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THE INTERNATIONAL TRANSMISSION OF CHINESE MONETARY POLICY AND THE COMMODITY CHANNEL

by Fabrizio Ferriani* and Andrea Gazzani**

Abstract

This paper examines the international transmission of Chinese monetary policy. We show that, unlike the financial channel typical of US monetary policy, Chinese policy shocks propagate through a real-side demand mechanism, driven by monetary-fiscal interactions that stimulate commodity-intensive infrastructure investment. Consistent with this channel, metal and energy commodity prices are the most responsive to Chinese monetary policy shocks. We quantify the resulting inflationary spillovers using counterfactual methods. The commodity channel accounts for approximately 70 per cent of producer price spillovers to advanced economies, with the largest impact concentrated in countries heavily dependent on commodity imports, such as the four largest European economies. Finally, Chinese monetary policy significantly affects financing conditions in commodity-exporting emerging markets.

JEL Classification: E52, E31, E32, F41, Q02, Q43.

Keywords: China, monetary policy, commodity prices, spillovers, VARs, counterfactuals.

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1 Introduction[1]

China has surged as a new economic powerhouse in recent decades. China is the sole manufacturing superpower (Baldwin, 2024), with Chinese GDP accounting for almost 20% of global output, and it is a commodity devourer, consuming more of several commodities, especially industrial metals, than the rest of the world (Table 1). Despite this growing economic role, the international dimension of Chinese monetary policy remains relatively underexplored. In China, the monetary policy framework differs substantially from that of advanced economies as the quantity of money, rather than the interest rate, has been the only intermediate monetary policy tool until 2017 (Chen et al., 2018, 2023). Moreover, the central bank (People's Bank of China, PBC hereafter) pursues the growth objective of the central government and responds asymmetrically to deviations from growth targets, i.e. monetary policy interventions are stronger when actual growth is below target than when it is above.

In this paper, we investigate empirically the international spillovers from Chinese monetary policy shocks. We employ the monetary policy shocks identified in Chen et al. (2018, 2023) by taking into account the specificity of the Chinese monetary policy framework. To understand the transmission channels, we first estimate the domestic effects of Chinese monetary policy and document negative responses in both real activity and consumer prices. The fact that infrastructure investment is significantly more responsive than GDP corroborates the mechanism proposed by Chen et al. (2023), in which liquidity shocks propagate through a fiscal-monetary channel to amplify infrastructure activity.

This real-side mechanism also drives the international spillovers from Chinese monetary policy, unlike the financial propagation of US monetary policy. Several findings corroborate this interpretation. World GDP and commodity prices are significantly affected, with the latter displaying a staggering 10% response to a 1% variation in Chinese M2. Conversely, proxies for the global financial cycle (VIX, excess bond premium, dollar) and global interest rates react weakly. Their dynamics appear to be endogenous to the deterioration of the real economy rather than the main transmission mechanism. Lastly, all effects are delayed, consistent with the time-to-build necessary to activate infrastructure investment. To understand those striking effects on commodity prices, we analyze their heterogeneous responses at the granular level. The most affected commodities are industrial metals, raw materials,

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and energy inputs that fuel infrastructure investment, while agricultural goods and precious metals are scarcely affected.

Commodity	China's share of global consumption (%)
Coal	58.0
Oil	16.3
Natural gas	10.5
Nickel	63.0
Aluminium	61.5
Copper	55.5
Iron ore	∼70
Lead	42.0
Zinc	51.0
Platinum	29.0
Rice	27.3
Wheat	18.8

Table 1: China's weight in commodity markets
Source: Statistical Review of World Energy, IMF, OECD, UN, The Economist.

As commodity markets play a crucial role in the international transmission of Chinese monetary policy, an additional contribution of our work is to estimate the inflationary spillovers to G20 countries and quantify the relevance of the commodity channel. We apply two counterfactual methods (Bernanke et al., 1997; McKay and Wolf, 2023) that differ in their degree of econometric sophistication and the breadth of commodity coverage. Our estimates suggest that the commodity channel is generally important for the international spillovers of Chinese monetary policy. In particular, it is crucial for advanced economies, which account for about 50-70% of PPI, 60-70% of energy CPI spillovers and 30-55% of headline CPI spillovers. The *European Big Four* (France, Germany, Italy, and Spain) are directly and heavily affected due to their dependence on commodity imports. In fact, the country-specific relevance of the commodity channel for the transmission of Chinese monetary policy correlates strongly with each country's commodity exposure, as measured by the value of commodity imports relative to GDP. This dependence is especially salient in the current environment characterized by elevated geopolitical risk and the need to secure relatively scarce energy inputs (e.g., natural gas) and critical raw materials for the green transition. The other side of the coin concerns financing conditions in commodity-exporting emerging economies (EMEs), which can pose risks to external financing and fiscal sustainability. Also, in this case, the commodity channel is highly relevant and depends on the weight of commodity exports relative to domestic GDP.

Related literature. A growing empirical literature studies Chinese monetary policy as exemplified by Miranda-Agrippino et al. (2020), Barcelona et al. (2022), Galvão (2023), Hammoudeh et al. (2024), and Miranda-Agrippino et al. (2025). We complement their findings by accounting for China's unique institutional framework, linking the propagation of Chinese monetary policy to the fiscal-monetary nexus in infrastructure investment, and estimating the inflationary spillovers to foreign economies while explicitly assessing the commodity channel using counterfactual methods.

A rich set of empirical studies, such as Dedola et al. (2017), Miranda-Agrippino et al. (2020), Degasperi et al. (2020), Jarociński (2022), Georgiadis and Jarocinski (2023), identifies the international spillovers of (US) monetary policy. We focus on the international effects of Chinese monetary policy and document an important transmission channel through commodity prices.

A recent set of works analyzes the relationship between monetary policy and commodity prices, such as Anzuini et al. (2013), Castelnuovo et al. (2024), Miranda-Pinto et al. (2023), Hammoudeh et al. (2024), and Ider et al. (2024). Our results complement existing works on the effects of US and Euro Area monetary policy on commodity prices by documenting a different transmission channel related to the real demand side in infrastructure investment, rather than a financial and discounting mechanism.[2]

Finally, the paper also links with the literature that investigates, in a broad sense, the international spillovers from China (see for instance Metelli and Natoli, 2017; Ahmed et al., 2019; Corneli et al., 2023; Gutierrez et al., 2024; Akinci et al., 2024). These spillovers are very difficult to gauge empirically due to the challenging task of disentangling Chinese-specific shocks from foreign and global ones. Employing Chinese monetary policy shocks can address this issue. We demonstrate that Chinese shocks have a broad impact on all economies. Crucially, our estimates suggest that the commodity price channel almost entirely drives the inflationary spillovers to advanced economies; in its absence, those spillovers would be relatively small.

Structure of the paper. The paper is organized as follows. Section 2 describes the data employed in the analysis and the identification of monetary policy shocks. Section 3 illustrates the domestic and global impact of Chinese monetary policy shocks, while Section 4 focuses on the response of commodity prices. Section 5 examines international spillovers and

[2]Hammoudeh et al. (2024) also investigate the effects of Chinese monetary policy on commodity prices. We depart from their analysis in four dimensions: i) we provide evidence that Chinese monetary policy transmits with a marked delay, consistent with a real-side transmission, in contrast to that of the US and the euro area, whose impact on commodity prices is swift and indicative of a financial-type transmission; ii) we emphasize the crucial role of infrastructure investment in shaping the nexus between Chinese monetary policy and commodity markets; iii) we employ monetary policy shocks that consider the specific Chinese institutional framework, rather than a standard Taylor rule; iv) we provide estimates of the Chinese monetary policy spillovers to foreign economies and quantify the relevance of the commodity channel for these impacts.

assesses the contribution of the commodity channel through a simple counterfactual analysis. Section 6 repeats a counterfactual exercise but in a more sophisticated framework. Finally, Section 7 concludes.

2 Data

We collect data from several sources for our empirical analysis. The analysis is conducted at the quarterly frequency over the sample period 2000-2018. Monetary policy shocks and several Chinese economic aggregates are from Chen et al. (2018, 2023, 2024). We measure Chinese economic activity using GDP from Barcelona et al. (2022), which better tracks actual business-cycle conditions than alternative measures (see also Fernald et al., 2021). Additional Chinese and global variables are from LSEG. Commodity prices at the quarterly frequency are sourced from the World Bank *Pink Sheet* database; at the daily frequency, they are based on the spot or front-month futures contracts from LSEG. Information on inflation for a broad set of countries, including various measures of consumer and producer prices, is drawn from Ha et al. (2023). Data on bilateral commodity exports and imports are obtained from the Trade Data Monitor (TDM). Further details are provided in the Appendix. Section 2.1 describes in more detail the identification of monetary policy shocks.

2.1 Monetary policy shocks

Given the institutional setting and the level of development of financial markets in China (at least in part of our sample), the high-frequency identification of monetary policy surprises (Gürkaynak et al., 2005; Gertler and Karadi, 2015) is not particularly suitable for the macroeconomic analysis of monetary disturbances (Das and Song, 2023). We instead employ the series of monetary policy shocks identified in Chen et al. (2023) that extends the framework already developed in Chen et al. (2018).

They estimate a non-linear equation for the intermediate target of Chinese monetary policy, i.e., M2 growth ($g_{m,t}$), as described in Eq.(1):

$$g_{m,t} = \gamma_0 + \gamma_m g_{m,t-1} + \gamma_\pi \left(\pi_{t-1} - \pi^*\right) + \gamma_{y,t} \left(g_{y,t-1} - g^*_{y,t-1}\right) + \sigma_{m,t}\varepsilon_{m,t}, \tag{1}$$

In each quarter, the PBC decides on the expansion of $g_{m,t}$ based on the distance between (lagged) output growth $g_{y,t-1}$ and the growth target set by the State Council. Lagged inflation (π_{t-1}), in deviation from the target (π^*), can also affect monetary policy decisions, but only as long as the growth according to the target is assured. Chen et al. (2023) estimate Eq.(1) via maximum likelihood allowing both the coefficient γ_y and the variance of the shocks σ_m

to vary according to the sign of $g_{y,t-1} - g^*_{y,t-1}$ as follows:

$$\textit{Non-linearity} \qquad \gamma_{y,t} = \begin{cases} \gamma_{y,a} & \text{if } g_{y,t-1} - g^*_{y,t-1} \geq 0 \\ \gamma_{y,b} & \text{if } g_{y,t-1} - g^*_{y,t-1} < 0 \end{cases}, \tag{2}$$

$$\textit{Heteroskedasticity} \quad \sigma_{m,t} = \begin{cases} \sigma_{m,a} & \text{if } g_{y,t-1} - g^*_{y,t-1} \geq 0 \\ \sigma_{m,b} & \text{if } g_{y,t-1} - g^*_{y,t-1} < 0 \end{cases}. \tag{3}$$

The estimation yields highly asymmetric coefficients across the two states: $\gamma_{y,b}$ is about 10 times as large as $\gamma_{y,a}$. The residuals from Eq.(1) are the monetary policy shocks in the spirit of Taylor (1993).

Correlation with other shocks. We examine the correlation between Chinese monetary policy shocks and other popular (US) shocks in the literature and do not diagnose any contamination (Table 2). The test implicitly suggests that foreign or global shocks are not spuriously captured in our preferred measure of Chinese monetary policy shocks.

	ρ	p-value	Obs.
Gertler and Karadi (2015) monetary	0.03	0.80	108
Baker et al. (2016) EPU	0.13	0.24	130
Bloom (2009) uncertainty	-0.01	0.90	148
Smets and Wouters (2007) monetary	-0.01	0.97	100
Romer and Romer (2010) fiscal	-0.15	0.40	112
Ramey (2011) fiscal	-0.16	0.29	124
Fisher and Peters (2010) fiscal	-0.24	0.14	116
Mertens and Ravn (2013) tax	-0.18	0.35	108
Smets and Wouters (2007) TFP	0.19	0.39	100
Basu et al. (2006) TFP	0.20	0.16	128
Bassett et al. (2014) financial	-0.15	0.30	76
Barsky and Sims (2012) news	-0.06	0.76	111
Beaudry and Portier (2014) news	0.04	0.77	131

Table 2: Correlation with other shocks.

Note. Quarterly data, sample: 2000-2018.

3 Macroeconomic effects

This section illustrates the aggregate implications of monetary policy shocks. Section 3.1 describes the econometric framework. Sections 3.2 and 3.3 describe the domestic and global economic effects of Chinese monetary policy, respectively.

3.1 Econometric Framework

Consider the standard VAR model:

$$\mathbf{y}_t = \mathbf{a} + \mathbf{A}_1 \mathbf{y}_{t-1} + \cdots + \mathbf{A}_p \mathbf{y}_{t-p} + \mathbf{u}_t \tag{4}$$

where p is the lag order, $\mathbf{y}_t$ a $n \times 1$ vector of endogenous variables, $\mathbf{u}_t$ a $n \times 1$ vector of reduced-form innovations with covariance matrix $\mathrm{Var}(\mathbf{u}_t) = \mathit{\Sigma}$, $\mathbf{a}$ is a $n \times 1$ vector of constants, and $\mathbf{A}_1, \ldots, \mathbf{A}_p$ are $n \times n$ matrices.

