding effects arising from contemporaneous changes in demand

and other cost shocks on the firm’s working capital requirement. Using the previous year’s share as a predetermined variable follows the methodological approaches favored in the recent literature (Gilchrist et al., 2017; Autor et al., 2016, 2021).

$\beta_{1,k}$ measures the transmission of monetary policy shocks to prices via the working capital channel. More specifically, the coefficients $\beta_{1,k}$ identify the percentage price response to a one percentage point policy rate change for a firm whose working capital requirement equals its sales.

The control variables include the main effect of working capital $\frac{W_i}{S_i}$ and $\gamma_{J,t,k}$ one-digit product-month fixed effects that account for product-level factors such as variation in demand and input costs, due to changes in interest rates and other factors, that affect prices of specific products. Further shift-share control variables include the interaction term $S_{i,t-12} \times \Delta R_t$, where $S_{i,t-12}$ is the firm’s net sales from the previous calendar year. This interaction term addresses the concern that larger firms may be more cyclical and respond to shocks differently than smaller firms. Standard errors are clustered at the firm–month level, allowing for arbitrary correlation of residuals across all products within the same firm and month⁵.

The specification in Equation (7) yields point estimates of working capital sensitivity at each horizon and thus, captures the speed of the price adjustment — providing a key test of the short- to medium-term effects of the working capital channel emphasized in DSGE models. However, these estimates do not directly inform the price stickiness parameter, which may be influenced by broader firm-specific and general equilibrium forces that are absorbed by the control variables⁶.

⁵Appendix A.11.3 reports results using alternative standard error specifications, including Driscoll-Kraay standard errors and two-way clustering at the firm and month level that accounts for potential serial correlation (Chiang, Hansen and Sasaki, 2024) and cross-sectional correlation in the error term.

⁶For example, Nakamura and Steinsson (2013) estimate price stickiness using BLS CPI micro data, while the Swedish DSGE model Maja (Corbo and Strid, 2020) estimates separate price stickiness parameters for domestic, export, and import products using various CPI series and Bayesian methods.

There are two main identification concerns. The first is whether high working capital firms set higher prices in response to interest rate changes for reasons unrelated to their working capital holdings, potentially violating the parallel trends assumption. This is addressed in robustness tests by, first, estimating the regression specification in inverse, that is by measuring the effect of current policy rate changes on past price changes and, second, by including past price changes as controls. The second concern is the possible correlation between a firm's working capital requirement and its financial status that allows alternative channels to generate look-a-like responses. For example, a downward bias may arise if less cash-constrained firms with coincidentally high working capital strategically cut prices when policy rates rise, exploiting the vulnerability of their more liquidity constrained competitors (Gilchrist et al., 2017). To test for potential confounding via alternative financial channels that are unrelated to the working capital channel, robustness checks include interaction terms between policy rate changes and lagged financial ratios, such as the ratios of total variable cost, short-term debt, and cash to sales.

5 Results and discussion

The main results are presented in Figure 7a which reports the unweighted simple average instrumental variable regressions, and Figure 7b which shows the sales-weighted coefficient estimates. The corresponding result tables (Tables 5 and 6) are included in Appendix A.6. The impulse response functions in Figure 7 depict that the simple average IV results are smaller in magnitude and statistically significant for changes between 4 and 12 months. In contrast, the sales-weighted estimates are substantially larger and remain statistically significant over a longer horizon, from 3 to 33 months.

In the simple average regressions, a one percentage point increase in the repo rate results

in a 1.2 to 2 percent price increase within 4 to 12 months for firms with working capital equal to their sales, compared to firms with no working capital. For the average firm, which has a 16 percent working capital share, the same repo rate increase leads to a 0.2–0.3 percent price rise via the working capital channel over the same period.

Considering the sales-weighted estimates, the pass-through is significantly larger, with coefficients ranging from 3 to 16 percent over the 3- to 33-month horizon. For the firm with average working capital holdings of 16 percent, this implies a 0.48 to 2.56 percent increase after 3–33 months. The estimates suggest that turning on the working capital channel from zero to the level of the representative firm, results in a 0.48 to 2.56 percent price increase over time after a percentage point increase in the interest rate, assuming other processes in the economy are held constant⁷.

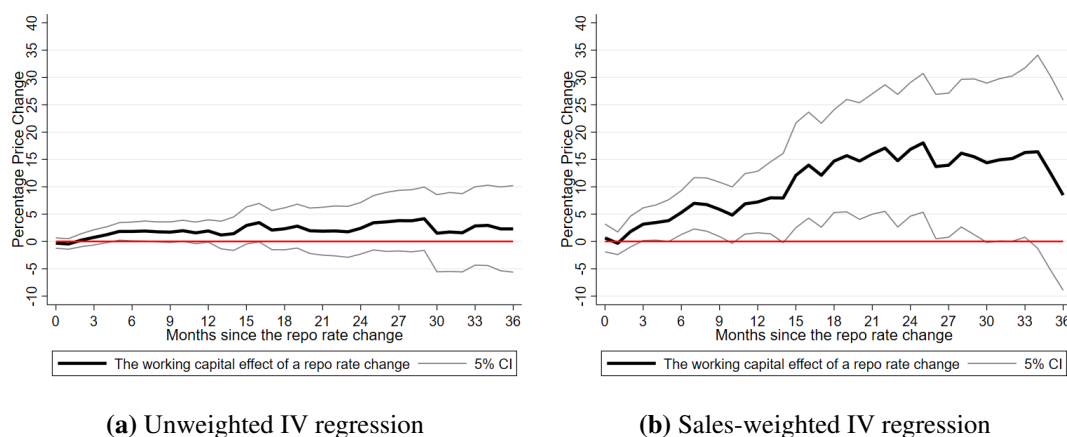


Figure 7: The solid black line depicts the price effect of a policy rate change via the working capital channel, i.e. the coefficient estimated for the instrumented ($Lagged\ W/S \times \Delta R$) variable, where W is working capital, S is sales and ΔR is the monthly policy rate change. Control variables include product-month fixed effects, lagged sales S and the interaction term ($Lagged\ S \times \Delta R$). Standard errors are clustered at the firm-month level. The 5% confidence intervals are depicted with gray lines. The corresponding regression is specified in equation (7). The complete tables are included in Appendix A.6.

⁷By comparison, Gaiotti and Secchi (2006) report a pass-through coefficient in the range of 0.68–0.94, depending on the specification, when estimating annual price changes on repo rate changes using an unweighted OLS regression without an instrument. As reported in Appendix A.7, the unweighted OLS regression produces a similar outcome in the Swedish data, showing a price response of 0.8 after 12 months. The larger coefficient estimates primarily reflect the sales-weighting and, to a lesser extent, the IV framework, whereas the simple OLS specification shows no apparent difference to their estimates at comparable horizons.

The finding that prices respond more than proportionally to interest rate changes through the working capital channel may be understood by considering the direct and indirect effects of a policy rate rise. Higher policy rates directly increase firms' marginal costs and thus prices by raising the cost of external finance across instruments such as loans, bonds, equity, and trade credit. In addition, the literature documents that interest rate increases have additional indirect effects by widening lending spreads or risk premia ([Anderson and Cesa-Bianchi, 2024](#); [Drechsler et al., 2017](#); [Gertler and Karadi, 2015](#); [Gilchrist and Zakrajšek, 2012](#); [Jiménez and Jesús, 2014](#)) and by triggering strategic ([Chevalier, 1995](#); [Chevalier et al., 1994](#)) and precautionary pricing motives ([Di Pace et al., 2025](#); [Kashyap and Stein, 2000](#)) that may affect the total pass-through via the working capital channel. For instance, when the policy rate rises, banks may respond by widening lending spreads relative to the base rate, which disproportionately increases borrowing costs even for larger firms; or firms may strategically raise prices not only to cover their additional expenses but also to prepare for potential future policy rate hikes. The indirect effects are integral to the working capital channel itself, since they operate through firms' pre-funding needs that link interest rate changes to firms' marginal costs and price-setting behavior. Together, the direct and the indirect channels may amplify the short-run impact of monetary policy, introducing a form of financial accelerator, and illustrates potential reasons for a coefficient exceeding one⁸.

The regression estimates have indications for not only the magnitude of the price change but also the speed of the price adjustment via the working capital channel. The estimates show that the price adjustment attributable to the working capital channel takes place between 3-33 months after the policy rate change, peaking at around 18 months. This supports the hypothesis

⁸An elasticity of prices with respect to marginal costs greater than one, in general, is well documented across a range of markets, including gasoline ([Borenstein et al., 1997](#)), electricity under scarcity ([Wolak, 2000](#)), VAT and sales taxes ([Benzarti et al., 2020](#); [Besley and Rosen, 1999](#)), industry-wide asymmetric pricing patterns ([Peltzman, 2000](#)), and tariff-induced cost increases during trade wars ([Fajgelbaum et al., 2020](#)).

that the working capital channel is a short- to medium-term mechanism⁹.

The difference between the unweighted and weighted estimates can be explained by the relationship between firms' working capital-to-sales ratio and their key characteristics, particularly firm size. As shown in Figures 4a and 5a, there is a negative correlation between sales and the working capital ratio — resulting in that the sales-weighted regressions place a greater emphasis on firms with lower working capital-to-sales ratios. This contributes to larger estimated pass-through coefficients in the sales-weighted regressions for two reasons. On one hand, larger firms tend to exhibit higher pass-through coefficients, i.e., a greater sensitivity to interest rate changes (Figure 8a). On the other hand, firms with lower working capital-to-sales ratios tend to raise prices more than their high-ratio counterparts in response to policy rate increases (Figure 8b).

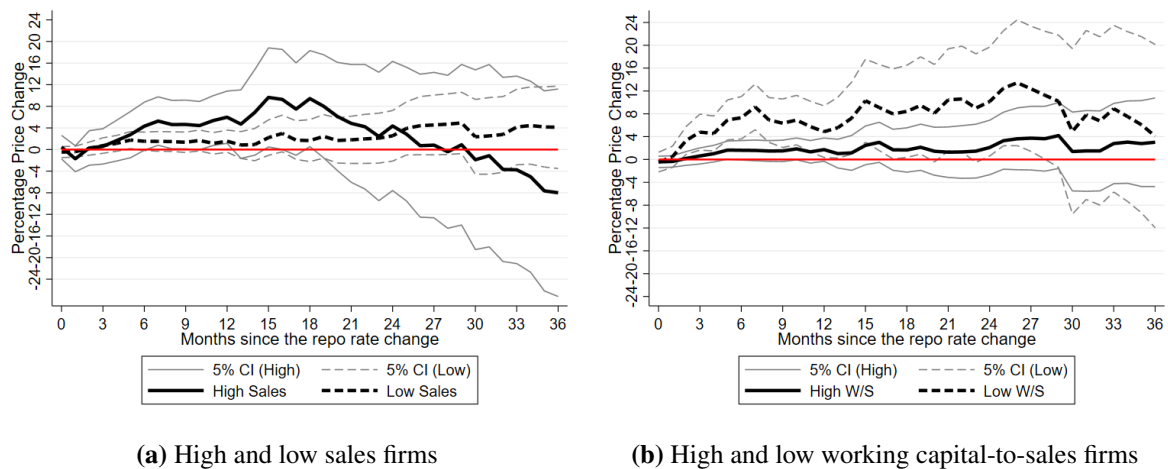


Figure 8: The price effect of a policy rate change via the working capital channel for firms with high and low sales and working capital-to-sales ratios. High is an indicator that equals one when the firm's value is above the annual economy mean. Low is an indicator that equals zero when the firm's value is below the annual economy mean. The tables are presented in Appendix A.8.

There are multiple reasons why larger firms' prices appear to be more sensitive to interest rate changes, and more generally to cost shocks. Larger firms often operate in monopolistically

⁹A similar comparison can be made using the regression estimates in Appendix A.15 which investigate the price puzzle, without a working capital channel. The regressions in Appendix A.15 show that prices level off 13-15 months after the policy rate change, depending on the specification – in contrast to the somewhat longer adjustment of around 18 months in the working capital specification.

competitive markets where they have a strong incentive to adjust prices in response to fundamental changes and act strategically. In a setting of monopolistic competition with strategic interactions (Edmond, Midrigan and Xu, 2015, 2023), larger firms may respond by adjusting prices, and specifically their markups, more flexibly to maintain their market share. Smaller firms, by contrast, might have less flexibility or market power to change prices in response to interest rate changes and they choose to adjust their market shares instead.

A second reason may be due to the type of interest rate firms choose in their contracts. Larger firms are more likely to use floating-rate financial arrangements (Antràs and Foley, 2015) that make their financing costs more directly sensitive to interest rates. In contrast, smaller firms may want to reduce financial risk and prefer fixed-rate contracts. This could increase larger firms' exposure to interest rate fluctuations, creating a greater need to adjust prices in response to an interest rate rise.

Figure 8b reveals an additional feature of the working capital channel related to the interaction between working capital shares and sensitivity: the estimated coefficient is positive for both the high and low groups, indicating that a one-percent higher working capital share is associated with an economically significant price increase in each group, though the magnitudes differ. A positive coefficient estimate is in line with the theoretical predictions, where greater exposure to pre-funded input costs amplifies firms' responsiveness to interest rate changes. However, the estimated working capital sensitivity δ declines with firm size, indicating a concave relationship between the working capital shares and the sensitivity¹⁰. This relationship

¹⁰The concave relationship between the working capital sensitivity and the working capital shares may raise the question of misspecification in the regression, which could result in downward-biased estimates. Appendix A.9 investigates the robustness of the coefficient estimates in an alternative specification which includes quadratic terms of Lagged $(W/S)^2 \times \Delta R$ and Lagged $S^2 \times \Delta R$. The results show that the unweighted estimates become more statistically and economically significant when the quadratic terms are included, whereas the sales-weighted estimates do not display a change relative to the main specification, and seem to already account for the size effect. To investigate the potential latent reasons for the difference in estimated coefficients between the two groups, Appendix A.10 examines whether firm characteristics, such as financial choices, drive the disparity. However, controlling for variables like cash-to-sales, short-term debt-to-sales, and the interest expense-to-debt ratio (i.e., a proxy for implicit interest rates) does not alter the statistically significant difference in the estimated working

between the shares and the estimated sensitivities emphasizes the role of sales-weighting in establishing the correct magnitude of the average price effect via the working capital channel.

A series of robustness checks in Appendix A.11 confirm the stability of the main results. First, tests for pre-trends show no systematic differences in pricing behavior between high- and low-working-capital firms prior to policy rate changes (Appendix A.11.1), and controlling for past price dynamics strengthens the estimated effects (Appendix A.11.2). Second, alternative inference procedures, including Driscoll–Kraay and two-way clustered standard errors by firm and month (and product and month), yield similar significance levels and additional controls for cost and financial characteristics do not attenuate the working capital coefficient (Appendix A.11.3). Finally, an alternative IV specification that instruments interest rate levels with monetary policy shocks produces similarly large but, at a few horizons, less precisely estimated coefficients, reflecting weaker instrument strength (Appendix A.12).

The first-stage regressions in Appendix A.13 and their F-statistics confirm a strong and statistically significant relationship at most horizons between the instrument ($W/S_{i,t-12} \times \epsilon_t$) and the instrumented interaction term ($W/S_{i,t-12} \times \Delta R_t$). In both unweighted and sales-weighted specifications, the Kleibergen–Paap F and LM statistics far exceed conventional thresholds, indicating that weak identification is unlikely.

The reduced form estimates in Appendix A.14 confirm that monetary policy shocks pass through to prices via the working capital channel, with effects becoming statistically significant after a few months and reaching up to 3.2-4 percent for the average firm after a one year horizon in the sales-weighted specification.

The price puzzle in the microdata The absence of a price puzzle in the microdata would call into question the rationale for studying the working capital channel. To assess the pres-capital sensitivity between the two groups.

ence of a price puzzle, Figure 25 in Appendix A.15 presents firm-level impulse responses that reveal a price puzzle that is both economically and statistically significant. This result remains robust even when controlling for commodity prices, as recommended by Bernanke, Boivin and Elias (2005). In addition, the firm-level price puzzle appears even more pronounced when information shocks are excluded from the estimation following Jarociński and Karadi (2020).

The latter two sensitivity exercises are also applied to the main regression to address concerns that commodity prices and information shocks may bias the working capital estimates in case the shocks are not conditionally exogenous, and the fixed effects with the shift-share control variables are unable to filter the firm-product-month specific changes that are systematically correlated with the working capital channel. The first check controls for commodity prices (in Appendix A.16), following Bernanke et al. (2005), while the second test excludes those monetary policy shocks that are positively correlated with information shocks from the main instrumental variable regression (in Appendix A.17), following Jarociński and Karadi (2020). Both robustness exercises produce statistically significant coefficients, with magnitudes comparable to or slightly exceeding those of the main specification.

To analyze the relationship between the price puzzle and firms' working capital intensity, the sample is split into two groups of firms with high and low working capital ratios, where high working capital refers to ratios above the mean. The regression estimates in Appendix A.18 show that larger firms with lower working capital holdings display a more pronounced price puzzle, reflected in higher pass-through coefficients - a finding consistent with the patterns observed in Figure 8.

Partial equilibrium implications The regression estimates, holding other processes constant, may be interpreted through the partial equilibrium model predictions outlined in Section 2. The impulse responses in Figure 9 illustrate the price adjustment for a representative firm

with the average working capital share of 0.16, using four calibrations of δ that correspond to the medium-run estimated responses from the simple average ($\delta = 2, 3$ in Figure 9a) and sales-weighted regressions ($\delta = 15, 16$ in Figure 9b)¹¹.

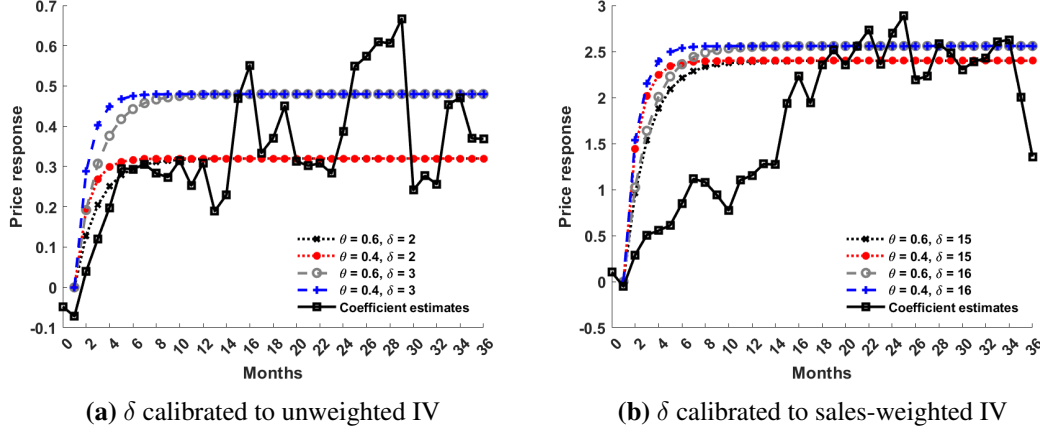


Figure 9: The price effect of a one percent increase in the policy rate via the working capital channel. The average working capital share $1 - \alpha = 0.16$.

With $\delta = 2, 3$, calibrated to the unweighted estimate of working capital sensitivity, a one-percentage-point increase in the policy rate translates into a 0.3–0.45 percent rise in prices after some time. In contrast, the sales-weighted estimate, which more accurately reflects the economy-wide average response, implies a price increase of approximately 2.5 percent. This pass-through estimate, which exceeds the policy rate change itself, suggests that the working capital channel may play a more substantial role in monetary transmission than is commonly captured in existing models.

Figures 9a and 9b also illustrate the role of price stickiness in the presence of the working capital channel. While the upper bound of the price response is governed by the working capital sensitivity and the working capital share, around 0.5 percent in 9a and 2.5 percent in 9b, the

¹¹One consideration for the mapping of the empirical estimates to the model parameters may be the implications of the Calvo price stickiness assumption in the model which state that the average price change is conditional on readjusting prices. Appendix A.19 therefore shows the coefficient estimates from a regression where zero price changes are removed. This specification serves as a robustness exercise because, in the data, optimal zero price changes cannot be distinguished from the lack of price adjustment due to price stickiness. The estimated coefficients are similar in magnitude.

speed of adjustment is shaped by the degree of nominal rigidity, particularly during the first two quarters following the policy rate change.

Higher price stickiness slows the initial adjustment process without affecting the ultimate size of the price response once convergence has taken place, as illustrated by the initial and diminishing gap between the specification with $\theta = 0.4$ and $\theta = 0.6$, corresponding to the red line with circles and the black line with crosses, respectively. While nominal rigidity critically shapes the early dynamics of price adjustment, its importance recedes after the first half-year. This result supports the DSGE modeling practice of incorporating the working capital channel to account for the size of the short- to medium-run price puzzle, while calibrating price stickiness to capture the gradual adjustment dynamics that are not solely explained by the working capital channel.

Implications in general equilibrium The general equilibrium implications of a calibrated working capital channel are examined by applying the same modifications to the model of [Christiano et al. \(2005\)](#) as in the partial equilibrium analysis. The specific assumptions are that labor costs are partly pre-funded and that the working capital sensitivity parameter is calibrated to the regression estimates¹². Figure 10 compares the impulse responses of output and inflation after an interest rate shock under parameter values for the working capital channel calibrated to the data, alongside the original calibration of [Christiano et al. \(2005\)](#) ($1 - \alpha = 1, \delta = 1$) and a scenario without a working capital channel ($1 - \alpha = 0, \delta = 0$). The price stickiness parameter is assumed to be 0.6, as in the original calibration of [Christiano et al. \(2005\)](#), so that the only modification to the model is with respect to the working capital channel.

The solid black line in Figure 10 corresponds to the scenario where there is no working capital channel ($\delta = 0$ and $1 - \alpha = 0$), whereas the red dash-dotted line corresponds to

¹²In [Christiano, Eichenbaum and Evans \(2005\)](#), there are two inputs, capital and labor, and labor is assumed to be fully pre-funded, equivalent to choosing $1 - \alpha = 1$ and $\delta = 1$.

the assumption that there is a one-to-one pass-through from interest rate changes to prices ($\delta = 1$ and $1 - \alpha = 1$), implicitly applied in current models [Christiano et al. \(2005\)](#); [Corbo and Strid \(2020\)](#); [Burgess et al. \(2013\)](#). The contrast between the solid and dash-dotted lines demonstrates that the working capital channel, calibrated or not, is crucial for generating the price puzzle. Omitting it results in a negative correlation between prices and interest rates as demand effects dominate.

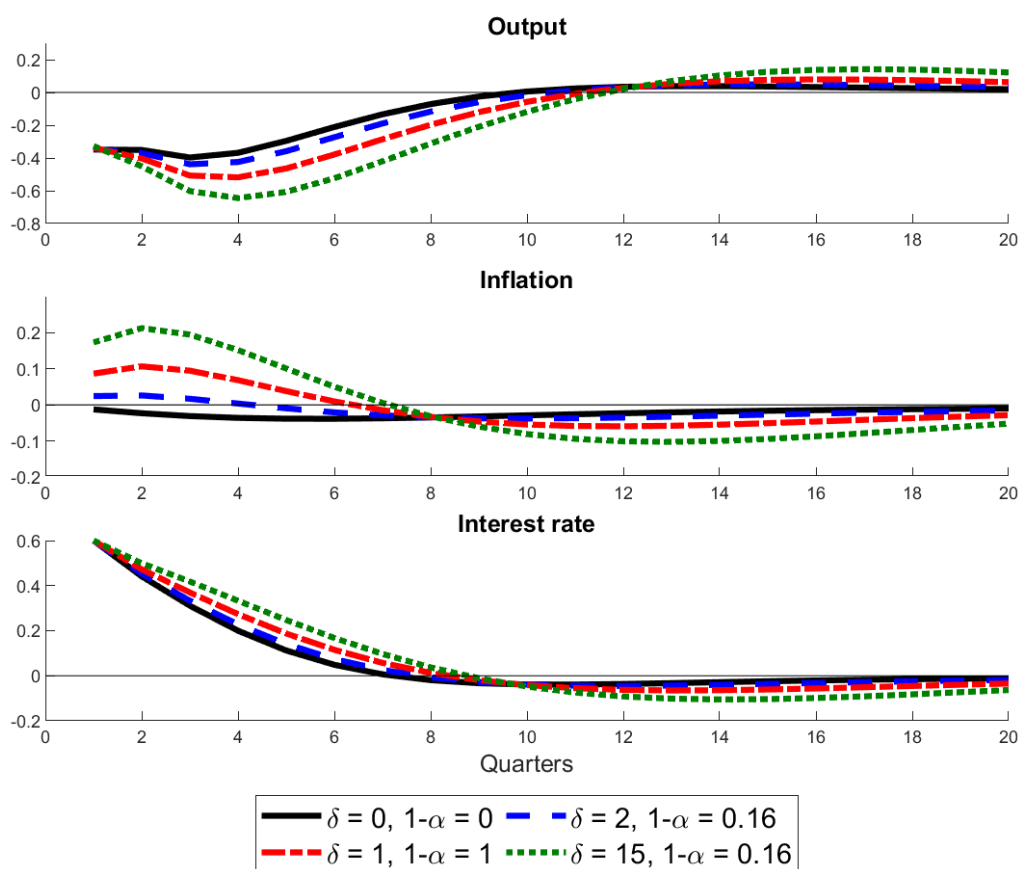


Figure 10: Sensitivity analysis of the working capital channel in the general equilibrium model of [Christiano, Eichenbaum and Evans \(2005\)](#) with price stickiness $\theta = 0.6$.

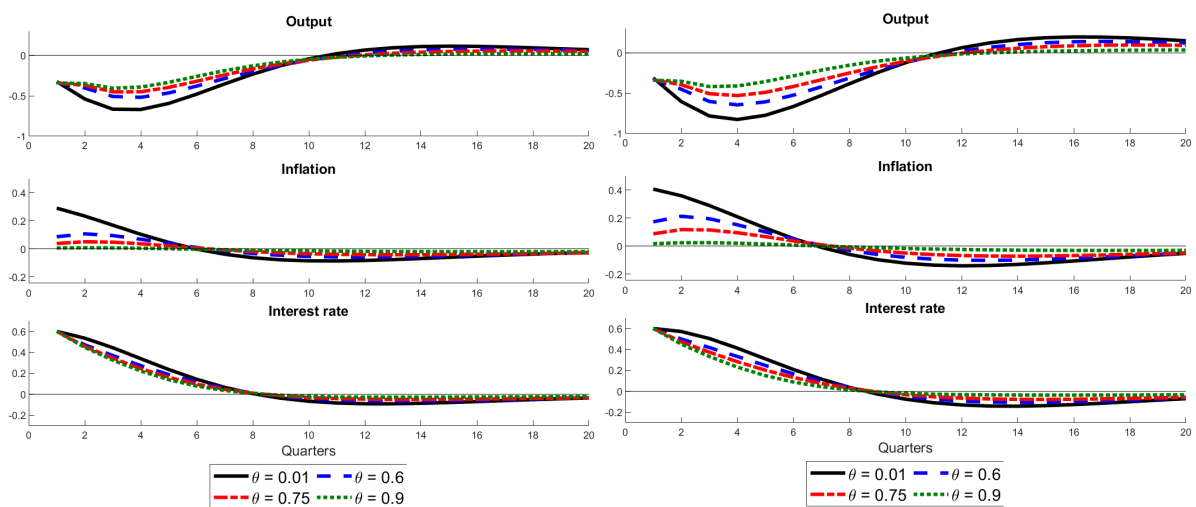
The blue dashed and the green dotted lines depict the impulse responses when the firms' working capital share ($1 - \alpha = 0.16$) is calibrated to the data and the working capital sensitivity is calibrated to the estimated regression coefficients. $\delta = 2$ and $\delta = 15$ correspond to the simple-average and sales-weighted estimates, respectively. The response based on the simple-average coefficient (indicated by the blue dashed line) is substantially smaller than the response

generated under the calibration with fully pre-funded wage costs and a working capital sensitivity of one, as used in current models (indicated by the red dash-dotted line). In contrast, the green dotted line, based on the sales-weighted estimate, depicts a significantly larger effect on both inflation and output. Specifically, the calibration to the sales-weighted working capital estimates portrays a 10 percent more pronounced increase in prices after two quarters than in calibrations of current models (Christiano et al., 2005; Corbo and Strid, 2020; Burgess et al., 2013), and almost 20 percent more relative to assuming a value that represents the simple average. This finding suggests that accurately accounting for the working capital channel in general equilibrium models may be important for better predicting the short- to medium-run responses of core variables, and that the working capital channel may in the short- to medium-run create doubt about the interventions of central banks if contractionary policies first generate a higher level of inflation than what is predicted by the models used by central banks.

To investigate the role of price stickiness in the presence of a working capital channel, the simulations in Figure 11 show the impulse responses assuming different values for the price stickiness parameter $\theta = 0.01, 0.6, 0.75, 0.9$. The case $\theta = 0.01$ represents almost flexible prices. The values for θ correspond to calibrations in existing models, with Christiano et al. (2005) applying $\theta = 0.6$, the Swedish Central Bank's previous model Ramses II using $\theta = 0.75$ where the Bayesian calibration is based on the firm-level microeconomic findings of Apel, Friberg and Hallsten (2005), and the Swedish Central Bank's current model Maja adopting $\theta = 0.9$ where calibration relies on aggregate CPI data. The highest assumed value also approximates the calibration proposed by Nakamura and Steinsson (2013) who recommend $\theta = 0.882$ based on BLS CPI microdata.

The panels in Figure 11a correspond to a non-calibrated working capital channel, with both parameters set to one ($1 - \alpha = 1$ and $\delta = 1$). The panels in Figure 11b display the working

capital channel with the working capital share and sensitivity calibrated to economy average ($1 - \alpha = 0.16$) and the sales-weighted estimate ($\delta = 15$), respectively. The shape of the impulse responses is almost identical between the left and the right panels for each calibration of the price stickiness parameter, irrespective of the values assumed for the working capital channel. The results show that reduced price stickiness leads to a more distinct hump-shaped response across both working capital calibrations, highlighting its role as the primary determinant of the response shape.



(a) Working capital share and sensitivity calibrated to one, i.e. $1 - \alpha = 1$ and $\delta = 1$ as in [Christiano et al. \(2005\)](#). (b) Working capital share and sensitivity calibrated to economy average ($1 - \alpha = 0.16$) and the sales-weighted estimate ($\delta = 15$), respectively

Figure 11: The working capital channel and price stickiness in general equilibrium.

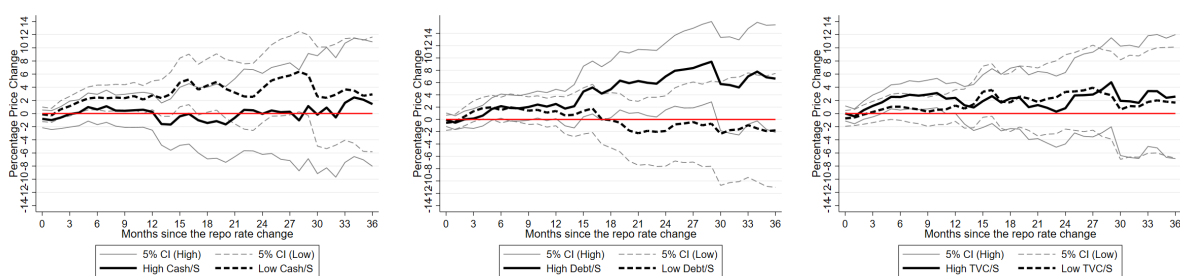
The working capital channel, in contrast, governs the overall magnitude of the price response. For instance, assuming $\theta = 0.6$ as in [Christiano et al. \(2005\)](#) and comparing the blue dashed lines in Figures 11a and 11b shows that replicating an inflationary response above 0.1 requires the stronger working capital channel observed in the data. The limiting case in both figures, where prices are almost flexible (black solid lines, corresponding to $\theta = 0.01$), shows a 10 percent lower inflationary response with a working capital channel that is chosen without empirical calibration (11a), relative to the channel calibrated to the data (11b). These results show that nominal rigidities have only a limited capacity to explain the strength of the observed

price response and suggest that the working capital channel may better account for its overall magnitude.

Although the working capital channel appears to play a significant role in the price-setting behavior of domestic firms in both the data and the general equilibrium model, its importance diminishes in the model when price stickiness is assumed to be high. For example, when the model is calibrated to aggregate CPI data with $\theta = 0.9$, even a well-calibrated working capital channel generates only a minimal price puzzle. In such cases, any positive value of the working capital parameters is enough to generate the comovement between prices and interest rates, though the channel can contribute only little to the magnitude of short-run price dynamics.

6 Heterogeneity in the working capital channel

To assess whether the working capital channel functions differently across firms with distinct financial characteristics, Figures 12a–12c and the corresponding tables in Appendix A.20 present three specifications in which firms are divided into ‘high’ and ‘low’ groups depending on whether their cash holdings, short-term debt, and total variable cost ratios lie above or below the mean within their year–HS2 product group.



(a) Firms with high and low cash-to-sales (b) Firms with high and low short-term debt-to-sales (c) Firms with high and low variable cost-to-sales

Figure 12: Simple average IV estimates. The working capital effect across firms with high and low cash-to-sales, short-term debt-to-sales and total variable cost-to-sales ratios. High is an indicator that equals one when the firm’s value is above the year–HS2-product mean, otherwise zero. The corresponding tables are presented in Appendix A.20.

Figure 12a shows that firms with lower relative cash holdings, which may be liquidity constrained, increase their prices upon a negative cost shock from the increased interest rates, in line with the findings of Gilchrist et al. (2017). The estimated coefficients range from 1.8 to 4.8 percent for firms with relatively low cash holding ratios 4 to 19 months after the repo rate change, while they are not statistically or economically different from zero for ‘high’ firms.

Similarly, firms that have relatively more debt seem to increase prices more (2-8 percent) in the longer horizon between 9-34 months (Figure 12b), supporting the notion that liquidity-constrained firms may be forced to raise prices, unlike their more liquid counterparts. Firms with higher total variable cost-to-sales ratios also raise prices more strongly following a repo rate change (Figure 12c). Over the 5-12 month horizon, these firms increase prices by 2.4-2.5 percent, indicating that firms with larger variable costs may be more exposed to policy rate changes through their higher cost burden.

7 Conclusion

This paper examines how policy rate changes are transmitted to producer prices through the working capital channel. The firm side of the New Keynesian model is modified to incorporate an explicit working capital channel, where the price response depends on each firm’s working capital share and its working capital sensitivity, i.e., the elasticity of prices to interest rates due to firms’ exposure to the shares. The study measures firms’ working capital shares and sensitivities utilizing a unique firm-product-level price indices and firm-level balance sheet data from Sweden. The parameter estimates are then used to simulate outcomes within an otherwise standard New Keynesian model with Calvo-type price stickiness.

The sales-weighted instrumental variable regressions reveal that a one percentage point increase in the repo rate, instrumented by high-frequency monetary policy shocks, leads to a

substantial price increase, with effects ranging from 3 to 16 percent over a 3- to 33-month horizon. For an average firm with a 16 percent working capital-to-sales ratio, this translates to a price increase of approximately 0.48 to 2.56 percent over the same period, highlighting the importance of the working capital channel as a pricing mechanism.

The identified effects indicate that accurately calibrating the working capital shares and the working capital pass-through sensitivity can enhance the precision of general equilibrium models. The implications are particularly relevant for central banks, as the estimated pass-through coefficient suggests that the working capital channel may lead to stronger immediate inflationary responses to contractionary policies than current models predict.

A Appendix

A.1 The firm's cost structure

The firm produces its final good Y_{it} combining a prepaid input M_{it} and a non-prepaid input K_{it}

$$Y_{it} = A_t M_{it}^{1-\alpha_i} K_{it}^{\alpha_i}$$

The total cost of the firm is

$$TC_{it}(N_t, R_t^k, Y_{it}, A_t) = N_t(1 + i_t)^{\delta_i} M_{it} + R_t^k K_{it},$$

where N_t is the price per unit of the prepaid input, R_t^k is the price of the non-prepaid input, and i_t is the interest rate¹³. The parameter δ_i governs the sensitivity of the firm's cost and prices to the gross nominal interest rate $1 + i_t$.

Solving for K_{it} from the production function and substituting to create the unconstrained problem yields

$$TC_{it} = N_t(1 + i_t)^{\delta_i} M_{it} + R_t^k \left(\frac{Y_{it}}{A_t M_{it}^{1-\alpha_i}} \right)^{\frac{1}{\alpha_i}}.$$

The first-order condition is given by

$$\frac{\partial TC_{it}}{\partial M_{it}} = N_t(1 + i_t)^{\delta_i} - R_t^k \cdot \frac{1 - \alpha_i}{\alpha_i} \left(\frac{Y_{it}}{A_t M_{it}^{1-\alpha_i}} \right)^{\frac{1}{\alpha_i}} \cdot \frac{1}{M_{it}}.$$

Solving for M_{it}^* and K_{it}^*

$$M_{it}^* = \left(\frac{1 - \alpha_i}{\alpha_i} \frac{R_t^k}{N_t(1 + i_t)^{\delta_i}} \right)^{\alpha_i} \frac{Y_{it}}{A_t}$$

$$K_{it}^* = \left(\frac{\alpha_i}{1 - \alpha_i} \frac{N_t(1 + i_t)^{\delta_i}}{R_t^k} \right)^{1-\alpha_i} \frac{Y_{it}}{A_t}.$$

¹³Note that in the standard New Keynesian model, the means of obtaining the financing to pre-fund variable costs is not explicitly defined. Potential microfoundations may include financing via bank loans, trade credit or equity.

Substituting M_{it}^* and K_{it}^* to the total cost function and simplifying it to

$$TC_{it} = \left(\frac{1}{1 - \alpha_i} \right)^{1 - \alpha_i} \left(\frac{1}{\alpha_i} \right)^{\alpha_i} (N_t(1 + i_t)^{\delta_i})^{1 - \alpha_i} R_t^{\alpha_i} \frac{Y_{it}}{A_t}.$$

Thus, the nominal marginal cost in log form is

$$\begin{aligned} \widetilde{mc}_{it} &= -(1 - \alpha_i) \ln(1 - \alpha_i) - \alpha_i \ln(\alpha_i) + (1 - \alpha_i)n_t + (1 - \alpha_i)\delta_i R_t + \alpha_i r_k - a_t, \\ (10) \quad \widetilde{mc}_{it} &= C + (1 - \alpha_i)\delta_i R_t + mc_t, \end{aligned}$$

where the lower case letters are variables in logs, mc_t denotes those log nominal marginal costs exclusive of financing costs and $R_t = \ln(1 + i_t)$. For simplicity, financing costs are assumed to be common to all firms ex ante any disturbances. Given the log-log relationship, the coefficient δ_i can be interpreted as “the working capital elasticity”, a percentage change in $\widetilde{mc}_{i,t}$ given a one percent change in R_t .

A.2 The firm’s price setting equation

In every period, a set of firms in the economy cannot change their posted prices, so the firm’s objective is to maximize profits, taking into account that prices are sticky. The firm chooses the optimal price $P_{i,t}^*$ to maximize the current market value of its profits. The firm takes into consideration the households’ discount factor ($Q_{t,t+k}$) and the fact that the price remains effective for k periods with probability θ^k .

$$(11) \quad \max_{P_{i,t}^*} \sum_{k=0}^{\infty} \theta^k E_t \left\{ Q_{t,t+k} \left(\frac{1}{P_{t+k}} \right) (P_{i,t}^* Y_{i,t+k|t} - TC_{i,t+k|t}^n(Y_{i,t+k|t})) \right\}$$

subject to the sequence of firm-specific demand constraints

$$(12) \quad Y_{i,t+k|t} = \left(\frac{P_{i,t}^*}{P_{t+k}} \right)^{-\epsilon} C_{i,t+k}.$$

Equation (12) states that the demand for output in period $t + k$ for a firm that sets its price in period t is determined by the ratio of the optimal reset price, the price level in $t + k$, and

consumption ($C_{i,t+k}$). The first-order condition is

$$(13) \quad \sum_{k=0}^{\infty} \theta^k E_t \left\{ Q_{t,t+k} Y_{i,t+k|t} \left[(\epsilon - 1) - \epsilon \frac{MC_{i,t+k|t}^n}{P_{i,t}^*} \right] \right\} = 0.$$

Now, let $\Pi_{i,t}^* \equiv P_{i,t}^*/P_{i,t-1}$, $\Pi_{t+k,t} \equiv P_{t+k}^*/P_t$, $MC_{i,t}^r = MC_{i,t}^n/P_t$, denote $\frac{\epsilon}{\epsilon-1} \equiv \mathcal{M}$ and divide by P_{t-1} , then Equation (13) can be rearranged in the following way

$$(14) \quad \sum_{k=0}^{\infty} \theta^k E_t \left\{ Q_{t,t+k} Y_{i,t+k|t} \left[\Pi_{i,t}^* - \mathcal{M} MC_{i,t+k|t}^r \Pi_{t+k,t} \right] \right\} = 0$$

The optimal price setting condition can be log-linearized around the firm-specific perfect foresight zero inflation steady state where $Q_{t,t+k} = \beta^k$ and $\frac{P_{i,t}^*}{P_{t+k}} = \frac{P_{i,t}}{P_{t+k}} = 1$. Log-linearization of the firm's optimal price setting condition yields

$$(15) \quad \bar{\Pi}_i \frac{\ln \Pi_{i,t}^* - \ln \bar{\Pi}_i}{1 - \beta\theta} - \sum_{k=0}^{\infty} (\theta\beta)^k E_t \left\{ \mathcal{M} \bar{MC}_i^r \left[\ln MC_i^r - \bar{MC}_i^r + \ln \Pi_{t+k,t-1} - 0 \right] \right\} = 0.$$

Note that in steady state $\bar{\Pi}_i = \mathcal{M} \bar{MC}_i^r$. Define $\ln \Pi_{i,t}^* \equiv \pi_{i,t}^*$ to be the firm-specific optimal inflation rate, $\ln \Pi_{t+k,t} \equiv \pi_{t+k,t}$ and $\ln MC_{i,t}^r \equiv mc_{i,t}^r$ to get

$$(16) \quad p_{i,t}^* - p_{i,t-1} - \bar{\pi}_i = (1 - \theta\beta) \sum_{k=0}^{\infty} (\theta\beta)^k E_t \left\{ mc_{i,t+k|t}^n - p_{t+k} - \bar{mc}_i^n + p_{t+k} - p_{i,t-1} \right\}.$$

Using the steady-state condition that $\bar{\pi}_i = \ln \mathcal{M} + \bar{mc}_i^r$, it is possible to simplify (16) as

$$(17) \quad p_{i,t}^* = \mu + (1 - \theta\beta) \sum_{k=0}^{\infty} (\theta\beta)^k E_t [mc_{i,t+k|t}^n],$$

where $mc_{i,t+k|t}^n$ is the log nominal marginal cost and $\mu \equiv \ln \mathcal{M} = \ln \left(\frac{\epsilon}{\epsilon-1} \right)$ is the desired steady state markup. Equation (17) shows that the firm's optimal reset price is a function of the desired markup and the weighted average of current and expected nominal marginal costs with the weights being proportional to the probability of the price remaining effective at each horizon (θ^k). Inserting expression (10) into the firm's price-setting equation yields

$$(18) \quad p_{i,t}^* = \mu + (1 - \theta\beta) \sum_{k=0}^{\infty} (\theta\beta)^k E_{i,t} [(1 - \alpha_i) \delta_i R_{t+k|t} + mc_{i,t+k|t}^n].$$

Equation (18) shows that the effect of R_t on producer prices is determined by δ_i , the working capital sensitivity or elasticity, and the share of the pre-funded input $1 - \alpha_i$.

A.3 Price response to a one time unexpected, permanent shock

The aggregate price effect of interest rate changes is analyzed by considering an economy characterized by price stickiness θ , an average pre-funding requirement $1 - \alpha$, and sensitivity δ . Price inflation can be written as

$$(19) \quad \pi_t \equiv p_t - p_{t-1} = (1 - \theta)(p_t^* - p_{t-1}),$$

Combining Equation (19) with the assumption that optimal reset prices follow a random walk $p_t^* = p_{t-1}^* + (1 - \alpha)\delta\epsilon_t$, the price response after an innovation to R_t can be written as

$$p_t - p_{t-1} = (1 - \theta)(p_{t-1}^* - p_{t-1} + (1 - \alpha)\delta\epsilon_t).$$

The price response over a one period longer horizon and with no new shock, i.e., $\epsilon_{t+1} = 0$, can be written as

$$\begin{aligned} p_{t+1} - p_{t-1} &= \theta p_t + (1 - \theta)p_{t+1}^* - p_{t-1} \\ &= \theta^2 p_{t-1} + (1 - \theta)\theta p_t^* + (1 - \theta)p_t^* - p_{t-1} \\ &= (\theta^2 - 1)p_{t-1} + (1 - \theta^2)p_t^* \\ &= (1 - \theta^2)(p_t^* - p_{t-1}) \\ &= (1 - \theta^2)(p_{t-1}^* - p_{t-1} + (1 - \alpha)\delta\epsilon_t). \end{aligned}$$

Generalizing to k periods yields

$$(20) \quad p_{t+k} - p_{t-1} = (1 - \theta^{k+1})(p_{t-1}^* - p_{t-1} + (1 - \alpha)\delta\epsilon_t).$$

A.4 Data

Summary statistics Table 1 shows the summary statistics of the firms' percentage price changes at 12 horizons, the repo rate changes, the high-frequency shocks and the firms' lagged working capital-to-sales ratio and sales.

Table 1: Summary statistics of the main variables

	Mean	SD	Min	Max
Lagged W/S	0.16	0.13	-0.90	1.00
Lagged S (bSEK)	1.86	7.16	0.00	121.48
$p(t)-p(t-1)$	0.11	1.81	-44.83	45.33
$p(t+1)-p(t-1)$	0.24	2.14	-14.98	16.21
$p(t+2)-p(t-1)$	0.36	2.43	-12.76	14.67
$p(t+3)-p(t-1)$	0.48	2.65	-11.83	14.19
$p(t+4)-p(t-1)$	0.60	2.84	-11.04	13.86
$p(t+5)-p(t-1)$	0.72	2.99	-10.66	13.58
$p(t+6)-p(t-1)$	0.84	3.14	-10.27	13.44
$p(t+7)-p(t-1)$	0.95	3.27	-9.98	13.35
$p(t+8)-p(t-1)$	1.07	3.41	-9.88	13.24
$p(t+9)-p(t-1)$	1.19	3.52	-9.62	13.08
$p(t+10)-p(t-1)$	1.30	3.63	-9.41	12.94
$p(t+11)-p(t-1)$	1.43	3.75	-9.10	12.94
$p(t+12)-p(t-1)$	1.54	3.90	-8.80	12.97
$R(t)-R(t-1)$	-0.02	0.13	-0.65	0.25
HF shock	-0.01	0.05	-0.29	0.12

Within industry variation of working capital shares The distribution of working capital shares within the steel and Vehicles industries.

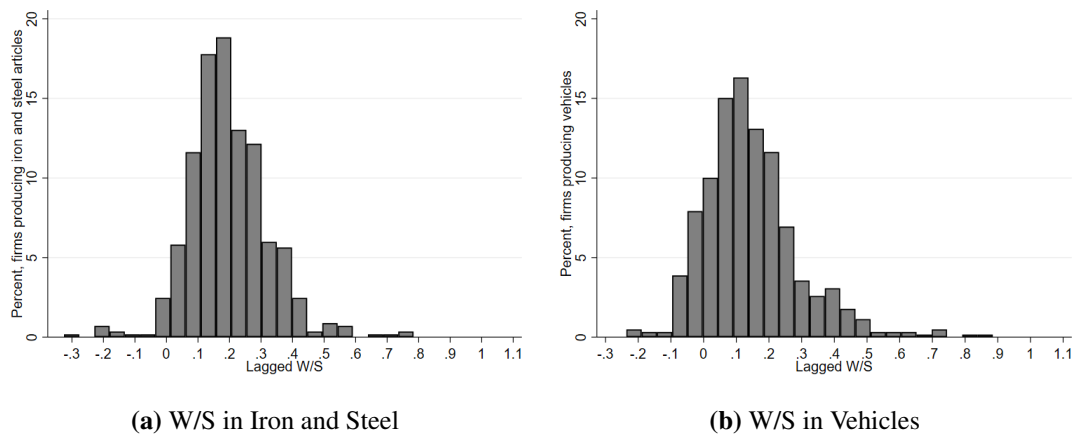


Figure 13: Within industry variation of the working capital-to-sales ratio.