$\mathbf{u}_t$ is a linear combination of the structural shocks $\boldsymbol{\varepsilon}_t$ under invertibility, meaning

$$\mathbf{u}_t = \mathbf{B}\boldsymbol{\varepsilon}_t \tag{5}$$

$\mathrm{Var}(\boldsymbol{\varepsilon_t}) = \mathbf{\Omega}$ is diagonal as the structural shocks are by construction uncorrelated. $\Sigma = \mathbf{B\Omega B'}$ is typically not diagonal as the reduced-form residuals are usually correlated.

We are interested in estimating the causal impact of a unique shock in the system, i.e., the Chinese monetary policy shock $\varepsilon_{1,t}$. This task involves recovering a single column, $\mathbf{b}_1$, of the impact matrix $\mathbf{B}$.

Underlying the VAR identification via external instruments lies the assumption that the available instrument z_t satisfies:

$$\begin{aligned} \mathbb{E}\left[z_t \varepsilon_{1,t}\right] &= \alpha \neq 0 \qquad \textit{(relevance)} \\ \mathbb{E}\left[z_t \boldsymbol{\varepsilon}_{2:n,t}\right] &= \mathbf{0} \qquad \textit{(exogeneity)} \end{aligned} \tag{6}$$

where $\boldsymbol{\varepsilon}_{2:n,t}$ are the remaining structural shocks distinct from monetary policy. Then $\mathbf{b_1}$ is correctly estimated up to scale and sign as

$$\mathbf{b}_1 = \frac{\mathbb{E}\left[z_t \mathbf{u}_t\right]}{\mathbb{E}\left[z_t u_{1,t}\right]}, \tag{7}$$

Throughout the paper, our baseline estimation consistently employs the monetary policy shocks from Chen et al. (2018, 2023) to instrument the residuals from the M2 equation of the VAR.[3] Nonetheless, we show in Appendix B that our main findings are unchanged if we use the series from Chen et al. (2023) as an internal instrument that does not require the (partial) invertibility assumption (Plagborg-Møller and Wolf, 2021; Miranda-Agrippino and Ricco, 2023). Exploiting monetary policy shocks as an internal instrument amounts to including the series as an endogenous variable in the VAR (instead of Chinese M2), with the series ordered first in a Cholesky decomposition or in a recursive ordering identification.

[3] Galvão (2023) and Miranda-Agrippino et al. (2025) follow a similar approach.

Although our estimates display lower precision in this case, in line with the findings in Li et al. (2024), the results on both the domestic (Figure B1) and global effects (Figure B2) of Chinese monetary policy are very similar to the baseline.

3.2 Domestic macroeconomic effects

Our empirical analysis starts by analyzing the domestic macroeconomic effects of Chinese monetary policy in a VAR model that includes (in logs) M2, real GDP, industrial production, CPI and infrastructure investment, and the renminbi. In terms of first-stage statistics, both the F-stat = 30.0 and the $R^2 = 0.35$ corroborate the strength of the instrument.

Figure 1 displays that a restrictive monetary policy shock, which is normalized as a drop by 1% in M2, negatively impacts real GDP, CPI, and infrastructure investment. Infrastructure investment is the most responsive variable (dropping by 3% after almost 3 years), consistent with the findings in Chen et al. (2023). Consumer prices are, instead, less elastic to monetary policy, falling by 0.5% after 1 year. The renminbi instead appreciates as the quantity of money drops. The transmission of monetary policy to the economy appears markedly delayed, especially if compared to advanced economies, with the lower degree of financial development most likely playing an important role in this heterogeneity (Allen et al., 2017, Hu and Wang, 2022).[4]

[4]This delay is reassuring as it shows that contamination by other fluctuations, to which the monetary authority might respond, is quite unlikely or quantitatively negligible.

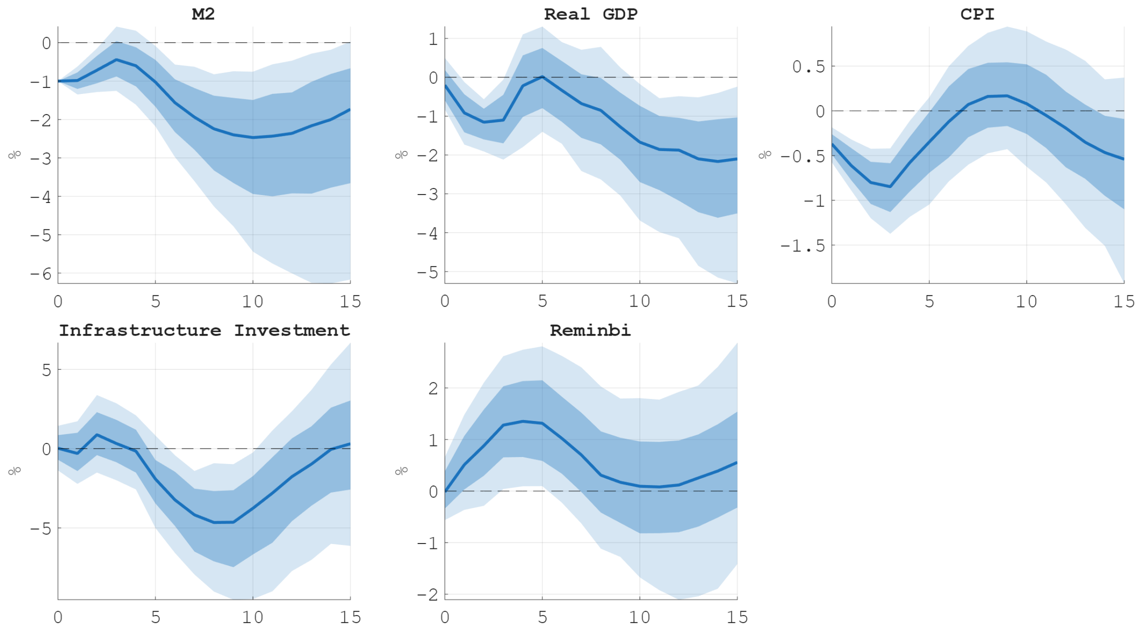


Figure 1: Domestic effects of Chinese monetary policy shocks.

Note. Quarterly data, sample: 2000-2018, point estimate and 68-90% confidence intervals from Proxy-SVAR identification.

3.3 Global Macroeconomic Effects

In this section, we analyze the global effects of Chinese monetary policy within a VAR model that includes Chinese M2, world GDP, commodity prices (aggregate index), the VIX, the Excess Bond Premium (EBP; Gilchrist and Zakrajšek, 2012), and the dollar NEER index. All series enter in logs, except for the EBP.

Figure 2 shows that the international propagation of Chinese monetary policy is delayed in line with the domestic effects. World GDP declines, reaching a trough of almost 1.5% after six quarters. Coincidentally, commodity prices fall by a staggering 10%. This massive effect is likely due to China's role as the world factory (Baldwin, 2024) and to the domestic propagation of Chinese monetary policy through commodity-intensive infrastructure investment (IMF, 2015). The dollar appreciates, mirroring the deterioration of global economic conditions (Georgiadis et al., 2024). Popular measures of the global financial cycle, such as the VIX and the EBP, respond weakly and with a delay. This evidence complements the results in Miranda-Agrippino et al. (2020) and Miranda-Agrippino and Rey (2022), who also highlight a similar pattern by exploiting interest-based Chinese monetary policy shocks. Monetary policy can affect commodity prices via multiple channels (Miranda-Pinto et al., 2023): *i)* a cost of carry channel, where fluctuations in interest rates impact the opportunity cost of storing commodities by altering discount rates; *ii)* a real economy channel, i.e., inducing changes in demand for commodities; *iii)* a liquidity and portfolio channel, i.e., influencing liquidity and trading in physical and derivative markets; *iv)* an exchange rate channel.

The timing and size of the response appear more compatible with financial conditions adjusting to the deterioration of the real economy rather with a direct transmission channel. This evidence reveals a glaring heterogeneity relative to the (international) transmission of US monetary policy, which propagates very rapidly and crucially via the financial channel (Gertler and Karadi, 2015; Miranda-Agrippino and Rey, 2020; Alessandri et al., 2025; Georgiadis et al., 2024). This heterogeneity is also pivotal for the relationship between monetary policies and commodity prices that we investigate next.

Alternative Specifications. The macroeconomic implications of Chinese monetary policy are consistent across several alternative specifications of the domestic and global VARs. First, we include world trade or world industrial production rather than world GDP and observe that the former responds even more than the latter, in line with China's role as a global manufacturing center documented in Baldwin (2024), as shown in Figure B3. Second, we include measures of the US interest rate and find a weak and delayed response to Chinese monetary policy shocks, suggesting that changes in global discount rates are not a key propagation mechanism (Figures B4 and B5). Specifically, the response of the 1-year rate is flat and not statistically significant. The 10-year rate displays a negative short-lived response that would actually imply, according to the cost-of-carry channel, a response of commodity prices opposite to the one observed. Third, similar results hold if we use the commodity factor by Delle Chiaie et al. (2022) instead of a commodity index (Figure B6).

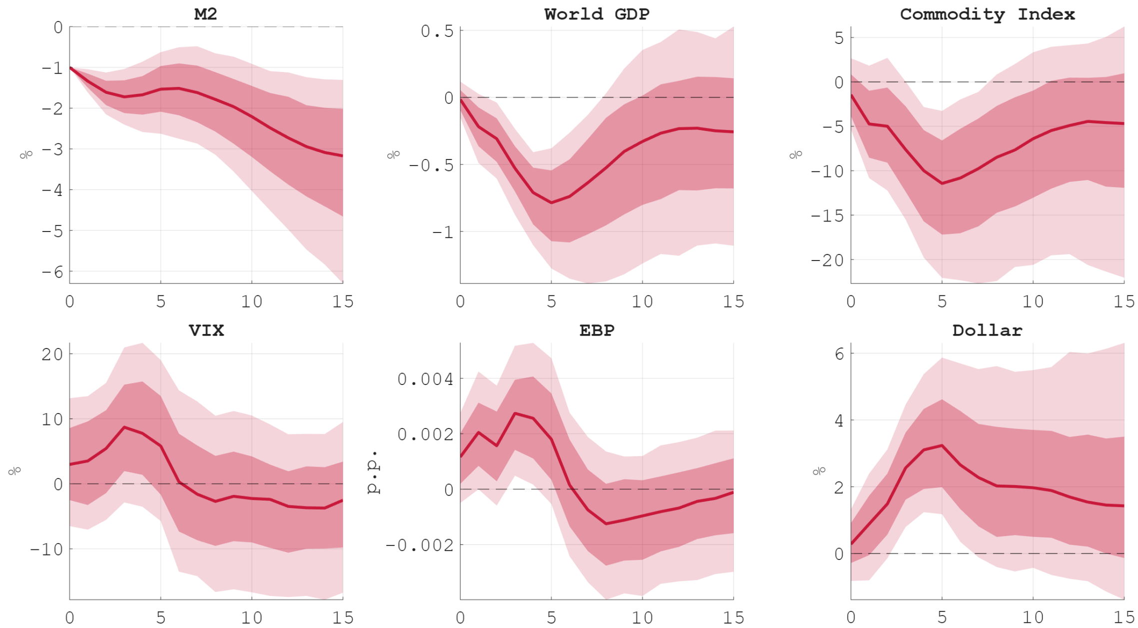


Figure 2: Global effects of Chinese monetary policy shocks.

Note. Quarterly data, sample: 2000-2018, point estimate and 68-90% confidence intervals from Proxy-SVAR identification

4 Effects on commodity prices

We have documented that the response of commodity prices is crucial for characterizing the international spillovers from Chinese monetary policy. In this section, we investigate this channel at a more granular level by employing the VARs described in Section 3.3 but considering more granular commodities than the aggregate index. The VAR includes Chinese M2, world GDP, the commodity price of interest, the VIX, the EBP, and the dollar NEER index. We standardize commodity prices to account for their heterogeneous volatility.[5] Our estimates suggest that Chinese monetary policy shocks elicit a substantial and widespread effect on commodity prices.

An interesting heterogeneity across commodities emerges from our estimates (Figure 3, panel a). *Metals*, *Raw Materials*, and *Energy* indexes are, in this order, the most responsive variables, whereas the *Food* and *Precious Metals* indexes are only marginally affected. The results at this intermediate level of aggregation are partly reminiscent of those in Miranda-

[5]The estimated effects of Chinese monetary policy on commodity prices are similar if we do not normalize commodity prices as in our baseline.