Sample and the population The comparative summary of the number of firms and sales between the sample and the population shows that the sample covers 17 percent of the country's economic activity, and 57 percent of the manufacturing sector's activity.

Table 2: Comparative summary of the number of firms and sales between the sample and the population

	Sample	Economy
Number of Firms	1,922	1,447,025
Number of Firms in Manufacturing	1,746	79,335
Number of Firms min 2 Employee in Manufacturing	1,741	31,545
Sales shares		
Sample/Economy Sales (2015)	17%	
Manufacturing Sample/Manufacturing Population Sales (2015)	57%	

Firm characteristics in the sample and the population Table 3 corroborates that the working capital-to-sales distribution in the sample is most representative of the manufacturing sector.

Table 3: Summary statistics of firm characteristics in the sample and in the population

	Mean	SD	Min	Max
<i>Sample</i>				
Lagged W/S	0.16	0.13	-0.90	1
Lagged S (bSEK)	1.86	7.16	0	121.48
Lagged Inventories (mSEK)	191	629	-1	11136
Lagged Receivables (mSEK)	157	713	-34	45293
Lagged Payables (mSEK)	161	690	0	16522
Lagged Prepayments (mSEK)	30	266	-4	5133
Lagged TVC/S	0.0007	0.0002	-0.0002	0.0108
Lagged Cash/S	4	394	-21	39828
Lagged Debt/S	401	40496	0	4096090
<i>Manufacturing Firm Population</i>				
Lagged W/S	0.13	0.18	-1	1
Lagged Sales (bSEK)	0.04	0.95	0	130.53
Lagged Inventories (mSEK)	5.20	90.33	-193.44	11136.07
Lagged Receivables (mSEK)	4.10	103.94	-143.13	41668
Lagged Payables (mSEK)	3.66	100	-15.85	40960
Lagged Prepayments (mSEK)	0.56	30.68	-12.85	7263.63
Lagged TVC/S	-0.01	3.92	-1460.64	943.95
Lagged Cash/S	-160.58	136270.07	-9.69e+07	19648460
Lagged Debt/S	-328.44	2675711.32	-1.77e+09	6.78e+08
<i>Firm Population</i>				
Lagged W/S	0.07	0.18	-1	1
Lagged Sales (bSEK)	0.01	0.33	-0.30	130.53
Lagged Inventories (mSEK)	0.80	29.56	-193.44	15719.67
Lagged Receivables (mSEK)	0.95	40.83	-158.70	45292.60
Lagged Payables (mSEK)	0.75	33.47	-165.86	40960
Lagged Prepayments (mSEK)	0.10	10.53	-71.58	7263.63
Lagged TVC/S	0	14.41	-5428.45	40698.23
Lagged Cash/S	-23.17	126006.18	-1.48e+08	2.00e+08
Lagged Debt/S	141.15	5601129.87	-1.50e+10	3.75e+09

A.5 Construction and summary statistics of the high-frequency shocks

The unexpected change in the repo rate is calculated using the following formula

$$(21) \quad \Delta repo_t^{shock} \approx \frac{[t_t^{STINA} - t_{t-1}^{STINA}(\tau_1 + \tau_2) - \Delta repo_t]}{\tau_2 - 1},$$

where t represents the announcement or publication date of the new repo rate, τ_1 is the number of days the contract has run before the implementation of the new repo rate and τ_2 is the number of remaining days of the contract's maturity after the implementation of the new repo rate.

The method developed by [Gertler and Karadi \(2015\)](#) is used to calculate a monthly average

of the cumulated daily shocks which is cumulated over the full sample over all d days. First, a sum of the shocks over the full sample is taken

$$(22) \quad shock_d^{cumulated} = \sum_{s=1}^d shock_s.$$

Then, monthly averages are constructed

$$(23) \quad ma_t = \frac{\sum_{d=d_t^1}^{d_t^T} shock_d^{cumulated}}{d_t^T},$$

where T is the number of trading days in month t . Finally, the difference in monthly averages is expressed to obtain monthly monetary policy shocks

$$(24) \quad Z_t = ma_t - ma_{t-1},$$

where Z_t captures the unexpected change in the average policy rate between two subsequent months.

The time-series variation in high-frequency shocks and repo rate changes is depicted in Figure 14. It appears that financial market participants are less likely to be surprised by positive changes in the repo rate. For example, shocks are very small during the interest rate hikes in the periods between 2006-2008 and between 2011-2012. On the other hand, shocks are negative when there is a decrease in the repo rate, indicating that the change in the repo rate seems to be smaller than what financial markets forecast. Considering the extreme outlier in 2008 December, the shock was -.58, whereas the repo rate decreased by -1.1 percent, from 3.75 to 2.65.

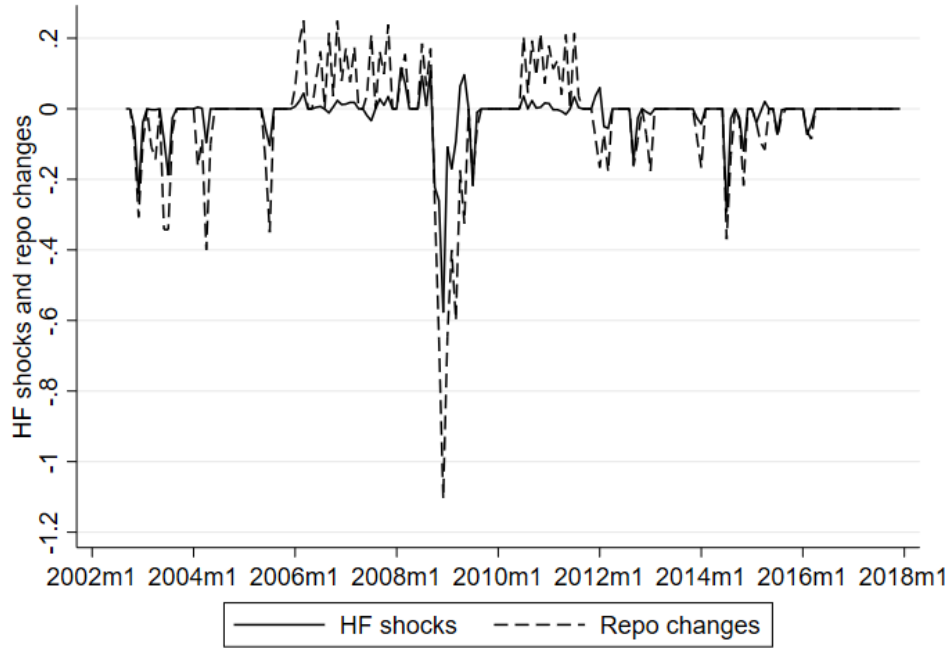


Figure 14: Monthly high-frequency shocks and actual repo rate changes 2002-2017.

The summary statistics for the shocks and repo rate changes are included in Table 4. The standard deviation of the high-frequency shock series (0.05) is about a third of the actual repo rate changes (0.14), and its mean is close to zero (-0.01).

Table 4: Summary statistics of the repo rate changes and the HF shocks.

	Mean	SD	Min	Max
HF shock	-0.01	0.05	-0.29	0.12
HF shock	0.02	0.05	0.00	0.29
ΔR	-0.02	0.14	-0.65	0.25

A.6 Main results

A.6.1 Selected horizons

Table 5: The price effect of a policy rate change via the working capital channel, unweighted instrumental variable regressions.

	p(t+1)-p(t-1)	p(t+3)-p(t-1)	p(t+6)-p(t-1)	p(t+9)-p(t-1)	p(t+12)-p(t-1)	p(t+18)-p(t-1)	p(t+24)-p(t-1)	p(t+30)-p(t-1)
Lagged W/S $\times$ Δ R	-0.448 (0.491)	0.753 (0.709)	1.836* (0.880)	1.710+ (0.961)	1.927+ (1.037)	2.319 (1.958)	2.422 (2.407)	1.510 (3.599)
Lagged S $\times$ Δ R	0.00547 (0.00927)	0.0146 (0.0129)	0.00339 (0.0153)	0.00971 (0.0218)	0.0213 (0.0208)	0.0313 (0.0391)	0.0383 (0.0503)	0.0200 (0.0532)
Lagged S	0.0248 (0.0535)	0.0118 (0.0662)	0.0670 (0.0794)	0.0350 (0.0896)	-0.0667 (0.0988)	-0.148 (0.178)	0.0331 (0.238)	0.614+ (0.314)
Observations	98991	98991	98991	98991	98991	87100	75647	66820
Product-month FEs	x	x	x	x	x	x	x	x
Clustered SE (firm $\times$ month)	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. Regression specification is in equation (7). The complete tables are included in Appendix A.6.

Table 6: The price effect of a policy rate change via the working capital channel, sales-weighted instrumental variable regressions.

	p(t+1)-p(t-1)	p(t+3)-p(t-1)	p(t+6)-p(t-1)	p(t+9)-p(t-1)	p(t+12)-p(t-1)	p(t+18)-p(t-1)	p(t+24)-p(t-1)	p(t+30)-p(t-1)
Lagged W/S $\times$ Δ R	-0.332 (1.052)	3.164* (1.526)	5.301** (2.051)	5.872* (2.537)	7.219* (2.870)	14.71** (4.797)	16.87** (6.241)	14.40+ (7.437)
Lagged S $\times$ Δ R	0.00794 (0.00924)	0.0298* (0.0125)	0.0136 (0.0165)	0.0174 (0.0238)	0.0275 (0.0243)	0.0503 (0.0357)	0.0757 (0.0473)	0.0548 (0.0583)
Lagged S	0.0481 (0.140)	0.0563 (0.185)	0.0223 (0.238)	-0.229 (0.286)	-0.580+ (0.333)	0.00920 (0.569)	0.853 (0.744)	1.273 (0.878)
Observations	98991	98991	98991	98991	98991	87100	75647	66820
Product-month FEs	x	x	x	x	x	x	x	x
Clustered SE (firm $\times$ month)	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. Regression specification is in equation (7). The complete tables are included in Appendix A.6.

A.6.2 All horizons

Table 7: The price effect of a policy rate change via the working capital channel, unweighted instrumental variable regressions.

	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)
Lagged W/S $\times \Delta R$	-0.300 (0.488)	-0.448 (0.491)	0.244 (0.608)	0.753 (0.709)	1.237 ⁺ (0.740)	1.845* (0.818)	1.836* (0.880)	1.910* (0.940)
Lagged S $\times \Delta R$	0.00358 (0.00873)	0.00547 (0.00927)	0.0201 (0.0142)	0.0146 (0.0129)	0.0167 (0.0137)	0.00667 (0.0141)	0.00339 (0.0153)	-0.00355 (0.0180)
Lagged S	-0.00530 (0.0436)	0.0248 (0.0535)	0.0309 (0.0608)	0.0118 (0.0662)	0.0383 (0.0709)	0.0828 (0.0757)	0.0670 (0.0794)	0.0647 (0.0830)
Observations	98991	98991	98991	98991	98991	98991	98991	98991
	p(t+8)-p(t-1)	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)
Lagged W/S $\times \Delta R$	1.770 ⁺ (0.925)	1.710 ⁺ (0.961)	1.970* (0.975)	1.580 (1.007)	1.927 ⁺ (1.037)	1.183 (1.290)	1.434 (1.564)	2.929 ⁺ (1.730)
Lagged S $\times \Delta R$	0.0109 (0.0196)	0.00971 (0.0218)	0.0115 (0.0210)	0.0140 (0.0217)	0.0213 (0.0208)	0.00546 (0.0266)	0.0402 (0.0393)	0.0744 (0.0561)
Lagged S	0.0348 (0.0864)	0.0350 (0.0896)	-0.00262 (0.0925)	-0.0468 (0.0958)	-0.0667 (0.0988)	-0.155 (0.113)	-0.128 (0.129)	-0.129 (0.144)
Observations	98991	98991	98991	98991	98991	97032	95020	93023
	p(t+16)-p(t-1)	p(t+17)-p(t-1)	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)
Lagged W/S $\times \Delta R$	3.446 ⁺ (1.791)	2.086 (1.828)	2.319 (1.958)	2.813 (2.050)	1.958 (2.123)	1.888 (2.236)	1.926 (2.332)	1.770 (2.380)
Lagged S $\times \Delta R$	0.0455 (0.0430)	0.0209 (0.0408)	0.0313 (0.0391)	0.0245 (0.0381)	0.0247 (0.0426)	0.0260 (0.0453)	0.0297 (0.0421)	0.0374 (0.0489)
Lagged S	-0.114 (0.156)	-0.133 (0.167)	-0.148 (0.178)	-0.104 (0.189)	-0.101 (0.200)	-0.121 (0.211)	-0.0736 (0.219)	-0.0913 (0.228)
Observations	91049	89076	87100	85124	83129	81151	79182	77235
	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)
Lagged W/S $\times \Delta R$	2.422 (2.407)	3.430 (2.535)	3.587 (2.757)	3.812 (2.829)	3.788 (2.897)	4.167 (2.955)	1.510 (3.599)	1.733 (3.689)
Lagged S $\times \Delta R$	0.0383 (0.0503)	0.0367 (0.0459)	0.0584 (0.0590)	0.0556 (0.0584)	0.0459 (0.0570)	0.0529 (0.0563)	0.0200 (0.0532)	0.0211 (0.0551)
Lagged S	0.0331 (0.238)	0.180 (0.252)	0.356 (0.266)	0.507 ⁺ (0.281)	0.619* (0.296)	0.619* (0.306)	0.614 ⁺ (0.314)	0.661* (0.325)
Observations	75647	74181	72675	71191	69732	68281	66820	65363
	p(t+32)-p(t-1)	p(t+33)-p(t-1)	p(t+34)-p(t-1)	p(t+35)-p(t-1)	p(t+36)-p(t-1)			
Lagged W/S $\times \Delta R$	1.601 (3.654)	2.840 (3.659)	2.945 (3.748)	2.314 (3.911)	2.305 (4.039)			
Lagged S $\times \Delta R$	0.0188 (0.0579)	0.0295 (0.0573)	0.0440 (0.0583)	0.0381 (0.0561)	0.0173 (0.0567)			
Lagged S	0.666* (0.337)	0.711* (0.349)	0.776* (0.361)	0.884* (0.375)	1.061** (0.386)			
Observations	63907	62455	60991	59529	58404			
Product-month FEs	x	x	x	x	x	x	x	x
Clustered SE (firm $\times$ month)	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. Regression specification is in equation (7).

Table 8: The price effect of a policy rate change via the working capital channel, sales-weighted instrumental variable regressions.

	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)
Lagged W/S $\times \Delta R$	0.648 (1.296)	-0.332 (1.052)	1.810 (1.438)	3.164* (1.526)	3.463* (1.642)	3.821+ (1.951)	5.301** (2.051)	6.980** (2.396)
Lagged S $\times \Delta R$	0.000293 (0.00866)	0.00794 (0.00924)	0.0228+ (0.0133)	0.0298* (0.0125)	0.0258* (0.0118)	0.0255+ (0.0140)	0.0136 (0.0165)	0.0173 (0.0179)
Lagged S	-0.00374 (0.121)	0.0481 (0.140)	0.0598 (0.167)	0.0563 (0.185)	0.0500 (0.208)	0.102 (0.222)	0.0223 (0.238)	-0.0175 (0.254)
Observations	98991	98991	98991	98991	98991	98991	98991	98991
	p(t+8)-p(t-1)	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)
Lagged W/S $\times \Delta R$	6.747** (2.485)	5.872* (2.537)	4.832+ (2.634)	6.885* (2.820)	7.219* (2.870)	7.986* (3.357)	7.950+ (4.156)	12.11* (4.888)
Lagged S $\times \Delta R$	0.0202 (0.0215)	0.0174 (0.0238)	0.0205 (0.0243)	0.0232 (0.0254)	0.0275 (0.0243)	0.0186 (0.0263)	0.0503+ (0.0294)	0.0878* (0.0348)
Lagged S	-0.125 (0.268)	-0.229 (0.286)	-0.380 (0.301)	-0.436 (0.319)	-0.580+ (0.333)	-0.496 (0.378)	-0.351 (0.424)	-0.293 (0.466)
Observations	98991	98991	98991	98991	98991	97032	95020	93023
	p(t+16)-p(t-1)	p(t+17)-p(t-1)	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)
Lagged W/S $\times \Delta R$	13.97** (4.947)	12.12* (4.851)	14.71** (4.797)	15.71** (5.246)	14.72** (5.445)	16.00** (5.618)	17.10** (5.907)	14.77* (6.188)
Lagged S $\times \Delta R$	0.0558+ (0.0332)	0.0473 (0.0355)	0.0503 (0.0357)	0.0427 (0.0389)	0.0431 (0.0435)	0.0488 (0.0459)	0.0490 (0.0456)	0.0715 (0.0462)
Lagged S	-0.163 (0.501)	-0.142 (0.536)	0.00920 (0.569)	0.157 (0.600)	0.302 (0.631)	0.456 (0.655)	0.549 (0.679)	0.649 (0.714)
Observations	91049	89076	87100	85124	83129	81151	79182	77235
	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)
Lagged W/S $\times \Delta R$	16.87** (6.241)	18.05** (6.478)	13.71* (6.743)	13.96* (6.723)	16.15* (6.887)	15.50* (7.265)	14.40+ (7.437)	14.94* (7.576)
Lagged S $\times \Delta R$	0.0757 (0.0473)	0.0863+ (0.0476)	0.0964+ (0.0511)	0.0968+ (0.0517)	0.0810 (0.0552)	0.0802 (0.0575)	0.0548 (0.0583)	0.0596 (0.0605)
Lagged S	0.853 (0.744)	1.045 (0.766)	1.259 (0.798)	1.467+ (0.818)	1.632+ (0.842)	1.474+ (0.861)	1.273 (0.878)	1.170 (0.901)
Observations	75647	74181	72675	71191	69732	68281	66820	65363
	p(t+32)-p(t-1)	p(t+33)-p(t-1)	p(t+34)-p(t-1)	p(t+35)-p(t-1)	p(t+36)-p(t-1)			
Lagged W/S $\times \Delta R$	15.17* (7.714)	16.28* (7.902)	16.42+ (9.018)	12.54 (9.053)	8.480 (8.880)			
Lagged S $\times \Delta R$	0.0532 (0.0638)	0.0468 (0.0642)	0.0608 (0.0656)	0.0876 (0.0628)	0.0750 (0.0622)			
Lagged S	1.231 (0.926)	1.252 (0.947)	1.294 (0.963)	1.357 (0.989)	1.241 (1.006)			
Observations	63907	62455	60991	59529	58404			
Product-month FEs	x	x	x	x	x	x	x	x
Clustered SE (firm $\times$ month)	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. Regression specification is in equation (7).

A.7 OLS

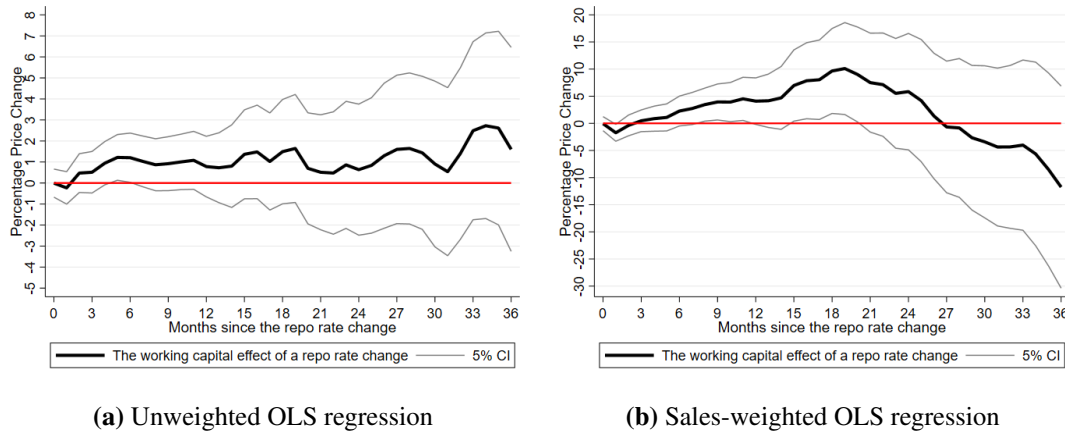


Figure 15: The price effect of a policy rate change via the working capital channel, uninstrumented. Note: the scales are not matching.

Table 9: The price effect of a policy rate change via the working capital channel, unweighted OLS regressions.

	p(t+1)-p(t-1)	p(t+3)-p(t-1)	p(t+6)-p(t-1)	p(t+9)-p(t-1)	p(t+12)-p(t-1)	p(t+18)-p(t-1)	p(t+24)-p(t-1)	p(t+30)-p(t-1)
Lagged W/S $\times$ ΔR	-0.231 (0.394)	0.514 (0.504)	1.205* (0.598)	0.921 (0.655)	0.783 (0.735)	1.492 (1.267)	0.637 (1.591)	0.904 (2.011)
Lagged S $\times$ ΔR	-0.00350 (0.00641)	-0.00127 (0.00859)	0.00634 (0.0114)	0.00787 (0.0138)	0.00333 (0.0151)	0.00811 (0.0245)	0.0172 (0.0337)	0.0136 (0.0369)
Lagged W/S	0.0210 (0.0510)	-0.00575 (0.0632)	0.0377 (0.0761)	-0.0187 (0.0862)	-0.132 (0.0957)	-0.215 (0.171)	-0.0812 (0.227)	0.448 (0.298)
Constant	0.234*** (0.0104)	0.477*** (0.0130)	0.832*** (0.0155)	1.196*** (0.0175)	1.564*** (0.0195)	2.381*** (0.0362)	3.254*** (0.0495)	3.910*** (0.0654)
Observations	102287	102287	102287	102287	102287	90340	78786	69914
Product-month FEs	x	x	x	x	x	x	x	x
Clustered SE (firm $\times$ month)	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales.

Table 10: The price effect of a policy rate change via the working capital channel, sales-weighted OLS regressions.

	p(t+1)-p(t-1)	p(t+3)-p(t-1)	p(t+6)-p(t-1)	p(t+9)-p(t-1)	p(t+12)-p(t-1)	p(t+18)-p(t-1)	p(t+24)-p(t-1)	p(t+30)-p(t-1)
Lagged W/S $\times$ ΔR	-1.728* (0.797)	0.481 (1.019)	2.275 (1.405)	3.949* (1.692)	4.101+ (2.187)	9.662* (3.994)	5.853 (5.471)	-3.402 (7.153)
Lagged S $\times$ ΔR	0.00588 (0.00604)	0.0135+ (0.00806)	0.00967 (0.0123)	0.00867 (0.0152)	-0.00434 (0.0180)	0.0256 (0.0280)	0.0624+ (0.0379)	0.0839+ (0.0447)
Lagged W/S	-0.0325 (0.125)	-0.114 (0.168)	-0.275 (0.227)	-0.654* (0.282)	-1.195*** (0.344)	-1.213* (0.617)	-1.020 (0.852)	-1.687 (1.147)
Constant	0.191*** (0.0215)	0.367*** (0.0300)	0.641*** (0.0397)	0.955*** (0.0483)	1.247*** (0.0559)	1.903*** (0.0929)	2.524*** (0.125)	2.976*** (0.157)
Observations	102287	102287	102287	102287	102287	90340	78786	69914
Product-month FEs	x	x	x	x	x	x	x	x
Clustered SE (firm $\times$ month)	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales.

A.8 Pass-through in high and low sales and working capital-share firms

Table 11: The working capital channel for firms with high and low working capital-to-sales ratios, unweighted regressions.

	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)	p(t+8)-p(t-1)
Lagged W/S $\times \Delta R \times$ High W/S	-0.416 (0.510)	-0.347 (0.509)	0.186 (0.618)	0.623 (0.719)	1.019 (0.746)	1.652* (0.805)	1.616+ (0.871)	1.591+ (0.923)	1.490 (0.928)
Lagged S $\times \Delta R \times$ High W/S	0.0342 (0.0254)	-0.0269 (0.0209)	0.0121 (0.0271)	0.0181 (0.0306)	0.0476 (0.0315)	0.0184 (0.0350)	0.0192 (0.0345)	0.0242 (0.0453)	0.0444 (0.0336)
Lagged W/S $\times \Delta R \times$ Low W/S	-0.448 (0.879)	0.464 (0.945)	3.341** (1.250)	4.799** (1.610)	4.560** (1.558)	6.937*** (1.788)	7.309*** (1.892)	9.220*** (2.041)	6.927*** (2.000)
Lagged S $\times \Delta R \times$ Low W/S	-0.000287 (0.00940)	0.0100 (0.00997)	0.0229 (0.0156)	0.0166 (0.0139)	0.0149 (0.0149)	0.00824 (0.0153)	0.00469 (0.0167)	-0.00263 (0.0193)	0.00979 (0.0215)
W/S	-0.00472 (0.0436)	0.0244 (0.0535)	0.0316 (0.0608)	0.0129 (0.0662)	0.0397 (0.0709)	0.0843 (0.0758)	0.0687 (0.0794)	0.0671 (0.0830)	0.0368 (0.0864)
Observations	98991	98991	98991	98991	98991	98991	98991	98991	98991
	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)	p(t+16)-p(t-1)	p(t+17)-p(t-1)
Lagged W/S $\times \Delta R \times$ High W/S	1.508 (0.959)	1.860+ (0.973)	1.344 (1.005)	1.725+ (1.040)	1.026 (1.285)	1.161 (1.560)	2.481 (1.731)	3.008+ (1.794)	1.700 (1.834)
Lagged S $\times \Delta R \times$ High W/S	0.0271 (0.0344)	0.00337 (0.0370)	0.0434 (0.0432)	0.0510 (0.0418)	0.0130 (0.0514)	0.0657 (0.0718)	0.131+ (0.0733)	0.111 (0.0753)	0.0724 (0.0761)
Lagged W/S $\times \Delta R \times$ Low W/S	6.356** (2.167)	6.907** (2.212)	5.768* (2.263)	4.876* (2.306)	5.574* (2.720)	7.246* (3.224)	10.30** (3.710)	9.097* (3.840)	7.987* (4.026)
Lagged S $\times \Delta R \times$ Low W/S	0.0103 (0.0241)	0.0154 (0.0231)	0.0129 (0.0237)	0.0194 (0.0226)	0.00715 (0.0289)	0.0405 (0.0429)	0.0719 (0.0618)	0.0408 (0.0469)	0.0182 (0.0443)
W/S	0.0366 (0.0896)	-0.00151 (0.0925)	-0.0451 (0.0957)	-0.0653 (0.0988)	-0.153 (0.113)	-0.125 (0.129)	-0.125 (0.144)	-0.110 (0.156)	-0.130 (0.167)
Observations	98991	98991	98991	98991	97032	95020	93023	91049	89076
	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)
Lagged W/S $\times \Delta R \times$ High W/S	1.665 (1.981)	2.146 (2.062)	1.445 (2.146)	1.279 (2.255)	1.321 (2.355)	1.467 (2.406)	2.101 (2.434)	3.290 (2.548)	3.624 (2.762)
Lagged S $\times \Delta R \times$ High W/S	0.140+ (0.0847)	0.131 (0.0900)	0.100 (0.0919)	0.103 (0.0995)	0.102 (0.107)	0.0476 (0.115)	0.0473 (0.116)	-0.00767 (0.117)	-0.0375 (0.124)
Lagged W/S $\times \Delta R \times$ Low W/S	8.435* (4.115)	9.471* (4.345)	8.105+ (4.356)	10.46* (4.562)	10.60* (4.719)	8.999+ (4.853)	10.14* (4.867)	12.48* (5.142)	13.44* (5.620)
Lagged S $\times \Delta R \times$ Low W/S	0.0219 (0.0423)	0.0156 (0.0408)	0.0192 (0.0461)	0.0217 (0.0491)	0.0262 (0.0449)	0.0404 (0.0524)	0.0418 (0.0539)	0.0471 (0.0489)	0.0749 (0.0637)
W/S	-0.143 (0.178)	-0.0992 (0.189)	-0.0967 (0.200)	-0.114 (0.211)	-0.0654 (0.219)	-0.0847 (0.228)	0.0405 (0.238)	0.188 (0.252)	0.363 (0.266)
Observations	87100	85124	83129	81151	79182	77235	75647	74181	72675
	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)	p(t+32)-p(t-1)	p(t+33)-p(t-1)	p(t+34)-p(t-1)	p(t+35)-p(t-1)
Lagged W/S $\times \Delta R \times$ High W/S	3.741 (2.844)	3.637 (2.896)	4.193 (2.944)	1.400 (3.523)	1.504 (3.606)	1.504 (3.576)	2.799 (3.589)	3.047 (3.680)	2.791 (3.836)
Lagged S $\times \Delta R \times$ High W/S	-0.00502 (0.120)	0.0121 (0.126)	-0.00880 (0.129)	0.0122 (0.135)	0.0124 (0.136)	-0.0117 (0.149)	-0.0206 (0.156)	-0.0191 (0.187)	-0.0950 (0.182)
Lagged W/S $\times \Delta R \times$ Low W/S	12.39* (5.598)	11.27* (5.715)	10.19+ (5.911)	4.923 (7.395)	7.807 (7.551)	6.748 (7.522)	8.902 (7.444)	7.528 (7.586)	6.100 (7.869)
Lagged S $\times \Delta R \times$ Low W/S	0.0673 (0.0630)	0.0539 (0.0611)	0.0632 (0.0603)	0.0233 (0.0567)	0.0264 (0.0589)	0.0260 (0.0619)	0.0398 (0.0612)	0.0548 (0.0612)	0.0570 (0.0591)
W/S	0.514+ (0.281)	0.626* (0.296)	0.624* (0.306)	0.616* (0.314)	0.667* (0.325)	0.670* (0.337)	0.715* (0.349)	0.779* (0.361)	0.884* (0.375)
Observations	71191	69732	68281	66820	65363	63907	62455	60991	59529
Product-month FEs	x	x	x	x	x	x	x	x	x
Clustered SE (firm-month)	x	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. High is an indicator that equals one when the firm's value is above the annual economy mean. Low is an indicator that equals zero when the firm's value is below the annual economy mean.

Table 12: The working capital channel for firms with high and low sales, unweighted regressions.

	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)	p(t+8)-p(t-1)
Lagged W/S $\times \Delta R \times$ High Sales	0.444 (1.111)	-1.707 (1.225)	0.292 (1.626)	0.591 (1.669)	1.665 (1.926)	2.767 (2.183)	4.327+ (2.268)	5.273+ (2.287)	4.625+ (2.284)
Lagged S $\times \Delta R \times$ High Sales	-0.000148 (0.00889)	0.00489 (0.00955)	0.0176 (0.0147)	0.0139 (0.0133)	0.0150 (0.0140)	0.00593 (0.0145)	-0.000883 (0.0157)	-0.00877 (0.0184)	0.00750 (0.0203)
Lagged W/S $\times \Delta R \times$ Low Sales	-0.470 (0.516)	-0.383 (0.517)	0.162 (0.619)	0.740 (0.730)	1.154 (0.746)	1.760* (0.802)	1.531+ (0.864)	1.517 (0.933)	1.471 (0.924)
Lagged S $\times \Delta R \times$ Low Sales	-0.175 (0.176)	-0.312+ (0.171)	-0.188 (0.202)	-0.0861 (0.226)	-0.0428 (0.233)	0.135 (0.244)	0.144 (0.264)	0.235 (0.273)	0.309 (0.281)
W/S	-0.00429 (0.0437)	0.0259 (0.0535)	0.0319 (0.0608)	0.0122 (0.0662)	0.0386 (0.0709)	0.0825 (0.0758)	0.0671 (0.0794)	0.0646 (0.0830)	0.0343 (0.0864)
Observations	98991	98991	98991	98991	98991	98991	98991	98991	98991
	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)	p(t+16)-p(t-1)	p(t+17)-p(t-1)
Lagged W/S $\times \Delta R \times$ High Sales	4.640* (2.302)	4.437+ (2.276)	5.367* (2.350)	5.989* (2.468)	4.708 (3.232)	6.859+ (4.038)	9.650* (4.675)	9.276* (4.720)	7.489+ (4.363)
Lagged S $\times \Delta R \times$ High Sales	0.00463 (0.0225)	0.00766 (0.0216)	0.00839 (0.0222)	0.0180 (0.0213)	0.00241 (0.0277)	0.0360 (0.0412)	0.0672 (0.0590)	0.0444 (0.0451)	0.0228 (0.0427)
Lagged W/S $\times \Delta R \times$ Low Sales	1.351 (0.965)	1.682+ (0.985)	1.146 (1.015)	1.549 (1.043)	0.847 (1.269)	0.914 (1.521)	2.212 (1.672)	2.982+ (1.733)	1.745 (1.822)
Lagged S $\times \Delta R \times$ Low Sales	0.170 (0.285)	0.187 (0.290)	0.305 (0.301)	0.579+ (0.315)	0.472 (0.400)	0.801+ (0.466)	0.827+ (0.480)	1.161* (0.509)	1.315* (0.524)
W/S	0.0352 (0.0896)	-0.00270 (0.0925)	-0.0470 (0.0957)	-0.0680 (0.0988)	-0.156 (0.113)	-0.130 (0.129)	-0.131 (0.144)	-0.118 (0.155)	-0.138 (0.167)
Observations	98991	98991	98991	98991	97032	95020	93023	91049	89076
	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)
Lagged W/S $\times \Delta R \times$ High Sales	9.434* (4.533)	8.015+ (4.864)	6.112 (5.108)	4.843 (5.564)	4.217 (5.882)	2.422 (6.064)	4.367 (6.100)	2.864 (6.312)	0.716 (6.752)
Lagged S $\times \Delta R \times$ High Sales	0.0284 (0.0408)	0.0259 (0.0395)	0.0264 (0.0444)	0.0310 (0.0472)	0.0378 (0.0436)	0.0509 (0.0509)	0.0484 (0.0524)	0.0515 (0.0477)	0.0784 (0.0618)
Lagged W/S $\times \Delta R \times$ Low Sales	1.659 (1.979)	2.436 (2.057)	1.677 (2.131)	1.801 (2.231)	1.977 (2.315)	2.109 (2.356)	2.543 (2.388)	3.911 (2.509)	4.425 (2.744)
Lagged S $\times \Delta R \times$ Low Sales	1.238* (0.564)	1.223* (0.611)	1.031 (0.638)	1.089+ (0.681)	1.222+ (0.681)	1.368* (0.697)	1.327+ (0.714)	1.227+ (0.745)	1.226 (0.777)
W/S	-0.152 (0.178)	-0.109 (0.189)	-0.106 (0.200)	-0.125 (0.211)	-0.0781 (0.219)	-0.0967 (0.228)	0.0288 (0.238)	0.175 (0.252)	0.350 (0.266)
Observations	87100	85124	83129	81151	79182	77235	75647	74181	72675
	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)	p(t+32)-p(t-1)	p(t+33)-p(t-1)	p(t+34)-p(t-1)	p(t+35)-p(t-1)
Lagged W/S $\times \Delta R \times$ High Sales	0.823 (6.868)	-0.413 (7.224)	0.894 (7.580)	-1.885 (8.485)	-1.136 (8.608)	-3.675 (8.695)	-3.753 (8.854)	-5.023 (9.017)	-7.648 (9.444)
Lagged S $\times \Delta R \times$ High Sales	0.0719 (0.0611)	0.0641 (0.0594)	0.0690 (0.0585)	0.0391 (0.0553)	0.0402 (0.0573)	0.0432 (0.0604)	0.0545 (0.0597)	0.0691 (0.0605)	0.0690 (0.0581)
Lagged W/S $\times \Delta R \times$ Low Sales	4.554 (2.822)	4.699 (2.860)	4.929+ (2.897)	2.357 (3.531)	2.526 (3.617)	2.787 (3.574)	4.174 (3.568)	4.440 (3.645)	4.187 (3.783)
Lagged S $\times \Delta R \times$ Low Sales	0.877 (0.802)	0.795 (0.812)	0.795 (0.820)	0.895 (0.907)	1.001 (0.915)	0.965 (0.924)	0.767 (0.936)	0.518 (0.953)	0.566 (0.970)
W/S	0.503+ (0.281)	0.615* (0.296)	0.616* (0.306)	0.609+ (0.314)	0.656* (0.325)	0.660+ (0.337)	0.704* (0.349)	0.769* (0.361)	0.874* (0.375)
Observations	71191	69732	68281	66820	65363	63907	62455	60991	59529

Notes: Standard errors in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. High is an indicator that equals one when the firm's value is above the annual economy mean. Low is an indicator that equals zero when the firm's value is below the annual economy mean.

A.9 Quadratic term in the regressions

The observed concave relationship between working capital elasticity and the working capital share may indicate potential misspecification of the estimated equation, which could lead to downward-biased estimates. The quadratic regressions are designed to investigate this possibility. Figures 16a and 16b show that the unweighted estimates become more significant, increasing from 1.2-2 percent to 2-5.5 percent when including the quadratic terms of Lagged $(W/S)^2 \times \Delta R$ and Lagged $S^2 \times \Delta R$. The sales-weighted estimates already account for this size effect and therefore appear less sensitive. They increase only slightly from 3-16 percent to 4-16 percent.

The positive and statistically significant coefficients on $W/S \times \Delta R$ (e.g., ranging from about 1.5 to 17.9 across different horizons) indicate that firms with higher working capital-to-sales ratios exhibit stronger pass-through from interest rate changes to prices. However, the negative coefficients on the squared term (some statistically significant) suggest diminishing marginal returns — i.e., the price effect increases with W/S but at a decreasing rate. Table 13 shows the total effect via the working capital channel for the average firm with a 16 percent working capital share across 36 horizons. The maximum total effect observed is approximately 2.69%, and the median effect is about 2.07%. The effect increases over time, especially beyond 6–9 months, and remains positive throughout. These magnitudes are in line with the sales-weighted estimates (ranging between 0.48-2.56% across different horizons), and overall support the importance of the working capital channel, though nonlinearity from the concave structure seems to temper the pass-through.

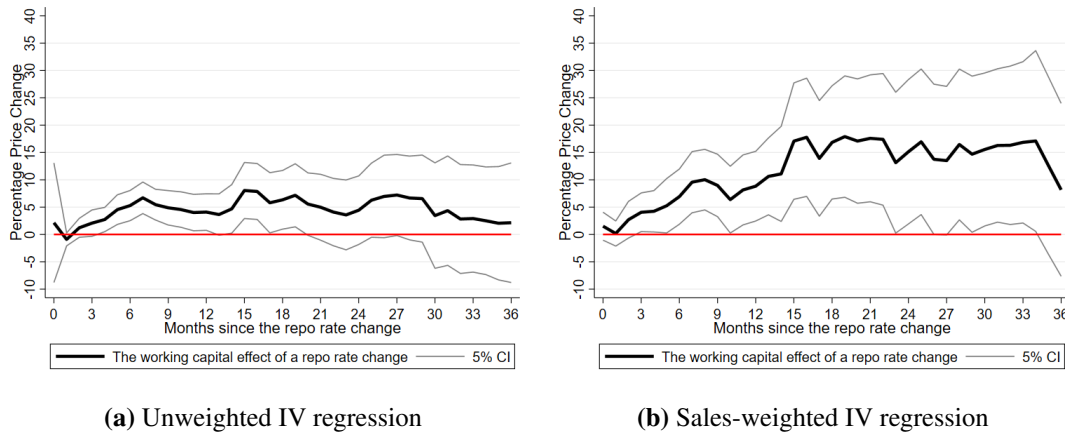


Figure 16: The effect of a repo rate change via the working capital channel, controlling for Lagged $(W/S)^2 \times \Delta R$ and Lagged $S^2 \times \Delta R$. The corresponding tables are Table 14 and 15, respectively.

Table 13: Total price effect via the working capital channel, considering the quadratic term in the sales-weighted regressions.

Month	β_1	β_3	Total Effect	Month	β_1	β_3	Total Effect	Month	β_1	β_3	Total Effect
0	1.516	-3.941	0.141670	12	8.84	-10.080	1.156352	24	15.14	2.195	2.478592
1	0.178	-1.811	-0.017882	13	10.63	-17.940	1.241536	25	16.96	-4.327	2.602829
2	2.703	-2.168	0.376979	14	11.09	-18.320	1.305408	26	13.76	-5.387	2.063693
3	4.065	-3.575	0.558880	15	17.09	-25.430	2.083392	27	13.51	-1.963	2.111347
4	4.244	-1.420	0.642688	16	17.79	-19.620	2.344128	28	16.47	-3.933	2.534515
5	5.258	-7.243	0.655859	17	13.93	-11.570	1.932608	29	14.69	1.082	2.378099
6	6.929	-8.170	0.899488	18	16.85	-13.250	2.356800	30	15.56	-5.350	2.352640
7	9.571	-15.190	1.142496	19	17.91	-13.990	2.507456	31	16.28	-6.729	2.432538
8	10.030	-16.980	1.170112	20	17.09	-14.440	2.364736	32	16.32	-5.209	2.477850
9	8.971	-17.260	0.993504	21	17.59	-11.260	2.526144	33	16.86	-1.602	2.656589
10	6.381	-9.430	0.779552	22	17.41	-5.385	2.647744	34	17.10	-1.631	2.694246
11	8.149	-7.591	1.109510	23	13.14	3.328	2.187597	35	12.61	-1.075	1.990080

Table 14: The working capital channel: accounting for the quadratic term, unweighted regressions.

	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)	p(t+8)-p(t-1)
Lagged W/S $\times \Delta R$	-0.241 (0.630)	-0.902 (0.603)	1.230 (0.885)	2.081 ⁺ (1.228)	2.735 [*] (1.133)	4.554 ^{***} (1.382)	5.290 ^{***} (1.408)	6.714 ^{***} (1.471)	5.458 ^{***} (1.436)
Lagged S $\times \Delta R$	0.00175 (0.0202)	-0.00152 (0.0193)	0.0230 (0.0251)	0.00315 (0.0266)	0.0124 (0.0299)	-0.0109 (0.0318)	0.00544 (0.0325)	0.000469 (0.0364)	0.0279 (0.0364)
Lagged (W/S) ² $\times \Delta R$	-0.170 (0.848)	1.149 (1.002)	-2.587 ⁺ (1.515)	-3.604 ⁺ (2.186)	-4.000 [*] (1.971)	-7.310 ^{**} (2.616)	-9.132 ^{***} (2.686)	-12.69 ^{***} (2.765)	-9.635 ^{***} (2.695)
Lagged (S) ² $\times \Delta R$	0.0000279 (0.000230)	0.0000975 (0.000224)	-0.0000309 (0.000294)	0.000187 (0.000318)	0.0000823 (0.000331)	0.000295 (0.000404)	0.0000141 (0.000427)	0.00000230 (0.000472)	-0.000205 (0.000495)
Lagged W/S	-0.00521 (0.0436)	0.0237 (0.0535)	0.0331 (0.0608)	0.0144 (0.0662)	0.0414 (0.0709)	0.0883 (0.0759)	0.0746 (0.0796)	0.0752 (0.0834)	0.0432 (0.0867)
	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)	p(t+16)-p(t-1)	p(t+17)-p(t-1)
Lagged W/S $\times \Delta R$	4.881 ^{**} (1.607)	4.562 ^{**} (1.654)	4.011 [*] (1.700)	4.100 [*] (1.705)	3.650 ⁺ (1.930)	4.684 [*] (2.265)	8.049 ^{**} (2.617)	7.871 ^{**} (2.609)	5.801 [*] (2.811)
Lagged S $\times \Delta R$	0.0235 (0.0387)	0.0212 (0.0385)	0.0294 (0.0402)	0.0309 (0.0411)	-0.00317 (0.0587)	0.0435 (0.0712)	0.0747 (0.0861)	0.0459 (0.0772)	0.0152 (0.0766)
Lagged (W/S) ² $\times \Delta R$	-8.292 ^{**} (2.985)	-6.789 [*] (3.035)	-6.318 [*] (3.109)	-5.681 ⁺ (3.150)	-6.589 [*] (3.190)	-8.884 [*] (3.896)	-14.22 ^{**} (4.828)	-12.35 [*] (4.849)	-10.42 ⁺ (5.458)
Lagged (S) ² $\times \Delta R$	-0.000164 (0.000536)	-0.000110 (0.000525)	-0.000196 (0.000561)	-0.000114 (0.000569)	0.000159 (0.000705)	-0.0000118 (0.000777)	0.0000544 (0.000837)	0.0000431 (0.000811)	0.000125 (0.000854)
Lagged W/S	0.0422 (0.0899)	0.00322 (0.0927)	-0.0412 (0.0959)	-0.0618 (0.0990)	-0.149 (0.114)	-0.120 (0.130)	-0.116 (0.145)	-0.103 (0.156)	-0.124 (0.167)
	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)
Lagged W/S $\times \Delta R$	6.340 [*] (2.737)	7.172 [*] (2.944)	5.560 ⁺ (2.911)	4.985 (3.076)	4.100 (3.141)	3.582 (3.260)	4.447 (3.198)	6.274 ⁺ (3.463)	6.965 ⁺ (3.854)
Lagged S $\times \Delta R$	0.0386 (0.0779)	0.0310 (0.0786)	0.0232 (0.0813)	0.0161 (0.0840)	0.0252 (0.0850)	0.0196 (0.0915)	0.0218 (0.0928)	-0.00269 (0.0913)	0.0208 (0.102)
Lagged (W/S) ² $\times \Delta R$	-11.30 [*] (5.153)	-12.26 [*] (5.370)	-10.18 [*] (5.177)	-8.891 ⁺ (5.402)	-6.249 (5.640)	-5.356 (5.725)	-5.962 (5.528)	-8.530 (6.228)	-10.09 (7.273)
Lagged (S) ² $\times \Delta R$	-0.0000635 (0.000863)	-0.0000479 (0.000912)	0.0000611 (0.000960)	0.000178 (0.00100)	0.0000886 (0.00104)	0.000282 (0.00107)	0.000265 (0.00110)	0.000612 (0.00111)	0.000596 (0.00118)
Lagged W/S	-0.138 (0.179)	-0.0941 (0.190)	-0.0925 (0.200)	-0.113 (0.211)	-0.0674 (0.219)	-0.0861 (0.228)	0.0392 (0.238)	0.188 (0.253)	0.364 (0.266)
	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)	p(t+32)-p(t-1)	p(t+33)-p(t-1)	p(t+34)-p(t-1)	p(t+35)-p(t-1)
Lagged W/S $\times \Delta R$	7.221 ⁺ (3.781)	6.679 ⁺ (3.908)	6.564 (4.066)	3.458 (4.923)	4.357 (5.104)	2.832 (5.081)	2.917 (5.003)	2.509 (5.022)	2.056 (5.285)
Lagged S $\times \Delta R$	0.0238 (0.102)	0.0349 (0.102)	0.0593 (0.103)	0.0391 (0.107)	0.0462 (0.108)	0.0192 (0.109)	0.0410 (0.105)	0.0510 (0.110)	0.00763 (0.111)
Lagged (W/S) ² $\times \Delta R$	-10.14 (7.377)	-8.484 (7.339)	-6.897 (7.416)	-5.620 (8.186)	-7.621 (8.577)	-3.692 (8.231)	-0.127 (8.071)	1.353 (7.719)	0.491 (8.218)
Lagged (S) ² $\times \Delta R$	0.000510 (0.00118)	0.000194 (0.00125)	-0.0000686 (0.00130)	-0.000277 (0.00144)	-0.000361 (0.00147)	0.00000748 (0.00151)	-0.000180 (0.00152)	-0.000115 (0.00157)	0.000474 (0.00159)
Lagged W/S	0.515 ⁺ (0.282)	0.625 [*] (0.296)	0.624 [*] (0.306)	0.617 [*] (0.314)	0.667 [*] (0.326)	0.668 [*] (0.338)	0.711 [*] (0.349)	0.775 [*] (0.361)	0.883 [*] (0.375)
Product-month FEs	x	x	x	x	x	x	x	x	x
Clustered SE (firm-month)	x	x	x	x	x	x	x	x	x
Observations	98991	98991	98991	98991	97032	95020	93023	91049	89076

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels $+$ $p < 0.10$, $*$ $p < 0.05$, $**$ $p < 0.01$, $***$ $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. The regressions control for Lagged (W/S)² $\times \Delta R$ and Lagged S² $\times \Delta R$.