Pinto et al. (2023) on the effects of US monetary policy.[6] However, an important difference characterizes US and Chinese monetary policy. In the US case, the cost of the carry (or discounting) channel is a crucial transmission channel as US monetary policy determines global discount rates by influencing the opportunity cost of commodity storage. In contrast, we argue that Chinese monetary policy propagates via a direct real channel, and discounting does not play an important role. We show that Chinese monetary policy indeed affects US yields only marginally and with a delay (Figures B4-B5). The 10-year rate displays a negative, short-lived response that would imply, according to the cost-of-carry channel, a response of commodity prices in the opposite direction. This pattern appears to be compatible with the endogenous response of interest rates to macroeconomic developments rather than being a direct propagation mechanism of Chinese monetary policy.

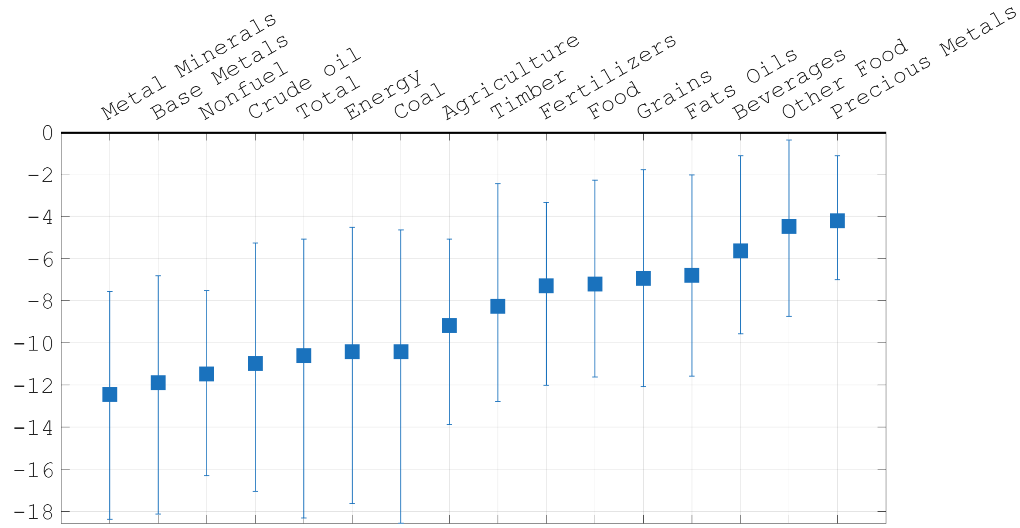
Moving to a more granular breakdown (Figure 3, panel b), industrial metals intensively used in infrastructural investment, such as iron and copper, are heavily affected by Chinese monetary policy. Oil, natural gas and coal prices also respond markedly. Notably, we find that gold and food prices, such as wheat and rice, respond very mildly. All the evidence presented in this section suggests that Chinese monetary policy affects commodity prices via an actual (delayed) demand channel, which is particularly strong due to the stimulus to energy and metal-intensive infrastructure investment.[7] Conversely, US monetary policy transmits very quickly to commodity and asset prices via the financial channel.

Results are similar using the Chinese monetary policy shocks identified in Das and Song (2023). This series offers us the advantage of being available at a daily frequency, although it is based on interest rate changes within an announcement window and only covers a restricted sample.[8] Results in Figure C2 show nonetheless that the responses of commodity prices are qualitatively similar to our baseline in terms of timing and ranking across commodities, ruling out that these features are an artifact of the quarterly frequency of our analysis.

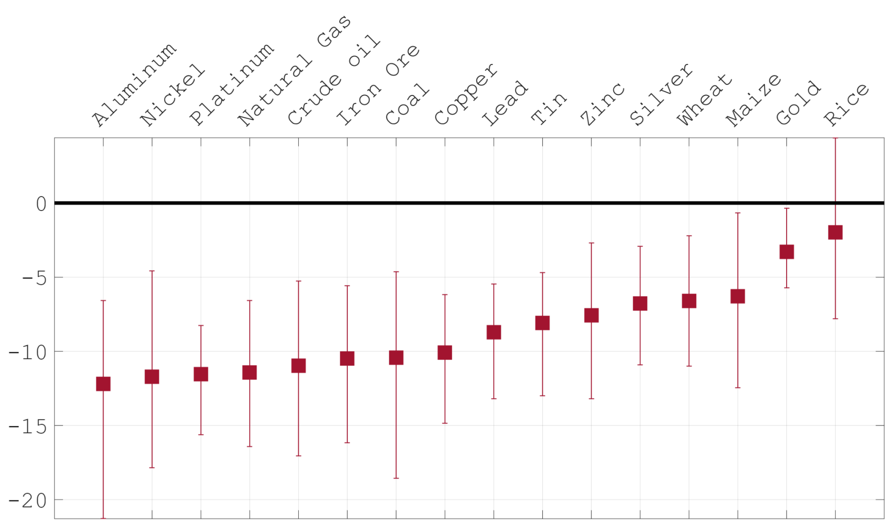
[6]The responses highlight important heterogeneity nonetheless. For instance, precious metals are the second-to-last responsive category in our case. In Miranda-Pinto et al. (2023), their responsiveness is higher, in line with the financial propagation of US monetary policy.

[7]Consistent evidence is also provided by the delayed reaction of commodity prices displayed in Figure C1.

[8]In the case of the Chinese monetary policy setting, this yields a noisier and arguably less reliable series than the quarterly one employed in the baseline.



(a) Indexes



(b) Individual commodities

Figure 3: Response of commodity prices to Chinese monetary policy shocks.

Note. Quarterly data, sample: 2000–2018, point estimate and 68–90% confidence intervals from Proxy-SVAR identification. Mean response of p^{com} *over 16 quarters to a 1% M2 Chinese monetary policy shock.*

5 Spillovers in a simple counterfactual exercise

In this section, we analyze the country-level inflationary spillovers from Chinese monetary policy shocks and quantify the contribution of the commodity channel.[9] Section 5.1 illustrates the econometric framework underlying the counterfactual analysis. Then, we move to the inflationary spillovers (Section 5.2) and to the implications for financing conditions in commodity-exporting EMEs (Section 5.3).

5.1 Econometric Framework

The spillovers are computed according to the standard external instrument VAR framework described in Section 3.1. To gauge the relevance of the commodity channel, we compare the unconditional spillover to a counterfactual case in which commodity prices do not respond to Chinese monetary policy shocks. The exercise is carried out following Bernanke et al. (1997) and Miranda-Pinto et al. (2023). Eq.(8) formally depicts the counterfactual approach in a VAR that includes Chinese M2, commodity prices (p^{com}), and the target variables of interest. Both the impact matrix and the autoregressive coefficients are set to 0 to prevent any response of commodity prices to Chinese monetary policy. The relative simplicity of this exercise allows us to include all three main categories of commodities (energy, metals, and agriculture) simultaneously, and, hence, precisely capture countries' exposure to commodities.

The target variables are the country-specific producer price indexes (PPI) and consumer price indexes (CPI). Finally, we also analyze the financing costs of commodity-exporting EMEs on international markets, which are proxied by the J.P. Morgan Emerging Markets Bond Index (EMBI) spread.

$$\begin{bmatrix} M2_t \\ p_t^{com} \\ target_t \end{bmatrix} = \sum_{j=1}^{p} \begin{bmatrix} a_{1,1} & a_{1,2} & a_{1,3} \\ 0 & 0 & 0 \\ a_{3,1} & a_{3,2} & a_{3,3} \end{bmatrix} \begin{bmatrix} M2_{t-j} \\ p_{t-j}^{com} \\ target_{t-j} \end{bmatrix} + \begin{bmatrix} b_{1,1} & b_{1,2} & b_{1,3} \\ 0 & b_{2,2} & b_{2,3} \\ b_{3,1} & b_{3,2} & b_{3,3} \end{bmatrix} \begin{bmatrix} \varepsilon_{1,t} \\ \varepsilon_{2,t} \\ \varepsilon_{3,t} \end{bmatrix} \tag{8}$$

[9] From a policy perspective, there is a great interest in gauging the spillovers from Chinese economic developments to the rest of the global economy (some recent examples are Di Sano et al., 2023; Akinci et al., 2024). However, this task is empirically challenging due to the difficulties in disentangling Chinese-specific shocks from foreign or global economic fluctuations. In our case, identifying Chinese monetary policy shocks offers a solution to this challenge.

5.2 Inflationary effects

We focus on inflationary spillovers, for which commodity prices can play a large role, by estimating a set of country-specific VARs. We employ the global database compiled by Ha et al. (2023), which provides extensive data coverage of consumer and producer prices.[10] We focus on major countries (mainly G20 countries, with other significant economies) whose data are available for the whole sample 2000-2018. To capture the heterogeneous roles of different types of commodities and the differential exposure of countries to them, we include an energy commodity index, a metals commodity index, and an agricultural commodity index. The country-specific target variables are PPI (Figure 4), headline CPI (Figure D1), and energy CPI (Figure D2). The spillovers are measured as the peak responses of the variables over four years. The unconditional spillovers are denoted in blue, while the counterfactual spillovers without the commodity price response are in orange.

PPIs are more directly exposed to inflationary shocks than CPI, as firms are affected and can then decide to pass through the increased prices to consumers or compress their margins. For this reason, the unconditional spillovers measured via PPI are structurally larger than those to CPI. Energy CPI spillovers are also sizable and comparable to PPI. Chinese monetary policy affects inflation across the board, but its effects are quite heterogeneous both across countries and across price measures.

5.2.1 The Commodity Channel

The difference between unconditional and counterfactual spillovers yields the quantitative relevance of the commodity channel for the international transmission of Chinese monetary policy shocks. The channel is extremely meaningful for PPI, CPI, and energy CPI. We uncover a pronounced heterogeneity across advanced and emerging economies. For the PPI, the commodity price channel explains 71% of total spillovers in advanced economies, which are often commodity importers, whereas it is lower for EMEs (39%), which are often commodity exporters. A similar pattern characterizes the headline CPI spillovers, although the channel is generally smaller than for PPI. The comparison between the estimates for the headline and energy CPI is quite insightful. The commodity channel plays a similar role for these two variables when evaluated across all economies (39%), but for CPI, the heterogeneity between advanced economies (68%) and EMEs (18%) is unmistakable. EMEs are often exporters of fossil fuels, and firms and households in these countries can often employ energy inputs

[10]In the baseline, we do not normalize consumer/producer prices. By construction, the normalization does not alter the relevance of the commodity channel but can affect the overall spillovers. If we estimate the inflationary spillovers on normalized price levels (Figures D3-D5), the spillovers to countries with more stable price levels (such as Japan and European countries) increase relative to those for other countries.

cheaply at subsidized prices. Conversely, advanced economies often import fossil fuels, and this dependence appears to amplify the commodity channel of Chinese monetary policy. This commodity channel is particularly important for European economies, which depend heavily on imported commodities. Among the big four European countries (France, Germany, Italy, and Spain), we find that spillovers from Chinese monetary policy would be virtually zero in the absence of the commodity channel. This pattern is glaring for the PPI, but also holds for headline and energy CPI.

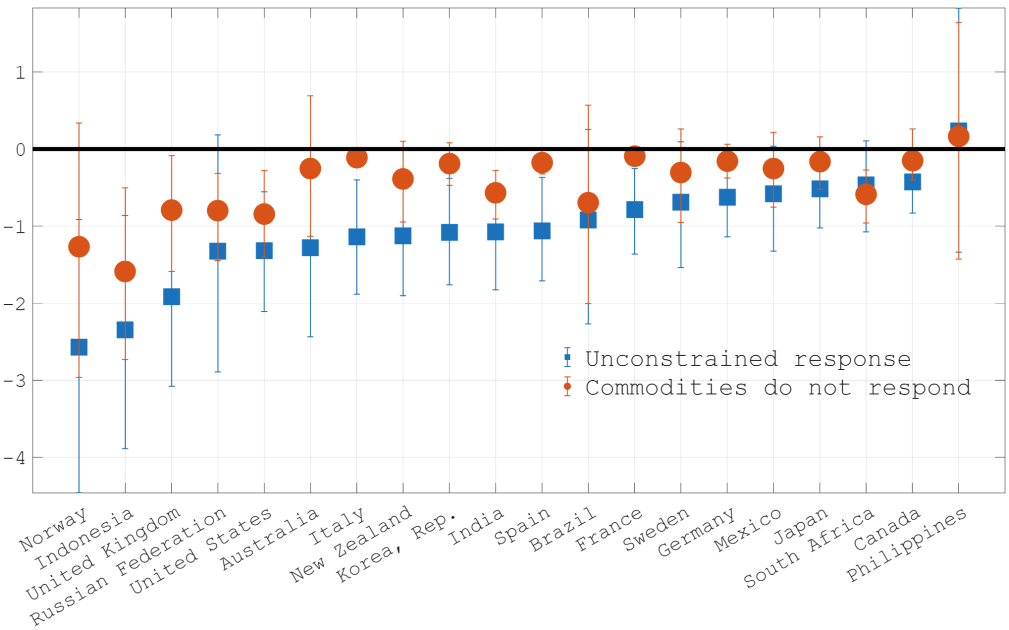


Figure 4: PPI spillovers from Chinese monetary policy shocks

Note. Spillovers to PPI of foreign economies (peak response over 16 quarters). Blue: commodity channel active. Orange: commodity channel shut-down. Quarterly data, sample: 2000-2018, 90% confidence intervals

	All countries	Advanced	EMDEs
PPI	51.6%	70.5%	39.3%
Headline CPI	39.5%	54.5%	36.6%
Energy CPI	39.1%	68.4%	18.7%

Table 3: Commodity price channel - summary

Note. Mean contribution of the commodity price channel to the spillovers generated by Chinese monetary policy shocks by variable and country group.

5.2.2 Commodity channel and commodity exposure

We further examine the role of dependence on commodity imports in advanced economies. The commodity channel of Chinese monetary policy can affect foreign economies directly through fluctuations in the prices of imported commodities.[11] Additionally, varying commodity prices could transmit indirectly via second-round (general equilibrium) effects, for instance, within global value chains (Antràs and Chor, 2013). We correlate the relevance of the commodity channel of Chinese monetary policy with a measure of commodity dependence from abroad. We measure the latter as the ratio of the value of commodity imports to GDP, averaged over the 2000-2018 sample.[12] This correlation indirectly estimates the relevance of the direct exposure mechanism described above. Figure 5 reports the results for PPI, headline, and energy CPI. Commodity exposure accounts for almost half of the overall commodity channel in the case of PPI, more than one-third in the energy CPI, and more than one-fourth in the headline CPI. Crucially, the correlation is most visible for the *European Big Four* for all three variables.

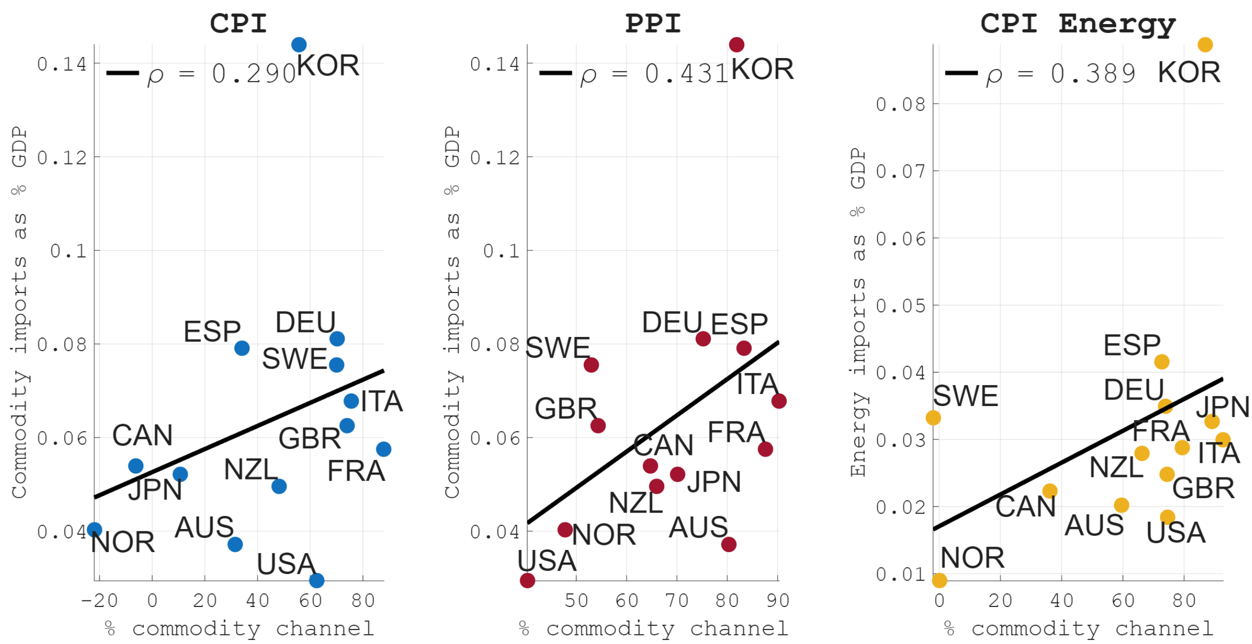


Figure 5: Commodity channel and commodity exposure

Note. Correlation between the commodity channel of Chinese monetary policy and commodity exposure from abroad.

5.3 Financing conditions in commodity-exporting EMEs

Finally, we examine whether the commodity channel of Chinese monetary policy affects financing conditions in EMEs. An extensive literature emphasizes the role of commodity

[11] Table A1 reports the HS commodity codes used to compute country commodity exposure.

[12] The data for the value of commodity imports come from Trade Data Monitor; for GDP from the World Bank. We restrict to energy imports instead of global commodity imports when analysing the relation with CPI energy.

terms of trade in determining financing conditions for commodity-exporting EMEs (see the recent contributions in Juvenal and Petrella, 2024; Gazzani et al., 2025). For this reason, we investigate whether the Chinese monetary policy shocks affect EMEs' financing conditions and assess the role of the commodity channel.

We measure EMEs' international financing conditions using the EMBI spread and we track the primary commodities each country exports.[13] For each country, we include Chinese M2, instrumented with the monetary policy shocks, EMBI spread, and the price of the main commodities exported. The results in Figure 6 show that several EMEs are affected by Chinese monetary policy, and the transmission via commodity prices is key. For instance, Chile's EMBI spread rises by about 150 basis points after a Chinese contractionary monetary policy shock. Notably, by shutting down the commodity channel (copper price), the response of EMBI spread becomes totally muted. Regarding the cross-sectional average, the commodity price channel explains about 44% of the total spillovers to EMEs' EMBI spreads. We assess whether direct exposure to commodity exports, as a percentage of domestic GDP, matters for the size of the commodity channel of Chinese monetary policy. Figure 7 reports a large correlation between the two measures (0.72), suggesting that commodity exporters are directly hit by Chinese monetary policy transmitted via commodity prices.[14]

[13] The EMBI spread measures the risk premium investors demand for holding debt from EMEs and is defined as the difference between the yield paid by EME's government bonds and those offered by the U.S. Treasury bonds. Countries for which the EMBI spread is unavailable are excluded from the analysis. For the commodities exported by each country, our primary source of information is Cárcamo-Díaz (2019).

[14] Figure C3 shows nonetheless that the responses of commodity prices and EMBI spread are qualitatively similar to our baseline and strongly delayed, ruling out that these features are an artifact of the quarterly frequency of our analysis.

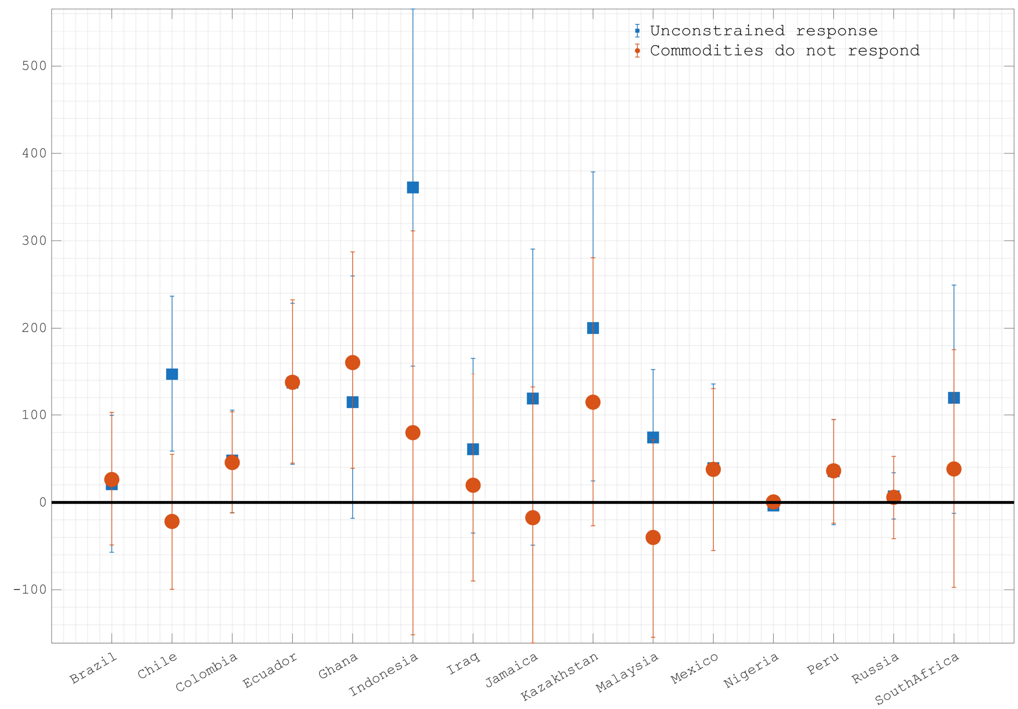


Figure 6: Effect of Chinese monetary policy shocks on EMEs financing cost

Note. Spillovers to EMBI of foreign economies (peak response over 16 quarters). Blue: commodity channel active. Orange: commodity channel shut-down. Quarterly data, sample: 2000-2018, 90% confidence intervals

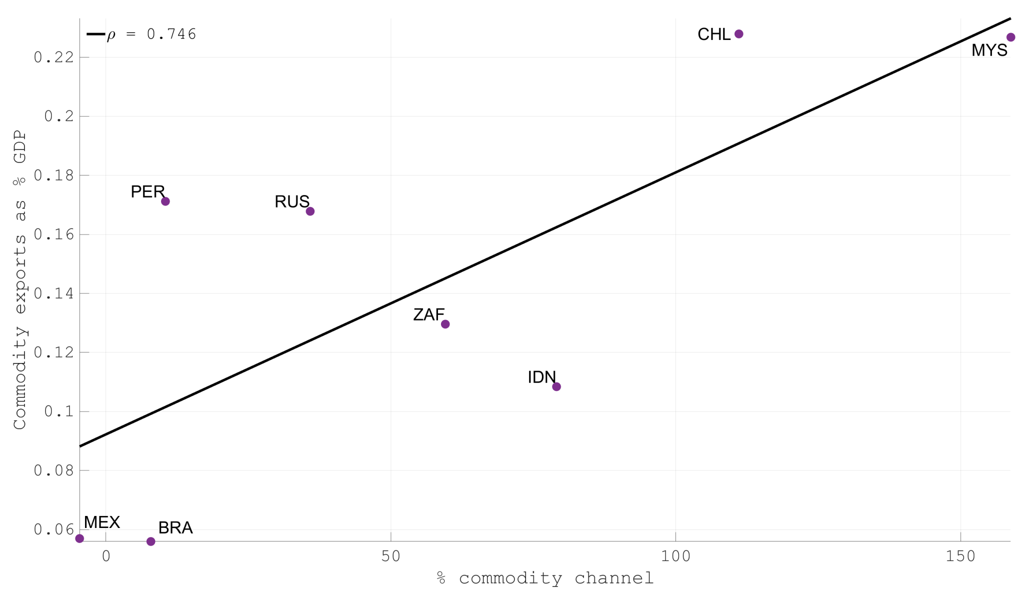


Figure 7: Commodity channel and commodity exposure

Note. Correlation between the commodity channel of Chinese monetary policy and commodity exports out of GDP.

6 Sophisticated counterfactual analysis

The simple method described in Section 5.1 enables us to examine a wide range of commodities in the transmission of Chinese monetary policy shocks. However, that methodology is not robust to the Lucas critique because, intuitively, some VAR parameters are constrained to zero while others are held fixed. In this section, we implement a more sophisticated and Lucas-critique-robust counterfactual analysis following McKay and Wolf (2023).

This method works in the "IRF space" and relies on other structural shocks to construct the counterfactual. Unlike previous methods, we hit the system at horizon $h = 0$ such that economic agents are not systematically surprised.
The counterfactual impulse response function, $\mathbf{\Theta}_h^{\text{mp}^*}$, is constructed from the unconditional IRF, $\mathbf{\Theta}_h^{\text{mp}}$, adjusted by the IRF of an offsetting shock, $\mathbf{\Theta}_h^x$, scaled by $\hat{s}$:

$$\mathbf{\Theta}_h^{\text{mp}^*} = \mathbf{\Theta}_h^{\text{mp}} + \mathbf{\Theta}_h^x \, \hat{s}. \tag{9}$$

The scaling factor $\hat{s}$ is chosen to minimize the response of the target variable (in our case, the response of commodity prices to the monetary policy shock $\Theta^{pcom,mp}$ net of the stabilizing effect of the offsetting shock $\Theta^{pcom,x}$) to the monetary policy shock over a given horizon H:

$$\hat{s} = \arg\min_s \sum_{h=0}^{H} \left(\Theta_h^{pcom,mp} + \Theta_h^{pcom,x} s\right)^2 \tag{10}$$

For this exercise, we use the full VAR system from our aggregate analysis but include an aggregate commodity price index – rather than the disaggregated indexes, due to the relative scarcity of global commodity-specific shocks – and the bilateral exchange rate against the US dollar. We are effectively allowing other channels, distinct from the commodity one, to play a role in the inflationary spillovers because exchange rates respond to all fluctuations.