Table 15: The working capital channel: accounting for the quadratic term, sales-weighted regressions.

	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)	p(t+8)-p(t-1)
Lagged W/S $\times \Delta R$	1.516 (1.305)	0.178 (1.170)	2.703 (1.712)	4.065* (1.805)	4.244* (1.931)	5.258* (2.538)	6.929** (2.577)	9.571*** (2.856)	10.03*** (2.827)
Lagged S $\times \Delta R$	0.0178 (0.0218)	0.0268 (0.0232)	0.0731* (0.0318)	0.0567+ (0.0321)	0.0779* (0.0320)	0.0422 (0.0380)	0.0331 (0.0395)	0.0108 (0.0459)	0.0510 (0.0513)
Lagged (W/S) ² $\times \Delta R$	-3.941 (5.127)	-1.811 (2.455)	-2.168 (4.683)	-3.575 (3.759)	-1.420 (5.319)	-7.243 (7.750)	-8.170 (7.511)	-15.19* (6.290)	-16.98** (5.682)
Lagged (S) ² $\times \Delta R$	-0.000179 (0.000220)	-0.000191 (0.000239)	-0.000507+ (0.000302)	-0.000274 (0.000326)	-0.000525 (0.000338)	-0.000174 (0.000412)	-0.000203 (0.000438)	0.0000512 (0.000492)	-0.000325 (0.000563)
Lagged W/S	-0.00794 (0.121)	0.0469 (0.141)	0.0602 (0.168)	0.0533 (0.186)	0.0515 (0.209)	0.0937 (0.223)	0.0125 (0.238)	-0.0387 (0.255)	-0.146 (0.269)
	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)	p(t+16)-p(t-1)	p(t+17)-p(t-1)
Lagged W/S $\times \Delta R$	8.971** (2.915)	6.381* (3.116)	8.149* (3.266)	8.840** (3.253)	10.63** (3.589)	11.09* (4.441)	17.09** (5.432)	17.79** (5.521)	13.93** (5.395)
Lagged S $\times \Delta R$	0.0251 (0.0539)	0.0106 (0.0557)	0.0169 (0.0597)	0.0135 (0.0595)	-0.0296 (0.0688)	0.0402 (0.0789)	0.130 (0.0923)	0.0850 (0.0841)	0.0242 (0.0864)
Lagged (W/S) ² $\times \Delta R$	-17.26** (5.911)	-9.430 (7.536)	-7.591 (8.101)	-10.08 (7.871)	-17.94* (8.844)	-18.32 (11.58)	-25.43+ (14.89)	-19.62 (14.55)	-11.57 (12.91)
Lagged (S) ² $\times \Delta R$	-0.0000934 (0.000572)	0.0000905 (0.000603)	0.0000561 (0.000659)	0.000131 (0.000673)	0.000467 (0.000778)	0.0000850 (0.000850)	-0.000445 (0.000922)	-0.000308 (0.000901)	0.000222 (0.000950)
Lagged W/S	-0.252 (0.287)	-0.393 (0.301)	-0.447 (0.319)	-0.595+ (0.333)	-0.524 (0.378)	-0.377 (0.424)	-0.327 (0.465)	-0.190 (0.502)	-0.159 (0.537)
	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)
Lagged W/S $\times \Delta R$	16.85** (5.286)	17.91** (5.665)	17.09** (5.803)	17.59** (5.923)	17.41** (6.142)	13.14* (6.575)	15.14* (6.738)	16.96* (6.796)	13.76* (7.012)
Lagged S $\times \Delta R$	0.0308 (0.0888)	0.0170 (0.0942)	0.0256 (0.100)	0.0110 (0.101)	-0.00955 (0.102)	-0.0206 (0.105)	-0.0433 (0.106)	-0.0777 (0.105)	0.0119 (0.114)
Lagged (W/S) ² $\times \Delta R$	-13.25 (12.41)	-13.99 (13.45)	-14.44 (13.62)	-11.26 (15.11)	-5.385 (16.56)	3.328 (18.53)	2.195 (18.37)	-4.327 (19.73)	-5.387 (20.50)
Lagged (S) ² $\times \Delta R$	0.000185 (0.000978)	0.000246 (0.00106)	0.000164 (0.00111)	0.000370 (0.00110)	0.000584 (0.00116)	0.000932 (0.00117)	0.00120 (0.00116)	0.00165 (0.00116)	0.000851 (0.00123)
Lagged W/S	-0.00981 (0.569)	0.136 (0.601)	0.281 (0.631)	0.438 (0.656)	0.540 (0.680)	0.654 (0.715)	0.858 (0.745)	1.042 (0.767)	1.252 (0.799)
	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)	p(t+32)-p(t-1)	p(t+33)-p(t-1)	p(t+34)-p(t-1)	p(t+35)-p(t-1)
Lagged W/S $\times \Delta R$	13.51+ (6.931)	16.47* (7.040)	14.69* (7.287)	15.56* (7.139)	16.28* (7.157)	16.32* (7.393)	16.86* (7.528)	17.10* (8.435)	12.61 (8.276)
Lagged S $\times \Delta R$	0.0235 (0.112)	0.0456 (0.115)	0.0218 (0.118)	0.0880 (0.124)	0.0856 (0.126)	0.0902 (0.130)	0.0929 (0.129)	0.125 (0.138)	0.0675 (0.135)
Lagged (W/S) ² $\times \Delta R$	-1.963 (21.31)	-3.933 (20.99)	1.082 (21.67)	-5.350 (23.37)	-6.729 (24.30)	-5.209 (23.56)	-1.602 (24.49)	-1.631 (27.13)	-1.075 (29.69)
Lagged (S) ² $\times \Delta R$	0.000740 (0.00120)	0.000355 (0.00129)	0.000592 (0.00135)	-0.000352 (0.00147)	-0.000278 (0.00148)	-0.000391 (0.00153)	-0.000482 (0.00154)	-0.000667 (0.00166)	0.000209 (0.00167)
Lagged W/S	1.465+ (0.818)	1.627+ (0.842)	1.475+ (0.861)	1.265 (0.878)	1.160 (0.901)	1.222 (0.926)	1.247 (0.948)	1.288 (0.965)	1.357 (0.989)
Product-month FEs	x	x	x	x	x	x	x	x	x
Clustered SE (firm-month)	x	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. The regressions control for Lagged (W/S)² $\times \Delta R$ and Lagged S² $\times \Delta R$.

A.10 Financial characteristics of high and low working capital firms

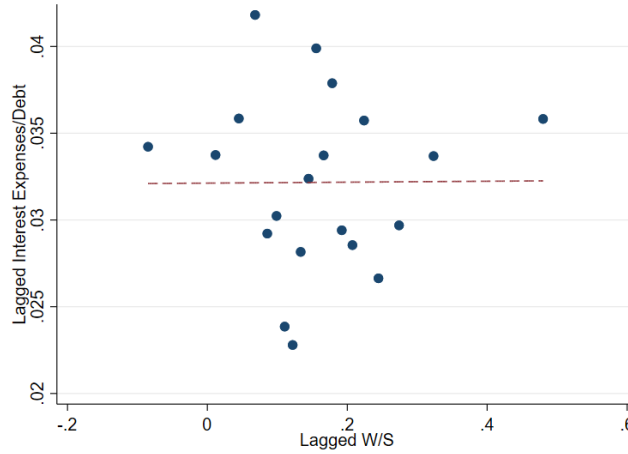
To examine whether differences in working capital sensitivity are driven by underlying financial characteristics, such as cash-to-sales, short-term debt-to-sales, and the interest expense-to-debt ratio (i.e., implicit interest rates), these variables are included as controls in the regression specification.

Implicit interest rates are calculated as the ratio of interest expenses to debt at the firm level.

Table 16 shows that for more than half of the firm observations, these rates fall between 1 and 2 percent, rising to around 9 percent at the 95th percentile. Moreover, Figure 17 indicates no clear relationship between a firm's implicit interest rate and its working capital ratio.

Table 16: Summary statistics of financial characteristics

	Mean	SD	p5	p25	p50	p75	p95
Lagged Cash/S	3.95	393.76	0.00	0.00	0.01	0.04	0.22
Lagged Short Debt/S	401.02	40496.03	0.12	0.21	0.31	0.45	0.96
Lagged Interest Expenses/Debt	0.03	0.08	0.00	0.01	0.02	0.03	0.09

**Figure 17:** Binscatter of working capital-to-sales and interest expenses-to-debt (implicit interest rates).

The results for the high and low working capital firms in Figure 18 and Table 17 show that controlling for the firm's observed financial variables does not eliminate the statistically significant difference in the estimated working capital sensitivity parameter between the two groups.

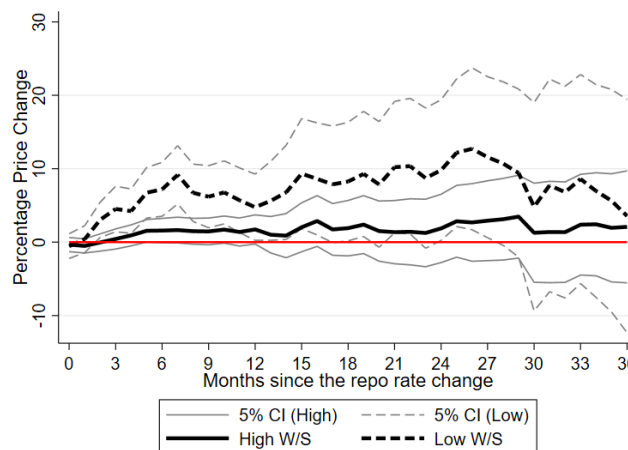
**Figure 18:** The price response via the working capital channel in groups of firms with high and low working capital ratios, controlling for financial characteristics such as cash-to-sales, short term debt-to-sales and the interest expenses-to-debt ratio (implicit interest rates).

Table 17: The price response in groups of high and low working capital firms, controlling for financial variables.

	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)
$\Delta R \times \text{High Lagged W/S}$	-0.333 (0.489)	-0.506 (0.495)	-0.0453 (0.599)	0.436 (0.698)	0.926 (0.730)	1.548* (0.784)	1.580+ (0.847)	1.645+ (0.895)
$\Delta R \times \text{Low Lagged W/S}$	-0.538 (0.858)	0.403 (0.933)	3.047* (1.225)	4.521** (1.583)	4.229** (1.541)	6.731*** (1.757)	7.202*** (1.875)	9.169*** (2.029)
Lagged Interest/Debt $\times \Delta R$	-1.218 (1.469)	-0.834 (0.821)	-0.215 (0.805)	0.210 (0.990)	-0.404 (1.005)	-0.280 (0.977)	1.191 (1.178)	1.250 (1.225)
Lagged Cash/S $\times \Delta R$	-0.0348 (0.0822)	0.0550 (0.0471)	-0.0762 (0.115)	-0.0441 (0.0885)	-0.0147 (0.123)	-0.0879 (0.120)	0.00457 (0.137)	0.0765 (0.144)
Lagged Debt/S $\times \Delta R$	0.000338 (0.000799)	-0.000539 (0.000458)	0.000737 (0.00112)	0.000425 (0.000861)	0.000142 (0.00119)	0.000856 (0.00117)	-0.0000463 (0.00133)	-0.000747 (0.00140)
Lagged W/S	-0.00771 (0.0437)	0.0246 (0.0538)	0.0270 (0.0611)	0.00730 (0.0664)	0.0366 (0.0710)	0.0812 (0.0759)	0.0679 (0.0795)	0.0688 (0.0832)
Observations	98922	98922	98922	98922	98922	98922	98922	98922
	p(t+8)-p(t-1)	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)
$\Delta R \times \text{High Lagged W/S}$	1.491+ (0.899)	1.463 (0.929)	1.710+ (0.941)	1.384 (0.976)	1.732+ (1.012)	1.014 (1.265)	0.888 (1.533)	2.029 (1.700)
$\Delta R \times \text{Low Lagged W/S}$	6.721*** (1.993)	6.194** (2.158)	6.781** (2.251)	5.699* (2.251)	4.761* (2.300)	5.623* (2.739)	6.781* (3.274)	9.335* (3.826)
Lagged Interest/Debt $\times \Delta R$	1.023 (1.373)	1.620 (1.548)	2.648+ (1.456)	3.693* (1.674)	3.801* (1.681)	4.512* (1.813)	5.363** (1.968)	5.573** (2.019)
Lagged Cash/S $\times \Delta R$	0.133 (0.125)	0.0918 (0.139)	-0.0283 (0.146)	0.107 (0.154)	0.174 (0.180)	0.230 (0.193)	0.225 (0.213)	0.195 (0.202)
Lagged Debt/S $\times \Delta R$	-0.00130 (0.00121)	-0.000897 (0.00135)	0.000273 (0.00142)	-0.00104 (0.00149)	-0.00170 (0.00175)	-0.00224 (0.00188)	-0.00219 (0.00207)	-0.00189 (0.00197)
Lagged W/S	0.0418 (0.0866)	0.0413 (0.0898)	0.00106 (0.0927)	-0.0389 (0.0959)	-0.0582 (0.0991)	-0.147 (0.114)	-0.123 (0.130)	-0.125 (0.144)
Observations	98922	98922	98922	98922	98922	96964	94954	92959
	p(t+16)-p(t-1)	p(t+17)-p(t-1)	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)
$\Delta R \times \text{High Lagged W/S}$	2.881 (1.764)	1.734 (1.796)	1.908 (1.928)	2.390 (2.013)	1.505 (2.091)	1.365 (2.199)	1.410 (2.295)	1.253 (2.346)
$\Delta R \times \text{Low Lagged W/S}$	8.617* (3.894)	7.873+ (4.050)	8.258* (4.122)	9.297* (4.351)	7.860+ (4.365)	10.22* (4.568)	10.36* (4.712)	8.722+ (4.872)
Lagged Interest/Debt $\times \Delta R$	7.533*** (2.189)	8.005*** (2.288)	9.827*** (2.610)	9.227*** (2.673)	9.421*** (2.732)	8.963** (3.003)	8.204** (3.047)	8.634* (3.407)
Lagged Cash/S $\times \Delta R$	0.235 (0.245)	0.222 (0.242)	0.253 (0.212)	0.0979 (0.232)	0.0517 (0.244)	0.0733 (0.262)	0.167 (0.239)	0.141 (0.264)
Lagged Debt/S $\times \Delta R$	-0.00229 (0.00238)	-0.00215 (0.00235)	-0.00246 (0.00206)	-0.000954 (0.00226)	-0.000505 (0.00237)	-0.000715 (0.00255)	-0.00163 (0.00232)	-0.00137 (0.00257)
Lagged W/S	-0.109 (0.156)	-0.127 (0.167)	-0.139 (0.178)	-0.100 (0.190)	-0.0974 (0.201)	-0.111 (0.211)	-0.0518 (0.220)	-0.0662 (0.229)
Observations	90987	89016	87042	85068	83075	81099	79132	77187
	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)
$\Delta R \times \text{High Lagged W/S}$	1.872 (2.375)	2.845 (2.494)	2.685 (2.697)	2.924 (2.775)	3.126 (2.837)	3.476 (2.881)	1.281 (3.442)	1.383 (3.524)
$\Delta R \times \text{Low Lagged W/S}$	9.818* (4.888)	12.19* (5.131)	12.72* (5.628)	11.57* (5.593)	10.71+ (5.684)	9.424 (5.832)	4.822 (7.240)	7.743 (7.390)
Lagged Interest/Debt $\times \Delta R$	7.027* (3.252)	7.718* (3.374)	7.318* (3.409)	7.227* (3.463)	7.167* (3.627)	2.500 (7.096)	9.489* (4.175)	12.12* (5.467)
Lagged Cash/S $\times \Delta R$	0.127 (0.269)	0.242 (0.251)	0.125 (0.257)	0.199 (0.230)	0.270 (0.251)	0.184 (0.235)	0.185 (0.249)	0.181 (0.212)
Lagged Debt/S $\times \Delta R$	-0.00124 (0.00262)	-0.00235 (0.00244)	-0.00122 (0.00250)	-0.00193 (0.00224)	-0.00263 (0.00244)	-0.00179 (0.00229)	-0.00180 (0.00242)	-0.00176 (0.00206)
Lagged W/S	0.0620 (0.239)	0.216 (0.253)	0.389 (0.267)	0.544+ (0.282)	0.666* (0.297)	0.668* (0.307)	0.657* (0.315)	0.709* (0.327)
Observations	75600	74135	72630	71147	69689	68239	66779	65323
	p(t+32)-p(t-1)	p(t+33)-p(t-1)	p(t+34)-p(t-1)	p(t+35)-p(t-1)	p(t+36)-p(t-1)			
$\Delta R \times \text{High Lagged W/S}$	1.364 (3.492)	2.382 (3.498)	2.432 (3.583)	1.948 (3.759)	2.085 (3.891)			
$\Delta R \times \text{Low Lagged W/S}$	6.814 (7.358)	8.601 (7.264)	6.971 (7.392)	5.639 (7.737)	3.555 (8.106)			
Lagged Interest/Debt $\times \Delta R$	11.40* (4.790)	5.813 (5.006)	5.183 (7.582)	8.629 (7.078)	15.17* (6.222)			
Lagged Cash/S $\times \Delta R$	0.141 (0.214)	0.0392 (0.198)	0.0746 (0.219)	-0.147 (0.286)	-0.291 (0.302)			
Lagged Debt/S $\times \Delta R$	-0.00137 (0.00208)	-0.000383 (0.00192)	-0.000727 (0.00213)	0.00143 (0.00278)	0.00283 (0.00293)			
Lagged W/S	0.716* (0.338)	0.759* (0.350)	0.826* (0.362)	0.930* (0.376)	1.115** (0.387)			
Observations	63868	62417	60954	59493	58369			
Product-month FEs	x	x	x	x	x	x	x	x
Clustered SE (firm $\times$ month)	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. High working capital firms are those above the average. The firm's financial characteristics include cash-to-sales, short term debt-to-sales and the interest expenses-to-debt ratio (implicit interest rates).

A.11 Robustness

A.11.1 Pre-trends

One key concern for identification is whether high working capital firms systematically increase prices more than low working capital firms prior to a policy rate change, indicating the presence of a pre-trend. Figures 19a and 19b present the impulse response functions from the regression in Equation (7) for $k < 0$, capturing price changes through the working capital channel before the policy rate change. The estimates are neither statistically significant nor positive at most horizons, suggesting that firms with varying levels of working capital holdings do not display differential pricing behavior in advance of policy rate changes.



Figure 19: Pre-trends in the effect of a repo rate change via the working capital channel. The corresponding result tables are Table 18 and 19.

Table 18: Pre-trends, unweighted IV regressions.

	p(t-2)-p(t-1)	p(t-3)-p(t-1)	p(t-4)-p(t-1)	p(t-5)-p(t-1)	p(t-6)-p(t-1)	p(t-7)-p(t-1)	p(t-8)-p(t-1)	p(t-9)-p(t-1)	p(t-10)-p(t-1)
Lagged W/S $\times \Delta R$	0.252 (0.417)	0.285 (0.608)	0.394 (0.674)	0.454 (0.742)	0.516 (0.846)	0.663 (0.937)	0.514 (1.038)	-0.575 (1.145)	-1.440 (1.315)
Lagged S $\times \Delta R$	0.00257 (0.00587)	-0.000135 (0.00790)	-0.00281 (0.00967)	-0.0172 (0.0114)	-0.00455 (0.0152)	-0.000714 (0.0265)	0.00264 (0.0273)	-0.00567 (0.0292)	-0.0105 (0.0299)
Lagged W/S	-0.00370 (0.0369)	0.00340 (0.0503)	-0.0266 (0.0595)	-0.0516 (0.0676)	-0.0629 (0.0742)	-0.149+ (0.0811)	-0.167+ (0.0876)	-0.194* (0.0933)	-0.212* (0.0989)
Observations	89270	86546	83968	81494	79207	76966	74814	72342	69983
	p(t-11)-p(t-1)	p(t-12)-p(t-1)	p(t-13)-p(t-1)	p(t-14)-p(t-1)	p(t-15)-p(t-1)	p(t-16)-p(t-1)	p(t-17)-p(t-1)	p(t-18)-p(t-1)	p(t-19)-p(t-1)
Lagged W/S $\times \Delta R$	-1.153 (1.355)	-1.165 (1.389)	-1.390 (1.444)	-2.244 (1.599)	-1.043 (1.662)	-1.763 (1.819)	-1.013 (1.972)	1.945 (2.348)	4.371 (2.715)
Lagged S $\times \Delta R$	0.00485 (0.0314)	0.00980 (0.0322)	0.00645 (0.0360)	0.00487 (0.0363)	-0.00171 (0.0387)	-0.00896 (0.0445)	0.0169 (0.0476)	0.0337 (0.0505)	0.0486 (0.0494)
Lagged W/S	-0.200+ (0.106)	-0.250* (0.111)	-0.294* (0.116)	-0.316* (0.123)	-0.269* (0.137)	-0.272+ (0.152)	-0.213 (0.167)	-0.185 (0.181)	-0.141 (0.193)
Observations	67776	66050	64390	62634	61181	59775	58393	57025	55681
	p(t-20)-p(t-1)	p(t-21)-p(t-1)	p(t-22)-p(t-1)	p(t-23)-p(t-1)	p(t-24)-p(t-1)	p(t-25)-p(t-1)	p(t-26)-p(t-1)	p(t-27)-p(t-1)	p(t-28)-p(t-1)
Lagged W/S $\times \Delta R$	4.444 (2.750)	5.629+ (2.974)	3.685 (3.051)	2.657 (3.067)	3.390 (3.070)	4.430 (3.114)	3.521 (3.229)	1.650 (3.476)	3.033 (3.547)
Lagged S $\times \Delta R$	0.0332 (0.0501)	0.0414 (0.0528)	0.0314 (0.0541)	0.0674 (0.0487)	0.0709 (0.0500)	0.0824 (0.0514)	0.0817 (0.0520)	0.106* (0.0521)	0.105+ (0.0544)
Lagged W/S	-0.159 (0.206)	-0.187 (0.220)	-0.228 (0.233)	-0.263 (0.246)	-0.253 (0.256)	-0.320 (0.265)	-0.395 (0.273)	-0.389 (0.282)	-0.308 (0.293)
Observations	54338	53001	51636	50295	49336	48402	47356	46355	45346
	p(t-29)-p(t-1)	p(t-30)-p(t-1)	p(t-31)-p(t-1)	p(t-32)-p(t-1)	p(t-33)-p(t-1)	p(t-34)-p(t-1)	p(t-35)-p(t-1)	p(t-36)-p(t-1)	
Lagged W/S $\times \Delta R$	2.871 (3.689)	2.299 (3.817)	1.182 (4.093)	1.234 (4.210)	1.822 (4.241)	0.677 (4.453)	-0.437 (4.653)	0.313 (4.600)	
Lagged S $\times \Delta R$	0.132* (0.0548)	0.129* (0.0620)	0.124+ (0.0644)	0.127* (0.0645)	0.135* (0.0637)	0.148* (0.0681)	0.158* (0.0675)	0.167* (0.0700)	
Lagged W/S	-0.207 (0.304)	-0.148 (0.314)	-0.142 (0.324)	-0.229 (0.336)	-0.287 (0.346)	-0.389 (0.358)	-0.634+ (0.371)	-0.611 (0.383)	
Observations	44337	43317	42285	41279	40293	39297	38340	37685	
Product-month FEs	x	x	x	x	x	x	x	x	x
Clustered SE (firm-month)	x	x	x	x	x	x	x	x	x

Table 19: Pre-trends, sales-weighted IV regressions.

	p(t-2)-p(t-1)	p(t-3)-p(t-1)	p(t-4)-p(t-1)	p(t-5)-p(t-1)	p(t-6)-p(t-1)	p(t-7)-p(t-1)	p(t-8)-p(t-1)	p(t-9)-p(t-1)	p(t-10)-p(t-1)
Lagged W/S $\times \Delta R$	1.053 (0.792)	-1.120 (1.088)	-0.739 (1.595)	-1.524 (1.854)	-0.229 (2.879)	-2.722 (3.476)	-2.841 (3.844)	-3.608 (4.261)	-3.813 (4.544)
Lagged S $\times \Delta R$	-0.00992 (0.00751)	-0.0171+ (0.00912)	-0.0232+ (0.0123)	-0.0300* (0.0151)	-0.0465* (0.0198)	-0.0181 (0.0333)	-0.0208 (0.0357)	-0.0397 (0.0378)	-0.0548 (0.0401)
Lagged W/S	0.0158 (0.108)	0.0357 (0.143)	0.0536 (0.176)	-0.0342 (0.202)	-0.0254 (0.232)	-0.166 (0.247)	-0.187 (0.267)	-0.257 (0.293)	-0.236 (0.317)
Observations	89270	86546	83968	81494	79207	76966	74814	72342	69983
	p(t-11)-p(t-1)	p(t-12)-p(t-1)	p(t-13)-p(t-1)	p(t-14)-p(t-1)	p(t-15)-p(t-1)	p(t-16)-p(t-1)	p(t-17)-p(t-1)	p(t-18)-p(t-1)	p(t-19)-p(t-1)
Lagged W/S $\times \Delta R$	-6.156 (5.419)	-7.600 (5.897)	-10.10 (6.471)	-13.55* (6.662)	-13.76+ (7.026)	-13.56+ (7.705)	-12.21 (8.734)	-12.97 (9.845)	-12.58 (10.65)
Lagged S $\times \Delta R$	-0.0437 (0.0432)	-0.0545 (0.0453)	-0.0618 (0.0505)	-0.0621 (0.0518)	-0.0710 (0.0551)	-0.107+ (0.0639)	-0.106 (0.0692)	-0.0922 (0.0726)	-0.0699 (0.0701)
Lagged W/S	-0.290 (0.342)	-0.490 (0.371)	-0.644 (0.393)	-0.775+ (0.424)	-0.725 (0.470)	-0.546 (0.512)	-0.390 (0.546)	-0.334 (0.581)	-0.352 (0.619)
Observations	67776	66050	64390	62634	61181	59775	58393	57025	55681
	p(t-20)-p(t-1)	p(t-21)-p(t-1)	p(t-22)-p(t-1)	p(t-23)-p(t-1)	p(t-24)-p(t-1)	p(t-25)-p(t-1)	p(t-26)-p(t-1)	p(t-27)-p(t-1)	p(t-28)-p(t-1)
Lagged W/S $\times \Delta R$	-9.379 (11.04)	-11.12 (11.72)	-12.91 (12.39)	-2.639 (9.436)	-1.247 (9.500)	-0.789 (9.675)	-3.136 (9.780)	0.0580 (8.994)	2.310 (9.121)
Lagged S $\times \Delta R$	-0.0746 (0.0738)	-0.0909 (0.0777)	-0.104 (0.0788)	-0.0177 (0.0649)	-0.0209 (0.0666)	-0.0136 (0.0686)	0.0177 (0.0691)	0.0689 (0.0651)	0.0630 (0.0659)
Lagged W/S	-0.396 (0.654)	-0.673 (0.688)	-0.963 (0.711)	-1.146 (0.748)	-1.480+ (0.769)	-1.637* (0.789)	-1.701* (0.816)	-1.640+ (0.845)	-1.298 (0.872)
Observations	54338	53001	51636	50295	49336	48402	47356	46355	45346
	p(t-29)-p(t-1)	p(t-30)-p(t-1)	p(t-31)-p(t-1)	p(t-32)-p(t-1)	p(t-33)-p(t-1)	p(t-34)-p(t-1)	p(t-35)-p(t-1)	p(t-36)-p(t-1)	
Lagged W/S $\times \Delta R$	4.930 (9.147)	6.731 (9.189)	10.36 (9.460)	10.58 (10.01)	9.423 (10.28)	7.041 (10.94)	8.862 (10.59)	9.762 (11.01)	
Lagged S $\times \Delta R$	0.0833 (0.0667)	0.0785 (0.0703)	0.0512 (0.0753)	0.0375 (0.0750)	0.0440 (0.0739)	0.0419 (0.0785)	0.0587 (0.0743)	0.0644 (0.0777)	
Lagged W/S	-1.056 (0.899)	-0.849 (0.932)	-0.539 (0.957)	-0.417 (0.978)	-0.425 (1.003)	-0.463 (1.026)	-0.597 (1.050)	-0.793 (1.068)	
Observations	44337	43317	42285	41279	40293	39297	38340	37685	
Product-month FEs	x	x	x	x	x	x	x	x	x
Clustered SE (firm-month)	x	x	x	x	x	x	x	x	x

A.11.2 Lagged price changes as controls

To further address potential differences in price trends between high and low working capital firms, past price changes are included as controls (Figures 20a and 20b). With this specification, the estimated coefficient for the 9–16-months horizon rises from 1.7–3.4 to 2.5–4.4 in the unweighted regression, and from 5.9–14 to 5.5–18.5 in the sales-weighted regression.

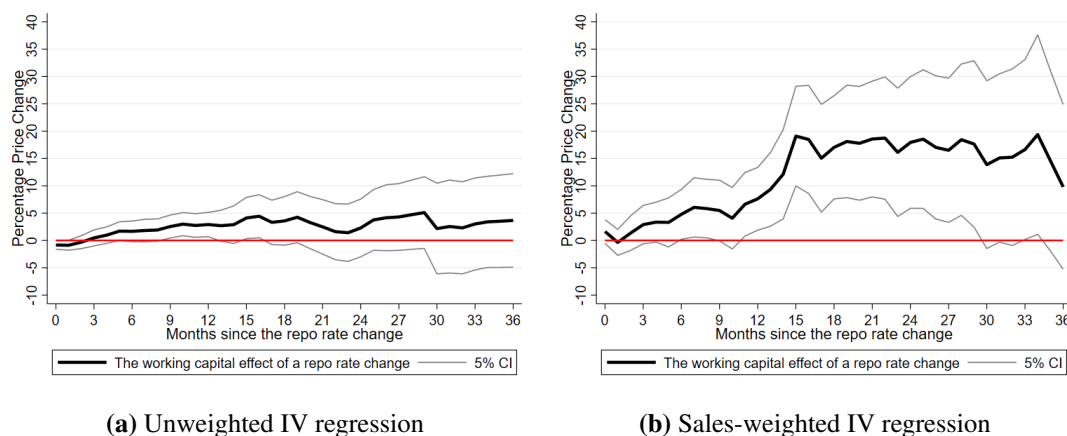


Figure 20: The effect of a repo rate change via the working capital channel, controlling for past price changes. The corresponding result tables are Table 20 and 21.

Table 20: The price effect of a policy rate change via the working capital channel, past price changes as controls, unweighted IV regressions.

	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)	p(t+8)-p(t-1)
Lagged W/S $\times \Delta R$	-0.830* (0.397)	-0.871+ (0.460)	-0.302 (0.604)	0.478 (0.747)	0.979 (0.772)	1.713* (0.868)	1.677+ (0.961)	1.820+ (1.048)	1.923+ (1.034)
Lagged S $\times \Delta R$	-0.00119 (0.00774)	-0.00332 (0.00994)	0.00239 (0.0123)	0.00667 (0.0130)	0.00855 (0.0132)	0.00426 (0.0156)	-0.000117 (0.0170)	-0.00403 (0.0185)	0.0149 (0.0201)
Lagged W/S	-0.00928 (0.0380)	0.000804 (0.0491)	0.0211 (0.0571)	0.0401 (0.0636)	0.0615 (0.0692)	0.0652 (0.0740)	0.0515 (0.0782)	0.0322 (0.0822)	0.0116 (0.0858)
p(t-1)-p(t-2)	-0.200*** (0.00677)	-0.244*** (0.00741)	-0.278*** (0.00759)	-0.301*** (0.00789)	-0.329*** (0.00797)	-0.338*** (0.00805)	-0.344*** (0.00819)	-0.362*** (0.00844)	-0.385*** (0.00847)
p(t-2)-p(t-3)	-0.0826*** (0.00584)	-0.118*** (0.00659)	-0.148*** (0.00700)	-0.178*** (0.00730)	-0.186*** (0.00748)	-0.196*** (0.00767)	-0.209*** (0.00785)	-0.233*** (0.00815)	-0.238*** (0.00821)
p(t-3)-p(t-4)	-0.0486*** (0.00540)	-0.0740*** (0.00614)	-0.0991*** (0.00660)	-0.107*** (0.00674)	-0.114*** (0.00705)	-0.126*** (0.00728)	-0.141*** (0.00752)	-0.148*** (0.00768)	-0.144*** (0.00780)
Observations	85408	85408	85408	85408	85408	85408	85408	85408	85408
	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)	p(t+16)-p(t-1)	p(t+17)-p(t-1)
Lagged W/S $\times \Delta R$	2.547* (1.070)	2.989** (1.080)	2.749* (1.104)	2.917** (1.132)	2.702+ (1.447)	2.896+ (1.753)	4.119* (1.930)	4.436* (2.005)	3.317 (2.072)
Lagged S $\times \Delta R$	0.0214 (0.0215)	0.0249 (0.0207)	0.0271 (0.0226)	0.0291 (0.0228)	0.00799 (0.0298)	0.0137 (0.0309)	0.0323 (0.0331)	0.0209 (0.0334)	0.00449 (0.0353)
Lagged W/S	-0.0120 (0.0887)	-0.0540 (0.0917)	-0.0810 (0.0953)	-0.110 (0.0994)	-0.165 (0.115)	-0.172 (0.132)	-0.170 (0.147)	-0.144 (0.159)	-0.181 (0.171)
p(t-1)-p(t-2)	-0.386*** (0.00856)	-0.361*** (0.00861)	-0.304*** (0.00903)	-0.295*** (0.00982)	-0.298*** (0.0119)	-0.307*** (0.0135)	-0.320*** (0.0144)	-0.338*** (0.0158)	-0.337*** (0.0168)
p(t-2)-p(t-3)	-0.221*** (0.00830)	-0.164*** (0.00870)	-0.144*** (0.00934)	-0.150*** (0.0100)	-0.164*** (0.0121)	-0.181*** (0.0131)	-0.198*** (0.0148)	-0.197*** (0.0158)	-0.199*** (0.0171)
p(t-3)-p(t-4)	-0.0954*** (0.00814)	-0.0750*** (0.00856)	-0.0792*** (0.00904)	-0.0886*** (0.00971)	-0.111*** (0.0112)	-0.127*** (0.0129)	-0.139*** (0.0139)	-0.141*** (0.0151)	-0.140*** (0.0165)
Observations	85408	85408	85408	85408	83593	81742	79904	78084	76249
	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)
Lagged W/S $\times \Delta R$	3.585 (2.263)	4.256+ (2.382)	3.296 (2.437)	2.493 (2.537)	1.613 (2.617)	1.423 (2.675)	2.297 (2.694)	3.760 (2.834)	4.160 (3.074)
Lagged S $\times \Delta R$	0.0234 (0.0349)	0.0203 (0.0363)	0.0185 (0.0366)	0.0203 (0.0372)	0.0246 (0.0384)	0.0163 (0.0397)	0.0196 (0.0406)	0.0337 (0.0430)	0.0463 (0.0453)
Lagged W/S	-0.210 (0.182)	-0.199 (0.193)	-0.194 (0.205)	-0.197 (0.214)	-0.154 (0.222)	-0.122 (0.231)	-0.0676 (0.240)	-0.0346 (0.255)	0.0312 (0.268)
p(t-1)-p(t-2)	-0.331*** (0.0180)	-0.327*** (0.0193)	-0.326*** (0.0204)	-0.317*** (0.0216)	-0.306*** (0.0226)	-0.267*** (0.0240)	-0.263*** (0.0252)	-0.258*** (0.0260)	-0.260*** (0.0270)
p(t-2)-p(t-3)	-0.193*** (0.0186)	-0.187*** (0.0200)	-0.185*** (0.0213)	-0.168*** (0.0222)	-0.135*** (0.0237)	-0.121*** (0.0249)	-0.126*** (0.0259)	-0.128*** (0.0266)	-0.150*** (0.0289)
p(t-3)-p(t-4)	-0.131*** (0.0178)	-0.128*** (0.0190)	-0.121*** (0.0201)	-0.0843*** (0.0217)	-0.0709*** (0.0230)	-0.0692*** (0.0240)	-0.0700*** (0.0247)	-0.0793*** (0.0259)	-0.0865*** (0.0279)
Observations	74406	72584	70777	69308	67896	66479	65055	63690	62316
	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)	p(t+32)-p(t-1)	p(t+33)-p(t-1)	p(t+34)-p(t-1)	p(t+35)-p(t-1)
Lagged W/S $\times \Delta R$	4.307 (3.119)	4.715 (3.228)	5.108 (3.345)	2.180 (4.234)	2.558 (4.341)	2.304 (4.297)	3.023 (4.293)	3.413 (4.255)	3.526 (4.311)
Lagged S $\times \Delta R$	0.0482 (0.0457)	0.0550 (0.0494)	0.0686 (0.0514)	0.0700 (0.0586)	0.0812 (0.0600)	0.0840 (0.0606)	0.0935 (0.0610)	0.102 (0.0643)	0.0877 (0.0633)
Lagged W/S	0.146 (0.282)	0.216 (0.297)	0.181 (0.307)	0.0720 (0.314)	0.0330 (0.327)	0.0431 (0.340)	0.167 (0.351)	0.288 (0.362)	0.407 (0.373)
p(t-1)-p(t-2)	-0.284*** (0.0291)	-0.282*** (0.0306)	-0.270*** (0.0316)	-0.273*** (0.0320)	-0.282*** (0.0328)	-0.268*** (0.0353)	-0.272*** (0.0366)	-0.270*** (0.0377)	-0.242*** (0.0389)
p(t-2)-p(t-3)	-0.159*** (0.0310)	-0.149*** (0.0321)	-0.154*** (0.0325)	-0.164*** (0.0333)	-0.158*** (0.0352)	-0.161*** (0.0364)	-0.154*** (0.0374)	-0.128*** (0.0387)	-0.111*** (0.0390)
p(t-3)-p(t-4)	-0.0786** (0.0289)	-0.0823** (0.0296)	-0.0993** (0.0307)	-0.0914** (0.0323)	-0.0944** (0.0335)	-0.0904** (0.0346)	-0.0617+ (0.0360)	-0.0489 (0.0368)	-0.0405 (0.0373)
Observations	60954	59603	58241	56877	55510	54155	53137	52190	51233
Product-month FEs	x	x	x	x	x	x	x	x	x
Clustered SE (firm-month)	x	x	x	x	x	x	x	x	x

Table 21: The price effect of a policy rate change via the working capital channel, past price changes as controls, sales-weighted IV regressions.

	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)	p(t+8)-p(t-1)
Lagged W/S $\times \Delta R$	1.648 (1.112)	-0.354 (1.209)	1.333 (1.613)	2.900 (1.790)	3.353 ⁺ (1.860)	3.310 (2.290)	4.787* (2.326)	6.063* (2.768)	5.831* (2.731)
Lagged S $\times \Delta R$	-0.00961 (0.00840)	-0.00312 (0.0106)	-0.00326 (0.0124)	0.0115 (0.0125)	0.0143 (0.0136)	0.0187 (0.0172)	0.00493 (0.0203)	0.0173 (0.0200)	0.0236 (0.0231)
Lagged W/S	0.0222 (0.111)	-0.0115 (0.138)	-0.00110 (0.167)	-0.0280 (0.190)	-0.00730 (0.214)	-0.0107 (0.229)	-0.0320 (0.246)	-0.0714 (0.265)	-0.168 (0.282)
p(t-1)-p(t-2)	-0.181*** (0.0141)	-0.214*** (0.0165)	-0.247*** (0.0176)	-0.244*** (0.0196)	-0.280*** (0.0211)	-0.276*** (0.0223)	-0.269*** (0.0226)	-0.299*** (0.0246)	-0.311*** (0.0250)
p(t-2)-p(t-3)	-0.0757*** (0.0132)	-0.110*** (0.0154)	-0.107*** (0.0171)	-0.143*** (0.0187)	-0.132*** (0.0205)	-0.132*** (0.0212)	-0.148*** (0.0221)	-0.166*** (0.0238)	-0.178*** (0.0258)
p(t-3)-p(t-4)	-0.0497*** (0.0105)	-0.0487*** (0.0138)	-0.0769*** (0.0154)	-0.0648*** (0.0165)	-0.0638*** (0.0172)	-0.0807*** (0.0182)	-0.0858*** (0.0194)	-0.0961*** (0.0217)	-0.0709* (0.0281)
Observations	85408	85408	85408	85408	85408	85408	85408	85408	85408
	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)	p(t+16)-p(t-1)	p(t+17)-p(t-1)
Lagged W/S $\times \Delta R$	5.486 ⁺ (2.830)	4.070 (2.871)	6.632* (2.969)	7.623** (2.928)	9.348** (3.438)	12.12** (4.166)	19.10*** (4.648)	18.49*** (5.046)	15.05** (5.029)
Lagged S $\times \Delta R$	0.0324 (0.0238)	0.0362 (0.0233)	0.0361 (0.0251)	0.0297 (0.0258)	0.00943 (0.0282)	0.0109 (0.0295)	0.0343 (0.0314)	0.0169 (0.0316)	0.0176 (0.0333)
Lagged W/S	-0.246 (0.303)	-0.278 (0.318)	-0.293 (0.336)	-0.404 (0.354)	-0.423 (0.399)	-0.302 (0.441)	-0.107 (0.482)	0.0346 (0.517)	0.0411 (0.550)
p(t-1)-p(t-2)	-0.324*** (0.0270)	-0.276*** (0.0310)	-0.241*** (0.0367)	-0.203*** (0.0401)	-0.220*** (0.0426)	-0.221*** (0.0459)	-0.260*** (0.0489)	-0.286*** (0.0518)	-0.279*** (0.0550)
p(t-2)-p(t-3)	-0.154*** (0.0318)	-0.111** (0.0366)	-0.0701* (0.0398)	-0.0794* (0.0404)	-0.102* (0.0433)	-0.126** (0.0472)	-0.147** (0.0506)	-0.154** (0.0536)	-0.133* (0.0576)
p(t-3)-p(t-4)	-0.0392 (0.0328)	-0.00292 (0.0354)	-0.0241 (0.0349)	-0.0247 (0.0359)	-0.0513 (0.0398)	-0.0521 (0.0434)	-0.0862 ⁺ (0.0470)	-0.0740 (0.0517)	-0.0126 (0.0525)
Observations	85408	85408	85408	85408	83593	81742	79904	78084	76249
	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)
Lagged W/S $\times \Delta R$	17.04*** (4.817)	18.11*** (5.247)	17.78*** (5.310)	18.56*** (5.403)	18.74** (5.708)	16.13** (5.988)	17.94** (6.147)	18.55** (6.467)	17.02* (6.685)
Lagged S $\times \Delta R$	0.0235 (0.0320)	0.0164 (0.0341)	0.0202 (0.0346)	0.0326 (0.0352)	0.0299 (0.0364)	0.0333 (0.0370)	0.0341 (0.0372)	0.0540 (0.0397)	0.0601 (0.0424)
Lagged W/S	0.149 (0.580)	0.255 (0.605)	0.349 (0.635)	0.406 (0.656)	0.452 (0.678)	0.582 (0.705)	0.667 (0.734)	0.822 (0.757)	0.961 (0.792)
p(t-1)-p(t-2)	-0.253*** (0.0592)	-0.207*** (0.0610)	-0.190** (0.0626)	-0.158* (0.0646)	-0.212** (0.0695)	-0.187** (0.0712)	-0.210** (0.0757)	-0.159* (0.0786)	-0.156 ⁺ (0.0801)
p(t-2)-p(t-3)	-0.0769 (0.0593)	-0.0569 (0.0605)	-0.0274 (0.0634)	-0.0505 (0.0683)	-0.0424 (0.0702)	-0.0622 (0.0740)	-0.0383 (0.0770)	-0.0284 (0.0770)	-0.00202 (0.0790)
p(t-3)-p(t-4)	-0.00156 (0.0533)	0.0376 (0.0555)	0.0170 (0.0606)	0.0407 (0.0638)	0.0209 (0.0688)	0.0389 (0.0708)	0.0362 (0.0707)	0.0685 (0.0704)	0.0615 (0.0731)
Observations	74406	72584	70777	69308	67896	66479	65055	63690	62316
	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)	p(t+32)-p(t-1)	p(t+33)-p(t-1)	p(t+34)-p(t-1)	p(t+35)-p(t-1)
Lagged W/S $\times \Delta R$	16.50* (6.730)	18.45** (7.059)	17.65* (7.768)	13.87 ⁺ (7.828)	15.10 ⁺ (7.852)	15.23 ⁺ (8.243)	16.63* (8.397)	19.38* (9.311)	14.58 ⁺ (8.414)
Lagged S $\times \Delta R$	0.0711 (0.0436)	0.0675 (0.0482)	0.0703 (0.0516)	0.0638 (0.0549)	0.0764 (0.0561)	0.0774 (0.0599)	0.0735 (0.0598)	0.0773 (0.0640)	0.0899 (0.0614)
Lagged W/S	1.097 (0.815)	1.176 (0.846)	0.976 (0.869)	0.596 (0.889)	0.512 (0.918)	0.470 (0.945)	0.558 (0.967)	0.657 (0.974)	0.619 (0.998)
p(t-1)-p(t-2)	-0.130 (0.0805)	-0.158 ⁺ (0.0823)	-0.193* (0.0869)	-0.203* (0.0878)	-0.184* (0.0883)	-0.106 (0.0916)	-0.128 (0.0930)	-0.113 (0.0910)	-0.122 (0.0933)
p(t-2)-p(t-3)	-0.0318 (0.0815)	-0.0671 (0.0863)	-0.0718 (0.0885)	-0.0357 (0.0898)	0.0307 (0.0928)	0.00676 (0.0937)	0.0214 (0.0922)	0.000141 (0.0942)	-0.0812 (0.0951)
p(t-3)-p(t-4)	0.0285 (0.0775)	0.0100 (0.0808)	0.0277 (0.0832)	0.102 (0.0860)	0.105 (0.0872)	0.113 (0.0848)	0.133 (0.0876)	0.0554 (0.0914)	0.0209 (0.0920)
Observations	60954	59603	58241	56877	55510	54155	53137	52190	51233
Product-month FEs	x	x	x	x	x	x	x	x	x
Clustered SE (firm-month)	x	x	x	x	x	x	x	x	x

A.11.3 Alternative standard errors and firm characteristics

Table 22 presents an overview of the robustness checks for the 6-month price-setting horizon.

Column (1) reiterates the baseline specification corresponding to the regression in Equation (7).

The first concern is the choice of the standard errors. Column (2) implements Driscoll-Kraay

standard errors, while column (3) implements clustered standard errors at the firm and month

level to take into account possible autocorrelation within each firm over time and to allow

for contemporaneous correlation across firms. In addition, Tables 27-29 report Driscoll-Kraay standard errors, and two-way clustered standard errors both at the firm and month as well as the product and month level for the sales-weighted regressions. Figures 21 and 22 visualize the results with alternative standard error specifications. The choice of the standard errors does not seem to affect the statistical significance of the estimated coefficients.