Given the scarcity of identified commodity-specific shocks in the literature, we construct the counterfactual using an oil supply shock from Baumeister and Hamilton (2019) and an oil supply news shock from Känzig (2021) as the offsetting shocks. This exercise effectively answers the question: "What if oil producers had intervened to stabilize commodity prices in response to the Chinese monetary policy shock?"

Figure 8 shows the impulse responses for the US, illustrating how the counterfactual (in orange) effectively shuts down the commodity price response and, consequently, mutes the PPI response.[15] Figure 9 summarizes the peak PPI responses for all countries, similar to the

[15] We rely on 68% confidence intervals given that this exercise is methodologically much more demanding and our sample is relatively short.

analysis in Section 5.

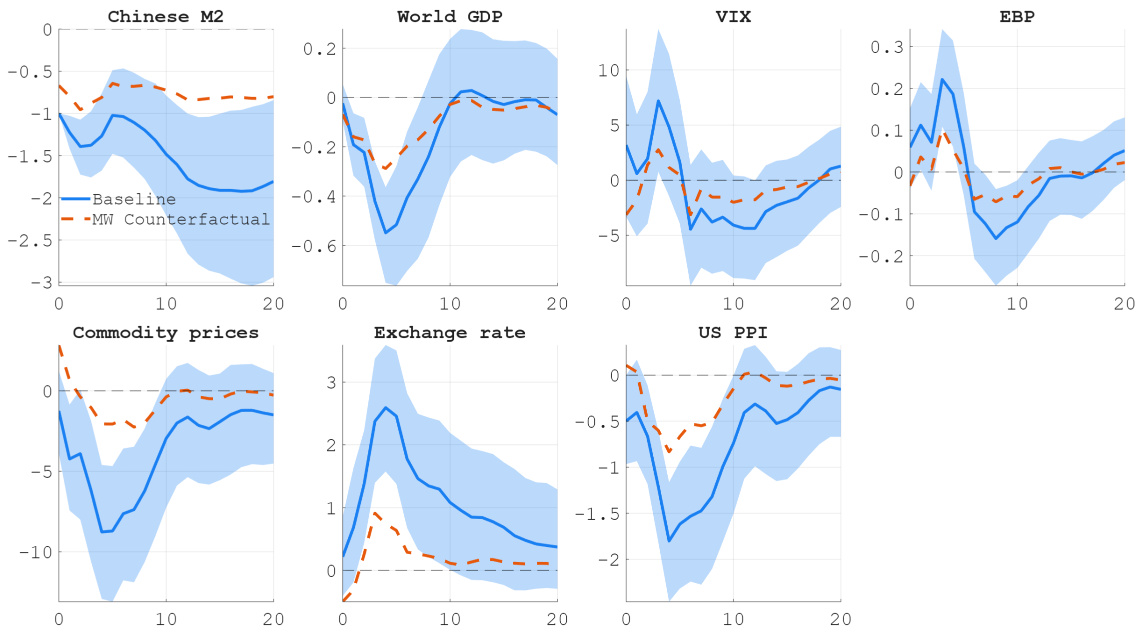


Figure 8: McKay-Wolf Counterfactual IRFs for the US

Note. Quarterly data, sample: 2000-2018, 68% confidence intervals. Unconditional response (blue) vs. Counterfactual response (orange) with the commodity channel shut down.

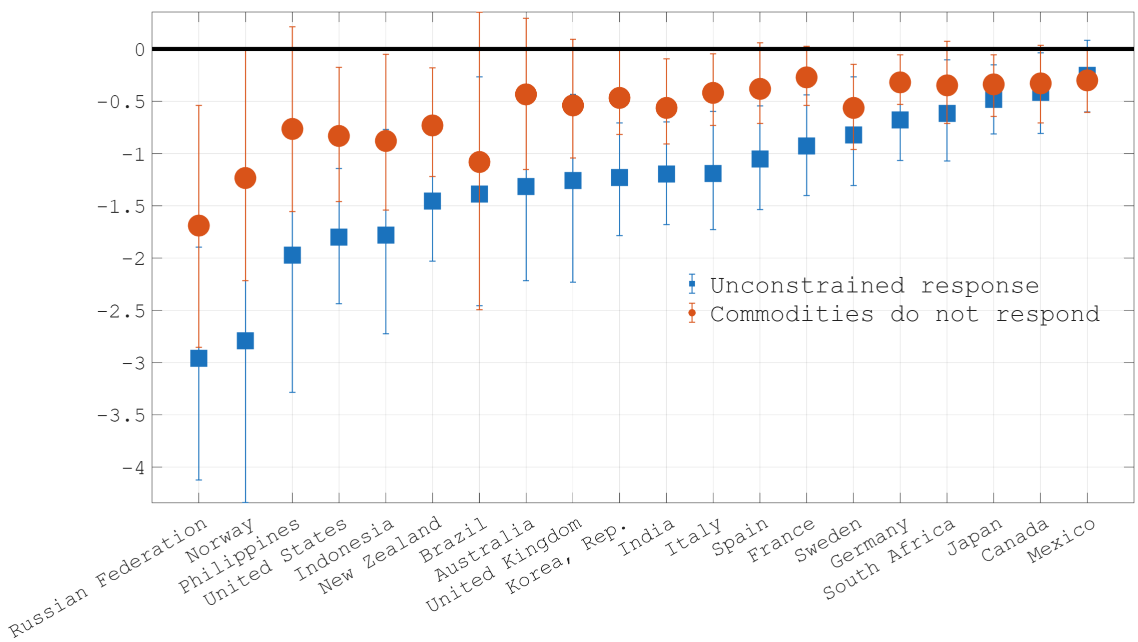


Figure 9: McKay and Wolf (2023) Counterfactual - PPI Spillovers

Note. Spillovers to PPI of foreign economies (peak response over 16 quarters). Blue: commodity channel active. Orange: commodity channel shut-down. Quarterly data, sample: 2000-2018, 68% confidence intervals.

Table 4 provides a full summary of the mean contribution of the commodity channel using this sophisticated method. Quantitative differences emerge with respect to Table 3, as employing oil supply shocks as offsetting force tilts the spillovers towards energy, while diminishing the more general effects on CPI and PPI.[16] Nonetheless, the qualitative insights and conclusions from the two exercises are consistent. The commodity channel is a crucial mechanism for the international transmission of inflationary spillovers from Chinese monetary policy. We also find similar results for headline CPI (Figure E1) and energy CPI (Figure E2) in the Appendix.

	All countries	Advanced	EMDEs
PPI	38.3%	49.7%	30.8%
Headline CPI	36.5%	32.6%	37.3%
Energy CPI	55.0%	58.3%	52.7%

Table 4: McKay and Wolf (2023) Counterfactual - Commodity Channel Summary
Note. Mean contribution of commodity price channel to the spillover, by variable and country group, using the McKay-Wolf (2023) method.

7 Conclusions

This paper documents that Chinese monetary policy generates sizable spillovers to the global economy, driven by a real demand channel that stands in stark contrast to the financial channel characterizing US monetary policy. We show that Chinese policy shocks propagate primarily through a massive response in commodity prices, a feature rooted in China's unique institutional framework. Specifically, the monetary-fiscal nexus in China directs liquidity toward commodity-intensive infrastructure investment. Our granular analysis confirms that industrial metals, raw materials, and energy inputs—the building blocks of infrastructure—are the most responsive to these policy shifts.

Crucially, we quantify the international reach of this mechanism. In advanced economies, particularly the largest European countries, the commodity channel accounts for more than half of inflationary spillovers, underscoring their vulnerability to Chinese demand shocks due to their import dependence. In emerging markets, the impact manifests through financing conditions for commodity-exporters, which tighten or ease in lockstep with the commodity cycle.

[16]For instance, the commodity channel's estimated contribution to Energy CPI spillovers in EMDEs nearly triples (from 18.7% to 52.7%), while its contribution to PPI spillovers in advanced economies falls substantially (from 70.5% to 49.7%)

These findings highlight a critical lesson for policymakers and researchers: the institutional context matters. Treating Chinese monetary policy through the lens of standard models designed for advanced economies risks missing its primary transmission mechanism. As China's global footprint grows, understanding the specific fiscal-monetary interactions that drive its economy is essential for accurately gauging its impact on the rest of the world. As of today, the transmission via commodity prices is crucial for assessing the international effects of shocks originating in China.

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Online Appendix

A Data

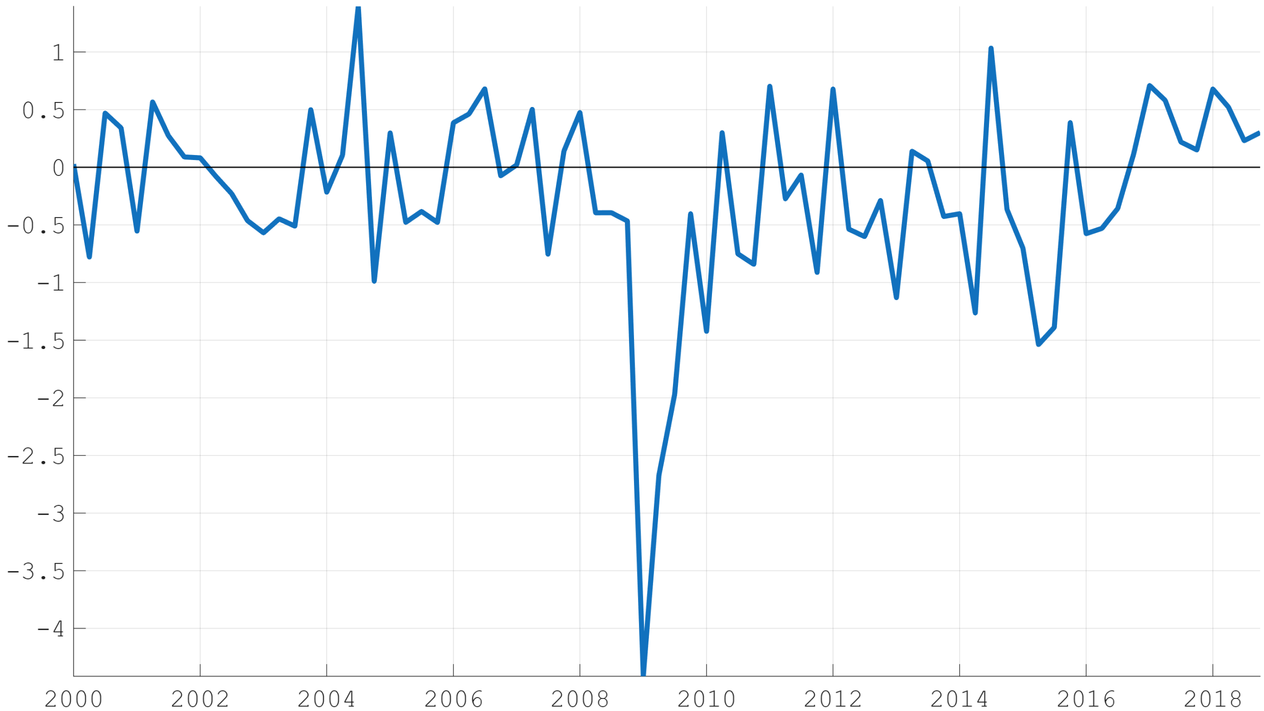
This appendix provides detailed definitions and sources for the variables employed in the empirical analysis. The dataset is constructed at a quarterly frequency covering the period 2000:Q1 to 2018:Q4.

A.1 Monetary policy shocks

We employ the monetary policy shock series identified by Chen et al. (2018) and updated in Chen et al. (2023). Unlike standard Taylor-rule residuals used for advanced economies, this series reflects China's quantity-based monetary framework in effect during the sample period. The shocks are estimated as the residuals from a reaction function in which the People's Bank of China (PBC) sets the growth rate of M2 ($g_{m,t}$) in response to inflation gaps and output growth gaps. Crucially, the identification strategy accounts for the institutional feature that the PBC's response is asymmetric: the central bank reacts more aggressively when growth falls below the government's target than when it exceeds it. The series is structurally distinct from global shocks; as shown in Table 2, it displays negligible correlation with US monetary policy, TFP, or uncertainty shocks. Figure A1 plots the quarterly Chinese monetary policy shock series from Chen et al. (2023), which is transformed such that positive values indicate a contractionary monetary policy shock (i.e., a smaller-than-expected M2 growth).

For the high-frequency robustness checks in Appendix C, we utilize the daily monetary policy shocks from Das and Song (2023). These are constructed using changes in interest rates (Repo rates and SHIBOR) around PBC announcement windows.

Figure A1: Chinese Monetary Policy Shocks



Note. Quarterly data, sample: 2000-2018

A.2 Macroeconomic, financial, and commodity data

Macroeconomic data. Regarding real economic activity, official Chinese GDP figures are often criticized for excessive smoothness. We therefore employ the reconstructed GDP series from Barcelona et al. (2022) that provides a more volatile and realistic representation of the Chinese business cycle. To capture monthly dynamics in production and trade, we utilize the series for Chinese industrial production and merchandise import volumes from the *World Trade Monitor*, compiled by the CPB Netherlands Bureau for Economic Policy Analysis. All the remaining series are from Chen et al. (2018, 2023, 2024).

Commodity prices. We utilize commodity price indexes sourced from the World Bank *Pink Sheet* database, focusing on the "Energy", "Non-Energy", "Metals and Minerals", "Agriculture", and "Precious Metals" indexes. For the granular analysis presented in Figure 3, we employ US dollar prices for individual commodities, including Brent Crude, Coal (Australian thermal), Natural Gas Index, Copper, Aluminum, Iron Ore, Nickel, Zinc, Wheat, Rice, and Gold. For all series, we take the quarterly average of the monthly raw observations. Standardizing commodities prices respond in a similar way to non-standardized commodity prices.

Inflation data. To estimate international spillovers, we rely on the "A One-Stop Source for Inflation" database constructed by Ha et al. (2023) (World Bank). This dataset offers methodologically consistent price series across a wide panel of countries. We utilize three specific measures: the Producer Price Index (PPI), which measures the average change over time in the selling prices received by domestic producers and serves as our primary measure for gauging the direct transmission of commodity shocks; the Headline Consumer Price Index (CPI); and the Energy CPI, a sub-component of the basket specifically tracking energy costs (fuel, electricity, gas), which is crucial for disentangling the direct pass-through of energy commodity shocks.

Financing conditions in EMEs. Financing conditions in Emerging Market Economies (EMEs) are proxied using the J.P. Morgan EMBI Global Diversified spreads. To control for the global financial cycle, we employ the VIX (CBOE Volatility Index) to measure global risk aversion and the Excess Bond Premium (EBP) from Gilchrist and Zakrajšek (2012) to measure US credit supply shocks.

A.3 Country-Specific exposure to commodities

Table A1 provides the list of Harmonized System (HS) commodity codes used to construct the measures of commodity import and export exposure for individual countries. These exposure measures are used in the scatter plots in Section 5.2 (Figure 5) and Section 5.3 (Figure 7) to show the cross-country relationship between commodity dependence and the strength of the commodity channel.

Code	Description
0102	Bovine animals; live
0103	Swine; live
0104	Sheep and goats; live
0105	Poultry; live
02	Meat and edible meat offal
03	Fish and crustaceans, molluscs and other aquatic invertebrates
09	Coffee, tea, mate and spices
10	Cereals
12	Oil seeds and oleaginous fruits
13	Lac; gums, resins and other vegetable saps and extracts
17	Sugars and sugar confectionery
18	Cocoa and cocoa preparations
2401	Tobacco, unmanufactured; tobacco refuse
26	Ores, slag and ash
27	Mineral fuels, mineral oils and products of their distillation;
31	Fertilizers
4001	Natural rubber
4401	Fuel wood
5001	Silk-worm cocoons suitable for reeling
5002	Raw silk
5101	Wool, not carded or combed
5201	Cotton; not carded or combed
7106	Silver; unwrought or in semi-manufactured forms, or in powder form
7108	Gold; unwrought or in semi-manufactured forms, or in powder form
7110	Platinum; unwrought or in semi-manufactured forms, or in powder form
72	Iron and steel
73	Iron or steel articles
74	Copper and articles thereof
75	Nickel and articles thereof
76	Aluminium and articles thereof
78	Lead and articles thereof
79	Zinc and articles thereof
80	Tin and articles thereof

Table A1: List of HS commodity codes

Note. List of commodity items used to compute commodity exposure. Full description of each HS code available upon request.

B Additional results on macroeconomic effects

This appendix provides supplementary material for Section 3 such as estimating the IRFs using an internal instrument strategy and several alternative specifications of the baseline VAR model.

B.1 Internal Instrument Identification

Figures B1 and B2 test an alternative identification strategy by using the shock series as an internal instrument (i.e., included in the VAR and ordered first) instead of an external one. The results for both domestic (Figure B1) and global (Figure B2) effects are qualitatively and quantitatively similar to the baseline, confirming the robustness of the identification choice.

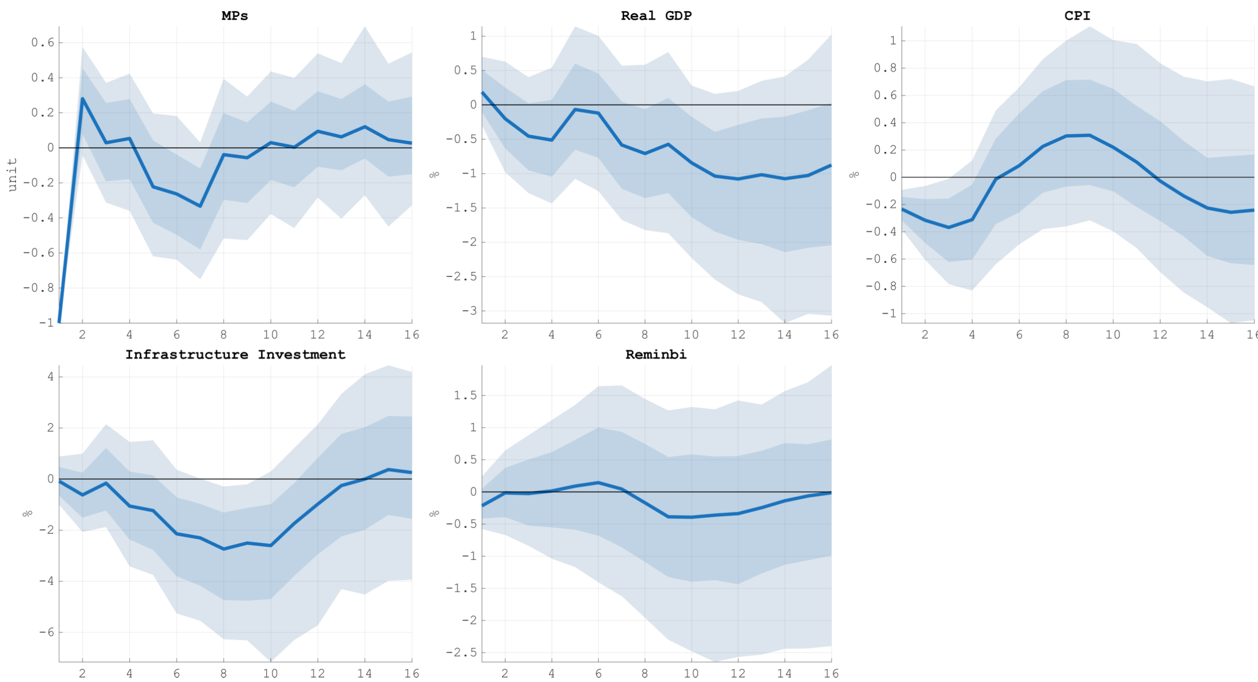


Figure B1: Domestic effects of Chinese monetary policy - internal instruments identification

Note. Quarterly data, sample: 2000-2018, 68-90% confidence intervals. Comparable to baseline Figure 1.

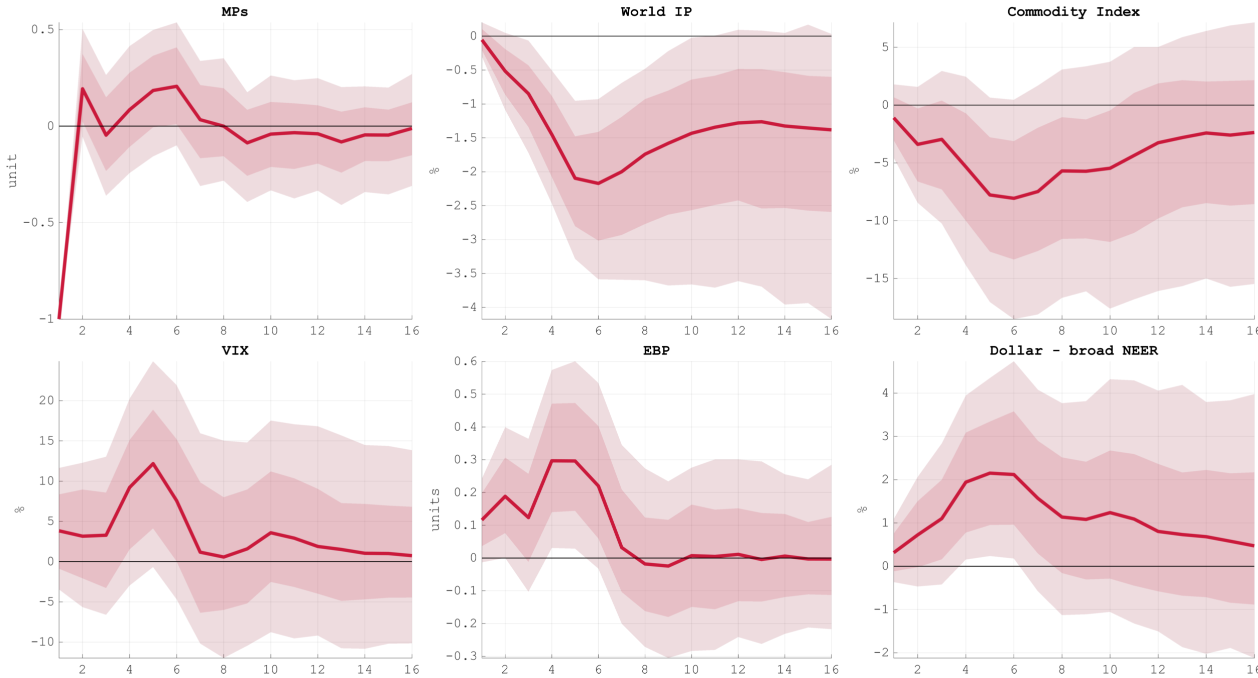


Figure B2: Global effects of Chinese monetary policy - internal instruments identification

Note. Quarterly data, sample: 2000-2018, 68-90% confidence intervals. Comparable to baseline Figure 2.

B.2 Alternative VAR Specifications

Figures B3 through B6 test the robustness of the global VAR (Figure 2) to alternative specifications. Figure B3 shows that world trade responds even more strongly than world industrial production. Figures B4 and B5 show that US interest rates respond weakly and with a delay, providing key evidence against a financial cost-of-carry channel. Figure B6 shows that results are robust to using a common commodity factor (Delle Chiaie et al., 2022).

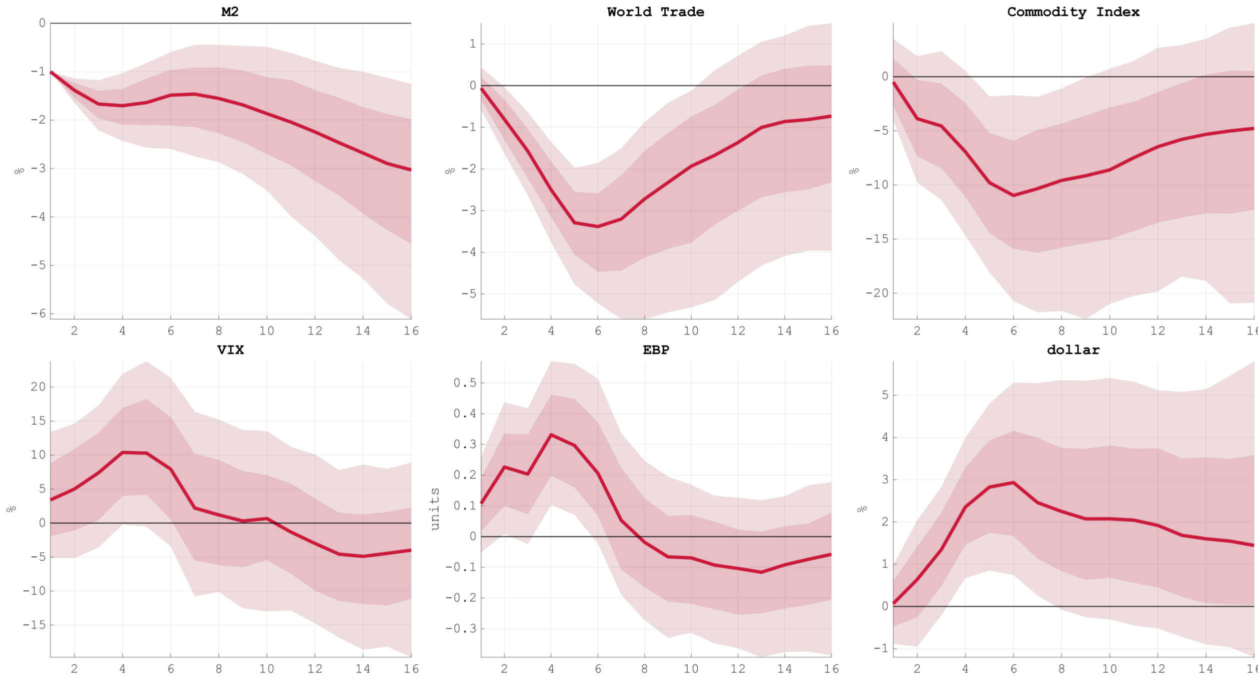


Figure B3: Global effects of Chinese monetary policy - world trade

Note. Quarterly data, sample: 2000-2018, 68-90% confidence intervals.