Table 22: The price effect of a policy rate change via the working capital channel

	(1)	(2)	(3)	(4)	(5)	(6)
	p(t+6)-p(t-1)	p(t+6)-p(t-1)	p(t+6)-p(t-1)	p(t+6)-p(t-1)	p(t+6)-p(t-1)	p(t+6)-p(t-1)
Lagged $W/S \times \Delta R$	1.836* (0.880)	1.836* (0.743)	1.836* (0.800)	1.829* (0.882)	1.801* (0.867)	5.164** (1.984)
Lagged $S \times \Delta R$	0.00339 (0.0153)	0.00339 (0.0163)	0.00339 (0.0153)	0.00341 (0.0153)	0.00340 (0.0153)	
Lagged W/S	0.0670 (0.0794)	0.0670 (0.0911)	0.0670 (0.183)	0.0515 (0.0794)	0.0667 (0.0796)	0.00343 (0.237)
Lagged $TVC/S \times \Delta R$				477.2 (382.0)	475.4 (381.7)	1829.2 (1580.4)
Lagged $Cash/S \times \Delta R$					0.00873 (0.152)	0.0800 (0.395)
Lagged $Debt/S \times \Delta R$					-0.0000867 (0.00147)	0.113 (0.135)
Observations	98991	98991	98991	98991	98991	98991
Product-month FEs	x	x	x	x	x	x
Clustered SEs (firm×month)	x			x	x	x
Driscoll-Kraay SEs (3 lags)		x				
Clustered SEs (firm and month)			x			
Unweighted IV regressions	x	x	x	x	x	
Sales-weighted IV regressions						x

Notes: Standard errors are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. TVC/S is the firm's total variable cost-to-sales ratio, $Cash/S$ is its cash-to-sales ratio, and $Debt/S$ is its short-term debt-to-sales ratio. The corresponding result tables are Tables 23-26.

Columns (4)-(5) report variations in control variables for the simple average regression, and column (6) includes all additional control variables in the sales-weighted regression. Specifically, column (4) adds an interaction between the firm's total variable cost-to-sales ratio and the instrumented interest rate change to test whether omitted variable costs attenuate the estimate; the coefficient remains stable. Columns (5) and (6) include shift-share controls for financial characteristics such as cash-to-sales and short-term debt-to-sales ratios, with no change in the working capital coefficient. Figure 23 shows the impulse response function corresponding to the specifications in columns (5-6).

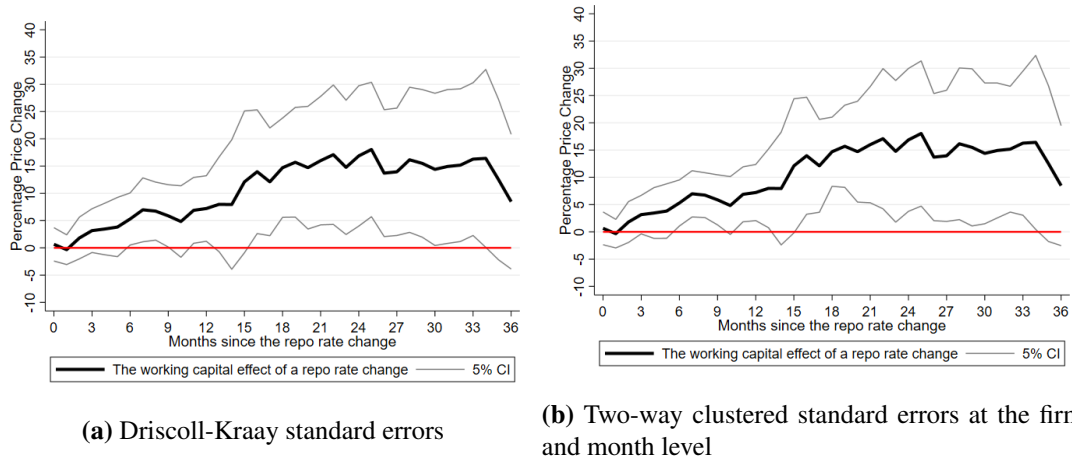


Figure 21: The price effect of a policy rate change via the working capital channel, sales-weighted IV regressions with alternative standard errors.

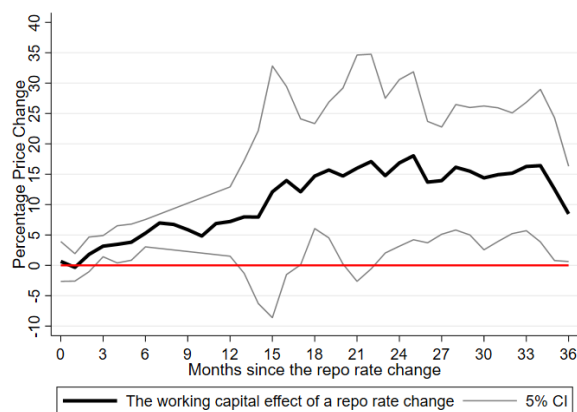


Figure 22: The price effect of a policy rate change via the working capital channel, sales-weighted IV regressions with two-way clustered standard errors at the HS1 product and month level.

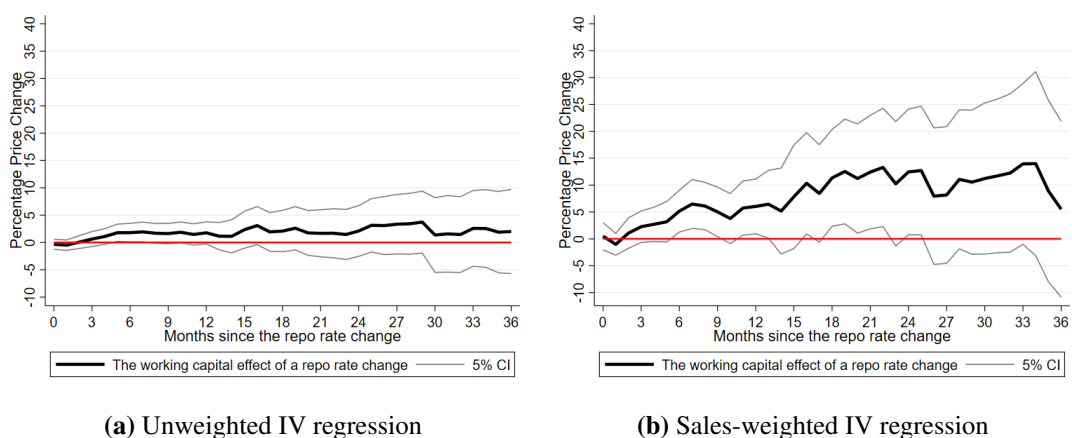


Figure 23: The price effect of a policy rate change via the working capital channel, with shift-share control variables.

Table 23: The price effect of a policy rate change via the working capital channel, unweighted instrumental variable regressions, Driscoll-Kraay standard errors with 3 lags.

	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)
Lagged W/S $\times \Delta R$	-0.300 (0.452)	-0.448 (0.701)	0.244 (0.621)	0.753 (0.616)	1.237* (0.521)	1.845* (0.828)	1.836* (0.743)	1.910** (0.732)
Lagged S $\times \Delta R$	0.00358 (0.0110)	0.00547 (0.0111)	0.0201 (0.0161)	0.0146 (0.0153)	0.0167 (0.0150)	0.00667 (0.0148)	0.00339 (0.0163)	-0.00355 (0.0227)
Lagged W/S	-0.00530 (0.0369)	0.0248 (0.0592)	0.0309 (0.0767)	0.0118 (0.0801)	0.0383 (0.0833)	0.0828 (0.0870)	0.0670 (0.0911)	0.0647 (0.0988)
Observations	98991	98991	98991	98991	98991	98991	98991	98991
	p(t+8)-p(t-1)	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)
Lagged W/S $\times \Delta R$	1.770* (0.796)	1.710 (1.098)	1.970+ (1.187)	1.580 (1.157)	1.927 (1.170)	1.183 (1.412)	1.434 (1.434)	2.929 (1.859)
Lagged S $\times \Delta R$	0.0109 (0.0243)	0.00971 (0.0277)	0.0115 (0.0273)	0.0140 (0.0294)	0.0213 (0.0265)	0.00546 (0.0250)	0.0402 (0.0297)	0.0744+ (0.0419)
Lagged W/S	0.0348 (0.101)	0.0350 (0.103)	-0.00262 (0.106)	-0.0468 (0.108)	-0.0667 (0.106)	-0.155 (0.118)	-0.128 (0.141)	-0.129 (0.174)
Observations	98991	98991	98991	98991	98991	97032	95020	93023
	p(t+16)-p(t-1)	p(t+17)-p(t-1)	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)
Lagged W/S $\times \Delta R$	3.446+ (1.769)	2.086 (1.897)	2.319 (2.013)	2.813 (2.178)	1.958 (2.088)	1.888 (2.353)	1.926 (2.694)	1.770 (2.608)
Lagged S $\times \Delta R$	0.0455 (0.0360)	0.0209 (0.0349)	0.0313 (0.0353)	0.0245 (0.0378)	0.0247 (0.0433)	0.0260 (0.0470)	0.0297 (0.0440)	0.0374 (0.0493)
Lagged W/S	-0.114 (0.195)	-0.133 (0.205)	-0.148 (0.226)	-0.104 (0.249)	-0.101 (0.271)	-0.121 (0.290)	-0.0736 (0.311)	-0.0913 (0.336)
Observations	91049	89076	87100	85124	83129	81151	79182	77235
	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)
Lagged W/S $\times \Delta R$	2.422 (2.707)	3.430 (2.906)	3.587 (2.944)	3.812 (3.041)	3.788 (3.076)	4.167 (3.457)	1.510 (3.919)	1.733 (3.908)
Lagged S $\times \Delta R$	0.0383 (0.0506)	0.0367 (0.0470)	0.0584 (0.0635)	0.0556 (0.0610)	0.0459 (0.0632)	0.0529 (0.0607)	0.0200 (0.0522)	0.0211 (0.0548)
Lagged W/S	0.0331 (0.361)	0.180 (0.384)	0.356 (0.415)	0.507 (0.444)	0.619 (0.469)	0.619 (0.490)	0.614 (0.505)	0.661 (0.523)
Observations	75647	74181	72675	71191	69732	68281	66820	65363
	p(t+32)-p(t-1)	p(t+33)-p(t-1)	p(t+34)-p(t-1)	p(t+35)-p(t-1)	p(t+36)-p(t-1)			
Lagged W/S $\times \Delta R$	1.601 (3.861)	2.840 (4.146)	2.945 (3.889)	2.314 (3.919)	2.305 (4.060)			
Lagged S $\times \Delta R$	0.0188 (0.0591)	0.0295 (0.0629)	0.0440 (0.0651)	0.0381 (0.0621)	0.0173 (0.0653)			
Lagged W/S	0.666 (0.545)	0.711 (0.567)	0.776 (0.586)	0.884 (0.607)	1.061+ (0.618)			
Observations	63907	62455	60991	59529	58404			
Product-month FEs	x	x	x	x	x	x	x	x
Driscoll-Kraay SEs (3 lags)	x	x	x	x	x	x	x	x

Notes: Standard errors are Driscoll-Kraay with 3 lags in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. Regression specification in equation (7).

Table 24: The price effect of a policy rate change via the working capital channel, unweighted instrumental variable regressions, product and month standard errors.

	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)
Lagged W/S $\times \Delta R$	-0.409 (0.437)	-0.637 (0.666)	-0.0637 (0.648)	0.505 (0.671)	0.887 (0.582)	1.675 ⁺ (0.849)	1.785 [*] (0.816)	1.757 [*] (0.797)
Lagged S $\times \Delta R$	0.00194 (0.0113)	0.000600 (0.0102)	0.0145 (0.0171)	0.00804 (0.0167)	0.00809 (0.0160)	-0.000378 (0.0163)	-0.00312 (0.0180)	-0.00928 (0.0239)
Lagged W/S	0.000814 (0.0375)	0.0301 (0.0599)	0.0419 (0.0767)	0.0308 (0.0802)	0.0653 (0.0855)	0.118 (0.0899)	0.111 (0.0953)	0.106 (0.102)
Observations	99004	99004	99004	99004	99004	99004	99004	99004
	p(t+8)-p(t-1)	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)
Lagged W/S $\times \Delta R$	1.525 ⁺ (0.880)	1.481 (1.174)	1.685 (1.321)	1.332 (1.324)	1.641 (1.310)	0.965 (1.593)	0.984 (1.575)	2.243 (2.044)
Lagged S $\times \Delta R$	0.00396 (0.0254)	0.00481 (0.0278)	0.00614 (0.0266)	0.0104 (0.0289)	0.0171 (0.0271)	0.00430 (0.0248)	0.0387 (0.0276)	0.0733 ⁺ (0.0390)
Lagged W/S	0.0708 (0.105)	0.0699 (0.107)	0.0324 (0.111)	-0.0142 (0.113)	-0.0331 (0.113)	-0.128 (0.127)	-0.112 (0.152)	-0.127 (0.187)
Observations	99004	99004	99004	99004	99004	97046	95035	93040
	p(t+16)-p(t-1)	p(t+17)-p(t-1)	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)
Lagged W/S $\times \Delta R$	3.025 (2.022)	1.866 (2.037)	1.901 (2.290)	2.206 (2.562)	1.422 (2.494)	1.347 (2.571)	1.468 (2.971)	1.304 (2.800)
Lagged S $\times \Delta R$	0.0484 (0.0315)	0.0284 (0.0302)	0.0409 (0.0297)	0.0347 (0.0304)	0.0346 (0.0342)	0.0391 (0.0377)	0.0440 (0.0347)	0.0527 (0.0381)
Lagged W/S	-0.114 (0.209)	-0.132 (0.219)	-0.146 (0.238)	-0.119 (0.263)	-0.126 (0.284)	-0.159 (0.300)	-0.125 (0.321)	-0.164 (0.347)
Observations	91068	89097	87122	85147	83153	81176	79208	77262
	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)
Lagged W/S $\times \Delta R$	1.740 (2.909)	2.179 (2.943)	1.781 (2.791)	1.875 (2.826)	2.223 (2.899)	2.561 (2.966)	-0.612 (3.006)	-0.563 (3.155)
Lagged S $\times \Delta R$	0.0564 (0.0394)	0.0528 (0.0367)	0.0696 (0.0499)	0.0688 (0.0476)	0.0643 (0.0496)	0.0705 (0.0457)	0.0384 (0.0465)	0.0400 (0.0490)
Lagged W/S	-0.0683 (0.374)	0.0669 (0.400)	0.223 (0.436)	0.377 (0.468)	0.495 (0.494)	0.492 (0.514)	0.470 (0.529)	0.501 (0.546)
Observations	75674	74208	72701	71216	69756	68304	66842	65384
	p(t+32)-p(t-1)	p(t+33)-p(t-1)	p(t+34)-p(t-1)	p(t+35)-p(t-1)	p(t+36)-p(t-1)			
Lagged W/S $\times \Delta R$	-0.920 (3.054)	-0.0741 (3.284)	-0.0707 (2.998)	-1.223 (3.078)	-1.313 (3.107)			
Lagged S $\times \Delta R$	0.0336 (0.0523)	0.0424 (0.0560)	0.0584 (0.0571)	0.0484 (0.0546)	0.0257 (0.0579)			
Lagged W/S	0.492 (0.565)	0.527 (0.588)	0.579 (0.607)	0.671 (0.628)	0.837 (0.635)			
Observations	63927	62474	61009	59546	58420			
Product-month FEs	x	x	x	x	x	x	x	x
Clustered SE (product and month)	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the product and month level, are in parentheses; significance levels $+p < 0.10$, $*p < 0.05$, $**p < 0.01$, $***p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales.

Table 25: The price effect of a policy rate change via the working capital channel, unweighted IV regressions with shift-share control variables.

	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)
Lagged W/S $\times \Delta R$	-0.332 (0.478)	-0.488 (0.485)	0.0735 (0.598)	0.625 (0.698)	1.099 (0.729)	1.783* (0.804)	1.801* (0.867)	1.937* (0.927)
Lagged TVC/S $\times \Delta R$	-23.70 (235.8)	-382.1+ (197.2)	-154.8 (223.2)	173.5 (300.0)	277.2 (289.6)	188.2 (310.6)	475.4 (381.7)	365.0 (385.1)
Lagged Cash/S $\times \Delta R$	-0.0375 (0.0817)	0.0537 (0.0468)	-0.0754 (0.124)	-0.0421 (0.103)	-0.0145 (0.132)	-0.0867 (0.135)	0.00873 (0.152)	0.0815 (0.166)
Lagged Debt/S $\times \Delta R$	0.000365 (0.000794)	-0.000527 (0.000455)	0.000729 (0.00120)	0.000406 (0.00100)	0.000140 (0.00129)	0.000844 (0.00131)	-0.0000867 (0.00147)	-0.000796 (0.00162)
Lagged W/S	-0.00651 (0.0436)	0.0243 (0.0538)	0.0267 (0.0611)	0.00912 (0.0664)	0.0374 (0.0710)	0.0808 (0.0759)	0.0667 (0.0796)	0.0660 (0.0832)
Observations	98991	98991	98991	98991	98991	98991	98991	98991
	p(t+8)-p(t-1)	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)
Lagged W/S $\times \Delta R$	1.686+ (0.915)	1.632+ (0.951)	1.867+ (0.962)	1.473 (0.994)	1.769+ (1.025)	1.156 (1.274)	1.129 (1.546)	2.339 (1.725)
Lagged TVC/S $\times \Delta R$	583.9 (398.2)	500.2 (410.3)	460.7 (411.3)	438.8 (413.4)	448.7 (412.3)	461.9 (452.1)	475.4 (486.3)	192.8 (525.7)
Lagged Cash/S $\times \Delta R$	0.137 (0.141)	0.0965 (0.152)	-0.0213 (0.160)	0.116 (0.167)	0.183 (0.192)	0.241 (0.209)	0.238 (0.232)	0.209 (0.223)
Lagged Debt/S $\times \Delta R$	-0.00133 (0.00137)	-0.000942 (0.00148)	0.000204 (0.00156)	-0.00113 (0.00162)	-0.00178 (0.00186)	-0.00234 (0.00204)	-0.00232 (0.00225)	-0.00203 (0.00217)
Lagged W/S	0.0378 (0.0867)	0.0366 (0.0899)	-0.00421 (0.0928)	-0.0443 (0.0960)	-0.0621 (0.0991)	-0.148 (0.114)	-0.121 (0.130)	-0.123 (0.144)
Observations	98991	98991	98991	98991	98991	97032	95020	93023
	p(t+16)-p(t-1)	p(t+17)-p(t-1)	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)
Lagged W/S $\times \Delta R$	3.097+ (1.774)	1.940 (1.805)	2.082 (1.929)	2.614 (2.016)	1.754 (2.088)	1.674 (2.197)	1.692 (2.288)	1.465 (2.339)
Lagged TVC/S $\times \Delta R$	194.0 (549.3)	9.264 (633.2)	-15.34 (634.5)	-219.9 (700.8)	-282.6 (717.6)	-165.4 (728.2)	-330.6 (747.2)	-419.5 (759.2)
Lagged Cash/S $\times \Delta R$	0.253 (0.262)	0.240 (0.256)	0.275 (0.221)	0.119 (0.241)	0.0732 (0.254)	0.0951 (0.279)	0.187 (0.249)	0.161 (0.274)
Lagged Debt/S $\times \Delta R$	-0.00246 (0.00255)	-0.00234 (0.00249)	-0.00267 (0.00215)	-0.00116 (0.00234)	-0.000715 (0.00247)	-0.000927 (0.00271)	-0.00182 (0.00242)	-0.00157 (0.00266)
Lagged W/S	-0.106 (0.156)	-0.125 (0.167)	-0.140 (0.178)	-0.102 (0.190)	-0.101 (0.201)	-0.119 (0.211)	-0.0680 (0.220)	-0.0869 (0.229)
Observations	91049	89076	87100	85124	83129	81151	79182	77235
	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)
Lagged W/S $\times \Delta R$	2.108 (2.366)	3.143 (2.488)	3.091 (2.707)	3.348 (2.775)	3.421 (2.836)	3.728 (2.887)	1.369 (3.487)	1.579 (3.574)
Lagged TVC/S $\times \Delta R$	-245.4 (744.9)	-177.2 (778.9)	-135.1 (807.5)	-42.19 (788.6)	192.4 (809.6)	212.7 (833.5)	502.6 (886.6)	357.0 (919.3)
Lagged Cash/S $\times \Delta R$	0.144 (0.283)	0.261 (0.258)	0.144 (0.268)	0.216 (0.238)	0.287 (0.260)	0.190 (0.241)	0.203 (0.258)	0.205 (0.219)
Lagged Debt/S $\times \Delta R$	-0.00140 (0.00275)	-0.00254 (0.00251)	-0.00140 (0.00261)	-0.00211 (0.00231)	-0.00279 (0.00253)	-0.00185 (0.00234)	-0.00198 (0.00251)	-0.00199 (0.00213)
Lagged W/S	0.0372 (0.238)	0.189 (0.253)	0.360 (0.266)	0.515+ (0.282)	0.630* (0.297)	0.627* (0.306)	0.622* (0.315)	0.669* (0.326)
Observations	75647	74181	72675	71191	69732	68281	66820	65363
Product-month FEs	x	x	x	x	x	x	x	x
Clustered SE (firm-month)	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. TVC/S is the firm's total variable cost-to-sales ratio, Cash/S is its cash-to-sales ratio, and Debt/S is its short-term debt-to-sales ratio.

Table 26: The price effect of a policy rate change via the working capital channel, sales-weighted IV regressions with shift-share control variables.

	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)
Lagged W/S $\times \Delta R$	0.501 (1.289)	-1.016 (1.027)	1.078 (1.444)	2.271 (1.499)	2.712 ⁺ (1.622)	3.179 ⁺ (1.917)	5.164 ^{**} (1.984)	6.486 ^{**} (2.321)
Lagged TVC/S $\times \Delta R$	-790.3 (905.0)	-2029.5 ⁺ (1042.9)	447.7 (1305.5)	1175.3 (1369.0)	1021.7 (1416.1)	1439.4 (1539.5)	1829.2 (1580.4)	502.2 (1795.9)
Lagged Cash/S $\times \Delta R$	-0.0777 (0.220)	0.0801 (0.219)	0.0610 (0.309)	0.373 (0.308)	0.190 (0.322)	0.0745 (0.364)	0.0800 (0.395)	-0.0891 (0.437)
Lagged Debt/S $\times \Delta R$	0.0495 (0.0630)	0.0615 (0.0748)	0.0707 (0.0944)	0.0320 (0.0707)	0.0394 (0.0779)	0.0477 (0.0880)	0.113 (0.135)	0.171 (0.188)
Lagged W/S	0.00188 (0.121)	0.0582 (0.141)	0.0454 (0.167)	0.0328 (0.185)	0.0298 (0.208)	0.0798 (0.222)	0.00343 (0.237)	-0.0287 (0.254)
Observations	98991	98991	98991	98991	98991	98991	98991	98991
	p(t+8)-p(t-1)	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)
Lagged W/S $\times \Delta R$	6.125 ^{**} (2.246)	5.021 [*] (2.341)	3.782 (2.374)	5.738 [*] (2.569)	6.045 [*] (2.593)	6.448 [*] (3.214)	5.180 (4.083)	7.844 (4.918)
Lagged TVC/S $\times \Delta R$	73.91 (2071.5)	-1754.3 (2260.6)	-2130.5 (2357.5)	-2434.7 (2434.1)	-1823.7 (2381.4)	-4948.1 ⁺ (2907.6)	-4851.6 (3121.3)	-5712.4 ⁺ (3237.1)
Lagged Cash/S $\times \Delta R$	-0.448 (0.460)	-0.610 (0.467)	-0.508 (0.467)	-0.892 ⁺ (0.516)	-0.929 ⁺ (0.533)	-0.479 (0.580)	-0.239 (0.635)	-0.825 (0.681)
Lagged Debt/S $\times \Delta R$	0.183 (0.198)	0.203 (0.216)	0.179 (0.193)	0.161 (0.176)	0.146 (0.165)	0.134 (0.163)	0.101 (0.147)	0.0792 (0.136)
Lagged W/S	-0.134 (0.268)	-0.224 (0.286)	-0.374 (0.301)	-0.429 (0.319)	-0.580 ⁺ (0.333)	-0.470 (0.379)	-0.343 (0.423)	-0.298 (0.466)
Observations	98991	98991	98991	98991	98991	97032	95020	93023
	p(t+16)-p(t-1)	p(t+17)-p(t-1)	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)
Lagged W/S $\times \Delta R$	10.35 [*] (4.804)	8.452 ⁺ (4.626)	11.34 [*] (4.593)	12.54 [*] (4.969)	11.23 [*] (5.184)	12.42 [*] (5.387)	13.30 [*] (5.612)	10.24 ⁺ (5.904)
Lagged TVC/S $\times \Delta R$	-8293.8 [*] (3594.0)	-10078.3 [*] (3975.9)	-7569.6 ⁺ (3932.7)	-8105.2 ⁺ (4163.9)	-9694.2 [*] (4531.1)	-9977.1 [*] (4776.0)	-11155.7 [*] (5035.6)	-10682.0 [*] (5192.0)
Lagged Cash/S $\times \Delta R$	-0.606 (0.670)	-0.694 (0.709)	-0.241 (0.692)	-0.481 (0.715)	-0.552 (0.757)	-1.460 (1.112)	-1.579 (1.191)	-1.372 (1.207)
Lagged Debt/S $\times \Delta R$	0.169 (0.199)	0.211 (0.232)	0.205 (0.231)	0.144 (0.182)	0.178 (0.212)	0.243 (0.261)	0.270 (0.284)	0.229 (0.252)
Lagged W/S	-0.135 (0.502)	-0.0971 (0.538)	0.0352 (0.570)	0.191 (0.601)	0.348 (0.632)	0.504 (0.656)	0.605 (0.680)	0.688 (0.715)
Observations	91049	89076	87100	85124	83129	81151	79182	77235
	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)
Lagged W/S $\times \Delta R$	12.45 [*] (5.969)	12.72 [*] (6.104)	7.950 (6.476)	8.168 (6.487)	11.07 ⁺ (6.595)	10.56 (6.838)	11.23 (7.166)	11.72 (7.294)
Lagged TVC/S $\times \Delta R$	-9850.8 ⁺ (5212.4)	-12432.7 [*] (5533.4)	-12155.3 [*] (5608.3)	-12292.5 [*] (5598.3)	-12288.2 [*] (5829.9)	-11894.2 ⁺ (6142.8)	-8362.8 (5906.5)	-7586.1 (5927.3)
Lagged Cash/S $\times \Delta R$	-2.040 (1.335)	-2.233 (1.390)	-2.246 (1.411)	-2.487 ⁺ (1.441)	-3.381 [*] (1.601)	-3.506 [*] (1.643)	-4.043 [*] (1.765)	-4.136 [*] (1.779)
Lagged Debt/S $\times \Delta R$	0.187 (0.216)	0.144 (0.185)	0.166 (0.202)	0.164 (0.198)	0.184 (0.211)	0.209 (0.228)	0.222 (0.238)	0.188 (0.216)
Lagged W/S	0.886 (0.743)	1.092 (0.765)	1.297 (0.798)	1.507 ⁺ (0.818)	1.679 [*] (0.842)	1.520 ⁺ (0.862)	1.309 (0.878)	1.197 (0.901)
Observations	75647	74181	72675	71191	69732	68281	66820	65363
Product-month FEs	x	x	x	x	x	x	x	x
Clustered SE (firm-month)	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. TVC/S is the firm's total variable cost-to-sales ratio, Cash/S is its cash-to-sales ratio, and Debt/S is its short-term debt-to-sales ratio.

Table 27: The price effect of a policy rate change via the working capital channel, sales-weighted instrumental variable regressions.

	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)
Lagged W/S $\times \Delta R$	0.648 (1.562)	-0.332 (1.391)	1.810 (1.954)	3.164 (2.050)	3.463 (2.411)	3.821 (2.774)	5.301* (2.439)	6.980* (2.991)
Lagged S $\times \Delta R$	0.000293 (0.0112)	0.00794 (0.0123)	0.0228 (0.0170)	0.0298* (0.0146)	0.0258+ (0.0150)	0.0255 (0.0213)	0.0136 (0.0287)	0.0173 (0.0349)
Lagged S	-0.00374 (0.120)	0.0481 (0.190)	0.0598 (0.267)	0.0563 (0.316)	0.0500 (0.347)	0.102 (0.371)	0.0223 (0.409)	-0.0175 (0.445)
Observations	98991	98991	98991	98991	98991	98991	98991	98991
	p(t+8)-p(t-1)	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)
Lagged W/S $\times \Delta R$	6.747* (2.714)	5.872* (2.913)	4.832 (3.344)	6.885* (3.080)	7.219* (3.069)	7.986+ (4.428)	7.950 (6.058)	12.11+ (6.636)
Lagged S $\times \Delta R$	0.0202 (0.0430)	0.0174 (0.0466)	0.0205 (0.0444)	0.0232 (0.0467)	0.0275 (0.0433)	0.0186 (0.0432)	0.0503 (0.0389)	0.0878* (0.0379)
Lagged S	-0.125 (0.488)	-0.229 (0.526)	-0.380 (0.555)	-0.436 (0.589)	-0.580 (0.631)	-0.496 (0.703)	-0.351 (0.798)	-0.293 (0.865)
Observations	98991	98991	98991	98991	98991	97032	95020	93023
	p(t+16)-p(t-1)	p(t+17)-p(t-1)	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)
Lagged W/S $\times \Delta R$	13.97* (5.794)	12.12* (5.041)	14.71** (4.645)	15.71** (5.133)	14.72* (5.742)	16.00** (6.014)	17.10** (6.529)	14.77* (6.285)
Lagged S $\times \Delta R$	0.0558+ (0.0314)	0.0473 (0.0385)	0.0503 (0.0389)	0.0427 (0.0421)	0.0431 (0.0517)	0.0488 (0.0568)	0.0490 (0.0532)	0.0715 (0.0523)
Lagged S	-0.163 (0.898)	-0.142 (0.953)	0.00920 (0.991)	0.157 (1.038)	0.302 (1.076)	0.456 (1.105)	0.549 (1.126)	0.649 (1.179)
Observations	91049	89076	87100	85124	83129	81151	79182	77235
	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)
Lagged W/S $\times \Delta R$	16.87* (6.569)	18.05** (6.290)	13.71* (5.936)	13.96* (5.962)	16.15* (6.791)	15.50* (6.909)	14.40* (7.125)	14.94* (7.199)
Lagged S $\times \Delta R$	0.0757 (0.0525)	0.0863+ (0.0521)	0.0964 (0.0596)	0.0968 (0.0636)	0.0810 (0.0669)	0.0802 (0.0684)	0.0548 (0.0733)	0.0596 (0.0791)
Lagged S	0.853 (1.197)	1.045 (1.217)	1.259 (1.242)	1.467 (1.256)	1.632 (1.269)	1.474 (1.268)	1.273 (1.271)	1.170 (1.281)
Observations	75647	74181	72675	71191	69732	68281	66820	65363
	p(t+32)-p(t-1)	p(t+33)-p(t-1)	p(t+34)-p(t-1)	p(t+35)-p(t-1)	p(t+36)-p(t-1)			
Lagged W/S $\times \Delta R$	15.17* (7.143)	16.28* (7.146)	16.42+ (8.325)	12.54+ (7.514)	8.480 (6.305)			
Lagged S $\times \Delta R$	0.0532 (0.0861)	0.0468 (0.0867)	0.0608 (0.0876)	0.0876 (0.0803)	0.0750 (0.0821)			
Lagged S	1.231 (1.333)	1.252 (1.357)	1.294 (1.361)	1.357 (1.345)	1.241 (1.332)			
Observations	63907	62455	60991	59529	58404			
Product-month FEs	x	x	x	x	x	x	x	x
Clustered SE (firm $\times$ month)	x	x	x	x	x	x	x	x

Notes: Driscoll-Kraay standard errors are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. Regression specification is in equation (??).

Table 28: The price effect of a policy rate change via the working capital channel, sales-weighted instrumental variable regressions.

	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)
Lagged W/S $\times$ Δ R	0.648 (1.533)	-0.332 (1.338)	1.810 (1.914)	3.164 ⁺ (1.801)	3.463 (2.375)	3.821 (2.545)	5.301* (2.156)	6.980** (2.164)
Lagged S $\times$ Δ R	0.000293 (0.0111)	0.00794 (0.00981)	0.0228 (0.0183)	0.0298 (0.0194)	0.0258 (0.0164)	0.0255 (0.0162)	0.0136 (0.0222)	0.0173 (0.0301)
Lagged S	-0.00374 (0.115)	0.0481 (0.187)	0.0598 (0.270)	0.0563 (0.332)	0.0500 (0.408)	0.102 (0.484)	0.0223 (0.575)	-0.0175 (0.652)
Observations	98991	98991	98991	98991	98991	98991	98991	98991
	p(t+8)-p(t-1)	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)
Lagged W/S $\times$ Δ R	6.747** (2.096)	5.872* (2.344)	4.832 ⁺ (2.708)	6.885** (2.572)	7.219** (2.629)	7.986* (3.681)	7.950 (5.277)	12.11 ⁺ (5.277)
Lagged S $\times$ Δ R	0.0202 (0.0377)	0.0174 (0.0428)	0.0205 (0.0401)	0.0232 (0.0435)	0.0275 (0.0385)	0.0186 (0.0432)	0.0503 (0.0394)	0.0878* (0.0384)
Lagged S	-0.125 (0.737)	-0.229 (0.817)	-0.380 (0.892)	-0.436 (0.974)	-0.580 (1.055)	-0.496 (1.104)	-0.351 (1.164)	-0.293 (1.218)
Observations	98991	98991	98991	98991	98991	97032	95020	93023
	p(t+16)-p(t-1)	p(t+17)-p(t-1)	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)
Lagged W/S $\times$ Δ R	13.97* (5.477)	12.12** (4.348)	14.71*** (3.235)	15.71*** (3.849)	14.72** (4.719)	16.00** (5.442)	17.10* (6.562)	14.77* (6.630)
Lagged S $\times$ Δ R	0.0558 (0.0344)	0.0473 (0.0388)	0.0503 (0.0318)	0.0427 (0.0408)	0.0431 (0.0554)	0.0488 (0.0621)	0.0490 (0.0638)	0.0715 (0.0628)
Lagged S	-0.163 (1.285)	-0.142 (1.359)	0.00920 (1.442)	0.157 (1.521)	0.302 (1.595)	0.456 (1.647)	0.549 (1.684)	0.649 (1.744)
Observations	91049	89076	87100	85124	83129	81151	79182	77235
	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)
Lagged W/S $\times$ Δ R	16.87* (6.687)	18.05** (6.796)	13.71* (5.951)	13.96* (6.140)	16.15* (7.097)	15.50* (7.356)	14.40* (6.589)	14.94* (6.308)
Lagged S $\times$ Δ R	0.0757 (0.0613)	0.0863 (0.0621)	0.0964 (0.0638)	0.0968 (0.0664)	0.0810 (0.0699)	0.0802 (0.0737)	0.0548 (0.0609)	0.0596 (0.0657)
Lagged S	0.853 (1.793)	1.045 (1.861)	1.259 (1.944)	1.467 (2.000)	1.632 (2.041)	1.474 (2.111)	1.273 (2.196)	1.170 (2.223)
Observations	75647	74181	72675	71191	69732	68281	66820	65363
	p(t+32)-p(t-1)	p(t+33)-p(t-1)	p(t+34)-p(t-1)	p(t+35)-p(t-1)	p(t+36)-p(t-1)			
Lagged W/S $\times$ Δ R	15.17* (5.887)	16.28* (6.745)	16.42* (8.140)	12.54 ⁺ (7.297)	8.480 (5.616)			
Lagged S $\times$ Δ R	0.0532 (0.0698)	0.0468 (0.0692)	0.0608 (0.0681)	0.0876 (0.0644)	0.0750 (0.0642)			
Lagged S	1.231 (2.294)	1.252 (2.352)	1.294 (2.427)	1.357 (2.486)	1.241 (2.588)			
Observations	63907	62455	60991	59529	58404			
Product-month FEs	x	x	x	x	x	x	x	x
Clustered SE (product-month)	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the product-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. Regression specification is in equation (??).

Table 29: The price effect of a policy rate change via the working capital channel, sales-weighted instrumental variable regressions.

	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)
Lagged W/S $\times$ Δ R	0.648 (1.672)	-0.332 (1.151)	1.810 (1.457)	3.164** (0.890)	3.463+ (1.560)	3.821* (1.518)	5.301** (1.148)	6.980 (.)
Lagged S $\times$ Δ R	0.000293 (0.00820)	0.00794+ (0.00383)	0.0228 (0.0231)	0.0298 (0.0238)	0.0258 (0.0205)	0.0255* (0.0111)	0.0136 (.)	0.0173 (0.0158)
Lagged S	-0.00374 (0.0614)	0.0481 (0.0608)	0.0598 (0.0776)	0.0563 (0.107)	0.0500 (0.115)	0.102 (0.176)	0.0223 (0.199)	-0.0175 (0.255)
Observations	98991	98991	98991	98991	98991	98991	98991	98991
	p(t+8)-p(t-1)	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)
Lagged W/S $\times$ Δ R	6.747 (.)	5.872 (.)	4.832 (.)	6.885 (.)	7.219* (2.910)	7.986 (4.745)	7.950 (7.262)	12.11 (10.57)
Lagged S $\times$ Δ R	0.0202 (0.0224)	0.0174 (0.0326)	0.0205 (0.0321)	0.0232 (0.0355)	0.0275 (0.0262)	0.0186 (0.0261)	0.0503 (.)	0.0878 (.)
Lagged S	-0.125 (0.284)	-0.229 (0.324)	-0.380 (0.389)	-0.436 (0.422)	-0.580 (0.469)	-0.496 (0.581)	-0.351 (0.705)	-0.293 (0.805)
Observations	98991	98991	98991	98991	98991	97032	95020	93023
	p(t+16)-p(t-1)	p(t+17)-p(t-1)	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)
Lagged W/S $\times$ Δ R	13.97 (7.900)	12.12+ (6.129)	14.71** (4.409)	15.71* (5.699)	14.72+ (7.387)	16.00 (9.508)	17.10+ (9.014)	14.77* (6.499)
Lagged S $\times$ Δ R	0.0558 (.)	0.0473*** (0.00567)	0.0503 (0.0277)	0.0427 (0.0342)	0.0431 (0.0439)	0.0488 (0.0567)	0.0490 (0.0537)	0.0715+ (0.0327)
Lagged S	-0.163 (0.936)	-0.142 (1.061)	0.00920 (1.139)	0.157 (1.243)	0.302 (1.381)	0.456 (1.450)	0.549 (1.505)	0.649 (1.496)
Observations	91049	89076	87100	85124	83129	81151	79182	77235
	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)
Lagged W/S $\times$ Δ R	16.87* (6.998)	18.05* (7.053)	13.71* (5.099)	13.96* (4.504)	16.15* (5.270)	15.50* (5.352)	14.40* (6.041)	14.94* (5.611)
Lagged S $\times$ Δ R	0.0757* (0.0311)	0.0863+ (0.0422)	0.0964* (0.0425)	0.0968+ (0.0510)	0.0810 (0.0610)	0.0802 (0.0614)	0.0548 (0.0599)	0.0596 (0.0618)
Lagged S	0.853 (1.589)	1.045 (1.668)	1.259 (1.765)	1.467 (1.872)	1.632 (1.881)	1.474 (1.922)	1.273 (1.951)	1.170 (1.858)
Observations	75647	74181	72675	71191	69732	68281	66820	65363
	p(t+32)-p(t-1)	p(t+33)-p(t-1)	p(t+34)-p(t-1)	p(t+35)-p(t-1)	p(t+36)-p(t-1)			
Lagged W/S $\times$ Δ R	15.17* (5.069)	16.28* (5.392)	16.42* (6.410)	12.54+ (5.995)	8.480+ (4.002)			
Lagged S $\times$ Δ R	0.0532 (0.0588)	0.0468 (0.0450)	0.0608** (0.0170)	0.0876 (.)	0.0750+ (0.0354)			
Lagged S	1.231 (1.978)	1.252 (1.992)	1.294 (2.009)	1.357 (2.072)	1.241 (2.130)			
Observations	63907	62455	60991	59529	58404			
Product-month FEs	x	x	x	x	x	x	x	x
Clustered SE (product and month)	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the product and month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. Regression specification is in equation (??).

A.12 Instrumenting repo rates

An additional robustness check is performed following the preferred specification in the local projections literature, where the levels of interest rates are instrumented using monetary policy shocks, with lagged interest rates included as controls to increase the strength of the instrument. In this change-level specification (results in Tables 30 and 31), the estimated coefficients remain large but are statistically significant at fewer horizons — likely due to weaker instrument strength compared with the change-change specification.

Table 30: The price effect of a higher policy rate via the working capital channel, unweighted instrumental variable regressions, instrumenting the level of interest rate.

	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)
Lagged W/S $\times$ R	-1.040* (0.493)	-1.140+ (0.590)	-0.710 (0.747)	-0.210 (0.900)	0.0381 (0.945)	1.074 (1.048)	1.394 (1.147)	1.781 (1.242)
Lagged S $\times$ R	0.000889 (0.00401)	0.00212 (0.00518)	-0.000638 (0.00634)	-0.00282 (0.00665)	-0.00364 (0.00678)	-0.00107 (0.00810)	0.00116 (0.00908)	0.00338 (0.0101)
Lagged W/S	-0.100 (0.101)	-0.143 (0.121)	-0.0816 (0.142)	-0.197 (0.159)	-0.215 (0.168)	-0.0278 (0.182)	-0.0206 (0.195)	0.0790 (0.205)
Lagged W/S $\times$ R(t-1)	1.604+ (0.867)	2.202* (1.032)	2.000+ (1.202)	1.661 (1.481)	1.565 (1.567)	-0.0644 (1.733)	-0.608 (1.855)	-0.845 (2.011)
Lagged W/S $\times$ R(t-2)	0.417 (0.812)	-0.184 (0.953)	-0.492 (1.191)	-1.121 (1.297)	-1.967 (1.399)	-2.405 (1.514)	-2.372 (1.663)	-2.830 (1.742)
Lagged W/S $\times$ R(t-3)	-0.941+ (0.529)	-0.802 (0.617)	-0.757 (0.809)	-0.280 (0.870)	0.383 (0.917)	1.340 (1.002)	1.573 (1.098)	1.875 (1.148)
Observations	36294	36294	36294	36294	36294	36294	36294	36294
	p(t+8)-p(t-1)	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)
Lagged W/S $\times$ R	1.638 (1.245)	2.177+ (1.293)	2.512+ (1.288)	2.014 (1.324)	2.243+ (1.362)	2.323 (1.796)	2.696 (2.112)	3.476 (2.349)
Lagged S $\times$ R	-0.00630 (0.00982)	-0.00970 (0.0104)	-0.0119 (0.00985)	-0.0132 (0.0106)	-0.0142 (0.0106)	-0.00310 (0.0153)	-0.00621 (0.0157)	-0.0161 (0.0169)
Lagged W/S	0.198 (0.212)	0.226 (0.220)	0.0669 (0.228)	-0.0827 (0.237)	-0.106 (0.249)	-0.129 (0.290)	-0.167 (0.331)	-0.350 (0.365)
Lagged W/S $\times$ R(t-1)	-1.394 (2.027)	-2.194 (2.114)	-2.237 (2.123)	-1.593 (2.179)	-1.970 (2.264)	-1.364 (3.018)	-1.730 (3.311)	-1.753 (3.632)
Lagged W/S $\times$ R(t-2)	-2.148 (1.811)	-2.166 (1.860)	-3.070 (1.931)	-3.033 (2.005)	-3.129 (2.081)	-3.661 (2.377)	-3.810 (2.753)	-6.080+ (3.125)
Lagged W/S $\times$ R(t-3)	1.739 (1.215)	1.958 (1.262)	2.613* (1.299)	2.450+ (1.353)	2.692+ (1.411)	2.614 (1.613)	2.795 (1.903)	4.327* (2.139)
Observations	36294	36294	36294	36294	36294	35757	35504	35160
	p(t+16)-p(t-1)	p(t+17)-p(t-1)	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)
Lagged W/S $\times$ R	3.721 (2.449)	2.390 (2.480)	2.337 (2.693)	3.500 (2.828)	2.423 (2.921)	1.831 (3.023)	0.526 (3.099)	0.709 (3.185)
Lagged S $\times$ R	-0.0102 (0.0173)	-0.00114 (0.0185)	-0.0108 (0.0177)	-0.00947 (0.0186)	-0.00867 (0.0186)	-0.00976 (0.0190)	-0.0114 (0.0188)	-0.00736 (0.0183)
Lagged W/S	-0.516 (0.380)	-0.507 (0.417)	-0.480 (0.447)	-0.477 (0.463)	-0.561 (0.481)	-0.393 (0.502)	-0.500 (0.542)	-0.703 (0.578)
Lagged W/S $\times$ R(t-1)	-2.485 (3.868)	-0.842 (4.055)	-0.339 (4.364)	-2.773 (4.656)	-1.555 (4.871)	-2.641 (5.073)	0.313 (5.126)	0.564 (5.229)
Lagged W/S $\times$ R(t-2)	-4.907 (3.242)	-4.532 (3.495)	-5.676 (3.672)	-4.541 (3.976)	-3.831 (4.288)	0.0417 (4.358)	-2.814 (4.317)	-3.284 (4.464)
Lagged W/S $\times$ R(t-3)	3.710+ (2.211)	2.988 (2.292)	3.624 (2.401)	3.784 (2.536)	2.973 (2.774)	0.684 (2.875)	1.949 (2.893)	2.163 (3.035)
Observations	34859	34369	33721	33613	33415	33051	31860	30687
	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)
Lagged W/S $\times$ R	1.415 (3.215)	2.418 (3.371)	2.456 (3.603)	2.816 (3.653)	2.690 (3.780)	3.849 (3.910)	0.605 (4.868)	0.638 (4.982)
Lagged S $\times$ R	-0.00882 (0.0186)	-0.0154 (0.0198)	-0.0209 (0.0209)	-0.0218 (0.0211)	-0.0248 (0.0230)	-0.0314 (0.0243)	-0.0291 (0.0245)	-0.0341 (0.0254)
Lagged W/S	-0.739 (0.593)	-1.006 (0.616)	-0.906 (0.669)	-0.596 (0.720)	-0.665 (0.740)	-0.723 (0.826)	-0.951 (0.941)	-1.294 (0.948)
Lagged W/S $\times$ R(t-1)	-0.668 (5.305)	-2.232 (5.498)	-1.513 (5.794)	-1.088 (5.947)	-0.860 (6.130)	-6.161 (6.850)	-2.283 (8.154)	-1.994 (8.300)
Lagged W/S $\times$ R(t-2)	-2.912 (4.545)	-3.026 (4.676)	-3.280 (4.862)	-4.542 (5.171)	-3.824 (5.385)	0.376 (6.282)	1.195 (6.434)	1.625 (6.577)
Lagged W/S $\times$ R(t-3)	2.299 (3.050)	2.987 (3.145)	2.447 (3.264)	2.905 (3.390)	2.076 (3.581)	1.963 (3.788)	0.546 (4.049)	-0.126 (4.215)
Observations	30281	29935	29617	29253	28985	27910	26654	26520
	p(t+32)-p(t-1)	p(t+33)-p(t-1)	p(t+34)-p(t-1)	p(t+35)-p(t-1)	p(t+36)-p(t-1)			
Lagged W/S $\times$ R	-0.439 (5.001)	-0.455 (5.056)	0.175 (5.037)	0.550 (5.100)	1.935 (5.119)			
Lagged S $\times$ R	-0.0351 (0.0256)	-0.0395 (0.0266)	-0.0436 (0.0281)	-0.0374 (0.0273)	-0.0310 (0.0271)			
Lagged W/S	-1.415 (0.966)	-1.480 (1.031)	-1.699 (1.099)	-1.881 (1.173)	-1.361 (1.230)			
Lagged W/S $\times$ R(t-1)	0.441 (8.382)	1.861 (8.600)	1.121 (8.565)	1.264 (8.667)	-2.467 (8.742)			
Lagged W/S $\times$ R(t-2)	1.280 (6.819)	-0.642 (6.902)	-0.828 (6.976)	-1.319 (7.029)	1.710 (7.231)			
Lagged W/S $\times$ R(t-3)	-1.140 (4.460)	-0.595 (4.521)	-0.142 (4.569)	-0.00944 (4.610)	-0.739 (4.744)			
Observations	26348	25644	24894	24206	23885			
Product-month FEs	x	x	x	x	x	x	x	x
Clustered SE (firm $\times$ month)	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels $+p < 0.10$, $*p < 0.05$, $**p < 0.01$, $***p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. The regressions instrument repo rates with HF shocks using months where there was an announcement.

Table 31: The price effect of a higher policy rate via the working capital channel, sales-weighted instrumental variable regressions, instrumenting the level of interest rate.

	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)
Lagged W/S $\times$ R	5.049* (2.367)	2.702 (2.258)	4.649 (2.946)	3.328 (2.924)	3.637 (3.048)	2.336 (3.584)	6.535 (4.421)	5.653 (4.197)
Lagged S $\times$ R	0.00728 (0.00556)	0.00380 (0.00652)	0.00421 (0.00761)	-0.00462 (0.00691)	-0.00617 (0.00757)	-0.00866 (0.00912)	-0.000656 (0.0120)	-0.00777 (0.0106)
Lagged W/S	0.284 (0.449)	0.652 (0.490)	0.652 (0.562)	0.0180 (0.559)	0.00112 (0.621)	-0.00956 (0.712)	0.0834 (0.780)	-0.303 (0.803)
Lagged W/S $\times$ R(t-1)	-6.483* (2.957)	-3.842 (2.803)	-4.617 (3.619)	-4.081 (3.991)	-5.301 (4.212)	-1.909 (4.846)	-6.316 (5.604)	-5.427 (5.696)
Lagged W/S $\times$ R(t-2)	2.204 (2.110)	2.616 (2.392)	0.485 (3.584)	1.624 (3.487)	2.950 (4.084)	0.510 (4.066)	2.362 (4.742)	2.202 (4.518)
Lagged W/S $\times$ R(t-3)	-0.354 (1.152)	-1.266 (1.337)	-0.219 (2.233)	-0.786 (2.289)	-1.243 (2.666)	-1.025 (2.740)	-2.248 (2.893)	-2.287 (2.820)
Observations	36294	36294	36294	36294	36294	36294	36294	36294
	p(t+8)-p(t-1)	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)
Lagged W/S $\times$ R	4.642 (4.156)	2.912 (4.278)	-0.0400 (4.233)	3.075 (4.581)	5.418 (4.562)	11.87+ (6.209)	14.40* (6.804)	16.79* (6.901)
Lagged S $\times$ R	-0.0117 (0.0122)	-0.0173 (0.0120)	-0.0204+ (0.0118)	-0.0208+ (0.0126)	-0.0175 (0.0129)	-0.00505 (0.0158)	-0.00597 (0.0165)	-0.0196 (0.0169)
Lagged W/S	-0.645 (0.823)	-0.822 (0.863)	-1.128 (0.900)	-1.555 (0.985)	-1.907+ (1.003)	-0.982 (1.212)	-1.361 (1.338)	-2.567+ (1.428)
Lagged W/S $\times$ R(t-1)	-5.632 (5.324)	-4.885 (5.701)	0.490 (5.777)	-3.284 (6.124)	-6.070 (6.064)	-11.35 (7.844)	-11.50 (8.427)	-15.13+ (8.864)
Lagged W/S $\times$ R(t-2)	4.504 (4.657)	6.675 (5.269)	5.509 (5.382)	3.258 (5.633)	3.940 (5.487)	2.967 (6.583)	-1.512 (6.681)	-5.502 (7.525)
Lagged W/S $\times$ R(t-3)	-3.412 (2.879)	-4.816 (3.582)	-6.099+ (3.581)	-2.942 (3.765)	-2.835 (3.691)	-2.624 (4.139)	-0.205 (4.586)	4.819 (4.994)
Observations	36294	36294	36294	36294	36294	35757	35504	35160
	p(t+16)-p(t-1)	p(t+17)-p(t-1)	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)
Lagged W/S $\times$ R	19.26** (7.266)	14.47* (7.331)	16.05* (7.477)	17.71* (8.059)	16.54* (8.078)	15.69+ (8.102)	17.72* (8.199)	15.12+ (7.968)
Lagged S $\times$ R	-0.00876 (0.0182)	-0.00918 (0.0193)	-0.0131 (0.0177)	-0.00993 (0.0193)	-0.0123 (0.0194)	-0.0201 (0.0198)	-0.0167 (0.0194)	-0.0172 (0.0187)
Lagged W/S	-1.542 (1.516)	-0.959 (1.488)	-1.014 (1.398)	-1.474 (1.521)	-1.652 (1.646)	-1.872 (1.741)	-1.437 (1.866)	-0.215 (1.791)
Lagged W/S $\times$ R(t-1)	-19.28* (9.769)	-11.83 (9.579)	-12.51 (9.790)	-14.06 (10.66)	-14.37 (10.94)	-17.66 (10.87)	-18.18 (11.05)	-11.42 (11.16)
Lagged W/S $\times$ R(t-2)	-0.503 (8.304)	-2.726 (8.699)	-5.151 (8.939)	-4.446 (9.584)	-2.576 (9.968)	1.300 (10.13)	-3.261 (10.29)	-8.883 (10.55)
Lagged W/S $\times$ R(t-3)	1.557 (5.229)	0.670 (5.393)	2.248 (5.475)	1.803 (5.870)	1.345 (6.001)	1.344 (6.150)	4.498 (6.303)	5.597 (6.484)
Observations	34859	34369	33721	33613	33415	33051	31860	30687
	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)
Lagged W/S $\times$ R	16.49* (8.065)	12.75 (8.556)	10.87 (9.133)	7.201 (9.400)	9.994 (10.14)	9.353 (10.55)	4.925 (10.67)	4.080 (10.93)
Lagged S $\times$ R	-0.0173 (0.0189)	-0.0278 (0.0210)	-0.0305 (0.0218)	-0.0355 (0.0229)	-0.0332 (0.0246)	-0.0341 (0.0264)	-0.0266 (0.0234)	-0.0327 (0.0241)
Lagged W/S	-0.592 (1.837)	-1.955 (2.105)	-1.874 (2.234)	-1.752 (2.282)	-1.731 (2.337)	-1.187 (2.619)	-1.361 (2.746)	-2.204 (2.897)
Lagged W/S $\times$ R(t-1)	-14.59 (11.50)	-12.54 (12.16)	-15.55 (12.78)	-8.619 (12.94)	-16.14 (13.98)	-20.68 (14.83)	-10.39 (15.10)	-14.52 (15.76)
Lagged W/S $\times$ R(t-2)	-8.841 (10.91)	-7.858 (11.46)	-0.112 (12.34)	-6.128 (12.95)	0.205 (13.96)	6.302 (14.72)	-2.994 (14.91)	5.743 (15.99)
Lagged W/S $\times$ R(t-3)	7.370 (6.565)	7.980 (6.943)	4.955 (7.187)	7.319 (7.406)	5.703 (7.879)	4.293 (8.305)	7.739 (8.294)	3.799 (8.656)
Observations	30281	29935	29617	29253	28985	27910	26654	26520
	p(t+32)-p(t-1)	p(t+33)-p(t-1)	p(t+34)-p(t-1)	p(t+35)-p(t-1)	p(t+36)-p(t-1)			
Lagged W/S $\times$ R	3.003 (11.82)	5.302 (12.04)	8.465 (13.66)	2.554 (12.68)	-2.502 (11.38)			
Lagged S $\times$ R	-0.0332 (0.0255)	-0.0313 (0.0260)	-0.0332 (0.0274)	-0.0381 (0.0271)	-0.0321 (0.0262)			
Lagged W/S	-2.196 (2.972)	-1.676 (3.173)	-2.180 (3.328)	-2.199 (3.593)	-1.569 (3.669)			
Lagged W/S $\times$ R(t-1)	-9.996 (16.72)	-11.86 (17.85)	-20.83 (19.24)	-20.12 (17.52)	-7.132 (15.97)			
Lagged W/S $\times$ R(t-2)	-0.513 (16.36)	-5.789 (17.07)	1.319 (16.38)	10.46 (16.53)	2.129 (16.49)			
Lagged W/S $\times$ R(t-3)	6.503 (9.279)	11.26 (9.459)	10.06 (9.657)	5.789 (9.736)	6.167 (9.587)			
Observations	26348	25644	24894	24206	23885			
Product-month FEs	x	x	x	x	x	x	x	x
Clustered SE (firm $\times$ month)	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels $+p < 0.10$, $*p < 0.05$, $**p < 0.01$, $***p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. The regressions instrument repo rates with HF shocks using months where there was an announcement.

Unweighted first stage regressions, instrumenting the level of repo rates

Table 32: First stage regression for Lagged $W/S \times R$ (Part 1): The effect of the HF shock on the repo rate via the working capital channel, unweighted regressions.

	p(t)-p(t-1) Lagged $W/S \times R$	p(t+1)-p(t-1) Lagged $W/S \times R$	p(t+2)-p(t-1) Lagged $W/S \times R$	p(t+3)-p(t-1) Lagged $W/S \times R$	p(t+4)-p(t-1) Lagged $W/S \times R$	p(t+5)-p(t-1) Lagged $W/S \times R$	p(t+6)-p(t-1) Lagged $W/S \times R$	p(t+7)-p(t-1) Lagged $W/S \times R$
Lagged $W/S \times HF$ shock	1.415*** (0.0230)	1.415*** (0.0230)	1.415*** (0.0230)	1.415*** (0.0230)	1.415*** (0.0230)	1.415*** (0.0230)	1.415*** (0.0230)	1.415*** (0.0230)
Lagged $S \times HF$ shock	0.0000195 (0.000209)	0.0000195 (0.000209)	0.0000195 (0.000209)	0.0000195 (0.000209)	0.0000195 (0.000209)	0.0000195 (0.000209)	0.0000195 (0.000209)	0.0000195 (0.000209)
Lagged W/S	0.0204*** (0.00206)	0.0204*** (0.00206)	0.0204*** (0.00206)	0.0204*** (0.00206)	0.0204*** (0.00206)	0.0204*** (0.00206)	0.0204*** (0.00206)	0.0204*** (0.00206)
Lagged $W/S \times R(t-1)$	1.296*** (0.0121)	1.296*** (0.0121)	1.296*** (0.0121)	1.296*** (0.0121)	1.296*** (0.0121)	1.296*** (0.0121)	1.296*** (0.0121)	1.296*** (0.0121)
Lagged $W/S \times R(t-2)$	0.158*** (0.0246)	0.158*** (0.0246)	0.158*** (0.0246)	0.158*** (0.0246)	0.158*** (0.0246)	0.158*** (0.0246)	0.158*** (0.0246)	0.158*** (0.0246)
Lagged $W/S \times R(t-3)$	-0.461*** (0.0174)	-0.461*** (0.0174)	-0.461*** (0.0174)	-0.461*** (0.0174)	-0.461*** (0.0174)	-0.461*** (0.0174)	-0.461*** (0.0174)	-0.461*** (0.0174)
F (p-value)	1902.406(0.000)	1902.406(0.000)	1902.406(0.000)	1902.406(0.000)	1902.406(0.000)	1902.406(0.000)	1902.406(0.000)	1902.406(0.000)
Kleibergen-Paap LM (p-value)	7.382(0.007)	7.382(0.007)	7.382(0.007)	7.382(0.007)	7.382(0.007)	7.382(0.007)	7.382(0.007)	7.382(0.007)
Cragg-Donald F	230.010	230.010	230.010	230.010	230.010	230.010	230.010	230.010
Kleibergen-Paap F	4.482	4.482	4.482	4.482	4.482	4.482	4.482	4.482
Observations	36294	36294	36294	36294	36294	36294	36294	36294
	p(t+8)-p(t-1) Lagged $W/S \times R$	p(t+9)-p(t-1) Lagged $W/S \times R$	p(t+10)-p(t-1) Lagged $W/S \times R$	p(t+11)-p(t-1) Lagged $W/S \times R$	p(t+12)-p(t-1) Lagged $W/S \times R$	p(t+13)-p(t-1) Lagged $W/S \times R$	p(t+14)-p(t-1) Lagged $W/S \times R$	p(t+15)-p(t-1) Lagged $W/S \times R$
Lagged $W/S \times HF$ shock	1.415*** (0.0230)	1.415*** (0.0230)	1.415*** (0.0230)	1.415*** (0.0230)	1.415*** (0.0230)	1.422*** (0.0231)	1.387*** (0.0203)	1.383*** (0.0208)
Lagged $S \times HF$ shock	0.0000195 (0.000209)	0.0000195 (0.000209)	0.0000195 (0.000209)	0.0000195 (0.000209)	0.0000195 (0.000209)	0.0000214 (0.000209)	-0.0000501 (0.000210)	-0.0000569 (0.000210)
Lagged W/S	0.0204*** (0.00206)	0.0204*** (0.00206)	0.0204*** (0.00206)	0.0204*** (0.00206)	0.0204*** (0.00206)	0.0219*** (0.00208)	0.0192*** (0.00195)	0.0190*** (0.00199)
Lagged $W/S \times R(t-1)$	1.296*** (0.0121)	1.296*** (0.0121)	1.296*** (0.0121)	1.296*** (0.0121)	1.296*** (0.0121)	1.299*** (0.0122)	1.285*** (0.0112)	1.286*** (0.0114)
Lagged $W/S \times R(t-2)$	0.158*** (0.0246)	0.158*** (0.0246)	0.158*** (0.0246)	0.158*** (0.0246)	0.158*** (0.0246)	0.153*** (0.0248)	0.181*** (0.0224)	0.180*** (0.0226)
Lagged $W/S \times R(t-3)$	-0.461*** (0.0174)	-0.461*** (0.0174)	-0.461*** (0.0174)	-0.461*** (0.0174)	-0.461*** (0.0174)	-0.460*** (0.0174)	-0.473*** (0.0164)	-0.473*** (0.0165)
F-value	1902.406(0.000)	1902.406(0.000)	1902.406(0.000)	1902.406(0.000)	1902.406(0.000)	1907.432(0.000)	2327.534(0.000)	2212.571(0.000)
Kleibergen-Paap LM (p-value)	7.382(0.007)	7.382(0.007)	7.382(0.007)	7.382(0.007)	7.382(0.007)	7.394(0.007)	7.371(0.007)	7.292(0.007)
Cragg-Donald F	230.010	230.010	230.010	230.010	230.010	227.251	224.032	218.617
Kleibergen-Paap F	4.482	4.482	4.482	4.482	4.482	4.487	4.469	4.418
Observations	36294	36294	36294	36294	36294	35757	35504	35160
	p(t+16)-p(t-1) Lagged $W/S \times R$	p(t+17)-p(t-1) Lagged $W/S \times R$	p(t+18)-p(t-1) Lagged $W/S \times R$	p(t+19)-p(t-1) Lagged $W/S \times R$	p(t+20)-p(t-1) Lagged $W/S \times R$	p(t+21)-p(t-1) Lagged $W/S \times R$	p(t+22)-p(t-1) Lagged $W/S \times R$	p(t+23)-p(t-1) Lagged $W/S \times R$
Lagged $W/S \times HF$ shock	1.389*** (0.0211)	1.388*** (0.0211)	1.380*** (0.0216)	1.378*** (0.0216)	1.380*** (0.0216)	1.377*** (0.0216)	1.376*** (0.0216)	1.385*** (0.0220)
Lagged $S \times HF$ shock	-0.0000431 (0.000211)	-0.0000444 (0.000211)	-0.0000474 (0.000211)	-0.0000527 (0.000211)	-0.0000477 (0.000210)	-0.0000648 (0.000209)	-0.0000701 (0.000211)	-0.0000635 (0.000217)
Lagged W/S	0.0183*** (0.00200)	0.0188*** (0.00203)	0.0171*** (0.00205)	0.0171*** (0.00205)	0.0165*** (0.00205)	0.0180*** (0.00205)	0.0204*** (0.00215)	0.0193*** (0.00229)
Lagged $W/S \times R(t-1)$	1.287*** (0.0114)	1.290*** (0.0118)	1.287*** (0.0119)	1.287*** (0.0119)	1.288*** (0.0119)	1.289*** (0.0119)	1.285*** (0.0119)	1.285*** (0.0120)
Lagged $W/S \times R(t-2)$	0.179*** (0.0228)	0.176*** (0.0232)	0.183*** (0.0235)	0.181*** (0.0235)	0.173*** (0.0238)	0.167*** (0.0237)	0.172*** (0.0239)	0.172*** (0.0240)
Lagged $W/S \times R(t-3)$	-0.472*** (0.0167)	-0.473*** (0.0168)	-0.475*** (0.0169)	-0.475*** (0.0170)	-0.467*** (0.0172)	-0.463*** (0.0173)	-0.464*** (0.0174)	-0.463*** (0.0175)
F-value	2176.774(0.000)	2171.072(0.000)	2038.606(0.000)	2034.786(0.000)	2037.403(0.000)	2040.135(0.000)	2024.705(0.000)	1990.043(0.000)
Kleibergen-Paap LM (p-value)	7.241(0.007)	7.262(0.007)	7.519(0.006)	7.494(0.006)	7.498(0.006)	7.444(0.006)	7.995(0.005)	8.814(0.003)
Cragg-Donald F	214.592	212.678	218.886	217.512	216.584	212.773	222.598	241.968
Kleibergen-Paap F	4.380	4.391	4.544	4.530	4.532	4.499	4.818	5.301
Observations	34859	34369	33721	33613	33415	33051	31860	30687
	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)

Notes: The dependent variable in all columns is Lagged $W/S \times R$. Standard errors, clustered at the firm-month level, are in parentheses; significance levels $+p < 0.10$, $*p < 0.05$, $**p < 0.01$, $***p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. The first row denotes the price setting horizon applied in the second-stage and the second row shows the dependent variable in the first stage regression. The regressions instrument repo rates with HF shocks using months where there was an announcement.

Table 33: First stage regression for Lagged W/S $\times$ R (Part 2): The effect of the HF shock on the repo rate via the working capital channel, unweighted regressions.

	Lagged W/S × R	Lagged W/S × R	Lagged W/S × R	Lagged W/S × R	Lagged W/S × R	Lagged W/S × R	Lagged W/S × R	Lagged W/S × R
Lagged W/S × HF shock	1.396*** (0.0219)	1.402*** (0.0220)	1.389*** (0.0219)	1.388*** (0.0220)	1.388*** (0.0222)	1.385*** (0.0223)	1.415*** (0.0239)	1.410*** (0.0239)
Lagged S × HF shock	-0.0000515 (0.000217)	-0.0000463 (0.000216)	-0.0000887 (0.000219)	-0.0000890 (0.000220)	-0.0000888 (0.000219)	-0.0000947 (0.000220)	-0.0000336 (0.000250)	-0.0000436 (0.000249)
Lagged W/S	0.0210*** (0.00229)	0.0226*** (0.00231)	0.0220*** (0.00232)	0.0217*** (0.00238)	0.0211*** (0.00240)	0.0228*** (0.00262)	0.0180*** (0.00275)	0.0177*** (0.00275)
Lagged W/S × R(t-1)	1.280*** (0.0119)	1.284*** (0.0120)	1.281*** (0.0120)	1.280*** (0.0122)	1.281*** (0.0122)	1.285*** (0.0130)	1.271*** (0.0130)	1.274*** (0.0130)
Lagged W/S × R(t-2)	0.178*** (0.0242)	0.173*** (0.0242)	0.172*** (0.0243)	0.176*** (0.0246)	0.172*** (0.0250)	0.177*** (0.0254)	0.214*** (0.0254)	0.206*** (0.0255)
Lagged W/S × R(t-3)	-0.464*** (0.0176)	-0.463*** (0.0176)	-0.460*** (0.0177)	-0.463*** (0.0179)	-0.459*** (0.0182)	-0.470*** (0.0182)	-0.491*** (0.0182)	-0.486*** (0.0183)
F-value	2035.742(0.000)	2039.916(0.000)	2011.608(0.000)	1986.951(0.000)	1960.006(0.000)	1929.081(0.000)	1755.741(0.000)	1753.214(0.000)
Kleibergen-Paap LM (p-value)	8.923(0.003)	8.979(0.003)	8.834(0.003)	8.759(0.003)	8.865(0.003)	8.837(0.003)	8.683(0.003)	8.626(0.003)
Cragg-Donald F	242.051	240.998	235.710	230.098	230.768	222.162	235.208	232.694
Kliebergen-Paap F	5.361	5.389	5.286	5.240	5.300	5.280	5.237	5.205
Observations	30281	29935	29617	29253	28985	27910	26654	26520
	p(t+32)-p(t-1) Lagged W/S × R	p(t+33)-p(t-1) Lagged W/S × R	p(t+34)-p(t-1) Lagged W/S × R	p(t+35)-p(t-1) Lagged W/S × R	p(t+36)-p(t-1) Lagged W/S × R			
Lagged W/S × HF shock	1.421*** (0.0240)	1.434*** (0.0245)	1.438*** (0.0246)	1.439*** (0.0246)	1.443*** (0.0247)			
Lagged S × HF shock	-0.0000331 (0.000246)	-0.0000565 (0.000246)	-0.0000699 (0.000244)	-0.0000702 (0.000245)	-0.0000782 (0.000245)			
Lagged W/S	0.0184*** (0.00277)	0.0257*** (0.00282)	0.0320*** (0.00289)	0.0328*** (0.00308)	0.0351*** (0.00307)			
Lagged W/S × R(t-1)	1.278*** (0.0128)	1.270*** (0.0132)	1.265*** (0.0131)	1.267*** (0.0132)	1.266*** (0.0134)			
Lagged W/S × R(t-2)	0.180*** (0.0266)	0.189*** (0.0264)	0.191*** (0.0265)	0.189*** (0.0265)	0.190*** (0.0267)			
Lagged W/S × R(t-3)	-0.464*** (0.0195)	-0.468*** (0.0197)	-0.467*** (0.0199)	-0.467*** (0.0199)	-0.467*** (0.0202)			
F-value	1768.605(0.000)	1721.398(0.000)	1726.812(0.000)	1720.748(0.000)	1725.274(0.000)			
Kleibergen-Paap LM (p-value)	8.627(0.003)	8.535(0.003)	8.601(0.003)	8.677(0.003)	8.487(0.004)			
Cragg-Donald F	231.452	223.376	219.010	216.231	209.342			
Kliebergen-Paap F	5.203	5.150	5.185	5.220	5.113			
Observations	26348	25644	24894	24206	23885			
Product-month FEs	x	x	x	x	x	x	x	x
Clustered SE (firm × month)	x	x	x	x	x	x	x	x

Notes: The dependent variable in all columns is Lagged W/S $\times$ R. Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. The first row denotes the price setting horizon applied in the second-stage and the second row shows the dependent variable in the first stage regression. The regressions instrument repo rates with HF shocks using months where there was an announcement.

Table 34: First stage regression for Lagged $S \times R$ (Part 1): The effect of the HF shock on the repo rate via sales, unweighted regressions.

	p(t)-p(t-1) Lagged $S \times R$	p(t+1)-p(t-1) Lagged $S \times R$	p(t+2)-p(t-1) Lagged $S \times R$	p(t+3)-p(t-1) Lagged $S \times R$	p(t+4)-p(t-1) Lagged $S \times R$	p(t+5)-p(t-1) Lagged $S \times R$	p(t+6)-p(t-1) Lagged $S \times R$	p(t+7)-p(t-1) Lagged $S \times R$
Lagged W/S $\times$ HF shock	-63.49*** (10.07)	-63.49*** (10.07)	-63.49*** (10.07)	-63.49*** (10.07)	-63.49*** (10.07)	-63.49*** (10.07)	-63.49*** (10.07)	-63.49*** (10.07)
Lagged S $\times$ HF shock	-2.794** (0.932)	-2.794** (0.932)	-2.794** (0.932)	-2.794** (0.932)	-2.794** (0.932)	-2.794** (0.932)	-2.794** (0.932)	-2.794** (0.932)
Lagged W/S	-2.576** (0.889)	-2.576** (0.889)	-2.576** (0.889)	-2.576** (0.889)	-2.576** (0.889)	-2.576** (0.889)	-2.576** (0.889)	-2.576** (0.889)
Lagged W/S $\times$ R(t-1)	-20.69*** (6.127)	-20.69*** (6.127)	-20.69*** (6.127)	-20.69*** (6.127)	-20.69*** (6.127)	-20.69*** (6.127)	-20.69*** (6.127)	-20.69*** (6.127)
Lagged W/S $\times$ R(t-2)	2.235 (10.88)	2.235 (10.88)	2.235 (10.88)	2.235 (10.88)	2.235 (10.88)	2.235 (10.88)	2.235 (10.88)	2.235 (10.88)
Lagged W/S $\times$ R(t-3)	10.81 (6.247)	10.81 (6.247)	10.81 (6.247)	10.81 (6.247)	10.81 (6.247)	10.81 (6.247)	10.81 (6.247)	10.81 (6.247)
F (p-value)	21.254(0.000)	21.254(0.000)	21.254(0.000)	21.254(0.000)	21.254(0.000)	21.254(0.000)	21.254(0.000)	21.254(0.000)
Kleibergen-Paap LM (p-value)	7.382(0.007)	7.382(0.007)	7.382(0.007)	7.382(0.007)	7.382(0.007)	7.382(0.007)	7.382(0.007)	7.382(0.007)
Cragg-Donald F	230.010	230.010	230.010	230.010	230.010	230.010	230.010	230.010
Kleibergen-Paap F	4.482	4.482	4.482	4.482	4.482	4.482	4.482	4.482
Observations	36294	36294	36294	36294	36294	36294	36294	36294
	p(t+8)-p(t-1) Lagged $S \times R$	p(t+9)-p(t-1) Lagged $S \times R$	p(t+10)-p(t-1) Lagged $S \times R$	p(t+11)-p(t-1) Lagged $S \times R$	p(t+12)-p(t-1) Lagged $S \times R$	p(t+13)-p(t-1) Lagged $S \times R$	p(t+14)-p(t-1) Lagged $S \times R$	p(t+15)-p(t-1) Lagged $S \times R$
Lagged W/S $\times$ HF shock	-63.49*** (10.07)	-63.49*** (10.07)	-63.49*** (10.07)	-63.49*** (10.07)	-63.49*** (10.07)	-64.01*** (10.12)	-62.69*** (10.30)	-60.22*** (10.41)
Lagged S $\times$ HF shock	-2.794** (0.932)	-2.794** (0.932)	-2.794** (0.932)	-2.794** (0.932)	-2.794** (0.932)	-2.796** (0.932)	-2.786** (0.931)	-2.765** (0.930)
Lagged W/S	-2.576** (0.889)	-2.576** (0.889)	-2.576** (0.889)	-2.576** (0.889)	-2.576** (0.889)	-2.740** (0.894)	-2.705** (0.911)	-2.671** (0.926)
Lagged W/S $\times$ R(t-1)	-20.69*** (6.127)	-20.69*** (6.127)	-20.69*** (6.127)	-20.69*** (6.127)	-20.69*** (6.127)	-21.41*** (6.181)	-20.65*** (6.237)	-22.13*** (6.363)
Lagged W/S $\times$ R(t-2)	2.235 (10.88)	2.235 (10.88)	2.235 (10.88)	2.235 (10.88)	2.235 (10.88)	3.264 (10.94)	1.021 (11.16)	2.812 (11.28)
Lagged W/S $\times$ R(t-3)	10.81 (6.247)	10.81 (6.247)	10.81 (6.247)	10.81 (6.247)	10.81 (6.247)	10.51 (6.260)	11.96 (6.405)	11.58 (6.427)
F-value	21.254(0.000)	21.254(0.000)	21.254(0.000)	21.254(0.000)	21.254(0.000)	21.405(0.000)	20.022(0.000)	18.315(0.000)
Kleibergen-Paap LM (p-value)	7.382(0.007)	7.382(0.007)	7.382(0.007)	7.382(0.007)	7.382(0.007)	7.394(0.007)	7.371(0.007)	7.292(0.007)
Cragg-Donald F	230.010	230.010	230.010	230.010	230.010	227.251	224.032	218.617
Kleibergen-Paap F	4.482	4.482	4.482	4.482	4.482	4.487	4.469	4.418
Observations	36294	36294	36294	36294	36294	35757	35504	35160
	p(t+16)-p(t-1) Lagged $S \times R$	p(t+17)-p(t-1) Lagged $S \times R$	p(t+18)-p(t-1) Lagged $S \times R$	p(t+19)-p(t-1) Lagged $S \times R$	p(t+20)-p(t-1) Lagged $S \times R$	p(t+21)-p(t-1) Lagged $S \times R$	p(t+22)-p(t-1) Lagged $S \times R$	p(t+23)-p(t-1) Lagged $S \times R$
Lagged W/S $\times$ HF shock	-62.89*** (10.54)	-63.12*** (10.56)	-66.62*** (10.84)	-66.43*** (10.85)	-66.55*** (10.86)	-66.27*** (10.92)	-68.66*** (10.91)	-71.97*** (10.92)
Lagged S $\times$ HF shock	-2.755** (0.930)	-2.759** (0.930)	-2.841** (0.942)	-2.836** (0.942)	-2.839** (0.942)	-2.830** (0.943)	-2.953** (0.951)	-3.168** (0.972)
Lagged W/S	-2.660** (0.932)	-2.649** (0.947)	-2.656** (0.965)	-2.676** (0.965)	-2.717** (0.967)	-2.781** (0.980)	-3.090** (1.018)	-3.414** (1.053)
Lagged W/S $\times$ R(t-1)	-21.64*** (6.367)	-23.28*** (6.535)	-22.72*** (6.582)	-22.85*** (6.590)	-22.84*** (6.594)	-22.99*** (6.642)	-22.94*** (6.688)	-23.31*** (6.720)
Lagged W/S $\times$ R(t-2)	0.483 (11.32)	2.985 (11.50)	1.659 (11.66)	1.946 (11.68)	1.872 (11.75)	2.194 (11.79)	2.051 (11.85)	2.678 (11.87)
Lagged W/S $\times$ R(t-3)	13.29* (6.484)	12.34 (6.518)	13.00* (6.627)	12.83 (6.632)	12.90 (6.713)	12.72 (6.737)	12.82 (6.782)	12.55 (6.782)
F-value	19.341(0.000)	19.401(0.000)	20.421(0.000)	20.277(0.000)	20.280(0.000)	19.944(0.000)	21.373(0.000)	23.336(0.000)
Kleibergen-Paap LM (p-value)	7.241(0.007)	7.262(0.007)	7.519(0.006)	7.494(0.006)	7.498(0.006)	7.444(0.006)	7.995(0.005)	8.814(0.003)
Cragg-Donald F	214.592	212.678	218.886	217.512	216.584	212.773	222.598	241.968
Kleibergen-Paap F	4.380	4.391	4.544	4.530	4.532	4.499	4.818	5.301
Observations	34859	34369	33721	33613	33415	33051	31860	30687
	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)

Notes: The dependent variable in all columns is The dependent variable in all columns is Lagged $S \times R$. Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. The first row denotes the price setting horizon applied in the second-stage and the second row shows the dependent variable in the first stage regression. The regressions instrument repo rates with HF shocks using months where there was an announcement.

Table 35: First stage regression for Lagged $S \times R$ (Part 2): The effect of the HF shock on the repo rate via sales, unweighted regressions.

	Lagged $S \times R$	Lagged $S \times R$	Lagged $S \times R$	Lagged $S \times R$	Lagged $S \times R$	Lagged $S \times R$	Lagged $S \times R$	Lagged $S \times R$
Lagged W/S $\times$ HF shock	-73.12*** (10.96)	-73.09*** (10.99)	-73.28*** (11.01)	-72.64*** (11.03)	-74.65*** (11.11)	-75.16*** (11.15)	-83.44*** (12.30)	-82.98*** (12.32)
Lagged $S \times$ HF shock	-3.189** (0.973)	-3.199** (0.973)	-3.211** (0.987)	-3.192** (0.985)	-3.209** (0.985)	-3.207** (0.986)	-3.609** (1.113)	-3.596** (1.113)
Lagged W/S	-3.551*** (1.057)	-3.673*** (1.064)	-3.634*** (1.079)	-3.681*** (1.100)	-3.731*** (1.112)	-3.978** (1.228)	-3.947** (1.336)	-3.888** (1.340)
Lagged W/S $\times$ R(t-1)	-22.85*** (6.727)	-23.30*** (6.789)	-23.17*** (6.794)	-24.57*** (6.882)	-23.98*** (6.879)	-24.29*** (7.288)	-23.08** (7.439)	-23.49** (7.477)
Lagged W/S $\times$ R(t-2)	1.574 (11.93)	1.999 (11.98)	0.660 (12.02)	2.645 (12.12)	0.398 (12.16)	1.272 (12.65)	-1.534 (13.14)	-0.624 (13.21)
Lagged W/S $\times$ R(t-3)	13.20 (6.843)	13.25 (6.848)	14.37* (6.903)	13.74* (6.930)	15.35* (6.995)	14.82* (7.141)	16.30* (7.438)	15.73* (7.467)
F-value	23.895(0.000)	23.761(0.000)	23.676(0.000)	23.200(0.000)	24.131(0.000)	24.252(0.000)	23.901(0.000)	23.551(0.000)
Kleibergen-Paap LM (p-value)	8.923(0.003)	8.979(0.003)	8.834(0.003)	8.759(0.003)	8.865(0.003)	8.837(0.003)	8.683(0.003)	8.626(0.003)
Cragg-Donald F	242.051	240.998	235.710	230.098	230.768	222.162	235.208	232.694
Kleibergen-Paap F	5.361	5.389	5.286	5.240	5.300	5.280	5.237	5.205
Observations	30281	29935	29617	29253	28985	27910	26654	26520
	p(t+32)-p(t-1) Lagged $S \times R$	p(t+33)-p(t-1) Lagged $S \times R$	p(t+34)-p(t-1) Lagged $S \times R$	p(t+35)-p(t-1) Lagged $S \times R$	p(t+36)-p(t-1) Lagged $S \times R$			
Lagged W/S $\times$ HF shock	-83.21*** (12.41)	-83.90*** (12.61)	-85.01*** (12.65)	-85.57*** (12.70)	-85.83*** (12.78)			
Lagged $S \times$ HF shock	-3.600** (1.114)	-3.586** (1.116)	-3.599** (1.117)	-3.635** (1.124)	-3.601** (1.125)			
Lagged W/S	-3.956** (1.347)	-4.253** (1.457)	-4.518** (1.559)	-4.772** (1.659)	-4.832** (1.675)			
Lagged W/S $\times$ R(t-1)	-23.51** (7.510)	-23.12** (7.767)	-23.04** (7.817)	-23.67** (7.846)	-22.92** (7.870)			
Lagged W/S $\times$ R(t-2)	-0.464 (13.67)	-1.125 (13.75)	-1.423 (13.82)	-0.720 (13.83)	-2.574 (13.90)			
Lagged W/S $\times$ R(t-3)	15.60* (7.956)	15.93* (7.970)	16.17* (8.009)	16.14* (8.012)	17.22* (8.044)			
F-value	23.375(0.000)	23.097(0.000)	23.544(0.000)	23.637(0.000)	23.465(0.000)			
Kleibergen-Paap LM (p-value)	8.627(0.003)	8.535(0.003)	8.601(0.003)	8.677(0.003)	8.487(0.004)			
Cragg-Donald F	231.452	223.376	219.010	216.231	209.342			
Kleibergen-Paap F	5.203	5.150	5.185	5.220	5.113			
Observations	26348	25644	24894	24206	23885			
Product-month FEs	x	x	x	x	x	x	x	x
Clustered SE (firm $\times$ month)	x	x	x	x	x	x	x	x

Notes: The dependent variable in all columns is The dependent variable in all columns is Lagged $S \times R$. Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. The first row denotes the price setting horizon applied in the second-stage and the second row shows the dependent variable in the first stage regression. The regressions instrument repo rates with HF shocks using months where there was an announcement.

Sales-weighted first stage regressions, instrumenting the level of repo rates

Table 36: First stage regression Lagged $W/S \times R$ (Part 1): The effect of the HF shock on the repo rate via the working capital channel, sales-weighted regressions.

	p(t)-p(t-1) Lagged $W/S \times R$	p(t+1)-p(t-1) Lagged $W/S \times R$	p(t+2)-p(t-1) Lagged $W/S \times R$	p(t+3)-p(t-1) Lagged $W/S \times R$	p(t+4)-p(t-1) Lagged $W/S \times R$	p(t+5)-p(t-1) Lagged $W/S \times R$	p(t+6)-p(t-1) Lagged $W/S \times R$	p(t+7)-p(t-1) Lagged $W/S \times R$
Lagged $W/S \times$ HF shock	1.344*** (0.0524)	1.344*** (0.0524)	1.344*** (0.0524)	1.344*** (0.0524)	1.344*** (0.0524)	1.344*** (0.0524)	1.344*** (0.0524)	1.344*** (0.0524)
Lagged $S \times$ HF shock	-0.0000157 (0.0000962)	-0.0000157 (0.0000962)	-0.0000157 (0.0000962)	-0.0000157 (0.0000962)	-0.0000157 (0.0000962)	-0.0000157 (0.0000962)	-0.0000157 (0.0000962)	-0.0000157 (0.0000962)
Lagged W/S	0.0177*** (0.00457)	0.0177*** (0.00457)	0.0177*** (0.00457)	0.0177*** (0.00457)	0.0177*** (0.00457)	0.0177*** (0.00457)	0.0177*** (0.00457)	0.0177*** (0.00457)
Lagged $W/S \times R(t-1)$	1.332*** (0.0262)	1.332*** (0.0262)	1.332*** (0.0262)	1.332*** (0.0262)	1.332*** (0.0262)	1.332*** (0.0262)	1.332*** (0.0262)	1.332*** (0.0262)
Lagged $W/S \times R(t-2)$	0.0963 (0.0583)	0.0963 (0.0583)	0.0963 (0.0583)	0.0963 (0.0583)	0.0963 (0.0583)	0.0963 (0.0583)	0.0963 (0.0583)	0.0963 (0.0583)
Lagged $W/S \times R(t-3)$	-0.434*** (0.0378)	-0.434*** (0.0378)	-0.434*** (0.0378)	-0.434*** (0.0378)	-0.434*** (0.0378)	-0.434*** (0.0378)	-0.434*** (0.0378)	-0.434*** (0.0378)
F (p-value)	372.773(0.000)	372.773(0.000)	372.773(0.000)	372.773(0.000)	372.773(0.000)	372.773(0.000)	372.773(0.000)	372.773(0.000)
Kleibergen-Paap LM (p-value)	7.158(0.007)	7.158(0.007)	7.158(0.007)	7.158(0.007)	7.158(0.007)	7.158(0.007)	7.158(0.007)	7.158(0.007)
Cragg-Donald F	166.795	166.795	166.795	166.795	166.795	166.795	166.795	166.795
Kleibergen-Paap F	4.285	4.285	4.285	4.285	4.285	4.285	4.285	4.285
Observations	36294	36294	36294	36294	36294	36294	36294	36294
	p(t+8)-p(t-1) Lagged $W/S \times R$	p(t+9)-p(t-1) Lagged $W/S \times R$	p(t+10)-p(t-1) Lagged $W/S \times R$	p(t+11)-p(t-1) Lagged $W/S \times R$	p(t+12)-p(t-1) Lagged $W/S \times R$	p(t+13)-p(t-1) Lagged $W/S \times R$	p(t+14)-p(t-1) Lagged $W/S \times R$	p(t+15)-p(t-1) Lagged $W/S \times R$
Lagged $W/S \times$ HF shock	1.344*** (0.0524)	1.344*** (0.0524)	1.344*** (0.0524)	1.344*** (0.0524)	1.344*** (0.0524)	1.348*** (0.0525)	1.330*** (0.0519)	1.328*** (0.0525)
Lagged $S \times$ HF shock	-0.0000157 (0.0000962)	-0.0000157 (0.0000962)	-0.0000157 (0.0000962)	-0.0000157 (0.0000962)	-0.0000157 (0.0000962)	-0.0000162 (0.0000961)	-0.0000299 (0.0000972)	-0.0000324 (0.0000975)
Lagged W/S	0.0177*** (0.00457)	0.0177*** (0.00457)	0.0177*** (0.00457)	0.0177*** (0.00457)	0.0177*** (0.00457)	0.0187*** (0.00462)	0.0171*** (0.00459)	0.0171*** (0.00464)
Lagged $W/S \times R(t-1)$	1.332*** (0.0262)	1.332*** (0.0262)	1.332*** (0.0262)	1.332*** (0.0262)	1.332*** (0.0262)	1.334*** (0.0263)	1.326*** (0.0260)	1.327*** (0.0264)
Lagged $W/S \times R(t-2)$	0.0963 (0.0583)	0.0963 (0.0583)	0.0963 (0.0583)	0.0963 (0.0583)	0.0963 (0.0583)	0.0923 (0.0585)	0.106 (0.0580)	0.106 (0.0584)
Lagged $W/S \times R(t-3)$	-0.434*** (0.0378)	-0.434*** (0.0378)	-0.434*** (0.0378)	-0.434*** (0.0378)	-0.434*** (0.0378)	-0.433*** (0.0380)	-0.438*** (0.0377)	-0.438*** (0.0377)
F-value	372.773(0.000)	372.773(0.000)	372.773(0.000)	372.773(0.000)	372.773(0.000)	372.924(0.000)	366.706(0.000)	359.372(0.000)
Kleibergen-Paap LM (p-value)	7.158(0.007)	7.158(0.007)	7.158(0.007)	7.158(0.007)	7.158(0.007)	7.240(0.007)	7.169(0.007)	7.001(0.008)
Cragg-Donald F	166.795	166.795	166.795	166.795	166.795	165.462	161.581	155.318
Kleibergen-Paap F	4.285	4.285	4.285	4.285	4.285	4.332	4.285	4.182
Observations	36294	36294	36294	36294	36294	35757	35504	35160
	p(t+16)-p(t-1) Lagged $W/S \times R$	p(t+17)-p(t-1) Lagged $W/S \times R$	p(t+18)-p(t-1) Lagged $W/S \times R$	p(t+19)-p(t-1) Lagged $W/S \times R$	p(t+20)-p(t-1) Lagged $W/S \times R$	p(t+21)-p(t-1) Lagged $W/S \times R$	p(t+22)-p(t-1) Lagged $W/S \times R$	p(t+23)-p(t-1) Lagged $W/S \times R$
Lagged $W/S \times$ HF shock	1.331*** (0.0533)	1.331*** (0.0533)	1.327*** (0.0537)	1.327*** (0.0537)	1.328*** (0.0536)	1.329*** (0.0537)	1.327*** (0.0538)	1.332*** (0.0544)
Lagged $S \times$ HF shock	-0.0000332 (0.0000976)	-0.0000335 (0.0000976)	-0.0000323 (0.0000989)	-0.0000324 (0.0000989)	-0.0000316 (0.0000986)	-0.0000229 (0.0000980)	-0.0000214 (0.0000988)	-0.0000271 (0.000102)
Lagged W/S	0.0166*** (0.00464)	0.0169*** (0.00470)	0.0159*** (0.00473)	0.0158*** (0.00473)	0.0155*** (0.00473)	0.0167*** (0.00475)	0.0189*** (0.00500)	0.0179*** (0.00527)
Lagged $W/S \times R(t-1)$	1.327*** (0.0265)	1.329*** (0.0268)	1.327*** (0.0269)	1.327*** (0.0269)	1.328*** (0.0268)	1.328*** (0.0268)	1.325*** (0.0267)	1.327*** (0.0269)
Lagged $W/S \times R(t-2)$	0.104 (0.0589)	0.102 (0.0593)	0.106 (0.0594)	0.105 (0.0594)	0.100 (0.0596)	0.100 (0.0596)	0.103 (0.0598)	0.101 (0.0600)
Lagged $W/S \times R(t-3)$	-0.437*** (0.0381)	-0.437*** (0.0382)	-0.438*** (0.0382)	-0.438*** (0.0382)	-0.434*** (0.0385)	-0.434*** (0.0386)	-0.434*** (0.0389)	-0.434*** (0.0389)
F-value	349.168(0.000)	348.863(0.000)	341.070(0.000)	340.812(0.000)	342.380(0.000)	341.878(0.000)	340.543(0.000)	334.152(0.000)
Kleibergen-Paap LM (p-value)	7.164(0.007)	7.201(0.007)	7.609(0.006)	7.572(0.006)	7.565(0.006)	7.457(0.006)	8.241(0.004)	9.457(0.002)
Cragg-Donald F	153.784	152.892	161.073	159.768	158.816	154.492	166.367	188.643
Kleibergen-Paap F	4.236	4.256	4.501	4.480	4.475	4.409	4.891	5.685
Observations	34859	34369	33721	33613	33415	33051	31860	30687
	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)
Product-month FEs	x	x	x	x	x	x	x	x
Clustered SE (firm $\times$ month)	x	x	x	x	x	x	x	x

Notes: The dependent variable in all columns is Lagged $W/S \times R$. Standard errors, clustered at the firm-month level, are in parentheses; significance levels $+p < 0.10$, $*p < 0.05$, $**p < 0.01$, $***p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. The first row denotes the price setting horizon applied in the second-stage and the second row shows the dependent variable in the first stage regression. The regressions instrument repo rates with HF shocks using months where there was an announcement.