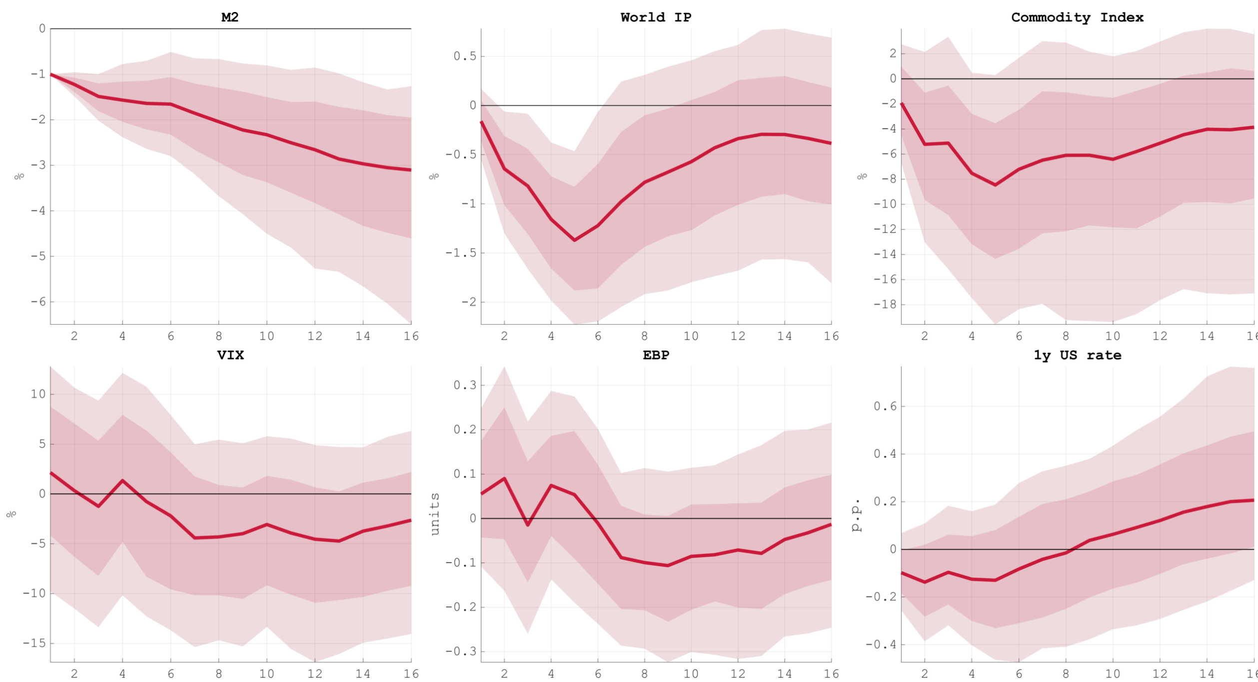


Figure B4: Global effects of Chinese monetary policy - 1y US rate

Note. Quarterly data, sample: 2000-2018, 68-90% confidence intervals.

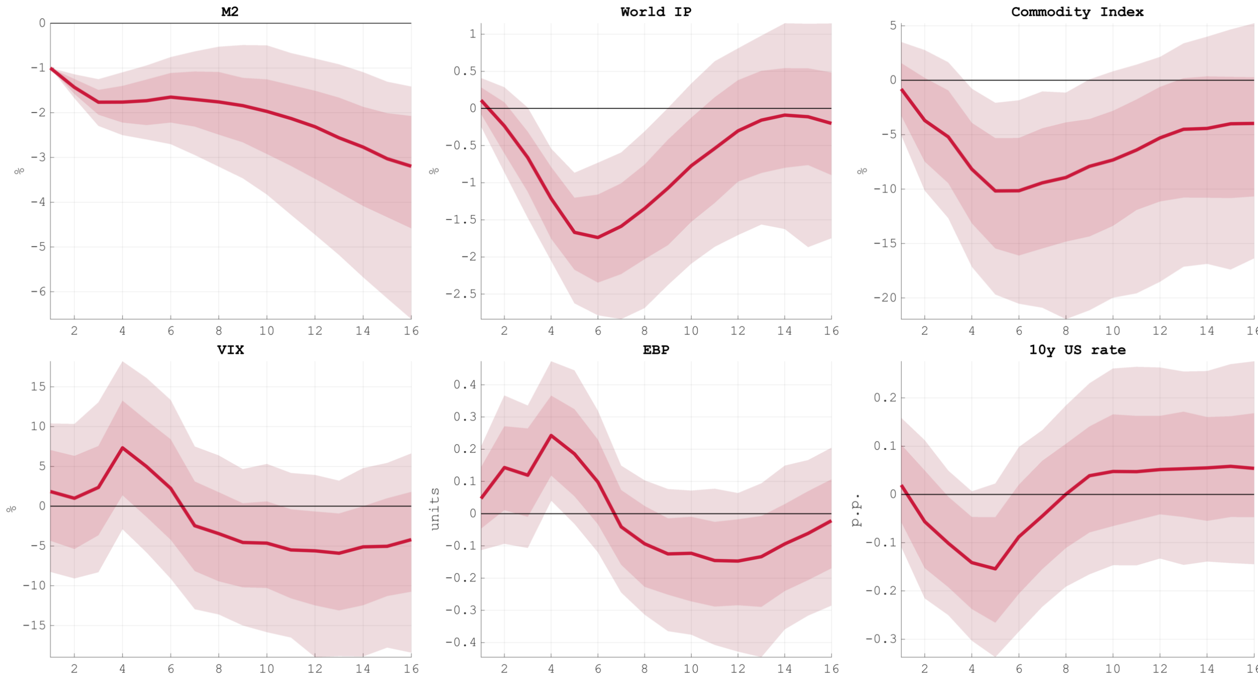


Figure B5: Global effects of Chinese monetary policy - 10y US rate

Note. Quarterly data, sample: 2000-2018, 68-90% confidence intervals.

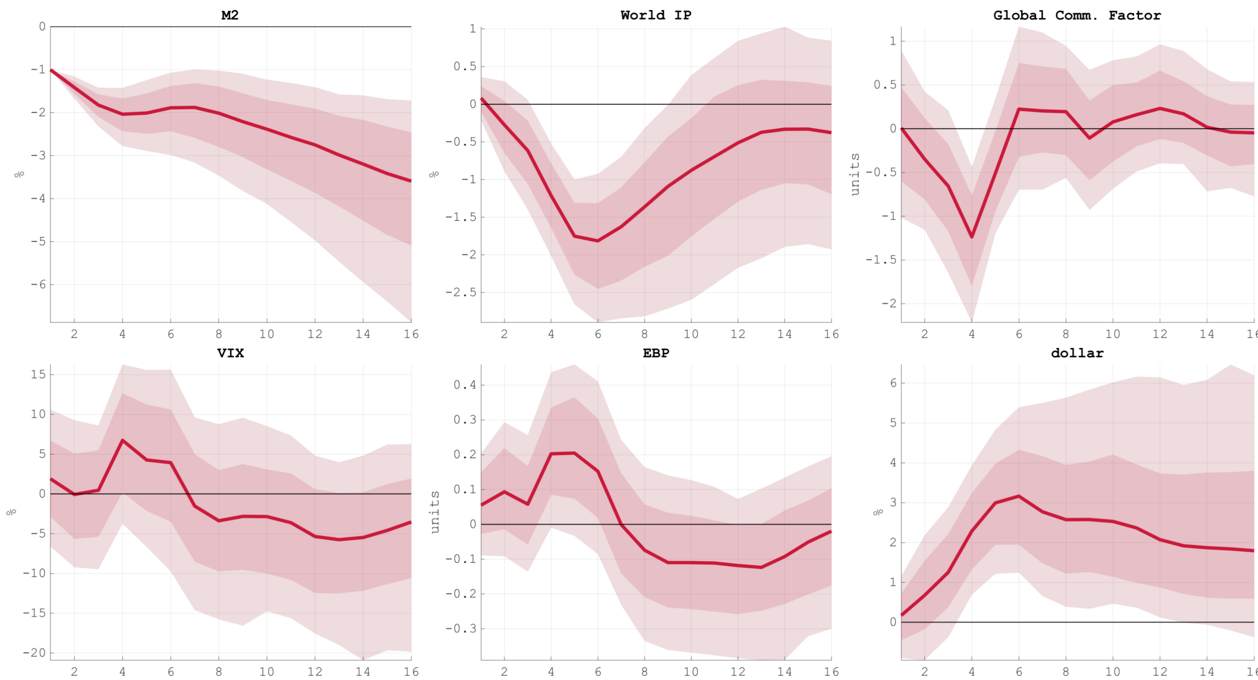


Figure B6: Global effects of Chinese monetary policy - commodity factor

Note. Quarterly data, sample: 2000-2018, 68-90% confidence intervals.

C Additional results on the response of commodity prices

This section provides granular evidence on commodity price dynamics. Figure C1 plots the full impulse response functions for the aggregated commodity sub-indexes, complementing the peak-response scatter plots found in the main text. The responses confirm that industrial inputs (Metals, Energy) display a persistent, hump-shaped reaction consistent with a real-demand transmission channel.

To rule out the possibility that the delayed response is an artifact of temporal aggregation in quarterly data, we employ daily data and high-frequency identification. Figure C2 reports Local Projections of daily commodity prices on the daily monetary policy shocks from Das and Song (2023). The daily responses confirm a sluggish reaction profile, further supporting the hypothesis that Chinese monetary policy transmits via real economic activity rather than immediate financial market repricing. Similarly, Figure C3 confirms that the risk premia in Emerging Markets (EMBI) also react with a delay, mirroring the commodity price dynamics.

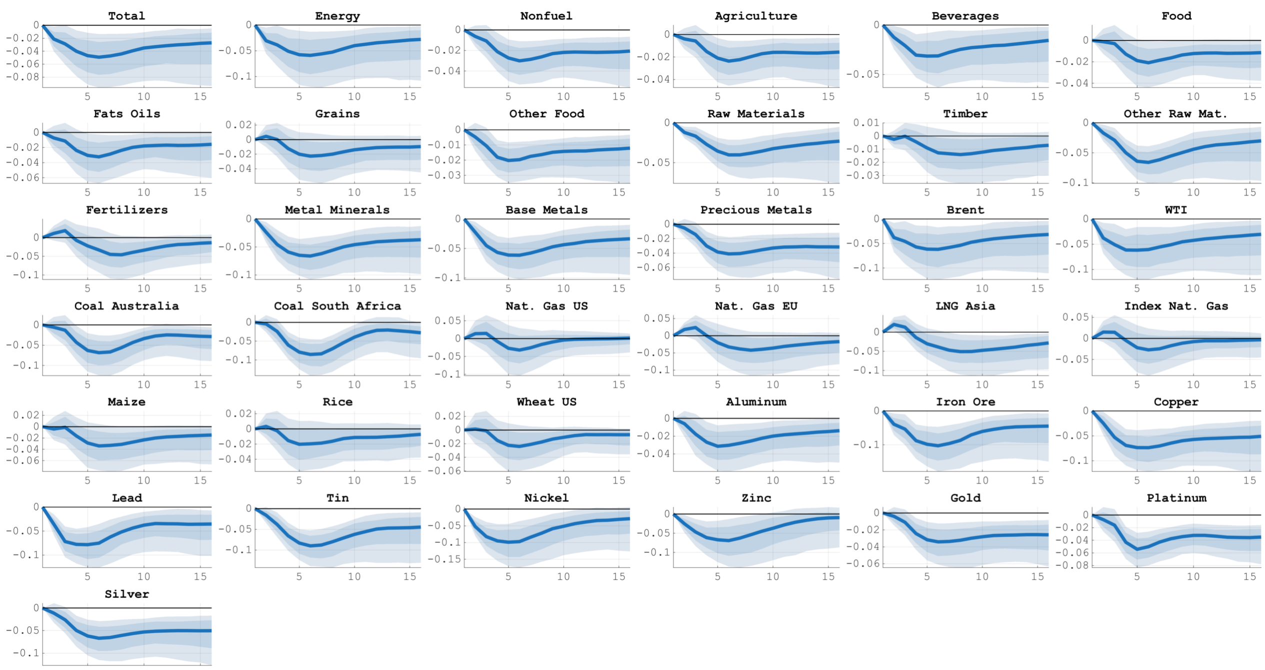


Figure C1: IRFs of individual commodities

Note. This figure provides the full impulse response functions (IRFs) for the commodity price indexes, supplementing the peak-response summary in Figure 3. The responses for Metals, Raw Materials, and Energy build over several quarters, supporting the paper's hypothesis of a delayed, real-side transmission channel.