Table 37: First stage regression Lagged W/S $\times$ R (Part 2): The effect of the HF shock on the repo rate via the working capital channel, sales-weighted regressions.

	p(t+24)-p(t-1) Lagged W/S $\times$ R	p(t+25)-p(t-1) Lagged W/S $\times$ R	p(t+26)-p(t-1) Lagged W/S $\times$ R	p(t+27)-p(t-1) Lagged W/S $\times$ R	p(t+28)-p(t-1) Lagged W/S $\times$ R	p(t+29)-p(t-1) Lagged W/S $\times$ R	p(t+30)-p(t-1) Lagged W/S $\times$ R	p(t+31)-p(t-1) Lagged W/S $\times$ R
Lagged W/S $\times$ HF shock	1.348*** (0.0523)	1.355*** (0.0523)	1.346*** (0.0523)	1.345*** (0.0524)	1.344*** (0.0525)	1.345*** (0.0525)	1.364*** (0.0550)	1.362*** (0.0549)
Lagged S $\times$ HF shock	-0.0000334 (0.000101)	-0.0000347 (0.000102)	-0.0000583 (0.000102)	-0.0000555 (0.000102)	-0.0000559 (0.000102)	-0.0000566 (0.000102)	-0.0000459 (0.000129)	-0.0000447 (0.000129)
Lagged W/S	0.0194*** (0.00511)	0.0205*** (0.00511)	0.0204*** (0.00513)	0.0202*** (0.00521)	0.0199*** (0.00522)	0.0212*** (0.00564)	0.0187** (0.00600)	0.0186** (0.00600)
Lagged W/S $\times$ R(t-1)	1.321*** (0.0261)	1.323*** (0.0261)	1.321*** (0.0260)	1.320*** (0.0263)	1.321*** (0.0264)	1.325*** (0.0273)	1.315*** (0.0271)	1.315*** (0.0271)
Lagged W/S $\times$ R(t-2)	0.109 (0.0601)	0.106 (0.0602)	0.107 (0.0601)	0.109 (0.0606)	0.106 (0.0612)	0.103 (0.0621)	0.127* (0.0612)	0.125* (0.0612)
Lagged W/S $\times$ R(t-3)	-0.436*** (0.0394)	-0.436*** (0.0395)	-0.434*** (0.0396)	-0.436*** (0.0398)	-0.433*** (0.0402)	-0.435*** (0.0404)	-0.448*** (0.0396)	-0.447*** (0.0396)
F-value	373.576(0.000)	376.851(0.000)	377.145(0.000)	374.494(0.000)	373.450(0.000)	372.522(0.000)	389.530(0.000)	388.981(0.000)
Kleibergen-Paap LM (p-value)	9.743(0.002)	9.828(0.002)	9.851(0.002)	9.741(0.002)	9.891(0.002)	9.836(0.002)	9.390(0.002)	9.311(0.002)
Cragg-Donald F	191.638	190.448	192.136	187.759	189.441	182.048	196.869	194.408
Kleibergen-Paap F	5.865	5.910	5.910	5.843	5.942	5.907	5.681	5.639
Observations	30281	29935	29617	29253	28985	27910	26654	26520
	p(t+32)-p(t-1) Lagged W/S $\times$ R	p(t+33)-p(t-1) Lagged W/S $\times$ R	p(t+34)-p(t-1) Lagged W/S $\times$ R	p(t+35)-p(t-1) Lagged W/S $\times$ R	p(t+36)-p(t-1) Lagged W/S $\times$ R			
Lagged W/S $\times$ HF shock	1.371*** (0.0542)	1.381*** (0.0542)	1.384*** (0.0538)	1.383*** (0.0538)	1.382*** (0.0537)			
Lagged S $\times$ HF shock	-0.0000456 (0.000128)	-0.0000600 (0.000127)	-0.0000694 (0.000126)	-0.0000709 (0.000127)	-0.0000845 (0.000127)			
Lagged W/S	0.0182** (0.00590)	0.0271*** (0.00584)	0.0347*** (0.00581)	0.0364*** (0.00631)	0.0370*** (0.00632)			
Lagged W/S $\times$ R(t-1)	1.320*** (0.0266)	1.315*** (0.0258)	1.309*** (0.0254)	1.310*** (0.0255)	1.311*** (0.0256)			
Lagged W/S $\times$ R(t-2)	0.0981 (0.0619)	0.106 (0.0609)	0.111 (0.0607)	0.110 (0.0607)	0.108 (0.0614)			
Lagged W/S $\times$ R(t-3)	-0.424*** (0.0405)	-0.430*** (0.0405)	-0.432*** (0.0408)	-0.433*** (0.0407)	-0.431*** (0.0414)			
F-value	405.067(0.000)	412.930(0.000)	421.510(0.000)	421.947(0.000)	423.875(0.000)			
Kleibergen-Paap LM (p-value)	9.327(0.002)	9.211(0.002)	9.345(0.002)	9.470(0.002)	9.091(0.003)			
Cragg-Donald F	193.547	186.156	183.446	181.790	172.830			
Kleibergen-Paap F	5.645	5.573	5.645	5.697	5.477			
Observations	26348	25644	24894	24206	23885			
Product-month FEs	x	x	x	x	x	x	x	x
Clustered SE (firm $\times$ month)	x	x	x	x	x	x	x	x

Notes: The dependent variable in all columns is Lagged W/S $\times$ R. Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. The first row denotes the price setting horizon applied in the second-stage and the second row shows the dependent variable in the first stage regression. The regressions instrument repo rates with HF shocks using months where there was an announcement.

Table 38: First stage regression for Lagged $S \times R$ (Part1): The effect of the HF shock on the repo rate via the working capital channel, sales-weighted regressions.

	p(t)-p(t-1) Lagged $S \times R$	p(t+1)-p(t-1) Lagged $S \times R$	p(t+2)-p(t-1) Lagged $S \times R$	p(t+3)-p(t-1) Lagged $S \times R$	p(t+4)-p(t-1) Lagged $S \times R$	p(t+5)-p(t-1) Lagged $S \times R$	p(t+6)-p(t-1) Lagged $S \times R$	p(t+7)-p(t-1) Lagged $S \times R$
Lagged W/S $\times$ HF shock	-404.3*** (85.99)	-404.3*** (85.99)	-404.3*** (85.99)	-404.3*** (85.99)	-404.3*** (85.99)	-404.3*** (85.99)	-404.3*** (85.99)	-404.3*** (85.99)
Lagged S $\times$ HF shock	-2.464** (0.839)	-2.464** (0.839)	-2.464** (0.839)	-2.464** (0.839)	-2.464** (0.839)	-2.464** (0.839)	-2.464** (0.839)	-2.464** (0.839)
Lagged W/S	-45.66*** (9.606)	-45.66*** (9.606)	-45.66*** (9.606)	-45.66*** (9.606)	-45.66*** (9.606)	-45.66*** (9.606)	-45.66*** (9.606)	-45.66*** (9.606)
Lagged W/S $\times$ R(t-1)	-205.2** (65.22)	-205.2** (65.22)	-205.2** (65.22)	-205.2** (65.22)	-205.2** (65.22)	-205.2** (65.22)	-205.2** (65.22)	-205.2** (65.22)
Lagged W/S $\times$ R(t-2)	70.04 (116.2)	70.04 (116.2)	70.04 (116.2)	70.04 (116.2)	70.04 (116.2)	70.04 (116.2)	70.04 (116.2)	70.04 (116.2)
Lagged W/S $\times$ R(t-3)	101.1 (65.68)	101.1 (65.68)	101.1 (65.68)	101.1 (65.68)	101.1 (65.68)	101.1 (65.68)	101.1 (65.68)	101.1 (65.68)
F (p-value)	16.073(0.000)	16.073(0.000)	16.073(0.000)	16.073(0.000)	16.073(0.000)	16.073(0.000)	16.073(0.000)	16.073(0.000)
Kleibergen-Paap LM (p-value)	7.158(0.007)	7.158(0.007)	7.158(0.007)	7.158(0.007)	7.158(0.007)	7.158(0.007)	7.158(0.007)	7.158(0.007)
Cragg-Donald F	166.795	166.795	166.795	166.795	166.795	166.795	166.795	166.795
Kleibergen-Paap F	4.285	4.285	4.285	4.285	4.285	4.285	4.285	4.285
Observations	36294	36294	36294	36294	36294	36294	36294	36294
	p(t+8)-p(t-1) Lagged $S \times R$	p(t+9)-p(t-1) Lagged $S \times R$	p(t+10)-p(t-1) Lagged $S \times R$	p(t+11)-p(t-1) Lagged $S \times R$	p(t+12)-p(t-1) Lagged $S \times R$	p(t+13)-p(t-1) Lagged $S \times R$	p(t+14)-p(t-1) Lagged $S \times R$	p(t+15)-p(t-1) Lagged $S \times R$
Lagged W/S $\times$ HF shock	-404.3*** (85.99)	-404.3*** (85.99)	-404.3*** (85.99)	-404.3*** (85.99)	-404.3*** (85.99)	-408.0*** (86.36)	-397.4*** (86.68)	-382.6*** (86.70)
Lagged S $\times$ HF shock	-2.464** (0.839)	-2.464** (0.839)	-2.464** (0.839)	-2.464** (0.839)	-2.464** (0.839)	-2.471** (0.837)	-2.448** (0.835)	-2.411** (0.833)
Lagged W/S	-45.66*** (9.606)	-45.66*** (9.606)	-45.66*** (9.606)	-45.66*** (9.606)	-45.66*** (9.606)	-45.78*** (9.665)	-45.50*** (9.746)	-44.68*** (9.788)
Lagged W/S $\times$ R(t-1)	-205.2** (65.22)	-205.2** (65.22)	-205.2** (65.22)	-205.2** (65.22)	-205.2** (65.22)	-204.2** (65.49)	-200.2** (65.92)	-204.6** (66.06)
Lagged W/S $\times$ R(t-2)	70.04 (116.2)	70.04 (116.2)	70.04 (116.2)	70.04 (116.2)	70.04 (116.2)	67.26 (116.5)	61.92 (117.6)	66.45 (117.5)
Lagged W/S $\times$ R(t-3)	101.1 (65.68)	101.1 (65.68)	101.1 (65.68)	101.1 (65.68)	101.1 (65.68)	103.0 (65.75)	104.5 (66.28)	104.1 (66.13)
F-value	16.073(0.000)	16.073(0.000)	16.073(0.000)	16.073(0.000)	16.073(0.000)	16.223(0.000)	15.445(0.000)	14.579(0.000)
Kleibergen-Paap LM (p-value)	7.158(0.007)	7.158(0.007)	7.158(0.007)	7.158(0.007)	7.158(0.007)	7.240(0.007)	7.169(0.007)	7.001(0.008)
Cragg-Donald F	166.795	166.795	166.795	166.795	166.795	165.462	161.581	155.318
Kleibergen-Paap F	4.285	4.285	4.285	4.285	4.285	4.332	4.285	4.182
Observations	36294	36294	36294	36294	36294	35757	35504	35160
	p(t+16)-p(t-1) Lagged $S \times R$	p(t+17)-p(t-1) Lagged $S \times R$	p(t+18)-p(t-1) Lagged $S \times R$	p(t+19)-p(t-1) Lagged $S \times R$	p(t+20)-p(t-1) Lagged $S \times R$	p(t+21)-p(t-1) Lagged $S \times R$	p(t+22)-p(t-1) Lagged $S \times R$	p(t+23)-p(t-1) Lagged $S \times R$
Lagged W/S $\times$ HF shock	-398.0*** (87.83)	-398.5*** (88.30)	-419.4*** (90.40)	-418.6*** (90.26)	-419.1*** (90.31)	-418.9*** (90.46)	-424.4*** (90.49)	-429.2*** (90.77)
Lagged S $\times$ HF shock	-2.412** (0.827)	-2.417** (0.827)	-2.524** (0.839)	-2.516** (0.839)	-2.516** (0.839)	-2.498** (0.839)	-2.647** (0.843)	-2.908*** (0.859)
Lagged W/S	-44.21*** (9.838)	-43.21*** (9.903)	-41.92*** (9.972)	-41.90*** (9.965)	-42.08*** (9.979)	-41.99*** (10.06)	-45.60*** (10.37)	-49.68*** (10.71)
Lagged W/S $\times$ R(t-1)	-204.2** (65.96)	-215.1** (67.06)	-211.1** (67.25)	-210.7** (67.25)	-210.7** (67.30)	-211.9** (67.60)	-210.7** (67.72)	-212.6** (67.67)
Lagged W/S $\times$ R(t-2)	63.74 (117.1)	80.17 (118.3)	71.09 (119.1)	70.43 (119.1)	70.53 (119.6)	70.33 (119.8)	67.63 (120.0)	69.07 (120.1)
Lagged W/S $\times$ R(t-3)	106.0 (66.00)	99.63 (66.29)	103.8 (66.88)	104.3 (66.87)	104.2 (67.37)	105.6 (67.39)	108.3 (67.60)	110.1 (67.67)
F-value	15.067(0.000)	14.974(0.000)	15.702(0.000)	15.694(0.000)	15.694(0.000)	15.545(0.000)	16.314(0.000)	17.281(0.000)
Kleibergen-Paap LM (p-value)	7.164(0.007)	7.201(0.007)	7.609(0.006)	7.572(0.006)	7.565(0.006)	7.457(0.006)	8.241(0.004)	9.457(0.002)
Cragg-Donald F	153.784	152.892	161.073	159.768	158.816	154.492	166.367	188.643
Kleibergen-Paap F	4.236	4.256	4.501	4.480	4.475	4.409	4.891	5.685
Observations	34859	34369	33721	33613	33415	33051	31860	30687
	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)
Product-month FEs	x	x	x	x	x	x	x	x
Clustered SE (firm $\times$ month)	x	x	x	x	x	x	x	x

Notes: The dependent variable in all columns is Lagged $S \times R$. Standard errors, clustered at the firm-month level, are in parentheses; significance levels $+p < 0.10$, $*p < 0.05$, $**p < 0.01$, $***p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. The first row denotes the price setting horizon applied in the second-stage and the second row shows the dependent variable in the first stage regression. The regressions instrument repo rates with HF shocks using months where there was an announcement.

Table 39: First stage regression for Lagged $S \times R$ (Part 2): The effect of the HF shock on the repo rate via sales, unweighted regressions.

	p(t+24)-p(t-1) Lagged $S \times R$	p(t+25)-p(t-1) Lagged $S \times R$	p(t+26)-p(t-1) Lagged $S \times R$	p(t+27)-p(t-1) Lagged $S \times R$	p(t+28)-p(t-1) Lagged $S \times R$	p(t+29)-p(t-1) Lagged $S \times R$	p(t+30)-p(t-1) Lagged $S \times R$	p(t+31)-p(t-1) Lagged $S \times R$
Lagged $W/S \times HF$ shock	-73.12*** (10.96)	-73.09*** (10.99)	-73.28*** (11.01)	-72.64*** (11.03)	-74.65*** (11.11)	-75.16*** (11.15)	-83.44*** (12.30)	-82.98*** (12.32)
Lagged $S \times HF$ shock	-3.189** (0.973)	-3.199** (0.973)	-3.211** (0.987)	-3.192** (0.985)	-3.209** (0.985)	-3.207** (0.986)	-3.609** (1.113)	-3.596** (1.113)
Lagged W/S	-3.551*** (1.057)	-3.673*** (1.064)	-3.634*** (1.079)	-3.681*** (1.100)	-3.731*** (1.112)	-3.978** (1.228)	-3.947** (1.336)	-3.888** (1.340)
Lagged $W/S \times R(t-1)$	-22.85*** (6.727)	-23.30*** (6.789)	-23.17*** (6.794)	-24.57*** (6.882)	-23.98*** (6.879)	-24.29*** (7.288)	-23.08** (7.439)	-23.49** (7.477)
Lagged $W/S \times R(t-2)$	1.574 (11.93)	1.999 (11.98)	0.660 (12.02)	2.645 (12.12)	0.398 (12.16)	1.272 (12.65)	-1.534 (13.14)	-0.624 (13.21)
Lagged $W/S \times R(t-3)$	13.20 (6.843)	13.25 (6.848)	14.37* (6.903)	13.74* (6.930)	15.35* (6.995)	14.82* (7.141)	16.30* (7.438)	15.73* (7.467)
F-value	23.895(0.000)	23.761(0.000)	23.676(0.000)	23.200(0.000)	24.131(0.000)	24.252(0.000)	23.901(0.000)	23.551(0.000)
Kleibergen-Paap LM (p-value)	8.923(0.003)	8.979(0.003)	8.834(0.003)	8.759(0.003)	8.865(0.003)	8.837(0.003)	8.683(0.003)	8.626(0.003)
Cragg-Donald F	242.051	240.998	235.710	230.098	230.768	222.162	235.208	232.694
Kleibergen-Paap F	5.361	5.389	5.286	5.240	5.300	5.280	5.237	5.205
Observations	30281	29935	29617	29253	28985	27910	26654	26520

	p(t+32)-p(t-1) Lagged $S \times R$	p(t+33)-p(t-1) Lagged $S \times R$	p(t+34)-p(t-1) Lagged $S \times R$	p(t+35)-p(t-1) Lagged $S \times R$	p(t+36)-p(t-1) Lagged $S \times R$
Lagged $W/S \times HF$ shock	-83.21*** (12.41)	-83.90*** (12.61)	-85.01*** (12.65)	-85.57*** (12.70)	-85.83*** (12.78)
Lagged $S \times HF$ shock	-3.600** (1.114)	-3.586** (1.116)	-3.599** (1.117)	-3.635** (1.124)	-3.601** (1.125)
Lagged W/S	-3.956** (1.347)	-4.253** (1.457)	-4.518** (1.559)	-4.772** (1.659)	-4.832** (1.675)
Lagged $W/S \times R(t-1)$	-23.51** (7.510)	-23.12** (7.767)	-23.04** (7.817)	-23.67** (7.846)	-22.92** (7.870)
Lagged $W/S \times R(t-2)$	-0.464 (13.67)	-1.125 (13.75)	-1.423 (13.82)	-0.720 (13.83)	-2.574 (13.90)
Lagged $W/S \times R(t-3)$	15.60* (7.956)	15.93* (7.970)	16.17* (8.009)	16.14* (8.012)	17.22* (8.044)
F-value	23.375(0.000)	23.097(0.000)	23.544(0.000)	23.637(0.000)	23.465(0.000)
Kleibergen-Paap LM (p-value)	8.627(0.003)	8.535(0.003)	8.601(0.003)	8.677(0.003)	8.487(0.004)
Cragg-Donald F	231.452	223.376	219.010	216.231	209.342
Kleibergen-Paap F	5.203	5.150	5.185	5.220	5.113
Observations	26348	25644	24894	24206	23885

Product-month FEs	x	x	x	x	x	x	x	x
Clustered SE (firm $\times$ month)	x	x	x	x	x	x	x	x

Notes: The dependent variable in all columns is The dependent variable in all columns is Lagged $S \times R$. Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. The first row denotes the price setting horizon applied in the second-stage and the second row shows the dependent variable in the first stage regression. The regressions instrument repo rates with HF shocks using months where there was an announcement.

A.13 First stage

Tables 40 and 41 show the first stage estimates. The first row describes the corresponding second stage price change horizon and the number of observations shows the difference in the sample of firms that explains the slight difference in the estimated coefficients.

The first stage results for the unweighted regressions for a number of selected horizons in Table 40 depict a strong and statistically significant relationship across all horizons, irrespective of sample selection. The F-statistics exceed conventional thresholds for strong instruments. The Kleibergen-Paap F-statistics (between 121.98-185.08) are above the rule-of-thumb threshold of 10. The Kleibergen-Paap LM statistics, all highly significant, further indicate that the

instrument is relevant.

Table 40: First stage regression: The effect of the HF shock on the repo rate change via the working capital channel, unweighted regressions.

	p(t+1)-p(t-1)	p(t+3)-p(t-1)	p(t+6)-p(t-1)	p(t+9)-p(t-1)	p(t+12)-p(t-1)	p(t+18)-p(t-1)	p(t+24)-p(t-1)	p(t+30)-p(t-1)
Lagged W/S $\times$ HF shock	1.739*** (0.0251)	1.739*** (0.0251)	1.739*** (0.0251)	1.739*** (0.0251)	1.739*** (0.0251)	1.727*** (0.0256)	1.738*** (0.0264)	1.765*** (0.0292)
Lagged S $\times$ HF shock	0.000144 (0.000249)	0.000144 (0.000249)	0.000144 (0.000249)	0.000144 (0.000249)	0.000144 (0.000249)	0.000126 (0.000249)	0.000112 (0.000254)	0.000152 (0.000298)
Lagged S	0.00229** (0.000875)	0.00229** (0.000875)	0.00229** (0.000875)	0.00229** (0.000875)	0.00229** (0.000875)	0.000752 (0.000980)	0.00152 (0.00108)	-0.00120 (0.00116)
F (p-value)	2409.142(0.000)	2409.142(0.000)	2409.142(0.000)	2409.142(0.000)	2409.142(0.000)	2278.596(0.000)	2177.513(0.000)	1843.808(0.000)
Kleibergen-Paap LM (p-value)	48.533(0.000)	48.533(0.000)	48.533(0.000)	48.533(0.000)	48.533(0.000)	53.653(0.000)	48.842(0.000)	42.807(0.000)
Cragg-Donald F	4.0e+04	4.0e+04	4.0e+04	4.0e+04	4.0e+04	3.5e+04	3.1e+04	2.5e+04
Kleibergen-Paap F	172.158	172.158	172.158	172.158	172.158	185.084	168.856	121.975
Observations	98991	98991	98991	98991	98991	87100	75647	66820
Product-month FEs	x	x	x	x	x	x	x	x
Clustered SE (firm $\times$ month)	x	x	x	x	x	x	x	x

Notes: The dependent variable at each horizon is Lagged W/S $\times$ Δ R. Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. The first row denotes the price setting horizon applied in the second-stage and the second row shows the dependent variable in the first stage regression.

The first-stage regression results for the sales-weighted specification for a number of selected horizons in Table 41 confirm a strong and significant first stage relationship as well. The F-statistics remain high, ranging from 347.42 to 400.60, suggesting strong instrument relevance. The Kleibergen-Paap F-statistics, exceeding 100 in most cases, indicate that weak identification is unlikely.

Table 41: First stage regression: The effect of the HF shock on the repo rate change via the working capital channel, sales-weighted regressions.

	p(t+1)-p(t-1)	p(t+3)-p(t-1)	p(t+6)-p(t-1)	p(t+9)-p(t-1)	p(t+12)-p(t-1)	p(t+18)-p(t-1)	p(t+24)-p(t-1)	p(t+30)-p(t-1)
Lagged W/S $\times$ HF shock	1.659*** (0.0629)	1.659*** (0.0629)	1.659*** (0.0629)	1.659*** (0.0629)	1.659*** (0.0629)	1.652*** (0.0652)	1.669*** (0.0657)	1.691*** (0.0714)
Lagged S $\times$ HF shock	-0.0000700 (0.000144)	-0.0000700 (0.000144)	-0.0000700 (0.000144)	-0.0000700 (0.000144)	-0.0000700 (0.000144)	-0.0000790 (0.000147)	-0.0000872 (0.000152)	-0.0000372 (0.000173)
Lagged S	-0.00127 (0.00239)	-0.00127 (0.00239)	-0.00127 (0.00239)	-0.00127 (0.00239)	-0.00127 (0.00239)	-0.00258 (0.00259)	-0.00194 (0.00269)	-0.00393 (0.00289)
F (p-value)	400.602(0.000)	400.602(0.000)	400.602(0.000)	400.602(0.000)	400.602(0.000)	371.838(0.000)	371.853(0.000)	347.417(0.000)
Kleibergen-Paap LM (p-value)	101.834(0.000)	101.834(0.000)	101.834(0.000)	101.834(0.000)	101.834(0.000)	106.163(0.000)	101.358(0.000)	53.466(0.000)
Cragg-Donald F	3.5e+04	3.5e+04	3.5e+04	3.5e+04	3.5e+04	3.0e+04	2.7e+04	2.2e+04
Kleibergen-Paap F	226.979	226.979	226.979	226.979	226.979	226.826	221.007	135.834
Observations	98991	98991	98991	98991	98991	87100	75647	66820
Product-month FEs	x	x	x	x	x	x	x	x
Clustered SE (firm $\times$ month)	x	x	x	x	x	x	x	x

Notes: The dependent variable at each horizon is Lagged W/S $\times$ Δ R. Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. The first row denotes the price setting horizon applied in the second-stage and the second row shows the dependent variable in the first stage regression.

A.13.1 Complete first stage result tables

Table 42: First stage regression: The effect of the HF shock on the repo rate change via the working capital channel, unweighted regressions.

	p(0)-p(t-1) Lagged W/S $\times$ Δ R	p(+1)-p(t-1) Lagged W/S $\times$ Δ R	p(+2)-p(t-1) Lagged W/S $\times$ Δ R	p(+3)-p(t-1) Lagged W/S $\times$ Δ R	p(+4)-p(t-1) Lagged W/S $\times$ Δ R	p(+5)-p(t-1) Lagged W/S $\times$ Δ R	p(+6)-p(t-1) Lagged W/S $\times$ Δ R	p(+7)-p(t-1) Lagged W/S $\times$ Δ R
Lagged W/S $\times$ HF shock	1.739*** (0.0251)	1.739*** (0.0251)	1.739*** (0.0251)	1.739*** (0.0251)	1.739*** (0.0251)	1.739*** (0.0251)	1.739*** (0.0251)	1.739*** (0.0251)
Lagged S $\times$ HF shock	0.000144 (0.000249)	0.000144 (0.000249)	0.000144 (0.000249)	0.000144 (0.000249)	0.000144 (0.000249)	0.000144 (0.000249)	0.000144 (0.000249)	0.000144 (0.000249)
Lagged S	0.00229** (0.000875)	0.00229** (0.000875)	0.00229** (0.000875)	0.00229** (0.000875)	0.00229** (0.000875)	0.00229** (0.000875)	0.00229** (0.000875)	0.00229** (0.000875)
F (p-value)	2409.142(0.000)	2409.142(0.000)	2409.142(0.000)	2409.142(0.000)	2409.142(0.000)	2409.142(0.000)	2409.142(0.000)	2409.142(0.000)
Kleibergen-Paap LM (p-value)	48.533(0.000)	48.533(0.000)	48.533(0.000)	48.533(0.000)	48.533(0.000)	48.533(0.000)	48.533(0.000)	48.533(0.000)
Cragg-Donald F	4.0e+04	4.0e+04	4.0e+04	4.0e+04	4.0e+04	4.0e+04	4.0e+04	4.0e+04
Kliebergen-Paap F	172.158	172.158	172.158	172.158	172.158	172.158	172.158	172.158
Observations	98991	98991	98991	98991	98991	98991	98991	98991
	p(+8)-p(t-1) Lagged W/S $\times$ Δ R	p(+9)-p(t-1) Lagged W/S $\times$ Δ R	p(+10)-p(t-1) Lagged W/S $\times$ Δ R	p(+11)-p(t-1) Lagged W/S $\times$ Δ R	p(+12)-p(t-1) Lagged W/S $\times$ Δ R	p(+13)-p(t-1) Lagged W/S $\times$ Δ R	p(+14)-p(t-1) Lagged W/S $\times$ Δ R	p(+15)-p(t-1) Lagged W/S $\times$ Δ R
Lagged W/S $\times$ HF shock	1.739*** (0.0251)	1.739*** (0.0251)	1.739*** (0.0251)	1.739*** (0.0251)	1.739*** (0.0251)	1.744*** (0.0253)	1.716*** (0.0242)	1.726*** (0.0245)
Lagged S $\times$ HF shock	0.000144 (0.000249)	0.000144 (0.000249)	0.000144 (0.000249)	0.000144 (0.000249)	0.000144 (0.000249)	0.000148 (0.000249)	0.0000938 (0.000248)	0.000117 (0.000248)
Lagged S	0.00229** (0.000875)	0.00229** (0.000875)	0.00229** (0.000875)	0.00229** (0.000875)	0.00229** (0.000875)	0.00263** (0.000890)	0.00215* (0.000905)	0.00202* (0.000923)
F-value	2409.142(0.000)	2409.142(0.000)	2409.142(0.000)	2409.142(0.000)	2409.142(0.000)	2393.797(0.000)	2518.058(0.000)	2482.411(0.000)
Kleibergen-Paap LM (p-value)	48.533(0.000)	48.533(0.000)	48.533(0.000)	48.533(0.000)	48.533(0.000)	48.485(0.000)	50.269(0.000)	50.656(0.000)
Cragg-Donald F	4.0e+04	4.0e+04	4.0e+04	4.0e+04	4.0e+04	3.9e+04	3.8e+04	3.7e+04
Kliebergen-Paap F	172.158	172.158	172.158	172.158	172.158	171.775	177.447	178.592
Observations	98991	98991	98991	98991	98991	97032	95020	93023
	p(+16)-p(t-1) Lagged W/S $\times$ Δ R	p(+17)-p(t-1) Lagged W/S $\times$ Δ R	p(+18)-p(t-1) Lagged W/S $\times$ Δ R	p(+19)-p(t-1) Lagged W/S $\times$ Δ R	p(+20)-p(t-1) Lagged W/S $\times$ Δ R	p(+21)-p(t-1) Lagged W/S $\times$ Δ R	p(+22)-p(t-1) Lagged W/S $\times$ Δ R	p(+23)-p(t-1) Lagged W/S $\times$ Δ R
Lagged W/S $\times$ HF shock	1.729*** (0.0249)	1.728*** (0.0250)	1.727*** (0.0256)	1.725*** (0.0257)	1.731*** (0.0258)	1.727*** (0.0257)	1.719*** (0.0258)	1.736*** (0.0264)
Lagged S $\times$ HF shock	0.000124 (0.000248)	0.000123 (0.000248)	0.000126 (0.000249)	0.000122 (0.000249)	0.000136 (0.000248)	0.000125 (0.000247)	0.000112 (0.000248)	0.000109 (0.000255)
Lagged S	0.00163 (0.000942)	0.00155 (0.000963)	0.000752 (0.000980)	0.000760 (0.00100)	0.000709 (0.00102)	0.00130 (0.00104)	0.00140 (0.00106)	0.00111 (0.00107)
F-value	2412.746(0.000)	2406.310(0.000)	2278.596(0.000)	2270.086(0.000)	2270.526(0.000)	2276.222(0.000)	2237.612(0.000)	2170.526(0.000)
Kleibergen-Paap LM (p-value)	51.026(0.000)	51.275(0.000)	53.653(0.000)	54.182(0.000)	53.228(0.000)	56.665(0.000)	54.432(0.000)	50.188(0.000)
Cragg-Donald F	3.7e+04	3.6e+04	3.5e+04	3.4e+04	3.4e+04	3.3e+04	3.2e+04	3.1e+04
Kliebergen-Paap F	179.202	179.977	185.084	186.693	183.498	193.358	189.136	171.562
Observations	91049	89076	87100	85124	83129	81151	79182	77235
	p(+24)-p(t-1) Lagged W/S $\times$ Δ R	p(+25)-p(t-1) Lagged W/S $\times$ Δ R	p(+26)-p(t-1) Lagged W/S $\times$ Δ R	p(+27)-p(t-1) Lagged W/S $\times$ Δ R	p(+28)-p(t-1) Lagged W/S $\times$ Δ R	p(+29)-p(t-1) Lagged W/S $\times$ Δ R	p(+30)-p(t-1) Lagged W/S $\times$ Δ R	p(+31)-p(t-1) Lagged W/S $\times$ Δ R
Lagged W/S $\times$ HF shock	1.738*** (0.0264)	1.741*** (0.0265)	1.730*** (0.0266)	1.730*** (0.0268)	1.727*** (0.0269)	1.726*** (0.0269)	1.765*** (0.0292)	1.759*** (0.0292)
Lagged S $\times$ HF shock	0.000112 (0.000254)	0.000120 (0.000254)	0.0000990 (0.000258)	0.000108 (0.000259)	0.0000983 (0.000259)	0.0000971 (0.000259)	0.000152 (0.000298)	0.000138 (0.000298)
Lagged S	0.00152 (0.00108)	0.00168 (0.00110)	0.000892 (0.00110)	0.000578 (0.00113)	-0.0000660 (0.00114)	0.000163 (0.00116)	-0.00120 (0.00116)	-0.00113 (0.00118)
F-value	2177.513(0.000)	2161.482(0.000)	2121.620(0.000)	2102.817(0.000)	2075.080(0.000)	2072.518(0.000)	1843.808(0.000)	1833.557(0.000)
Kleibergen-Paap LM (p-value)	48.842(0.000)	48.793(0.000)	45.325(0.000)	45.102(0.000)	45.244(0.000)	44.834(0.000)	42.807(0.000)	42.800(0.000)
Cragg-Donald F	3.1e+04	3.0e+04	2.9e+04	2.8e+04	2.8e+04	2.7e+04	2.5e+04	2.4e+04
Kliebergen-Paap F	168.856	168.553	158.468	157.242	157.644	157.425	121.975	121.997
Observations	75647	74181	72675	71191	69732	68281	66820	65363
	p(+32)-p(t-1) Lagged W/S $\times$ Δ R	p(+33)-p(t-1) Lagged W/S $\times$ Δ R	p(+34)-p(t-1) Lagged W/S $\times$ Δ R	p(+35)-p(t-1) Lagged W/S $\times$ Δ R	p(+36)-p(t-1) Lagged W/S $\times$ Δ R			
Lagged W/S $\times$ HF shock	1.788*** (0.0291)	1.819*** (0.0296)	1.796*** (0.0289)	1.789*** (0.0292)	1.770*** (0.0287)			
Lagged S $\times$ HF shock	0.000179 (0.000297)	0.000200 (0.000300)	0.000161 (0.000295)	0.000150 (0.000296)	0.000121 (0.000293)			
Lagged S	-0.000153 (0.00117)	0.00256* (0.00117)	0.00387** (0.00118)	0.00348** (0.00120)	0.00410*** (0.00121)			
F-value	1901.342(0.000)	1903.394(0.000)	1954.399(0.000)	1890.189(0.000)	1924.670(0.000)			
Kleibergen-Paap LM (p-value)	42.743(0.000)	43.130(0.000)	42.747(0.000)	42.276(0.000)	41.360(0.000)			
Cragg-Donald F	2.4e+04	2.4e+04	2.4e+04	2.3e+04	2.2e+04			
Kliebergen-Paap F	121.384	120.342	120.869	119.017	119.390			
Observations	63907	62455	60991	59529	58404			
Product-month FEs	x	x	x	x	x			
Clustered SE (firm $\times$ month)	x	x	x	x	x			

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. The first row denotes the price setting horizon applied in the second-stage and the second row shows the dependent variable in the first stage regression.

Table 43: First stage regression: The effect of the HF shock on the repo rate change via sales, un-weighted regressions.

	p(t)-p(t-1) Lagged S × Δ R	p(t+1)-p(t-1) Lagged S × Δ R	p(t+2)-p(t-1) Lagged S × Δ R	p(t+3)-p(t-1) Lagged S × Δ R	p(t+4)-p(t-1) Lagged S × Δ R	p(t+5)-p(t-1) Lagged S × Δ R	p(t+6)-p(t-1) Lagged S × Δ R	p(t+7)-p(t-1) Lagged S × Δ R
Lagged W/S × HF shock	-0.937 (0.591)	-0.937 (0.591)	-0.937 (0.591)	-0.937 (0.591)	-0.937 (0.591)	-0.937 (0.591)	-0.937 (0.591)	-0.937 (0.591)
Lagged S × HF shock	1.569*** (0.0864)	1.569*** (0.0864)	1.569*** (0.0864)	1.569*** (0.0864)	1.569*** (0.0864)	1.569*** (0.0864)	1.569*** (0.0864)	1.569*** (0.0864)
Lagged S	-0.0131 (0.0253)	-0.0131 (0.0253)	-0.0131 (0.0253)	-0.0131 (0.0253)	-0.0131 (0.0253)	-0.0131 (0.0253)	-0.0131 (0.0253)	-0.0131 (0.0253)
F (p-value)	212.995(0.000)	212.995(0.000)	212.995(0.000)	212.995(0.000)	212.995(0.000)	212.995(0.000)	212.995(0.000)	212.995(0.000)
Kleibergen-Paap LM (p-value)	48.533(0.000)	48.533(0.000)	48.533(0.000)	48.533(0.000)	48.533(0.000)	48.533(0.000)	48.533(0.000)	48.533(0.000)
Cragg-Donald F	4.0e+04	4.0e+04	4.0e+04	4.0e+04	4.0e+04	4.0e+04	4.0e+04	4.0e+04
Kliebergen-Paap F	172.158	172.158	172.158	172.158	172.158	172.158	172.158	172.158
Observations	98991	98991	98991	98991	98991	98991	98991	98991
	p(t+8)-p(t-1) Lagged S × Δ R	p(t+9)-p(t-1) Lagged S × Δ R	p(t+10)-p(t-1) Lagged S × Δ R	p(t+11)-p(t-1) Lagged S × Δ R	p(t+12)-p(t-1) Lagged S × Δ R	p(t+13)-p(t-1) Lagged S × Δ R	p(t+14)-p(t-1) Lagged S × Δ R	p(t+15)-p(t-1) Lagged S × Δ R
Lagged W/S × HF shock	-0.937 (0.591)	-0.937 (0.591)	-0.937 (0.591)	-0.937 (0.591)	-0.937 (0.591)	-0.958 (0.594)	-0.930 (0.607)	-0.959 (0.619)
Lagged S × HF shock	1.569*** (0.0864)	1.569*** (0.0864)	1.569*** (0.0864)	1.569*** (0.0864)	1.569*** (0.0864)	1.570*** (0.0865)	1.569*** (0.0864)	1.568*** (0.0865)
Lagged S	-0.0131 (0.0253)	-0.0131 (0.0253)	-0.0131 (0.0253)	-0.0131 (0.0253)	-0.0131 (0.0253)	-0.0151 (0.0258)	-0.0135 (0.0262)	-0.0132 (0.0268)
F-value	212.995(0.000)	212.995(0.000)	212.995(0.000)	212.995(0.000)	212.995(0.000)	212.030(0.000)	209.915(0.000)	208.953(0.000)
Kleibergen-Paap LM (p-value)	48.533(0.000)	48.533(0.000)	48.533(0.000)	48.533(0.000)	48.533(0.000)	48.485(0.000)	50.269(0.000)	50.656(0.000)
Cragg-Donald F	4.0e+04	4.0e+04	4.0e+04	4.0e+04	4.0e+04	3.9e+04	3.8e+04	3.7e+04
Kliebergen-Paap F	172.158	172.158	172.158	172.158	172.158	171.775	177.447	178.592
Observations	98991	98991	98991	98991	98991	97032	95020	93023
	p(t+16)-p(t-1) Lagged S × Δ R	p(t+17)-p(t-1) Lagged S × Δ R	p(t+18)-p(t-1) Lagged S × Δ R	p(t+19)-p(t-1) Lagged S × Δ R	p(t+20)-p(t-1) Lagged S × Δ R	p(t+21)-p(t-1) Lagged S × Δ R	p(t+22)-p(t-1) Lagged S × Δ R	p(t+23)-p(t-1) Lagged S × Δ R
Lagged W/S × HF shock	-0.965 (0.628)	-0.962 (0.629)	-0.941 (0.647)	-0.941 (0.649)	-0.915 (0.641)	-0.870 (0.643)	-0.895 (0.640)	-0.932 (0.657)
Lagged S × HF shock	1.570*** (0.0869)	1.570*** (0.0869)	1.574*** (0.0878)	1.573*** (0.0878)	1.577*** (0.0879)	1.580*** (0.0882)	1.573*** (0.0880)	1.587*** (0.0910)
Lagged S	-0.0120 (0.0273)	-0.0118 (0.0280)	-0.00836 (0.0286)	-0.00830 (0.0292)	-0.00643 (0.0297)	-0.00731 (0.0303)	-0.00717 (0.0309)	-0.00252 (0.0313)
F-value	207.209(0.000)	206.885(0.000)	203.160(0.000)	202.887(0.000)	203.293(0.000)	202.513(0.000)	200.701(0.000)	193.567(0.000)
Kleibergen-Paap LM (p-value)	51.026(0.000)	51.275(0.000)	53.653(0.000)	54.182(0.000)	53.228(0.000)	56.665(0.000)	54.432(0.000)	50.188(0.000)
Cragg-Donald F	3.7e+04	3.6e+04	3.5e+04	3.4e+04	3.4e+04	3.3e+04	3.2e+04	3.1e+04
Kliebergen-Paap F	179.202	179.977	185.084	186.693	183.498	193.358	189.136	171.562
Observations	91049	89076	87100	85124	83129	81151	79182	77235
	p(t+24)-p(t-1) Lagged S × Δ R	p(t+25)-p(t-1) Lagged S × Δ R	p(t+26)-p(t-1) Lagged S × Δ R	p(t+27)-p(t-1) Lagged S × Δ R	p(t+28)-p(t-1) Lagged S × Δ R	p(t+29)-p(t-1) Lagged S × Δ R	p(t+30)-p(t-1) Lagged S × Δ R	p(t+31)-p(t-1) Lagged S × Δ R
Lagged W/S × HF shock	-0.953 (0.646)	-0.951 (0.649)	-1.016 (0.648)	-0.992 (0.653)	-1.001 (0.657)	-1.030 (0.656)	-0.847 (0.717)	-0.831 (0.720)
Lagged S × HF shock	1.585*** (0.0906)	1.585*** (0.0906)	1.578*** (0.0912)	1.579*** (0.0916)	1.579*** (0.0917)	1.576*** (0.0914)	1.623*** (0.105)	1.623*** (0.105)
Lagged S	-0.00480 (0.0316)	-0.00599 (0.0323)	-0.00165 (0.0328)	-0.000302 (0.0336)	0.00376 (0.0343)	0.00177 (0.0350)	0.0112 (0.0353)	0.0113 (0.0360)
F-value	194.480(0.000)	194.630(0.000)	193.527(0.000)	192.832(0.000)	191.320(0.000)	191.495(0.000)	163.812(0.000)	163.098(0.000)
Kleibergen-Paap LM (p-value)	48.842(0.000)	48.793(0.000)	45.325(0.000)	45.102(0.000)	45.244(0.000)	44.834(0.000)	42.807(0.000)	42.800(0.000)
Cragg-Donald F	3.1e+04	3.0e+04	2.9e+04	2.8e+04	2.8e+04	2.7e+04	2.5e+04	2.4e+04
Kliebergen-Paap F	168.856	168.553	158.468	157.242	157.644	157.425	121.975	121.997
Observations	75647	74181	72675	71191	69732	68281	66820	65363
	p(t+32)-p(t-1) Lagged S × Δ R	p(t+33)-p(t-1) Lagged S × Δ R	p(t+34)-p(t-1) Lagged S × Δ R	p(t+35)-p(t-1) Lagged S × Δ R	p(t+36)-p(t-1) Lagged S × Δ R			
Lagged W/S × HF shock	-0.931 (0.714)	-1.043 (0.719)	-1.001 (0.716)	-0.959 (0.727)	-0.987 (0.719)			
Lagged S × HF shock	1.627*** (0.105)	1.637*** (0.107)	1.632*** (0.106)	1.634*** (0.107)	1.623*** (0.106)			
Lagged S	0.00716 (0.0362)	-0.0135 (0.0361)	-0.0236 (0.0364)	-0.0200 (0.0371)	-0.0269 (0.0373)			
F-value	166.728(0.000)	168.577(0.000)	169.086(0.000)	165.545(0.000)	167.290(0.000)			
Kleibergen-Paap LM (p-value)	42.743(0.000)	43.130(0.000)	42.747(0.000)	42.276(0.000)	41.360(0.000)			
Cragg-Donald F	2.4e+04	2.4e+04	2.4e+04	2.3e+04	2.2e+04			
Kliebergen-Paap F	121.384	120.342	120.869	119.017	119.390			
Observations	63907	62455	60991	59529	58404			
Product-month FEs	x	x	x	x	x			
Clustered SE (firm × month)	x	x	x	x	x			

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. The first row denotes the price setting horizon applied in the second-stage and the second row shows the dependent variable in the first stage regression.

Table 44: First stage regression: The effect of the HF shock on the repo rate change via the working capital channel, sales-weighted regressions.

	p(t)-p(t-1) Lagged W/S $\times \Delta R$	p(t+1)-p(t-1) Lagged W/S $\times \Delta R$	p(t+2)-p(t-1) Lagged W/S $\times \Delta R$	p(t+3)-p(t-1) Lagged W/S $\times \Delta R$	p(t+4)-p(t-1) Lagged W/S $\times \Delta R$	p(t+5)-p(t-1) Lagged W/S $\times \Delta R$	p(t+6)-p(t-1) Lagged W/S $\times \Delta R$	p(t+7)-p(t-1) Lagged W/S $\times \Delta R$
Lagged W/S $\times$ HF shock	1.659*** (0.0629)	1.659*** (0.0629)	1.659*** (0.0629)	1.659*** (0.0629)	1.659*** (0.0629)	1.659*** (0.0629)	1.659*** (0.0629)	1.659*** (0.0629)
Lagged S $\times$ HF shock	-0.0000700 (0.000144)	-0.0000700 (0.000144)	-0.0000700 (0.000144)	-0.0000700 (0.000144)	-0.0000700 (0.000144)	-0.0000700 (0.000144)	-0.0000700 (0.000144)	-0.0000700 (0.000144)
Lagged S	-0.00127 (0.00239)	-0.00127 (0.00239)	-0.00127 (0.00239)	-0.00127 (0.00239)	-0.00127 (0.00239)	-0.00127 (0.00239)	-0.00127 (0.00239)	-0.00127 (0.00239)
F (p-value)	400.602(0.000)	400.602(0.000)	400.602(0.000)	400.602(0.000)	400.602(0.000)	400.602(0.000)	400.602(0.000)	400.602(0.000)
Kleibergen-Paap LM (p-value)	101.834(0.000)	101.834(0.000)	101.834(0.000)	101.834(0.000)	101.834(0.000)	101.834(0.000)	101.834(0.000)	101.834(0.000)
Cragg-Donald F	3.5e+04	3.5e+04	3.5e+04	3.5e+04	3.5e+04	3.5e+04	3.5e+04	3.5e+04
Kleibergen-Paap F	226.979	226.979	226.979	226.979	226.979	226.979	226.979	226.979
Observations	98991	98991	98991	98991	98991	98991	98991	98991
	p(t+8)-p(t-1) Lagged W/S $\times \Delta R$	p(t+9)-p(t-1) Lagged W/S $\times \Delta R$	p(t+10)-p(t-1) Lagged W/S $\times \Delta R$	p(t+11)-p(t-1) Lagged W/S $\times \Delta R$	p(t+12)-p(t-1) Lagged W/S $\times \Delta R$	p(t+13)-p(t-1) Lagged W/S $\times \Delta R$	p(t+14)-p(t-1) Lagged W/S $\times \Delta R$	p(t+15)-p(t-1) Lagged W/S $\times \Delta R$
Lagged W/S $\times$ HF shock	1.659*** (0.0629)	1.659*** (0.0629)	1.659*** (0.0629)	1.659*** (0.0629)	1.659*** (0.0629)	1.661*** (0.0631)	1.647*** (0.0631)	1.650*** (0.0638)
Lagged S $\times$ HF shock	-0.0000700 (0.000144)	-0.0000700 (0.000144)	-0.0000700 (0.000144)	-0.0000700 (0.000144)	-0.0000700 (0.000144)	-0.0000697 (0.000145)	-0.0000803 (0.000143)	-0.0000747 (0.000144)
Lagged S	-0.00127 (0.00239)	-0.00127 (0.00239)	-0.00127 (0.00239)	-0.00127 (0.00239)	-0.00127 (0.00239)	-0.00109 (0.00242)	-0.00148 (0.00244)	-0.00156 (0.00248)
F-value	400.602(0.000)	400.602(0.000)	400.602(0.000)	400.602(0.000)	400.602(0.000)	398.447(0.000)	391.339(0.000)	386.000(0.000)
Kleibergen-Paap LM (p-value)	101.834(0.000)	101.834(0.000)	101.834(0.000)	101.834(0.000)	101.834(0.000)	102.216(0.000)	104.725(0.000)	105.023(0.000)
Cragg-Donald F	3.5e+04	3.5e+04	3.5e+04	3.5e+04	3.5e+04	3.4e+04	3.4e+04	3.3e+04
Kleibergen-Paap F	226.979	226.979	226.979	226.979	226.979	227.026	230.264	230.351
Observations	98991	98991	98991	98991	98991	97032	95020	93023
	p(t+16)-p(t-1) Lagged W/S $\times \Delta R$	p(t+17)-p(t-1) Lagged W/S $\times \Delta R$	p(t+18)-p(t-1) Lagged W/S $\times \Delta R$	p(t+19)-p(t-1) Lagged W/S $\times \Delta R$	p(t+20)-p(t-1) Lagged W/S $\times \Delta R$	p(t+21)-p(t-1) Lagged W/S $\times \Delta R$	p(t+22)-p(t-1) Lagged W/S $\times \Delta R$	p(t+23)-p(t-1) Lagged W/S $\times \Delta R$
Lagged W/S $\times$ HF shock	1.654*** (0.0644)	1.653*** (0.0645)	1.652*** (0.0652)	1.652*** (0.0653)	1.655*** (0.0653)	1.657*** (0.0654)	1.650*** (0.0655)	1.660*** (0.0665)
Lagged S $\times$ HF shock	-0.0000843 (0.000145)	-0.0000844 (0.000145)	-0.0000790 (0.000147)	-0.0000791 (0.000147)	-0.0000756 (0.000147)	-0.0000631 (0.000147)	-0.0000622 (0.000147)	-0.0000804 (0.000152)
Lagged S	-0.00192 (0.00251)	-0.00204 (0.00255)	-0.00258 (0.00259)	-0.00264 (0.00263)	-0.00272 (0.00266)	-0.00240 (0.00270)	-0.00219 (0.00273)	-0.00259 (0.00275)
F-value	380.360(0.000)	379.284(0.000)	371.838(0.000)	370.687(0.000)	372.097(0.000)	371.240(0.000)	366.088(0.000)	358.317(0.000)
Kleibergen-Paap LM (p-value)	105.920(0.000)	106.332(0.000)	106.163(0.000)	106.515(0.000)	108.464(0.000)	116.165(0.000)	111.540(0.000)	105.664(0.000)
Cragg-Donald F	3.2e+04	3.1e+04	3.0e+04	3.0e+04	2.9e+04	2.9e+04	2.8e+04	2.7e+04
Kleibergen-Paap F	229.869	230.295	226.826	227.155	230.572	242.148	236.163	223.010
Observations	91049	89076	87100	85124	83129	81151	79182	77235
	p(t+24)-p(t-1) Lagged W/S $\times \Delta R$	p(t+25)-p(t-1) Lagged W/S $\times \Delta R$	p(t+26)-p(t-1) Lagged W/S $\times \Delta R$	p(t+27)-p(t-1) Lagged W/S $\times \Delta R$	p(t+28)-p(t-1) Lagged W/S $\times \Delta R$	p(t+29)-p(t-1) Lagged W/S $\times \Delta R$	p(t+30)-p(t-1) Lagged W/S $\times \Delta R$	p(t+31)-p(t-1) Lagged W/S $\times \Delta R$
Lagged W/S $\times$ HF shock	1.669*** (0.0657)	1.673*** (0.0660)	1.666*** (0.0663)	1.666*** (0.0663)	1.663*** (0.0666)	1.662*** (0.0667)	1.691*** (0.0714)	1.689*** (0.0714)
Lagged S $\times$ HF shock	-0.0000872 (0.000152)	-0.0000881 (0.000153)	-0.0000978 (0.000156)	-0.0000970 (0.000156)	-0.0000967 (0.000156)	-0.0000999 (0.000156)	-0.0000372 (0.000173)	-0.0000366 (0.000173)
Lagged S	-0.00194 (0.00269)	-0.00168 (0.00272)	-0.00217 (0.00275)	-0.00241 (0.00280)	-0.00282 (0.00285)	-0.00263 (0.00291)	-0.00393 (0.00289)	-0.00404 (0.00295)
F-value	371.853(0.000)	370.910(0.000)	367.808(0.000)	365.814(0.000)	363.040(0.000)	362.324(0.000)	347.417(0.000)	345.860(0.000)
Kleibergen-Paap LM (p-value)	101.358(0.000)	100.626(0.000)	89.745(0.000)	89.615(0.000)	90.374(0.000)	89.342(0.000)	53.466(0.000)	53.517(0.000)
Cragg-Donald F	2.7e+04	2.6e+04	2.5e+04	2.5e+04	2.4e+04	2.4e+04	2.2e+04	2.1e+04
Kleibergen-Paap F	221.007	219.576	203.817	203.095	203.973	202.679	135.834	135.872
Observations	75647	74181	72675	71191	69732	68281	66820	65363
	p(t+32)-p(t-1) Lagged W/S $\times \Delta R$	p(t+33)-p(t-1) Lagged W/S $\times \Delta R$	p(t+34)-p(t-1) Lagged W/S $\times \Delta R$	p(t+35)-p(t-1) Lagged W/S $\times \Delta R$	p(t+36)-p(t-1) Lagged W/S $\times \Delta R$			
Lagged W/S $\times$ HF shock	1.710*** (0.0702)	1.734*** (0.0707)	1.718*** (0.0696)	1.712*** (0.0701)	1.689*** (0.0683)			
Lagged S $\times$ HF shock	-0.0000299 (0.000175)	-0.0000280 (0.000177)	-0.0000333 (0.000176)	-0.0000384 (0.000177)	-0.0000520 (0.000175)			
Lagged S	-0.00356 (0.00284)	-0.00124 (0.00284)	-0.000435 (0.00282)	-0.00104 (0.00284)	-0.000997 (0.00283)			
F-value	370.757(0.000)	376.656(0.000)	382.177(0.000)	374.067(0.000)	384.264(0.000)			
Kleibergen-Paap LM (p-value)	52.910(0.000)	53.318(0.000)	52.613(0.000)	52.250(0.000)	50.774(0.000)			
Cragg-Donald F	2.1e+04	2.1e+04	2.1e+04	2.0e+04	2.0e+04			
Kleibergen-Paap F	136.471	136.027	137.927	136.046	136.062			
Observations	63907	62455	60991	59529	58404			
Product-month FEs	x	x	x	x	x	x	x	x
Clustered SE (firm $\times$ month)	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. The first row denotes the price setting horizon applied in the second-stage and the second row shows the dependent variable in the first stage regression.

Table 45: First stage regression: The effect of the HF shock on the repo rate change via sales, sales-weighted regressions.

	p(t)-p(t-1) Lagged S × Δ R	p(t+1)-p(t-1) Lagged S × Δ R	p(t+2)-p(t-1) Lagged S × Δ R	p(t+3)-p(t-1) Lagged S × Δ R	p(t+4)-p(t-1) Lagged S × Δ R	p(t+5)-p(t-1) Lagged S × Δ R	p(t+6)-p(t-1) Lagged S × Δ R	p(t+7)-p(t-1) Lagged S × Δ R
Lagged W/S × HF shock	-9.337 (4.935)	-9.337 (4.935)	-9.337 (4.935)	-9.337 (4.935)	-9.337 (4.935)	-9.337 (4.935)	-9.337 (4.935)	-9.337 (4.935)
Lagged S × HF shock	1.531*** (0.0744)	1.531*** (0.0744)	1.531*** (0.0744)	1.531*** (0.0744)	1.531*** (0.0744)	1.531*** (0.0744)	1.531*** (0.0744)	1.531*** (0.0744)
Lagged S	-0.411 (0.297)	-0.411 (0.297)	-0.411 (0.297)	-0.411 (0.297)	-0.411 (0.297)	-0.411 (0.297)	-0.411 (0.297)	-0.411 (0.297)
F (p-value)	221.499(0.000)	221.499(0.000)	221.499(0.000)	221.499(0.000)	221.499(0.000)	221.499(0.000)	221.499(0.000)	221.499(0.000)
Kleibergen-Paap LM (p-value)	101.834(0.000)	101.834(0.000)	101.834(0.000)	101.834(0.000)	101.834(0.000)	101.834(0.000)	101.834(0.000)	101.834(0.000)
Cragg-Donald F	3.5e+04	3.5e+04	3.5e+04	3.5e+04	3.5e+04	3.5e+04	3.5e+04	3.5e+04
Kliebergen-Paap F	226.979	226.979	226.979	226.979	226.979	226.979	226.979	226.979
Observations	98991	98991	98991	98991	98991	98991	98991	98991
	p(t+8)-p(t-1) Lagged S × Δ R	p(t+9)-p(t-1) Lagged S × Δ R	p(t+10)-p(t-1) Lagged S × Δ R	p(t+11)-p(t-1) Lagged S × Δ R	p(t+12)-p(t-1) Lagged S × Δ R	p(t+13)-p(t-1) Lagged S × Δ R	p(t+14)-p(t-1) Lagged S × Δ R	p(t+15)-p(t-1) Lagged S × Δ R
Lagged W/S × HF shock	-9.337 (4.935)	-9.337 (4.935)	-9.337 (4.935)	-9.337 (4.935)	-9.337 (4.935)	-9.379 (4.964)	-9.584 (5.014)	-9.526 (5.063)
Lagged S × HF shock	1.531*** (0.0744)	1.531*** (0.0744)	1.531*** (0.0744)	1.531*** (0.0744)	1.531*** (0.0744)	1.532*** (0.0745)	1.529*** (0.0744)	1.529*** (0.0745)
Lagged S	-0.411 (0.297)	-0.411 (0.297)	-0.411 (0.297)	-0.411 (0.297)	-0.411 (0.297)	-0.423 (0.301)	-0.395 (0.303)	-0.396 (0.307)
F-value	221.499(0.000)	221.499(0.000)	221.499(0.000)	221.499(0.000)	221.499(0.000)	221.379(0.000)	221.600(0.000)	220.810(0.000)
Kleibergen-Paap LM (p-value)	101.834(0.000)	101.834(0.000)	101.834(0.000)	101.834(0.000)	101.834(0.000)	102.216(0.000)	104.725(0.000)	105.023(0.000)
Cragg-Donald F	3.5e+04	3.5e+04	3.5e+04	3.5e+04	3.5e+04	3.4e+04	3.4e+04	3.3e+04
Kliebergen-Paap F	226.979	226.979	226.979	226.979	226.979	227.026	230.264	230.351
Observations	98991	98991	98991	98991	98991	97032	95020	93023
	p(t+16)-p(t-1) Lagged S × Δ R	p(t+17)-p(t-1) Lagged S × Δ R	p(t+18)-p(t-1) Lagged S × Δ R	p(t+19)-p(t-1) Lagged S × Δ R	p(t+20)-p(t-1) Lagged S × Δ R	p(t+21)-p(t-1) Lagged S × Δ R	p(t+22)-p(t-1) Lagged S × Δ R	p(t+23)-p(t-1) Lagged S × Δ R
Lagged W/S × HF shock	-9.926 (5.150)	-9.910 (5.156)	-9.530 (5.233)	-9.526 (5.240)	-9.377 (5.273)	-8.379 (5.260)	-8.191 (5.234)	-8.546 (5.421)
Lagged S × HF shock	1.531*** (0.0748)	1.531*** (0.0748)	1.536*** (0.0758)	1.536*** (0.0758)	1.539*** (0.0758)	1.543*** (0.0758)	1.534*** (0.0759)	1.552*** (0.0787)
Lagged S	-0.368 (0.311)	-0.364 (0.316)	-0.352 (0.320)	-0.353 (0.325)	-0.358 (0.330)	-0.293 (0.326)	-0.275 (0.326)	-0.236 (0.328)
F-value	220.196(0.000)	220.192(0.000)	214.810(0.000)	214.786(0.000)	214.932(0.000)	216.721(0.000)	214.682(0.000)	202.312(0.000)
Kleibergen-Paap LM (p-value)	105.920(0.000)	106.332(0.000)	106.163(0.000)	106.515(0.000)	108.464(0.000)	116.165(0.000)	111.540(0.000)	105.664(0.000)
Cragg-Donald F	3.2e+04	3.1e+04	3.0e+04	3.0e+04	2.9e+04	2.9e+04	2.8e+04	2.7e+04
Kliebergen-Paap F	229.869	230.295	226.826	227.155	230.572	242.148	236.163	223.010
Observations	91049	89076	87100	85124	83129	81151	79182	77235
	p(t+24)-p(t-1) Lagged S × Δ R	p(t+25)-p(t-1) Lagged S × Δ R	p(t+26)-p(t-1) Lagged S × Δ R	p(t+27)-p(t-1) Lagged S × Δ R	p(t+28)-p(t-1) Lagged S × Δ R	p(t+29)-p(t-1) Lagged S × Δ R	p(t+30)-p(t-1) Lagged S × Δ R	p(t+31)-p(t-1) Lagged S × Δ R
Lagged W/S × HF shock	-9.225 (5.399)	-9.459 (5.434)	-10.14 (5.355)	-10.15 (5.377)	-10.14 (5.393)	-10.37 (5.364)	-6.954 (4.819)	-6.910 (4.831)
Lagged S × HF shock	1.553*** (0.0783)	1.553*** (0.0784)	1.545*** (0.0794)	1.546*** (0.0797)	1.546*** (0.0797)	1.542*** (0.0796)	1.594*** (0.0972)	1.594*** (0.0972)
Lagged S	-0.270 (0.327)	-0.292 (0.332)	-0.288 (0.338)	-0.293 (0.344)	-0.297 (0.350)	-0.292 (0.355)	-0.244 (0.358)	-0.252 (0.365)
F-value	203.138(0.000)	202.748(0.000)	193.926(0.000)	192.840(0.000)	192.673(0.000)	192.425(0.000)	135.516(0.000)	135.488(0.000)
Kleibergen-Paap LM (p-value)	101.358(0.000)	100.626(0.000)	89.745(0.000)	89.615(0.000)	90.374(0.000)	89.342(0.000)	53.466(0.000)	53.517(0.000)
Cragg-Donald F	2.7e+04	2.6e+04	2.5e+04	2.5e+04	2.4e+04	2.4e+04	2.2e+04	2.1e+04
Kliebergen-Paap F	221.007	219.576	203.817	203.095	203.973	202.679	135.834	135.872
Observations	75647	74181	72675	71191	69732	68281	66820	65363
	p(t+32)-p(t-1) Lagged S × Δ R	p(t+33)-p(t-1) Lagged S × Δ R	p(t+34)-p(t-1) Lagged S × Δ R	p(t+35)-p(t-1) Lagged S × Δ R	p(t+36)-p(t-1) Lagged S × Δ R			
Lagged W/S × HF shock	-7.179 (4.939)	-7.773 (5.013)	-7.875 (5.031)	-7.754 (5.107)	-7.953 (5.069)			
Lagged S × HF shock	1.601*** (0.0970)	1.613*** (0.0979)	1.604*** (0.0966)	1.606*** (0.0974)	1.593*** (0.0964)			
Lagged S	-0.255 (0.371)	-0.392 (0.372)	-0.459 (0.378)	-0.444 (0.384)	-0.426 (0.388)			
F-value	136.953(0.000)	136.200(0.000)	138.589(0.000)	136.576(0.000)	137.333(0.000)			
Kleibergen-Paap LM (p-value)	52.910(0.000)	53.318(0.000)	52.613(0.000)	52.250(0.000)	50.774(0.000)			
Cragg-Donald F	2.1e+04	2.1e+04	2.1e+04	2.0e+04	2.0e+04			
Kliebergen-Paap F	136.471	136.027	137.927	136.046	136.062			
Observations	63907	62455	60991	59529	58404			
Product-month FEs	x	x	x	x	x			
Clustered SE (firm × month)	x	x	x	x	x			

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. The first row denotes the price setting horizon applied in the second-stage and the second row shows the dependent variable in the first stage regression.

A.14 Reduced form

In the unweighted reduced-form estimates, the coefficients become positive and statistically significant after about four to six months, with estimated price increases in the range of 3–6 percent over the medium horizon, and some persistence up to two years. In the sales-weighted

regressions, the responses are larger in magnitude and more precisely estimated. Significant effects appear earlier, around three to four months, and grow steadily over time, reaching 15-25 percent price increases at horizons of one to two years for a firm with the working capital ratio of 1. The reduced form results reiterate the main finding. Firms more reliant on working capital raise prices disproportionately in response to monetary policy shocks, with stronger aggregate effects when sales weights are used.

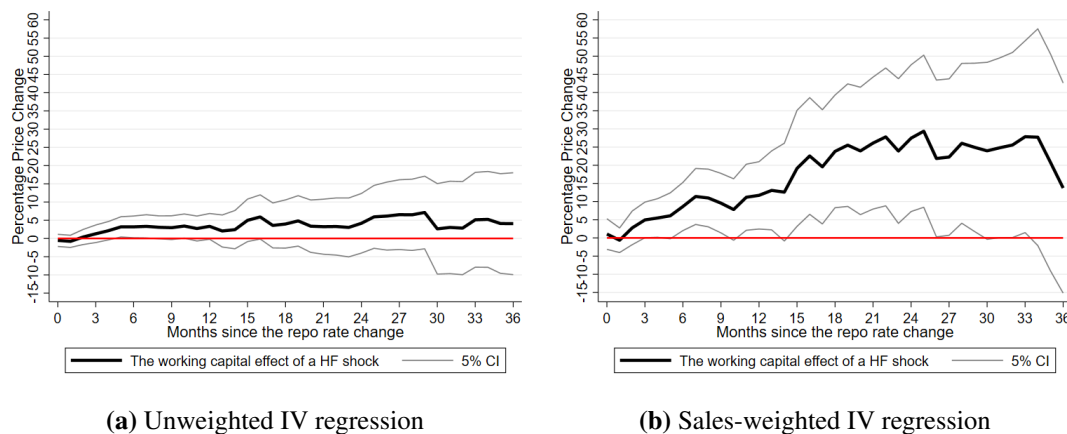


Figure 24: Reduced form: The price effect of a HF shock via the working capital channel.

Table 46: Reduced form: the price effect of HF shocks via the working capital channel. Unweighted panel regressions.

	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)	p(t+8)-p(t-1)
Lagged W/S×HF shock	-0.525 (0.846)	-0.784 (0.852)	0.406 (1.055)	1.295 (1.231)	2.135 ⁺ (1.286)	3.202* (1.417)	3.188* (1.522)	3.325* (1.627)	3.068 ⁺ (1.602)
Lagged S×HF shock	0.00558 (0.0137)	0.00852 (0.0145)	0.0315 (0.0221)	0.0231 (0.0201)	0.0264 (0.0214)	0.0107 (0.0221)	0.00558 (0.0240)	-0.00529 (0.0282)	0.0173 (0.0310)
Lagged W/S	-0.00603 (0.0439)	0.0237 (0.0538)	0.0312 (0.0612)	0.0134 (0.0666)	0.0409 (0.0713)	0.0869 (0.0762)	0.0712 (0.0799)	0.0691 (0.0835)	0.0388 (0.0869)
Constant	0.113*** (0.00884)	0.232*** (0.0107)	0.358*** (0.0122)	0.479*** (0.0133)	0.597*** (0.0143)	0.708*** (0.0151)	0.831*** (0.0159)	0.949*** (0.0166)	1.074*** (0.0173)
Observations	98991	98991	98991	98991	98991	98991	98991	98991	98991
	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)	p(t+16)-p(t-1)	p(t+17)-p(t-1)
Lagged W/S×HF shock	2.965 ⁺ (1.665)	3.414* (1.690)	2.735 (1.746)	3.330 ⁺ (1.798)	2.058 (2.244)	2.425 (2.678)	4.985 ⁺ (2.976)	5.914 ⁺ (3.089)	3.583 (3.150)
Lagged S×HF shock	0.0155 (0.0344)	0.0183 (0.0331)	0.0222 (0.0343)	0.0337 (0.0329)	0.00874 (0.0419)	0.0631 (0.0620)	0.117 (0.0884)	0.0718 (0.0679)	0.0331 (0.0643)
Lagged W/S	0.0388 (0.0902)	0.00175 (0.0931)	-0.0434 (0.0964)	-0.0626 (0.0994)	-0.152 (0.114)	-0.125 (0.130)	-0.125 (0.145)	-0.109 (0.156)	-0.130 (0.168)
Constant	1.190*** (0.0179)	1.311*** (0.0185)	1.439*** (0.0191)	1.558*** (0.0198)	1.694*** (0.0234)	1.833*** (0.0268)	1.974*** (0.0297)	2.106*** (0.0323)	2.247*** (0.0349)
Observations	98991	98991	98991	98991	97032	95020	93023	91049	89076
	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)
Lagged W/S×HF shock	3.975 (3.374)	4.830 (3.530)	3.368 (3.669)	3.238 (3.854)	3.284 (3.999)	3.037 (4.122)	4.173 (4.172)	5.935 (4.401)	6.146 (4.757)
Lagged S×HF shock	0.0496 (0.0620)	0.0390 (0.0602)	0.0393 (0.0675)	0.0413 (0.0720)	0.0469 (0.0667)	0.0595 (0.0780)	0.0610 (0.0802)	0.0587 (0.0732)	0.0925 (0.0937)
Lagged W/S	-0.146 (0.179)	-0.103 (0.190)	-0.100 (0.200)	-0.119 (0.211)	-0.0711 (0.220)	-0.0895 (0.229)	0.0366 (0.239)	0.185 (0.253)	0.359 (0.266)
Constant	2.393*** (0.0373)	2.532*** (0.0397)	2.676*** (0.0420)	2.834*** (0.0444)	2.973*** (0.0465)	3.122*** (0.0488)	3.238*** (0.0509)	3.339*** (0.0538)	3.432*** (0.0569)
Observations	87100	85124	83129	81151	79182	77235	75647	74181	72675
	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)	p(t+32)-p(t-1)	p(t+33)-p(t-1)	p(t+34)-p(t-1)	p(t+35)-p(t-1)
Lagged W/S×HF shock	6.539 (4.881)	6.497 (4.989)	7.140 (5.084)	2.648 (6.338)	3.030 (6.471)	2.844 (6.517)	5.134 (6.634)	5.244 (6.710)	4.104 (6.979)
Lagged S×HF shock	0.0882 (0.0929)	0.0728 (0.0906)	0.0838 (0.0894)	0.0327 (0.0870)	0.0345 (0.0901)	0.0308 (0.0948)	0.0489 (0.0948)	0.0722 (0.0965)	0.0626 (0.0928)
Lagged W/S	0.509 ⁺ (0.282)	0.619* (0.296)	0.620* (0.306)	0.612 ⁺ (0.313)	0.659* (0.325)	0.666* (0.337)	0.718* (0.351)	0.787* (0.365)	0.891* (0.378)
Constant	3.522*** (0.0601)	3.616*** (0.0630)	3.737*** (0.0653)	3.849*** (0.0675)	3.964*** (0.0698)	4.088*** (0.0722)	4.215*** (0.0748)	4.338*** (0.0776)	4.447*** (0.0804)
Observations	71191	69732	68281	66820	65363	63907	62455	60991	59529
Product-month FEs	x	x	x	x	x	x	x	x	x
Clustered SE (firm-month)	x	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. HF Shock denotes the high-frequency shocks.

Table 47: Reduced form: the price effect of HF shocks via the working capital channel. Sales-weighted panel regressions.

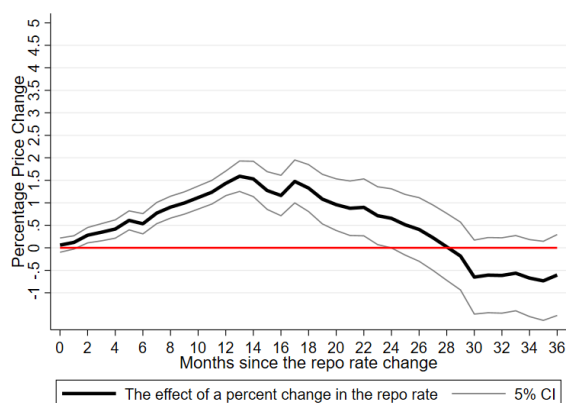
	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)	p(t+8)-p(t-1)
Lagged W/S×HF shock	1.072 (2.147)	-0.625 (1.726)	2.789 (2.362)	4.970* (2.499)	5.503* (2.709)	6.098+ (3.222)	8.665* (3.382)	11.42** (3.930)	11.00** (4.050)
Lagged S×HF shock	0.000404 (0.0132)	0.0122 (0.0141)	0.0348+ (0.0201)	0.0454* (0.0190)	0.0393* (0.0181)	0.0388+ (0.0214)	0.0205 (0.0254)	0.0260 (0.0274)	0.0304 (0.0331)
Lagged W/S	-0.00469 (0.120)	0.0452 (0.140)	0.0481 (0.167)	0.0400 (0.185)	0.0349 (0.208)	0.0871 (0.222)	0.00999 (0.238)	-0.0335 (0.254)	-0.142 (0.268)
Constant	0.0803*** (0.0182)	0.189*** (0.0234)	0.293*** (0.0281)	0.374*** (0.0319)	0.453*** (0.0355)	0.532*** (0.0383)	0.634*** (0.0412)	0.754*** (0.0442)	0.855*** (0.0472)
Observations	98991	98991	98991	98991	98991	98991	98991	98991	98991
	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)	p(t+16)-p(t-1)	p(t+17)-p(t-1)
Lagged W/S×HF shock	9.576* (4.177)	7.823+ (4.315)	11.20* (4.636)	11.72* (4.725)	13.09* (5.541)	12.61+ (6.862)	19.15* (8.142)	22.56** (8.192)	19.56* (8.016)
Lagged S×HF shock	0.0263 (0.0367)	0.0310 (0.0375)	0.0351 (0.0392)	0.0415 (0.0375)	0.0279 (0.0403)	0.0762+ (0.0455)	0.133* (0.0543)	0.0843 (0.0516)	0.0713 (0.0549)
Lagged W/S	-0.243 (0.287)	-0.394 (0.301)	-0.454 (0.319)	-0.600+ (0.334)	-0.513 (0.379)	-0.383 (0.424)	-0.347 (0.466)	-0.210 (0.502)	-0.184 (0.537)
Constant	0.951*** (0.0498)	1.043*** (0.0526)	1.152*** (0.0549)	1.250*** (0.0573)	1.327*** (0.0645)	1.425*** (0.0723)	1.577*** (0.0795)	1.678*** (0.0851)	1.781*** (0.0904)
Observations	98991	98991	98991	98991	97032	95020	93023	91049	89076
	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)
Lagged W/S×HF shock	23.82** (7.908)	25.53** (8.598)	23.95** (8.941)	26.10** (9.261)	27.80** (9.670)	23.91* (10.15)	27.45** (10.30)	29.37** (10.67)	21.86* (11.01)
Lagged S×HF shock	0.0762 (0.0554)	0.0644 (0.0602)	0.0652 (0.0674)	0.0743 (0.0715)	0.0741 (0.0703)	0.110 (0.0726)	0.116 (0.0742)	0.132+ (0.0746)	0.148+ (0.0799)
Lagged W/S	-0.0464 (0.570)	0.100 (0.602)	0.247 (0.632)	0.404 (0.656)	0.498 (0.681)	0.594 (0.714)	0.799 (0.744)	0.990 (0.766)	1.201 (0.796)
Constant	1.889*** (0.0946)	1.985*** (0.0996)	2.084*** (0.104)	2.189*** (0.108)	2.287*** (0.114)	2.370*** (0.119)	2.479*** (0.124)	2.586*** (0.127)	2.644*** (0.132)
Observations	87100	85124	83129	81151	79182	77235	75647	74181	72675
	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)	p(t+32)-p(t-1)	p(t+33)-p(t-1)	p(t+34)-p(t-1)	p(t+35)-p(t-1)
Lagged W/S×HF shock	22.26* (10.98)	26.04* (11.22)	24.94* (11.81)	23.97+ (12.42)	24.82* (12.61)	25.56* (12.99)	27.86* (13.46)	27.72+ (15.21)	20.79 (15.22)
Lagged S×HF shock	0.148+ (0.0809)	0.124 (0.0859)	0.122 (0.0890)	0.0868 (0.0941)	0.0944 (0.0978)	0.0847 (0.103)	0.0751 (0.105)	0.0970 (0.107)	0.140 (0.104)
Lagged W/S	1.405+ (0.816)	1.562+ (0.839)	1.410 (0.859)	1.203 (0.874)	1.095 (0.897)	1.163 (0.923)	1.213 (0.948)	1.259 (0.966)	1.305 (0.991)
Constant	2.690*** (0.138)	2.725*** (0.143)	2.788*** (0.149)	2.848*** (0.153)	2.955*** (0.157)	3.011*** (0.161)	3.092*** (0.165)	3.182*** (0.170)	3.240*** (0.175)
Observations	71191	69732	68281	66820	65363	63907	62455	60991	59529
Product-month FEs	x	x	x	x	x	x	x	x	x
Clustered SE (firm-month)	x	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. HF Shock denotes the high-frequency shocks.

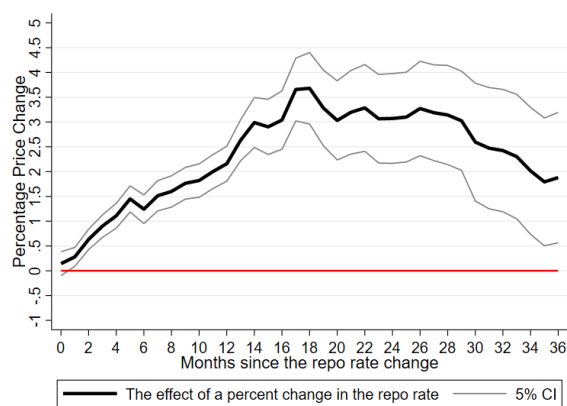
A.15 The price puzzle in the microdata

Figures 25a, 25b and 25c depict the firm level price response after a repo rate change that is instrumented by a high-frequency shock. All regressions include product fixed effects and clustered standard errors at the firm-month level.

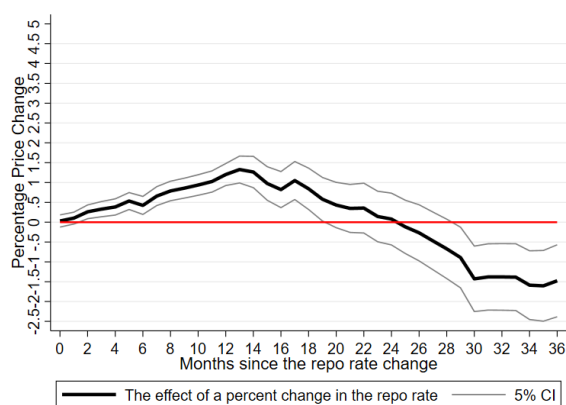
Figure 25a shows the impulse response using no additional data restrictions or controls in the IV regression. This result suggests a positive and statistically significant pass-through from repo rate changes to prices, peaking at 1.5 percent, 15 months after the initial rate increase.



(a) Using all HF shocks as instrument



(b) Using the HF shocks that are negatively correlated to information shocks (Jarociński and Karadi, 2020)



(c) Controlling for firm fixed effects $\times$ commodity price changes (Bernanke et al., 2005)

Figure 25: The price puzzle in the micro-data, unweighted IV regressions. The tables are presented below

Figure 25b shows the working capital channel using a refined HF shock series that accounts for information shocks. Jarociński and Karadi (2020) suggest separating pure monetary policy shocks from central bank information shocks by focusing on shocks that are negatively correlated with stock price changes, that is, a policy rate rise should be perceived as a measure to slow down economic activity, not to accelerate it. When using negatively correlated shocks, it is assumed that positive information shocks do not bias the magnitude of high-frequency shocks. In Jarociński and Karadi (2020), this is referred to as the poor man's procedure for robustness checks. Accordingly, high-frequency shocks that are positively correlated with stock price movements, about 25 percent of observations, are removed from the sample. Using this

filtering on the shock series in Figure 25b, the estimated price response following a repo rate increase is larger, peaking at 3 percent, relative to Figure 25a.

Figure 25c depicts the price response upon an instrumented interest rate change, controlling for the interaction term between firm fixed effects and commodity price changes¹⁴. Figure 25c shows that controlling for commodity price changes yields only a slight difference in the price puzzle. That is, at longer horizons, the price response declines quicker. There remains a 1.5 percent increase after 13 months.

These price puzzle estimates based on microdata provide supporting evidence for the relevance of the working capital channel in monetary policy transmission.

Table 48: The price puzzle, considering all HF shocks.

	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)	p(t+8)-p(t-1)
Δ R	0.0603 (0.0806)	0.120 (0.0753)	0.281** (0.0873)	0.347*** (0.0974)	0.418*** (0.104)	0.610*** (0.108)	0.535*** (0.115)	0.772*** (0.120)	0.904*** (0.124)
Observations	99004	99004	99004	99004	99004	99004	99004	99004	99004
	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)	p(t+16)-p(t-1)	p(t+17)-p(t-1)
Δ R	0.996*** (0.126)	1.117*** (0.130)	1.238*** (0.134)	1.433*** (0.139)	1.591*** (0.173)	1.531*** (0.200)	1.274*** (0.214)	1.163*** (0.229)	1.476*** (0.244)
Observations	99004	99004	99004	99004	97046	95035	93040	91068	89097
	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)
Δ R	1.328*** (0.266)	1.083*** (0.281)	0.959** (0.293)	0.880** (0.309)	0.900** (0.323)	0.714* (0.328)	0.655+ (0.335)	0.512 (0.344)	0.408 (0.361)
Observations	87122	85147	83153	81176	79208	77262	75674	74208	72701
	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)	p(t+32)-p(t-1)	p(t+33)-p(t-1)	p(t+34)-p(t-1)	p(t+35)-p(t-1)
Δ R	0.226 (0.371)	0.0221 (0.380)	-0.183 (0.385)	-0.651 (0.419)	-0.607 (0.426)	-0.615 (0.428)	-0.563 (0.427)	-0.672 (0.436)	-0.734 (0.449)
Observations	71216	69756	68304	66842	65384	63927	62474	61009	59546
Product FEs	x	x	x	x	x	x	x	x	x
Clustered SE (firm-month)	x	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months.

Table 49: The price puzzle, using only negatively correlated information shock months.

	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)	p(t+8)-p(t-1)
Δ R	0.144 (0.123)	0.282** (0.0965)	0.634*** (0.105)	0.902*** (0.116)	1.110*** (0.128)	1.449*** (0.134)	1.242*** (0.148)	1.514*** (0.156)	1.601*** (0.161)
Observations	77118	77118	77118	77118	77118	77118	77118	77118	77118
	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)	p(t+16)-p(t-1)	p(t+17)-p(t-1)
Δ R	1.765*** (0.163)	1.820*** (0.172)	2.001*** (0.175)	2.159*** (0.180)	2.631*** (0.211)	2.990*** (0.257)	2.903*** (0.284)	3.040*** (0.300)	3.656*** (0.323)
Observations	77118	77118	77118	77118	75620	73678	71730	69760	68208
	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)
Δ R	3.681*** (0.368)	3.283*** (0.389)	3.033*** (0.407)	3.198*** (0.431)	3.285*** (0.447)	3.066*** (0.455)	3.072*** (0.462)	3.100*** (0.462)	3.273*** (0.486)
Observations	66655	64684	62732	60943	60338	59705	58480	57318	55845
	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)	p(t+32)-p(t-1)	p(t+33)-p(t-1)	p(t+34)-p(t-1)	p(t+35)-p(t-1)
Δ R	3.188*** (0.492)	3.142*** (0.510)	3.026*** (0.510)	2.595*** (0.606)	2.473*** (0.624)	2.425*** (0.629)	2.303*** (0.640)	2.015** (0.653)	1.793*** (0.658)
Observations	54385	52928	52425	51915	50458	49087	48469	47278	46072
Product FEs	x	x	x	x	x	x	x	x	x
Clustered SE (firm-month)	x	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months.

¹⁴Commodity price changes are defined as the log changes in the commodity price index. The commodity price index is a net trade weighted commodity price index. The weights w are trade weights of each commodity i $w_i = \frac{export_i - import_i}{total\ net\ exports}$. The Swedish commodities used to construct the weighted index are selected using the methodology of the World Bank (2024).

Table 50: The price puzzle, controlling for commodity price changes.

	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)	p(t+8)-p(t-1)
ΔR	0.0309 (0.0783)	0.104 (0.0761)	0.262** (0.0885)	0.330*** (0.0979)	0.385*** (0.104)	0.534*** (0.109)	0.424*** (0.116)	0.658*** (0.122)	0.788*** (0.126)
Observations	98995	98995	98995	98995	98995	98995	98995	98995	98995
	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)	p(t+16)-p(t-1)	p(t+17)-p(t-1)
ΔR	0.859*** (0.128)	0.938*** (0.132)	1.026*** (0.136)	1.202*** (0.141)	1.329*** (0.173)	1.266*** (0.201)	0.978*** (0.216)	0.822*** (0.232)	1.051*** (0.244)
Observations	98995	98995	98995	98995	97032	95016	93023	91054	89083
	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)
ΔR	0.842** (0.266)	0.580* (0.280)	0.433 (0.291)	0.348 (0.308)	0.356 (0.321)	0.145 (0.325)	0.0798 (0.333)	-0.117 (0.343)	-0.267 (0.361)
Observations	87103	85123	83130	81144	78965	77222	75656	74173	72665
	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)	p(t+32)-p(t-1)	p(t+33)-p(t-1)	p(t+34)-p(t-1)	p(t+35)-p(t-1)
ΔR	-0.470 (0.371)	-0.671+ (0.382)	-0.890* (0.390)	-1.427*** (0.421)	-1.379** (0.426)	-1.379** (0.428)	-1.384** (0.429)	-1.587*** (0.442)	-1.604*** (0.455)
Observations	71193	69740	68286	66824	65361	63912	62452	60738	59521
Firm FE $\times$ ComIndex	x	x	x	x	x	x	x	x	x
Product FEs	x	x	x	x	x	x	x	x	x
Clustered SE (firm-month)	x	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. ComIndex denotes the monthly log change in the commodity price index. The commodity price index is a net trade weighted commodity price index. The weights w are trade weights of each commodity i $w_i = \frac{\text{exports}_i - \text{imports}_i}{\text{total net exports}}$. The Swedish commodities used to construct the weighted index are selected using the methodology of the [World Bank \(2024\)](#).

A.16 The working capital channel, controlling for commodity prices

Table 51: The working capital channel, controlling for commodity prices, unweighted IV regression

	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)	p(t+8)-p(t-1)
Lagged W/S $\times \Delta R$	-0.505 (0.479)	-0.475 (0.496)	0.233 (0.617)	0.710 (0.711)	1.247+ (0.741)	1.868* (0.824)	1.836* (0.889)	1.928* (0.950)	1.632+ (0.931)
Lagged S $\times \Delta R$	0.00547 (0.00883)	0.00557 (0.00970)	0.0170 (0.0127)	0.0131 (0.0124)	0.0156 (0.0133)	0.00629 (0.0143)	0.00418 (0.0157)	-0.000271 (0.0189)	0.0178 (0.0198)
Lagged S	-0.0248 (0.0451)	0.0149 (0.0553)	0.0177 (0.0630)	-0.0136 (0.0687)	0.0375 (0.0738)	0.0855 (0.0789)	0.0774 (0.0827)	0.0779 (0.0863)	0.0194 (0.0903)
Observations	98982	98982	98982	98982	98982	98982	98982	98982	98982
	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)	p(t+16)-p(t-1)	p(t+17)-p(t-1)
Lagged W/S $\times \Delta R$	1.461 (0.970)	1.599 (0.984)	1.109 (1.019)	1.501 (1.050)	0.616 (1.280)	0.630 (1.567)	1.968 (1.732)	2.325 (1.802)	1.112 (1.829)
Lagged S $\times \Delta R$	0.0180 (0.0207)	0.0181 (0.0198)	0.0166 (0.0216)	0.0220 (0.0213)	0.00360 (0.0277)	0.0337 (0.0373)	0.0685 (0.0556)	0.0402 (0.0435)	0.0181 (0.0410)
Lagged S	0.0234 (0.0940)	-0.0366 (0.0973)	-0.0920 (0.101)	-0.111 (0.104)	-0.238* (0.119)	-0.229+ (0.136)	-0.219 (0.151)	-0.213 (0.163)	-0.241 (0.175)
Observations	98982	98982	98982	98982	97018	95001	93006	91035	89062
	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)
Lagged W/S $\times \Delta R$	1.220 (1.959)	1.589 (2.047)	0.638 (2.116)	0.368 (2.237)	0.627 (2.311)	0.506 (2.362)	0.912 (2.398)	2.081 (2.525)	1.969 (2.775)
Lagged S $\times \Delta R$	0.0294 (0.0388)	0.0213 (0.0374)	0.0255 (0.0401)	0.0297 (0.0416)	0.0350 (0.0391)	0.0436 (0.0463)	0.0445 (0.0481)	0.0412 (0.0445)	0.0591 (0.0566)
Lagged S	-0.252 (0.187)	-0.218 (0.198)	-0.235 (0.209)	-0.217 (0.221)	-0.139 (0.231)	-0.119 (0.239)	0.0158 (0.249)	0.203 (0.263)	0.391 (0.279)
Observations	87081	85100	83106	81119	78939	77195	75629	74146	72639
	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)	p(t+32)-p(t-1)	p(t+33)-p(t-1)	p(t+34)-p(t-1)	p(t+35)-p(t-1)
Lagged W/S $\times \Delta R$	1.997 (2.854)	2.341 (2.929)	2.646 (2.999)	0.914 (3.578)	0.780 (3.641)	0.624 (3.604)	2.041 (3.586)	2.010 (3.681)	1.126 (3.849)
Lagged S $\times \Delta R$	0.0542 (0.0556)	0.0500 (0.0539)	0.0659 (0.0542)	0.0398 (0.0506)	0.0417 (0.0511)	0.0396 (0.0518)	0.0555 (0.0513)	0.0708 (0.0545)	0.0595 (0.0551)
Lagged S	0.532+ (0.300)	0.668* (0.317)	0.720* (0.328)	0.720* (0.338)	0.658+ (0.352)	0.624+ (0.365)	0.664+ (0.377)	0.714+ (0.389)	0.858* (0.403)
Observations	71168	69716	68263	66802	65340	63892	62433	60720	59504
Firm FEs $\times$ ComIndex	x	x	x	x	x	x	x	x	x
Product-month FEs	x	x	x	x	x	x	x	x	x
Clustered SE (firm-month)	x	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. ComIndex denotes the monthly log change in the commodity price index. The commodity price index is a net trade weighted commodity price index. The weights w are trade weights of each commodity i $w_i = \frac{\text{exports}_i - \text{imports}_i}{\text{total net exports}}$. The Swedish commodities used to construct the weighted index are selected using the methodology of the [World Bank \(2024\)](#).

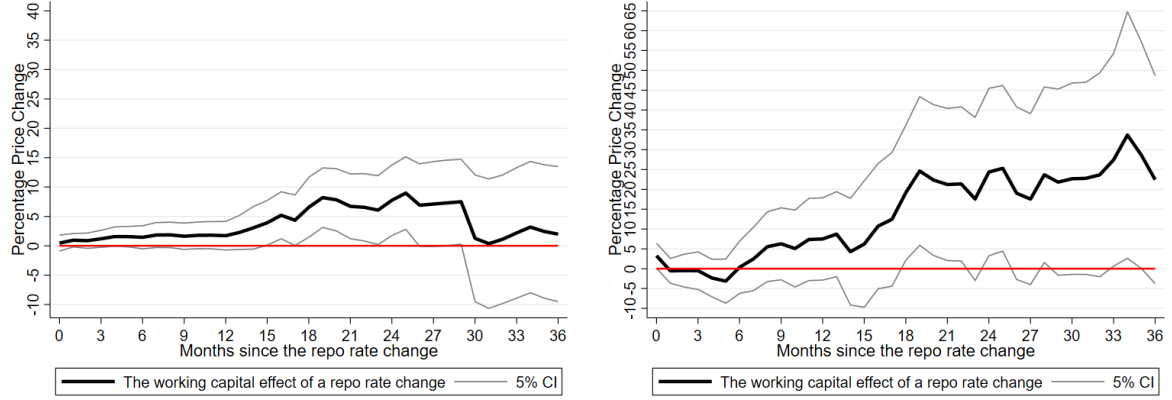
Table 52: The working capital channel, controlling for commodity prices, sales-weighted IV regressions

	p(0)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)	p(t+8)-p(t-1)
Lagged W/S $\times \Delta R$	0.365 (1.325)	-0.543 (1.112)	1.936 (1.464)	3.460* (1.575)	3.672* (1.680)	4.059* (1.989)	5.500** (2.078)	7.301** (2.451)	7.146** (2.429)
Lagged S $\times \Delta R$	0.000390 (0.00801)	0.00716 (0.00961)	0.0191 (0.0122)	0.0294* (0.0124)	0.0260* (0.0122)	0.0247+ (0.0143)	0.0140 (0.0170)	0.0239 (0.0184)	0.0338+ (0.0205)
Lagged S	0.00918 (0.123)	0.0296 (0.144)	0.0549 (0.174)	0.0515 (0.196)	0.0533 (0.219)	0.0791 (0.232)	0.00397 (0.249)	-0.00979 (0.266)	-0.0943 (0.281)
Observations	98982	98982	98982	98982	98982	98982	98982	98982	98982
	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)	p(t+16)-p(t-1)	p(t+17)-p(t-1)
Lagged W/S $\times \Delta R$	6.172* (2.432)	4.951* (2.504)	7.001** (2.705)	7.478** (2.723)	8.221* (3.245)	8.192* (4.026)	12.14* (4.777)	13.55** (4.910)	11.68* (4.841)
Lagged S $\times \Delta R$	0.0343+ (0.0205)	0.0336 (0.0210)	0.0298 (0.0232)	0.0298 (0.0233)	0.0201 (0.0263)	0.0473 (0.0290)	0.0839* (0.0348)	0.0516 (0.0335)	0.0478 (0.0354)
Lagged S	-0.267 (0.300)	-0.480 (0.314)	-0.589+ (0.330)	-0.774* (0.344)	-0.768* (0.386)	-0.739+ (0.430)	-0.742 (0.481)	-0.670 (0.522)	-0.664 (0.557)
Observations	98982	98982	98982	98982	97018	95001	93006	91035	89062
	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)
Lagged W/S $\times \Delta R$	14.60** (4.830)	15.20** (5.342)	14.29* (5.551)	15.90** (5.670)	17.48** (5.995)	15.22* (6.324)	17.37** (6.403)	18.54** (6.697)	13.92* (6.975)
Lagged S $\times \Delta R$	0.0565 (0.0351)	0.0476 (0.0385)	0.0585 (0.0407)	0.0725+ (0.0407)	0.0741+ (0.0421)	0.0995* (0.0443)	0.106* (0.0445)	0.114* (0.0457)	0.121* (0.0494)
Lagged S	-0.571 (0.590)	-0.476 (0.622)	-0.330 (0.649)	-0.186 (0.669)	-0.00335 (0.697)	0.131 (0.736)	0.388 (0.765)	0.607 (0.786)	0.692 (0.820)
Observations	87081	85100	83106	81119	78939	77195	75629	74146	72639
	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)	p(t+32)-p(t-1)	p(t+33)-p(t-1)	p(t+34)-p(t-1)	p(t+35)-p(t-1)
Lagged W/S $\times \Delta R$	13.93* (7.014)	16.31* (7.173)	15.95* (7.609)	12.36 (7.614)	12.71 (7.759)	12.65 (7.831)	14.34+ (7.826)	14.23 (9.047)	10.64 (9.025)
Lagged S $\times \Delta R$	0.124* (0.0491)	0.118* (0.0519)	0.131* (0.0552)	0.107+ (0.0553)	0.114* (0.0556)	0.103+ (0.0573)	0.101+ (0.0571)	0.112+ (0.0616)	0.135* (0.0618)
Lagged S	0.891 (0.841)	1.194 (0.873)	1.109 (0.894)	1.010 (0.913)	0.929 (0.934)	0.988 (0.953)	1.108 (0.968)	1.196 (0.980)	1.175 (1.010)
Observations	71168	69716	68263	66802	65340	63892	62433	60720	59504
Firm FEs $\times$ ComIndex	x	x	x	x	x	x	x	x	x
Product-month FEs	x	x	x	x	x	x	x	x	x
Clustered SE (firm $\times$ month)	x	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t is months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. ComIndex denotes the monthly log change in the commodity price index. The commodity price index is a net trade weighted commodity price index. The weights w_i are trade weights of each commodity i $w_i = \frac{\text{export}_i - \text{import}_i}{\text{total net exports}}$. The Swedish commodities used to construct the weighted index are selected using the methodology of the [World Bank \(2024\)](#).

A.17 The working capital channel, filtering information shocks

The estimates presented in Figures 26a and 26b depict the pass-through coefficients via the working capital channel using shocks that are negatively correlated with movements in the OMX30 index. In this specification, the working capital effect appears more pronounced, the simple average effect is strongly significant and increases to 4–9 percent between 15–25 months, whereas at shorter horizons, it is weakly significant and similar in magnitude to the baseline estimates. The sales-weighted estimates are significant at longer horizons, after 18 months, and larger, showing a 25 percent price increase for a firm with working capital equal to its sales. For the average firm with a working capital share of 16 percent, the estimates imply an increase of 4 percent after 18 months.



(a) Unweighted IV regressions

(b) Sales-weighted IV regressions

Figure 26: The working capital channel, using only those HF shocks that are negatively correlated to information shocks in the month a la [Jarociński and Karadi \(2020\)](#).

Table 53: The working capital channel, using only negatively correlated information-shock months, unweighted IV regressions.

	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)	p(t+8)-p(t-1)
Lagged W/S $\times \Delta R$	0.466 (0.695)	0.952 (0.580)	0.875 (0.666)	1.197 (0.738)	1.579 ⁺ (0.838)	1.561 ⁺ (0.892)	1.449 (1.005)	1.838 ⁺ (1.085)	1.859 ⁺ (1.107)
Lagged S $\times \Delta R$	0.00730 (0.00778)	0.0114 (0.00896)	0.0209 (0.0149)	0.0211 ⁺ (0.0127)	0.0345 [*] (0.0170)	0.0222 (0.0164)	0.0183 (0.0189)	0.000358 (0.0238)	0.0184 (0.0264)
Lagged W/S	0.00209 (0.0476)	-0.0219 (0.0571)	-0.00337 (0.0664)	-0.0404 (0.0725)	-0.00585 (0.0782)	0.0212 (0.0838)	0.00606 (0.0874)	0.00000763 (0.0915)	-0.0373 (0.0951)
Observations	77106	77106	77106	77106	77106	77106	77106	77106	77106
	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)	p(t+16)-p(t-1)	p(t+17)-p(t-1)
Lagged W/S $\times \Delta R$	1.632 (1.142)	1.785 (1.161)	1.808 (1.182)	1.719 (1.241)	2.286 (1.479)	3.064 ⁺ (1.850)	3.931 [*] (1.941)	5.198 [*] (2.043)	4.358 [*] (2.192)
Lagged S $\times \Delta R$	0.0305 (0.0286)	0.0302 (0.0260)	0.0319 (0.0282)	0.0439 (0.0288)	0.0471 (0.0309)	0.109 ⁺ (0.0602)	0.164 ⁺ (0.0933)	0.126 ⁺ (0.0660)	0.103 ⁺ (0.0601)
Lagged W/S	-0.0294 (0.0985)	-0.0559 (0.101)	-0.0635 (0.104)	-0.0962 (0.108)	-0.183 (0.124)	-0.173 (0.140)	-0.228 (0.154)	-0.182 (0.170)	-0.167 (0.186)
Observations	77106	77106	77106	77106	75608	73665	71715	69743	68190
	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)
Lagged W/S $\times \Delta R$	6.561 [*] (2.605)	8.203 ^{**} (2.585)	7.828 ^{**} (2.706)	6.716 [*] (2.812)	6.559 [*] (2.925)	6.079 [*] (2.988)	7.762 [*] (3.064)	8.983 ^{**} (3.144)	6.918 ⁺ (3.584)
Lagged S $\times \Delta R$	0.125 [*] (0.0559)	0.119 [*] (0.0511)	0.128 [*] (0.0565)	0.133 [*] (0.0600)	0.126 [*] (0.0533)	0.141 [*] (0.0696)	0.141 [*] (0.0718)	0.127 [*] (0.0602)	0.166 ⁺ (0.0870)
Lagged W/S	-0.197 (0.199)	-0.184 (0.213)	-0.191 (0.225)	-0.277 (0.236)	-0.200 (0.244)	-0.188 (0.253)	-0.0265 (0.262)	0.0900 (0.275)	0.261 (0.290)
Observations	66637	64665	62712	60922	60317	59684	58460	57298	55826
	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)	p(t+32)-p(t-1)	p(t+33)-p(t-1)	p(t+34)-p(t-1)	p(t+35)-p(t-1)
Lagged W/S $\times \Delta R$	7.110 ⁺ (3.696)	7.309 [*] (3.716)	7.501 [*] (3.682)	1.270 (5.505)	0.367 (5.623)	1.127 (5.582)	2.192 (5.671)	3.189 (5.701)	2.443 (5.793)
Lagged S $\times \Delta R$	0.154 ⁺ (0.0845)	0.128 (0.0793)	0.119 (0.0763)	0.0591 (0.0669)	0.0686 (0.0690)	0.0803 (0.0711)	0.0975 (0.0751)	0.126 (0.0835)	0.106 (0.0806)
Lagged W/S	0.407 (0.307)	0.619 ⁺ (0.326)	0.708 [*] (0.337)	0.728 [*] (0.346)	0.754 [*] (0.362)	0.754 [*] (0.377)	0.846 [*] (0.390)	0.959 [*] (0.404)	1.037 [*] (0.418)
Observations	54367	52911	52408	51898	50442	49072	48455	47264	46058
Product-month FEs	x	x	x	x	x	x	x	x	x
Clustered SE (firm-month)	x	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels $+$ $p < 0.10$, $*$ $p < 0.05$, $**$ $p < 0.01$, $***$ $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. Months with no announcements and zero repo rate changes are also included.

Table 54: The working capital channel, using only negatively correlated information-shock months, sales-weighted IV regressions.

	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)	p(t+8)-p(t-1)
Lagged W/S $\times \Delta R$	3.277* (1.598)	-0.531 (1.593)	-0.474 (2.109)	-0.498 (2.418)	-2.341 (2.415)	-3.137 (2.844)	0.374 (3.365)	2.469 (4.070)	5.549 (4.484)
Lagged S $\times \Delta R$	0.00158 (0.00636)	0.0116 (0.00885)	0.0105 (0.0115)	0.0231+ (0.0122)	0.0257* (0.0129)	0.0254 (0.0155)	0.0180 (0.0190)	0.0205 (0.0205)	0.0257 (0.0257)
Lagged W/S	-0.114 (0.129)	-0.227 (0.145)	-0.249 (0.182)	-0.226 (0.205)	-0.238 (0.236)	-0.216 (0.250)	-0.220 (0.271)	-0.294 (0.292)	-0.396 (0.310)
Observations	77106	77106	77106	77106	77106	77106	77106	77106	77106
	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)	p(t+16)-p(t-1)	p(t+17)-p(t-1)
Lagged W/S $\times \Delta R$	6.280 (4.628)	5.087 (4.949)	7.368 (5.283)	7.503 (5.291)	8.718 (5.463)	4.284 (6.860)	6.225 (8.131)	10.74 (8.056)	12.46 (8.598)
Lagged S $\times \Delta R$	0.0471+ (0.0265)	0.0579* (0.0276)	0.0678* (0.0294)	0.0714* (0.0301)	0.0849** (0.0314)	0.142*** (0.0378)	0.182*** (0.0474)	0.134** (0.0431)	0.133** (0.0447)
Lagged W/S	-0.383 (0.330)	-0.488 (0.345)	-0.542 (0.364)	-0.693+ (0.378)	-0.759+ (0.423)	-0.605 (0.467)	-0.591 (0.516)	-0.524 (0.569)	-0.530 (0.627)
Observations	77106	77106	77106	77106	75608	73665	71715	69743	68190
	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)
Lagged W/S $\times \Delta R$	19.17* (8.680)	24.64** (9.561)	22.35* (9.695)	21.23* (9.784)	21.38* (9.915)	17.57+ (10.49)	24.37* (10.77)	25.31* (10.65)	19.03+ (11.10)
Lagged S $\times \Delta R$	0.158*** (0.0452)	0.152** (0.0487)	0.164** (0.0509)	0.173*** (0.0513)	0.163** (0.0519)	0.169** (0.0541)	0.161** (0.0556)	0.162** (0.0555)	0.172** (0.0608)
Lagged W/S	-0.412 (0.662)	-0.198 (0.689)	-0.0747 (0.722)	-0.132 (0.748)	-0.0483 (0.777)	-0.0566 (0.824)	0.384 (0.854)	0.707 (0.863)	0.971 (0.905)
Observations	66637	64665	62712	60922	60317	59684	58460	57298	55826
	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)	p(t+32)-p(t-1)	p(t+33)-p(t-1)	p(t+34)-p(t-1)	p(t+35)-p(t-1)
Lagged W/S $\times \Delta R$	17.55 (10.99)	23.69* (11.29)	21.82+ (11.97)	22.68+ (12.30)	22.78+ (12.35)	23.67+ (13.11)	27.45* (13.67)	33.71* (15.86)	28.66* (14.58)
Lagged S $\times \Delta R$	0.168** (0.0599)	0.142* (0.0641)	0.138* (0.0675)	0.0733 (0.0736)	0.0903 (0.0753)	0.0963 (0.0797)	0.108 (0.0827)	0.128 (0.0896)	0.139 (0.0882)
Lagged W/S	1.079 (0.932)	1.284 (0.959)	1.228 (0.983)	1.046 (1.011)	0.907 (1.045)	0.907 (1.075)	0.728 (1.101)	0.667 (1.120)	0.879 (1.147)
Observations	54367	52911	52408	51898	50442	49072	48455	47264	46058
Product-month FEs	x	x	x	x	x	x	x	x	x
Clustered SE (firm-month)	x	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. Months with no announcements and zero repo rate changes are also included.

A.18 The price puzzle in groups of firms with high and low working capital-to-sales ratios

Figure 27 plots the price response of firms with high and low working capital-to-sales (W/S) ratios following a policy rate change. The solid black line represents firms with high W/S ratios, while the dashed black line represents firms with low W/S ratios. Both groups exhibit a delayed but positive price response, peaking around 12 to 15 months after the shock. However, the magnitude and persistence of the response differ between the two groups. Firms with low W/S ratios exhibit a somewhat larger and more persistent increase in prices, while firms with high W/S ratios display a more muted response. The divergence becomes particularly pronounced beyond month 18, where the price level for high W/S firms begins to decline, eventually becoming statistically insignificant, while low W/S firms maintain elevated prices.

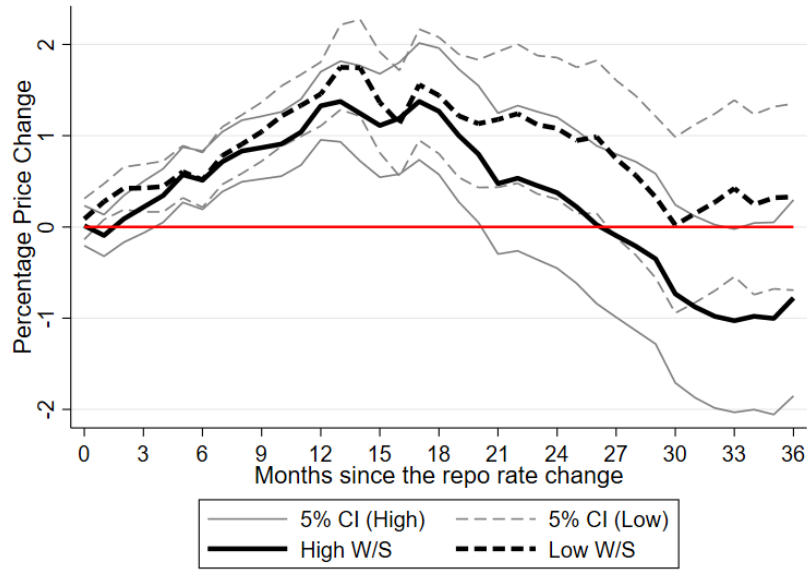


Figure 27

Table 55: The price puzzle in groups of high and low working capital firms.

	$p(t+1)-p(t-1)$	$p(t+3)-p(t-1)$	$p(t+6)-p(t-1)$	$p(t+9)-p(t-1)$	$p(t+12)-p(t-1)$	$p(t+18)-p(t-1)$	$p(t+24)-p(t-1)$	$p(t+30)-p(t-1)$
$\Delta R \times \text{High W/S}$	-0.0924 (0.116)	0.217 (0.144)	0.513** (0.163)	0.870*** (0.175)	1.328*** (0.190)	1.268*** (0.353)	0.376 (0.422)	-0.733 (0.498)
$\Delta R \times \text{Low W/S}$	0.279** (0.100)	0.427** (0.133)	0.516*** (0.153)	1.044*** (0.165)	1.458*** (0.179)	1.442*** (0.326)	1.081** (0.396)	0.0216 (0.492)
Observations	98995	98995	98995	98995	98995	87103	75656	66824
Product FEs	x	x	x	x	x	x	x	x
Firm FEs	x	x	x	x	x	x	x	x
Clustered SE (firm $\times$ month)	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels $+p < 0.10$, $*p < 0.05$, $**p < 0.01$, $***p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. High working capital firms are those above the average.

A.19 The baseline estimates excluding zero price changes

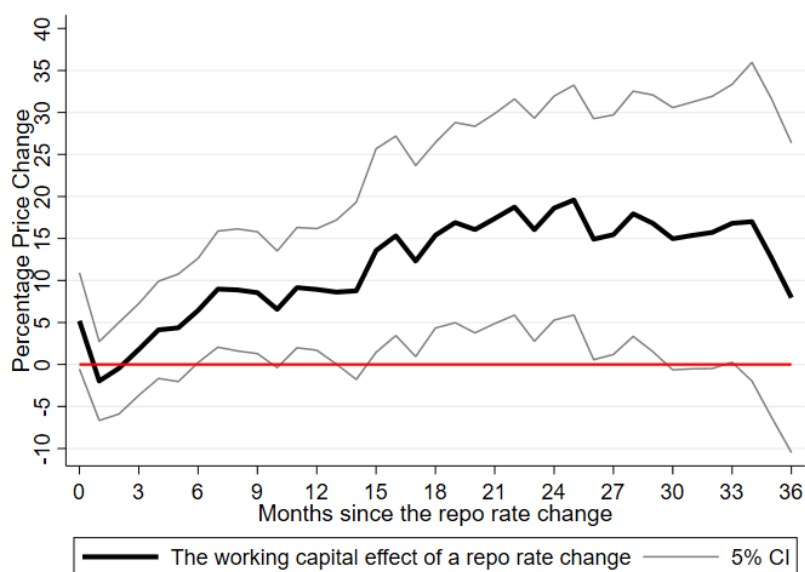


Figure 28: The price effect of a policy rate change via the working capital channel, sales-weighted instrumental variable regressions, excluding zero price changes.

Table 56: The price effect of a policy rate change via the working capital channel, sales-weighted instrumental variable regressions, excluding zero price changes.

	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)
Lagged W/S $\times$ Δ R	5.202 ⁺ (2.925)	-1.963 (2.395)	-0.434 (2.782)	1.797 (2.788)	4.130 (2.956)	4.374 (3.268)	6.446* (3.167)	8.982* (3.527)
Lagged S $\times$ Δ R	0.00788 (0.0175)	0.0286 (0.0184)	0.0391* (0.0195)	0.0514** (0.0184)	0.0435* (0.0203)	0.0422* (0.0202)	0.0249 (0.0198)	0.0284 (0.0211)
Lagged S	-0.107 (0.313)	-0.375 (0.302)	-0.525 ⁺ (0.318)	-0.513 (0.321)	-0.416 (0.334)	-0.289 (0.336)	-0.348 (0.344)	-0.397 (0.353)
Observations	34539	40970	46199	50563	54373	57795	60868	63728
	p(t+8)-p(t-1)	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)
Lagged W/S $\times$ Δ R	8.881* (3.705)	8.552* (3.700)	6.572 ⁺ (3.544)	9.155* (3.653)	8.941* (3.694)	8.620* (4.380)	8.778 (5.383)	13.57* (6.181)
Lagged S $\times$ Δ R	0.0323 (0.0258)	0.0302 (0.0271)	0.0353 (0.0261)	0.0352 (0.0269)	0.0383 (0.0260)	0.0288 (0.0279)	0.0661* (0.0313)	0.104** (0.0371)
Lagged S	-0.487 (0.357)	-0.522 (0.371)	-0.624 ⁺ (0.379)	-0.645 ⁺ (0.391)	-0.845* (0.404)	-0.723 (0.450)	-0.488 (0.496)	-0.375 (0.541)
Observations	66381	68833	71128	73205	74530	74330	73960	73485
	p(t+16)-p(t-1)	p(t+17)-p(t-1)	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)
Lagged W/S $\times$ Δ R	15.33* (6.059)	12.32* (5.803)	15.39** (5.634)	16.89** (6.079)	16.06* (6.277)	17.38** (6.378)	18.75** (6.566)	16.05* (6.774)
Lagged S $\times$ Δ R	0.0692 ⁺ (0.0353)	0.0619 ⁺ (0.0375)	0.0659 ⁺ (0.0376)	0.0532 (0.0406)	0.0534 (0.0453)	0.0598 (0.0478)	0.0588 (0.0473)	0.0832 ⁺ (0.0479)
Lagged S	-0.243 (0.576)	-0.229 (0.609)	0.00302 (0.641)	0.223 (0.669)	0.449 (0.697)	0.649 (0.717)	0.764 (0.738)	0.883 (0.770)
Observations	72935	72272	71516	70724	69836	68904	67929	66892
	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)
Lagged W/S $\times$ Δ R	18.62** (6.804)	19.58** (6.980)	14.92* (7.322)	15.46* (7.274)	17.95* (7.447)	16.80* (7.798)	14.98 ⁺ (7.964)	15.37 ⁺ (8.103)
Lagged S $\times$ Δ R	0.0881 ⁺ (0.0490)	0.0996* (0.0491)	0.108* (0.0527)	0.109* (0.0530)	0.0935 ⁺ (0.0563)	0.0922 (0.0587)	0.0657 (0.0597)	0.0704 (0.0620)
Lagged S	1.121 (0.799)	1.330 (0.820)	1.578 ⁺ (0.854)	1.807* (0.875)	1.979* (0.900)	1.810* (0.916)	1.600 ⁺ (0.931)	1.551 (0.955)
Observations	65986	65110	64183	63245	62297	61332	60328	59314
	p(t+32)-p(t-1)	p(t+33)-p(t-1)	p(t+34)-p(t-1)	p(t+35)-p(t-1)	p(t+36)-p(t-1)			
Lagged W/S $\times$ Δ R	15.73 ⁺ (8.268)	16.81* (8.441)	17.01 ⁺ (9.672)	12.65 (9.665)	7.954 (9.404)			
Lagged S $\times$ Δ R	0.0628 (0.0653)	0.0560 (0.0657)	0.0719 (0.0672)	0.100 (0.0643)	0.0867 (0.0635)			
Lagged S	1.660 ⁺ (0.980)	1.735 ⁺ (1.000)	1.793 ⁺ (1.013)	1.893 ⁺ (1.037)	1.790 ⁺ (1.053)			
Observations	58284	57236	56156	55048	54198			
Product-month FEs	x	x	x	x	x	x	x	x
Clustered SE (firm $\times$ month)	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. Regression specification is in equation (7).

A.20 Heterogeneous treatment effects

Table 57: Heterogeneous working capital channel: high and low sales.

	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)	p(t+8)-p(t-1)
Lagged W/S $\times$ $\Delta R \times$ High Sales	0.344 (0.860)	-0.360 (0.967)	1.105 (1.134)	1.309 (1.264)	1.776 (1.362)	2.287 ⁺ (1.358)	3.108 [*] (1.438)	2.657 ⁺ (1.514)	2.484 (1.513)
Lagged S $\times$ $\Delta R \times$ High Sales	0.00240 (0.00880)	0.00447 (0.00920)	0.0148 (0.0131)	0.0118 (0.0128)	0.0136 (0.0123)	0.00553 (0.0145)	-0.000496 (0.0156)	-0.00240 (0.0173)	0.0116 (0.0190)
Lagged W/S $\times$ $\Delta R \times$ Low Sales	-0.450 (0.530)	-0.447 (0.517)	0.139 (0.635)	0.671 (0.739)	1.165 (0.766)	1.750 [*] (0.856)	1.579 ⁺ (0.921)	1.671 ⁺ (0.982)	1.550 (0.970)
Lagged S $\times$ $\Delta R \times$ Low Sales	-0.0244 (0.0588)	0.0502 (0.0648)	0.195 [*] (0.0989)	0.0961 (0.0713)	0.113 (0.150)	0.00600 (0.0641)	0.0378 (0.0747)	-0.181 (0.124)	-0.138 (0.151)
lagged W/S	-0.00495 (0.0436)	0.0246 (0.0536)	0.0303 (0.0608)	0.0116 (0.0662)	0.0379 (0.0709)	0.0829 (0.0758)	0.0673 (0.0794)	0.0658 (0.0830)	0.0358 (0.0864)
Observations	98991	98991	98991	98991	98991	98991	98991	98991	98991
	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)	p(t+16)-p(t-1)	p(t+17)-p(t-1)
Lagged W/S $\times$ $\Delta R \times$ High Sales	1.287 (1.574)	0.620 (1.598)	0.182 (1.687)	1.332 (1.815)	1.492 (2.173)	2.845 (2.733)	5.808 ⁺ (3.267)	4.742 (3.307)	4.229 (3.105)
Lagged S $\times$ $\Delta R \times$ High Sales	0.0148 (0.0214)	0.0178 (0.0208)	0.0193 (0.0219)	0.0234 (0.0211)	0.00235 (0.0276)	0.0176 (0.0293)	0.0391 (0.0313)	0.0239 (0.0309)	-0.00109 (0.0326)
Lagged W/S $\times$ $\Delta R \times$ Low Sales	1.696 ⁺ (1.005)	2.186 [*] (1.020)	1.837 ⁺ (1.049)	2.039 ⁺ (1.072)	1.177 (1.313)	1.551 (1.570)	2.890 ⁺ (1.700)	3.533 [*] (1.774)	1.952 (1.866)
Lagged S $\times$ $\Delta R \times$ Low Sales	-0.222 ⁺ (0.121)	-0.149 (0.124)	-0.0803 (0.135)	-0.0116 (0.135)	0.139 (0.218)	1.132 ^{***} (0.259)	1.679 ^{***} (0.508)	1.090 ^{**} (0.276)	0.965 ^{***} (0.276)
lagged W/S	0.0361 (0.0896)	-0.00225 (0.0925)	-0.0468 (0.0958)	-0.0667 (0.0988)	-0.155 (0.113)	-0.133 (0.129)	-0.137 (0.144)	-0.120 (0.156)	-0.138 (0.167)
Observations	98991	98991	98991	98991	97032	95020	93023	91049	89076
	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)
Lagged W/S $\times$ $\Delta R \times$ High Sales	5.573 ⁺ (3.292)	4.945 (3.507)	4.263 (3.615)	4.366 (3.727)	3.671 (3.863)	4.060 (3.949)	5.786 (3.939)	5.608 (4.123)	5.707 (4.429)
Lagged S $\times$ $\Delta R \times$ High Sales	0.00629 (0.0329)	0.00469 (0.0349)	0.00249 (0.0380)	0.00346 (0.0400)	0.0130 (0.0395)	0.0131 (0.0399)	0.0107 (0.0412)	0.0166 (0.0417)	0.0286 (0.0443)
Lagged W/S $\times$ $\Delta R \times$ Low Sales	1.910 (2.012)	2.609 (2.093)	1.756 (2.171)	1.645 (2.297)	1.757 (2.400)	1.565 (2.449)	1.970 (2.488)	3.176 (2.607)	3.487 (2.826)
Lagged S $\times$ $\Delta R \times$ Low Sales	0.983 ^{***} (0.223)	0.845 ^{***} (0.210)	0.955 ^{***} (0.213)	0.959 ^{***} (0.240)	0.729 ^{**} (0.228)	1.066 ^{**} (0.337)	1.099 ^{**} (0.336)	0.845 ^{**} (0.278)	1.382 ^{**} (0.438)
lagged W/S	-0.153 (0.178)	-0.110 (0.189)	-0.107 (0.200)	-0.127 (0.211)	-0.0781 (0.219)	-0.0985 (0.228)	0.0265 (0.238)	0.175 (0.252)	0.345 (0.266)
Observations	87100	85124	83129	81151	79182	77235	75647	74181	72675
	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)	p(t+32)-p(t-1)	p(t+33)-p(t-1)	p(t+34)-p(t-1)	p(t+35)-p(t-1)
Lagged W/S $\times$ $\Delta R \times$ High Sales	5.593 (4.622)	5.558 (4.809)	7.362 (5.066)	4.662 (5.880)	4.631 (6.010)	3.799 (6.016)	4.409 (6.092)	4.602 (6.321)	1.670 (6.618)
Lagged S $\times$ $\Delta R \times$ High Sales	0.0286 (0.0450)	0.0249 (0.0478)	0.0304 (0.0489)	0.0125 (0.0535)	0.0136 (0.0556)	0.0137 (0.0583)	0.0262 (0.0576)	0.0394 (0.0585)	0.0387 (0.0562)
Lagged W/S $\times$ $\Delta R \times$ Low Sales	3.757 (2.900)	3.631 (2.968)	3.652 (3.000)	0.795 (3.613)	1.018 (3.711)	1.115 (3.671)	2.512 (3.666)	2.513 (3.735)	2.390 (3.879)
Lagged S $\times$ $\Delta R \times$ Low Sales	1.275 ^{**} (0.447)	0.937 [*] (0.477)	0.862 ⁺ (0.442)	0.186 (0.740)	0.0240 (0.756)	0.180 (0.772)	0.195 (0.753)	-0.0154 (0.781)	-0.202 (0.787)
lagged W/S	0.497 ⁺ (0.281)	0.611 [*] (0.296)	0.612 [*] (0.306)	0.611 ⁺ (0.314)	0.660 [*] (0.326)	0.664 [*] (0.338)	0.709 [*] (0.349)	0.777 [*] (0.362)	0.886 [*] (0.376)
Observations	71191	69732	68281	66820	65363	63907	62455	60991	59529
Product-month FEs	x	x	x	x	x	x	x	x	x
Clustered SE (firm-month)	x	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels $+p < 0.10$, $*p < 0.05$, $**p < 0.01$, $***p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. The working capital effect is examined across firms with high and low lagged sales. High is an indicator that equals one when the firms' value is above the year-HS2-product mean. Low is an indicator that equals zero when the firm's value is below the year-HS2-product mean.

Table 58: Heterogeneous working capital channel: high and low cash-to-sales ratio.

	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)	p(t+8)-p(t-1)
Lagged W/S $\times$ $\Delta R \times$ High Cash/S	-0.807 (0.685)	-0.997 (0.732)	-0.622 (0.846)	-0.0805 (1.009)	0.122 (1.009)	0.986 (1.090)	0.624 (1.176)	1.109 (1.249)	0.450 (1.204)
Lagged S $\times$ $\Delta R \times$ High Cash/S	0.0113 (0.00767)	0.0227* (0.00910)	0.0151 (0.0116)	0.0108 (0.0137)	0.00125 (0.0146)	-0.0133 (0.0158)	-0.0194 (0.0129)	-0.0220 (0.0143)	-0.0132 (0.0165)
Lagged W/S $\times$ $\Delta R \times$ Low Cash/S	-0.114 (0.566)	-0.284 (0.545)	0.636 (0.670)	1.126 (0.760)	1.779* (0.810)	2.296* (0.892)	2.449* (0.960)	2.331* (1.021)	2.436* (1.024)
Lagged S $\times$ $\Delta R \times$ Low Cash/S	0.000262 (0.0122)	-0.00246 (0.0127)	0.0232 (0.0198)	0.0172 (0.0175)	0.0251 (0.0185)	0.0170 (0.0191)	0.0154 (0.0204)	0.00604 (0.0245)	0.0235 (0.0263)
lagged W/S	-0.00663 (0.0436)	0.0231 (0.0536)	0.0291 (0.0608)	0.0100 (0.0662)	0.0361 (0.0709)	0.0813 (0.0758)	0.0648 (0.0794)	0.0633 (0.0830)	0.0324 (0.0864)
Observations	98991	98991	98991	98991	98991	98991	98991	98991	98991
	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)	p(t+16)-p(t-1)	p(t+17)-p(t-1)
Lagged W/S $\times$ $\Delta R \times$ High Cash/S	0.419 (1.285)	0.496 (1.330)	0.578 (1.357)	0.242 (1.416)	-1.597 (1.638)	-1.674 (1.997)	-0.420 (2.255)	-0.0549 (2.346)	-1.013 (2.533)
Lagged S $\times$ $\Delta R \times$ High Cash/S	-0.0108 (0.0172)	-0.00526 (0.0169)	-0.0129 (0.0186)	-0.0108 (0.0191)	0.0111 (0.0285)	0.0219 (0.0313)	0.0241 (0.0292)	0.0267 (0.0297)	0.00582 (0.0331)
Lagged W/S $\times$ $\Delta R \times$ Low Cash/S	2.349* (1.042)	2.671* (1.051)	2.122+ (1.088)	2.783* (1.120)	2.355+ (1.420)	2.946+ (1.716)	4.736* (1.891)	5.198** (1.959)	3.631+ (1.966)
Lagged S $\times$ $\Delta R \times$ Low Cash/S	0.0207 (0.0297)	0.0207 (0.0289)	0.0279 (0.0290)	0.0382 (0.0272)	0.00488 (0.0375)	0.0518 (0.0550)	0.102 (0.0785)	0.0578 (0.0607)	0.0311 (0.0570)
lagged W/S	0.0326 (0.0896)	-0.00555 (0.0925)	-0.0484 (0.0958)	-0.0697 (0.0988)	-0.161 (0.113)	-0.135 (0.129)	-0.136 (0.144)	-0.121 (0.156)	-0.140 (0.167)
Observations	98991	98991	98991	98991	97032	95020	93023	91049	89076
	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)
Lagged W/S $\times$ $\Delta R \times$ High Cash/S	-1.439 (2.787)	-1.152 (2.881)	-1.647 (2.948)	-0.632 (3.024)	0.559 (3.168)	0.494 (3.156)	-0.0494 (3.146)	0.468 (3.338)	0.201 (3.652)
Lagged S $\times$ $\Delta R \times$ High Cash/S	0.0102 (0.0253)	0.0161 (0.0272)	0.0203 (0.0288)	0.0177 (0.0291)	0.0323 (0.0313)	0.0105 (0.0323)	0.00500 (0.0352)	0.0114 (0.0387)	0.0183 (0.0433)
Lagged W/S $\times$ $\Delta R \times$ Low Cash/S	4.270* (2.074)	4.809* (2.185)	3.755+ (2.282)	3.181 (2.429)	2.600 (2.535)	2.539 (2.608)	3.823 (2.652)	5.038+ (2.770)	5.477+ (2.981)
Lagged S $\times$ $\Delta R \times$ Low Cash/S	0.0448 (0.0553)	0.0322 (0.0541)	0.0302 (0.0608)	0.0324 (0.0649)	0.0297 (0.0599)	0.0510 (0.0685)	0.0558 (0.0701)	0.0510 (0.0634)	0.0798 (0.0820)
lagged W/S	-0.155 (0.178)	-0.113 (0.189)	-0.109 (0.200)	-0.127 (0.211)	-0.0766 (0.219)	-0.0933 (0.228)	0.0283 (0.238)	0.173 (0.252)	0.348 (0.266)
Observations	87100	85124	83129	81151	79182	77235	75647	74181	72675
	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)	p(t+32)-p(t-1)	p(t+33)-p(t-1)	p(t+34)-p(t-1)	p(t+35)-p(t-1)
Lagged W/S $\times$ $\Delta R \times$ High Cash/S	0.275 (3.794)	-1.037 (3.919)	1.136 (4.083)	-0.173 (4.579)	0.906 (4.680)	-0.591 (4.636)	1.630 (4.628)	2.455 (4.591)	2.108 (4.665)
Lagged S $\times$ $\Delta R \times$ High Cash/S	0.0141 (0.0457)	0.0100 (0.0516)	0.0190 (0.0576)	-0.0501 (0.0450)	-0.0481 (0.0468)	-0.0428 (0.0488)	-0.0403 (0.0475)	-0.0434 (0.0474)	-0.0394 (0.0489)
Lagged W/S $\times$ $\Delta R \times$ Low Cash/S	5.785+ (3.056)	6.375* (3.114)	5.844+ (3.128)	2.584 (3.850)	2.390 (3.945)	2.884 (3.923)	3.676 (3.943)	3.501 (4.096)	2.699 (4.319)
Lagged S $\times$ $\Delta R \times$ Low Cash/S	0.0776 (0.0807)	0.0662 (0.0780)	0.0711 (0.0762)	0.0469 (0.0683)	0.0471 (0.0708)	0.0428 (0.0745)	0.0562 (0.0739)	0.0766 (0.0753)	0.0668 (0.0723)
lagged W/S	0.499+ (0.281)	0.606* (0.296)	0.611* (0.306)	0.609+ (0.314)	0.659* (0.326)	0.659+ (0.338)	0.707* (0.349)	0.775* (0.362)	0.883* (0.375)
Observations	71191	69732	68281	66820	65363	63907	62455	60991	59529
Product-month FEs	x	x	x	x	x	x	x	x	x
Clustered SE (firm-month)	x	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. The working capital effect is examined across firms with high and low lagged cash-to-sales. High is an indicator that equals one when the firms' value is above the year-HS2-product mean. Low is an indicator that equals zero when the firm's value is below the year-HS2-product mean.

Table 59: Heterogeneous working capital channel: high and low debt-to-sales.

	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)	p(t+8)-p(t-1)
Lagged W/S $\times$ $\Delta R \times$ High Debt/S	-0.0456 (0.557)	-0.527 (0.575)	0.0151 (0.682)	0.143 (0.814)	0.617 (0.858)	1.703 ⁺ (0.929)	2.160 ⁺ (1.005)	1.860 ⁺ (1.085)	1.810 ⁺ (1.056)
Lagged S $\times$ $\Delta R \times$ High Debt/S	0.00859 (0.0159)	0.0156 (0.0147)	0.0289 (0.0206)	0.0194 (0.0205)	0.0190 (0.0220)	0.00751 (0.0239)	0.00952 (0.0270)	0.0299 (0.0303)	0.0406 (0.0321)
Lagged W/S $\times$ $\Delta R \times$ Low Debt/S	-0.543 (0.626)	-0.367 (0.625)	0.468 (0.768)	1.343 (0.864)	1.835 [*] (0.900)	1.982 [*] (0.993)	1.525 (1.066)	1.973 ⁺ (1.111)	1.744 (1.124)
Lagged S $\times$ $\Delta R \times$ Low Debt/S	0.000451 (0.0101)	0.000629 (0.0116)	0.0162 (0.0181)	0.0138 (0.0156)	0.0171 (0.0164)	0.00660 (0.0164)	-0.000485 (0.0179)	-0.0201 (0.0215)	-0.00405 (0.0232)
lagged W/S	-0.00416 (0.0436)	0.0247 (0.0536)	0.0302 (0.0608)	0.00944 (0.0662)	0.0358 (0.0709)	0.0822 (0.0758)	0.0685 (0.0795)	0.0652 (0.0830)	0.0356 (0.0865)
Observations	98991	98991	98991	98991	98991	98991	98991	98991	98991
	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)	p(t+16)-p(t-1)	p(t+17)-p(t-1)
Lagged W/S $\times$ $\Delta R \times$ High Debt/S	2.026 ⁺ (1.104)	2.417 [*] (1.118)	2.093 ⁺ (1.162)	2.518 [*] (1.214)	1.765 (1.429)	2.147 (1.798)	4.540 [*] (2.100)	5.193 ⁺ (2.194)	4.209 ⁺ (2.229)
Lagged S $\times$ $\Delta R \times$ High Debt/S	0.0568 ⁺ (0.0326)	0.0548 ⁺ (0.0301)	0.0628 [*] (0.0318)	0.0637 [*] (0.0323)	0.0601 ⁺ (0.0344)	0.0778 [*] (0.0379)	0.0850 [*] (0.0385)	0.0931 [*] (0.0394)	0.0613 (0.0414)
Lagged W/S $\times$ $\Delta R \times$ Low Debt/S	1.426 (1.145)	1.556 (1.167)	1.106 (1.199)	1.375 (1.226)	0.646 (1.545)	0.766 (1.816)	1.376 (1.916)	1.790 (2.000)	0.0611 (2.077)
Lagged S $\times$ $\Delta R \times$ Low Debt/S	-0.0146 (0.0267)	-0.0112 (0.0254)	-0.0116 (0.0257)	-0.00127 (0.0240)	-0.0232 (0.0346)	0.0197 (0.0539)	0.0652 (0.0790)	0.0177 (0.0595)	-0.00427 (0.0555)
lagged W/S	0.0373 (0.0897)	0.0000810 (0.0926)	-0.0437 (0.0958)	-0.0634 (0.0989)	-0.151 (0.114)	-0.124 (0.130)	-0.122 (0.144)	-0.105 (0.156)	-0.123 (0.167)
Observations	98991	98991	98991	98991	97032	95020	93023	91049	89076
	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)
Lagged W/S $\times$ $\Delta R \times$ High Debt/S	4.899 [*] (2.355)	6.311 ^{**} (2.432)	5.900 [*] (2.502)	6.246 [*] (2.621)	5.964 [*] (2.731)	5.814 [*] (2.760)	7.003 [*] (2.782)	7.916 ^{**} (2.939)	8.122 [*] (3.193)
Lagged S $\times$ $\Delta R \times$ High Debt/S	0.0851 [*] (0.0429)	0.0655 (0.0451)	0.0664 (0.0461)	0.0751 (0.0464)	0.105 [*] (0.0480)	0.0852 ⁺ (0.0504)	0.0605 (0.0525)	0.0538 (0.0522)	0.0674 (0.0547)
Lagged W/S $\times$ $\Delta R \times$ Low Debt/S	-0.123 (2.287)	-0.522 (2.422)	-1.812 (2.529)	-2.244 (2.649)	-1.855 (2.788)	-2.015 (2.869)	-1.876 (2.918)	-0.807 (3.033)	-0.651 (3.248)
Lagged S $\times$ $\Delta R \times$ Low Debt/S	-0.00140 (0.0532)	-0.00400 (0.0511)	-0.00536 (0.0581)	-0.00866 (0.0623)	-0.0158 (0.0566)	0.00615 (0.0660)	0.0181 (0.0673)	0.0190 (0.0608)	0.0444 (0.0800)
lagged W/S	-0.135 (0.178)	-0.0872 (0.190)	-0.0825 (0.200)	-0.101 (0.211)	-0.0545 (0.219)	-0.0736 (0.228)	0.0509 (0.238)	0.197 (0.252)	0.371 (0.266)
Observations	87100	85124	83129	81151	79182	77235	75647	74181	72675
	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)	p(t+32)-p(t-1)	p(t+33)-p(t-1)	p(t+34)-p(t-1)	p(t+35)-p(t-1)
Lagged W/S $\times$ $\Delta R \times$ High Debt/S	8.356 [*] (3.304)	8.900 ^{**} (3.354)	9.389 ^{**} (3.332)	5.758 (3.870)	5.594 (3.998)	5.206 (3.946)	6.997 ⁺ (3.968)	7.775 ⁺ (4.090)	6.855 (4.318)
Lagged S $\times$ $\Delta R \times$ High Debt/S	0.0622 (0.0555)	0.0597 (0.0577)	0.0677 (0.0592)	0.0478 (0.0663)	0.0425 (0.0670)	0.0319 (0.0664)	0.0358 (0.0657)	0.0379 (0.0669)	0.0217 (0.0682)
Lagged W/S $\times$ $\Delta R \times$ Low Debt/S	-0.418 (3.322)	-0.957 (3.416)	-0.681 (3.537)	-2.334 (4.280)	-1.735 (4.354)	-1.621 (4.335)	-0.921 (4.337)	-1.462 (4.429)	-1.895 (4.583)
Lagged S $\times$ $\Delta R \times$ Low Debt/S	0.0428 (0.0786)	0.0286 (0.0758)	0.0348 (0.0745)	-0.00501 (0.0680)	0.000511 (0.0711)	0.00308 (0.0760)	0.0159 (0.0752)	0.0352 (0.0764)	0.0352 (0.0721)
lagged W/S	0.522 ⁺ (0.281)	0.635 [*] (0.296)	0.635 [*] (0.306)	0.625 [*] (0.314)	0.670 [*] (0.325)	0.676 [*] (0.337)	0.721 [*] (0.349)	0.787 [*] (0.361)	0.894 [*] (0.375)
Product-month FEs	x	x	x	x	x	x	x	x	x
Clustered SE (firm-month)	x	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels $+p < 0.10$, $*p < 0.05$, $**p < 0.01$, $***p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. The working capital effect is examined across firms with high and low lagged short-term debt-to-sales. High is an indicator that equals one when the firm's value is above the year-HS2-product mean. Low is an indicator that equals zero when the firm's value is below the year-HS2-product mean.

Table 60: Heterogeneous working capital channel: high and low variable cost-to-sales.

	p(t)-p(t-1)	p(t+1)-p(t-1)	p(t+2)-p(t-1)	p(t+3)-p(t-1)	p(t+4)-p(t-1)	p(t+5)-p(t-1)	p(t+6)-p(t-1)	p(t+7)-p(t-1)	p(t+8)-p(t-1)
Lagged W/S $\times$ $\Delta R \times$ High TVC/S	0.0154 (0.585)	-0.429 (0.576)	0.512 (0.705)	1.159 (0.850)	1.696 ⁺ (0.874)	2.540** (0.935)	2.517* (1.016)	2.857** (1.091)	2.725* (1.078)
Lagged S $\times$ $\Delta R \times$ High TVC/S	-0.0147 (0.0140)	-0.0196 (0.0144)	0.000279 (0.0189)	-0.000774 (0.0178)	-0.00632 (0.0176)	-0.00710 (0.0218)	-0.00906 (0.0227)	-0.0190 (0.0232)	-0.0119 (0.0244)
Lagged W/S $\times$ $\Delta R \times$ Low TVC/S	-0.735 (0.613)	-0.601 (0.624)	-0.147 (0.749)	0.236 (0.824)	0.623 (0.876)	1.028 (0.982)	1.039 (1.050)	0.814 (1.102)	0.626 (1.106)
Lagged S $\times$ $\Delta R \times$ Low TVC/S	0.0245** (0.00937)	0.0330** (0.0118)	0.0425* (0.0193)	0.0326+ (0.0169)	0.0432* (0.0199)	0.0236 (0.0174)	0.0189 (0.0188)	0.0160 (0.0263)	0.0384 (0.0293)
lagged W/S	-0.00455 (0.0436)	0.0256 (0.0536)	0.0317 (0.0608)	0.0125 (0.0662)	0.0392 (0.0709)	0.0836 (0.0758)	0.0678 (0.0794)	0.0658 (0.0830)	0.0361 (0.0864)
Observations	98991	98991	98991	98991	98991	98991	98991	98991	98991
	p(t+9)-p(t-1)	p(t+10)-p(t-1)	p(t+11)-p(t-1)	p(t+12)-p(t-1)	p(t+13)-p(t-1)	p(t+14)-p(t-1)	p(t+15)-p(t-1)	p(t+16)-p(t-1)	p(t+17)-p(t-1)
Lagged W/S $\times$ $\Delta R \times$ High TVC/S	2.895** (1.118)	3.121** (1.137)	2.262+ (1.167)	2.389* (1.200)	1.260 (1.456)	0.921 (1.788)	1.887 (2.044)	2.656 (2.130)	1.670 (2.197)
Lagged S $\times$ $\Delta R \times$ High TVC/S	-0.0222 (0.0293)	-0.0203 (0.0279)	-0.0259 (0.0279)	-0.0183 (0.0261)	-0.0611 (0.0412)	-0.0608 (0.0438)	-0.0506 (0.0448)	-0.0768+ (0.0447)	-0.102* (0.0467)
Lagged W/S $\times$ $\Delta R \times$ Low TVC/S	0.272 (1.134)	0.568 (1.147)	0.638 (1.184)	1.222 (1.231)	0.749 (1.515)	1.413 (1.825)	3.322+ (1.983)	3.580+ (2.037)	1.821 (2.081)
Lagged S $\times$ $\Delta R \times$ Low TVC/S	0.0478 (0.0305)	0.0495+ (0.0300)	0.0597+ (0.0309)	0.0660* (0.0305)	0.0785* (0.0317)	0.149* (0.0626)	0.208* (0.0989)	0.178* (0.0694)	0.154* (0.0610)
lagged W/S	0.0368 (0.0897)	-0.000917 (0.0926)	-0.0452 (0.0958)	-0.0652 (0.0989)	-0.153 (0.113)	-0.125 (0.129)	-0.127 (0.144)	-0.112 (0.156)	-0.130 (0.167)
Observations	98991	98991	98991	98991	97032	95020	93023	91049	89076
	p(t+18)-p(t-1)	p(t+19)-p(t-1)	p(t+20)-p(t-1)	p(t+21)-p(t-1)	p(t+22)-p(t-1)	p(t+23)-p(t-1)	p(t+24)-p(t-1)	p(t+25)-p(t-1)	p(t+26)-p(t-1)
Lagged W/S $\times$ $\Delta R \times$ High TVC/S	2.306 (2.345)	2.426 (2.444)	0.970 (2.509)	1.287 (2.607)	0.876 (2.734)	0.292 (2.762)	0.808 (2.773)	2.759 (2.911)	2.797 (3.195)
Lagged S $\times$ $\Delta R \times$ High TVC/S	-0.0790 (0.0486)	-0.0822 (0.0519)	-0.0957+ (0.0578)	-0.102 (0.0622)	-0.0993 (0.0605)	-0.104+ (0.0595)	-0.0983+ (0.0597)	-0.0941 (0.0587)	-0.0983 (0.0612)
Lagged W/S $\times$ $\Delta R \times$ Low TVC/S	1.693 (2.256)	2.597 (2.367)	2.285 (2.476)	1.756 (2.642)	2.253 (2.748)	2.467 (2.832)	3.299 (2.884)	3.364 (3.020)	3.531 (3.207)
Lagged S $\times$ $\Delta R \times$ Low TVC/S	0.153** (0.0583)	0.142** (0.0524)	0.155** (0.0575)	0.165** (0.0612)	0.169** (0.0534)	0.190** (0.0708)	0.186** (0.0719)	0.180** (0.0596)	0.238** (0.0907)
lagged W/S	-0.145 (0.178)	-0.102 (0.189)	-0.0988 (0.200)	-0.118 (0.211)	-0.0703 (0.219)	-0.0875 (0.228)	0.0373 (0.238)	0.184 (0.252)	0.360 (0.266)
Observations	87100	85124	83129	81151	79182	77235	75647	74181	72675
	p(t+27)-p(t-1)	p(t+28)-p(t-1)	p(t+29)-p(t-1)	p(t+30)-p(t-1)	p(t+31)-p(t-1)	p(t+32)-p(t-1)	p(t+33)-p(t-1)	p(t+34)-p(t-1)	p(t+35)-p(t-1)
Lagged W/S $\times$ $\Delta R \times$ High TVC/S	2.897 (3.291)	3.662 (3.357)	4.757 (3.454)	1.936 (4.246)	1.859 (4.356)	1.628 (4.320)	3.417 (4.297)	3.404 (4.401)	2.400 (4.630)
Lagged S $\times$ $\Delta R \times$ High TVC/S	-0.0916 (0.0619)	-0.0929 (0.0652)	-0.0800 (0.0656)	-0.0758 (0.0677)	-0.0733 (0.0711)	-0.0835 (0.0751)	-0.0650 (0.0742)	-0.0476 (0.0742)	-0.0482 (0.0715)
Lagged W/S $\times$ $\Delta R \times$ Low TVC/S	3.944 (3.299)	3.130 (3.381)	2.795 (3.410)	0.603 (3.864)	1.135 (3.949)	1.063 (3.928)	1.761 (3.981)	2.008 (4.086)	1.801 (4.216)
Lagged S $\times$ $\Delta R \times$ Low TVC/S	0.225* (0.0884)	0.207** (0.0779)	0.210** (0.0737)	0.160* (0.0658)	0.158* (0.0660)	0.167* (0.0679)	0.169* (0.0680)	0.178* (0.0719)	0.163* (0.0712)
lagged W/S	0.512+ (0.281)	0.622* (0.296)	0.621* (0.306)	0.614+ (0.314)	0.662* (0.326)	0.667* (0.338)	0.711* (0.349)	0.777* (0.362)	0.884* (0.376)
Product-month FEs	x	x	x	x	x	x	x	x	x
Clustered SE (firm-month)	x	x	x	x	x	x	x	x	x

Notes: Standard errors, clustered at the firm-month level, are in parentheses; significance levels + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; t are months. W is working capital, defined as receivables and inventories net of payables and prepayments. S is sales. The working capital effect is examined across firms with high and low lagged total variable cost-to-sales. High is an indicator that equals one when the firms' value is above the year-HS2-product mean. Low is an indicator that equals zero when the firm's value is below the year-HS2-product mean.

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Declaration of generative AI and AI-assisted technologies in the writing process

During the preparation of this work the author used ChatGPT in order to check against grammatical errors and find synonyms. After using this tool/service, the author reviewed and edited the content as needed and takes full responsibility for the content of the publication.

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