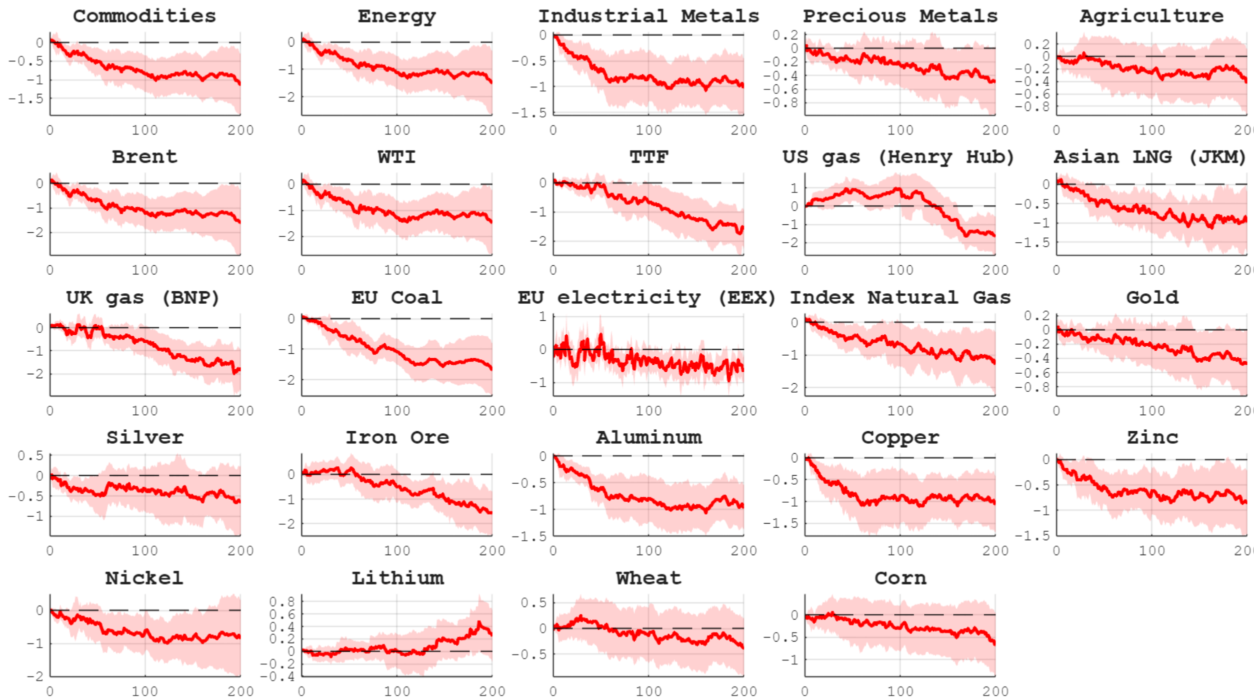


Figure C2: Daily response of commodity prices

Note. Daily data, sample: 2006-2019, 90% confidence intervals. This figure uses daily shocks from Das and Song (2023) and shows that the response of commodity prices is not immediate, supporting the delayed transmission found in the quarterly analysis.

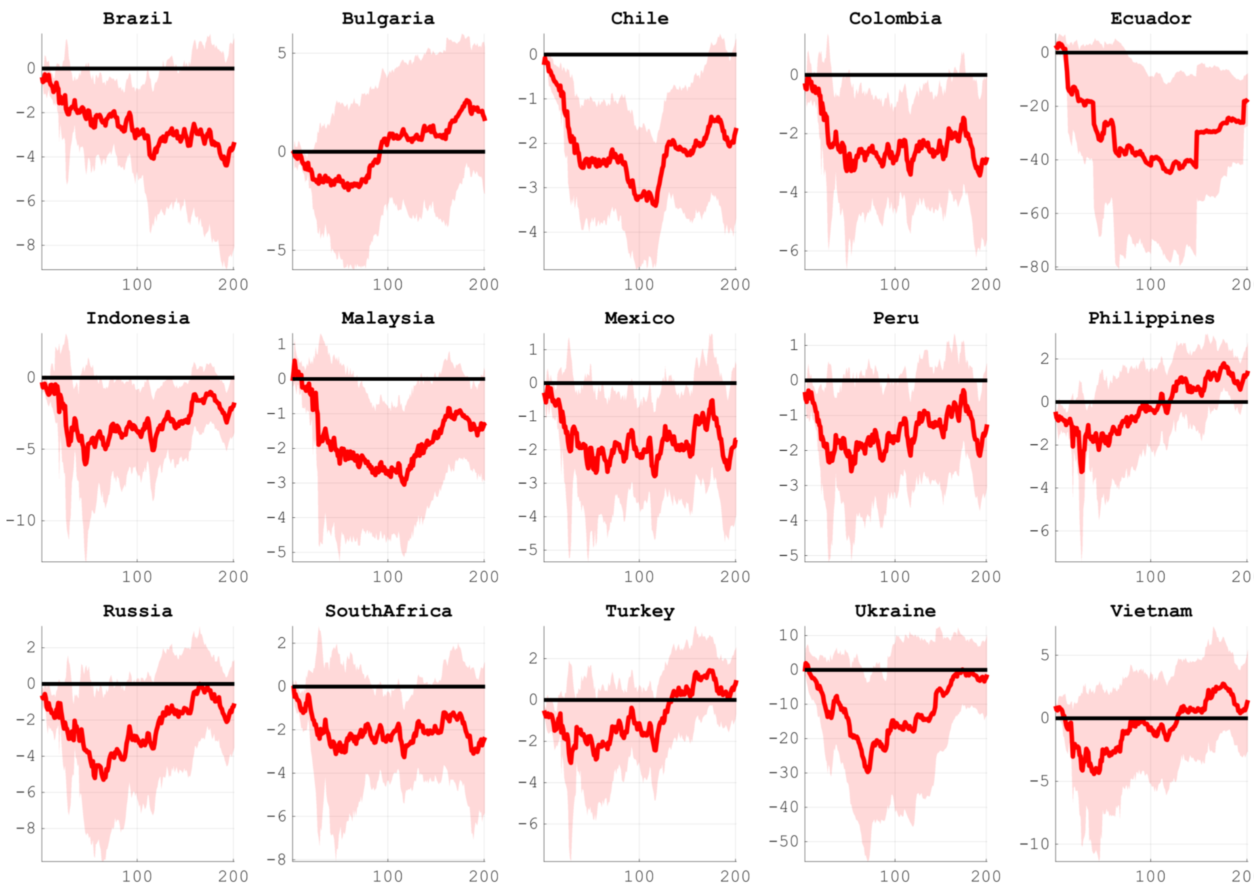


Figure C3: Daily response of EMBI

Note. Daily data, sample: 2006-2019, 90% confidence intervals. This figure provides a high-frequency robustness check for the EMBI spillover results in Section 5.3. Using daily shocks (Das and Song, 2023), it shows that the impact on EME financing conditions is not immediate, consistent with a slow-moving real or commodity-price channel.

D Additional results on simple counterfactuals

This appendix provides supplementary material for the simpler counterfactual analysis in Section 5.

D.1 Consumer prices

While Producer Price Indexes (PPI) are most directly affected by commodity input costs, we also examine the pass-through to consumer prices. Figure D1 and Figure D2 present the spillovers to Headline CPI and Energy CPI, respectively. The commodity channel remains the dominant driver for Energy CPI in advanced economies. For Headline CPI, the channel is significant but smaller than for PPI, reflecting the larger share of services and non-tradables in the consumer basket which are less sensitive to global commodity cycles.

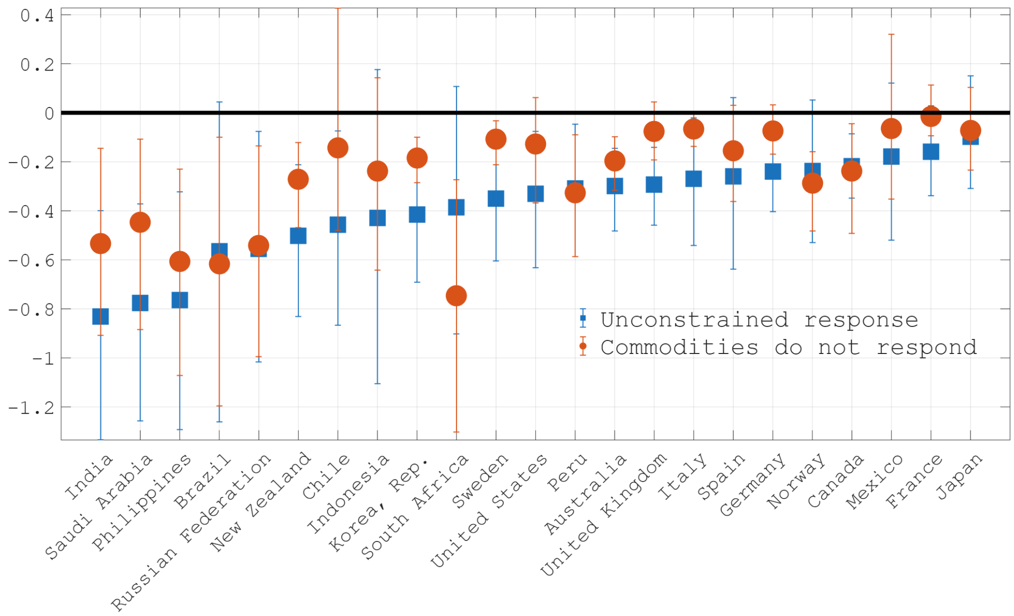


Figure D1: CPI spillovers from Chinese monetary policy shocks

Note. Spillovers to CPI of foreign economies (peak response over 16 quarters). Blue: commodity channel active. Orange: commodity channel shut-down. Quarterly data, sample: 2000-2018, 90% confidence intervals

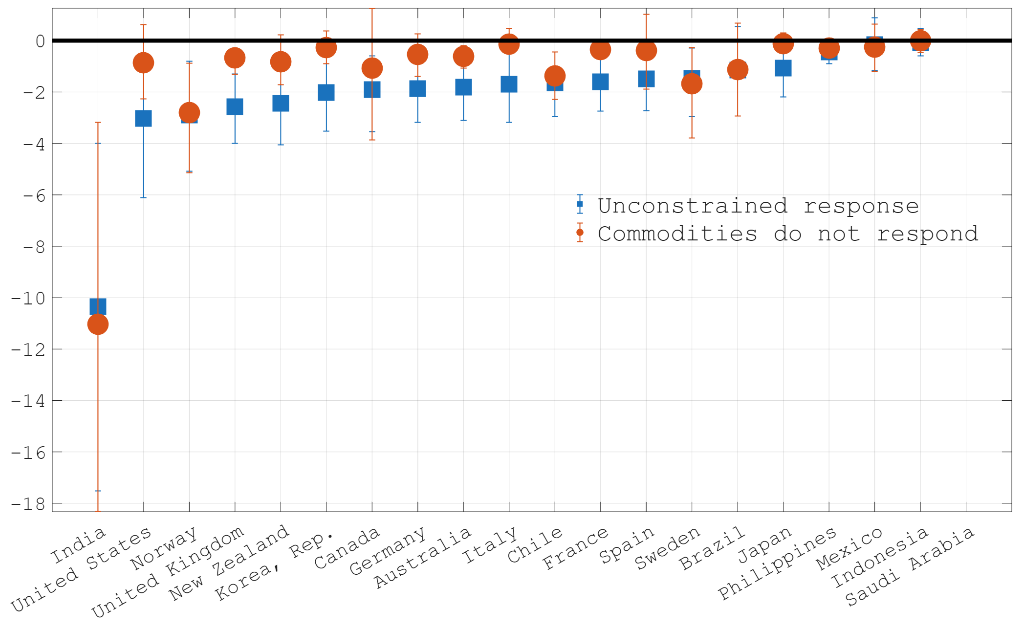


Figure D2: Energy CPI spillovers from Chinese monetary policy shocks

Note. Spillovers to CPI of foreign economies (peak response over 16 quarters). Blue: commodity channel active. Orange: commodity channel shut-down. Quarterly data, sample: 2000-2018, 90% confidence intervals

D.2 Normalized prices

To facilitate cross-country comparisons independent of historical volatility levels, we replicate the counterfactual exercise using standardized (z-scored) price series. Figures D3 through D5 demonstrate that the relative importance of the commodity channel is not driven by outliers or high-inflation episodes in specific countries. The distinction between Advanced Economies (high commodity channel contribution) and EMEs (lower contribution for inflation, higher for financing) holds even after normalization. While the relative ranking of countries is affected, the main conclusion holds: the gap between the blue bars (unconditional spillover) and orange bars (no commodity channel) remains large, confirming the importance of the commodity channel.

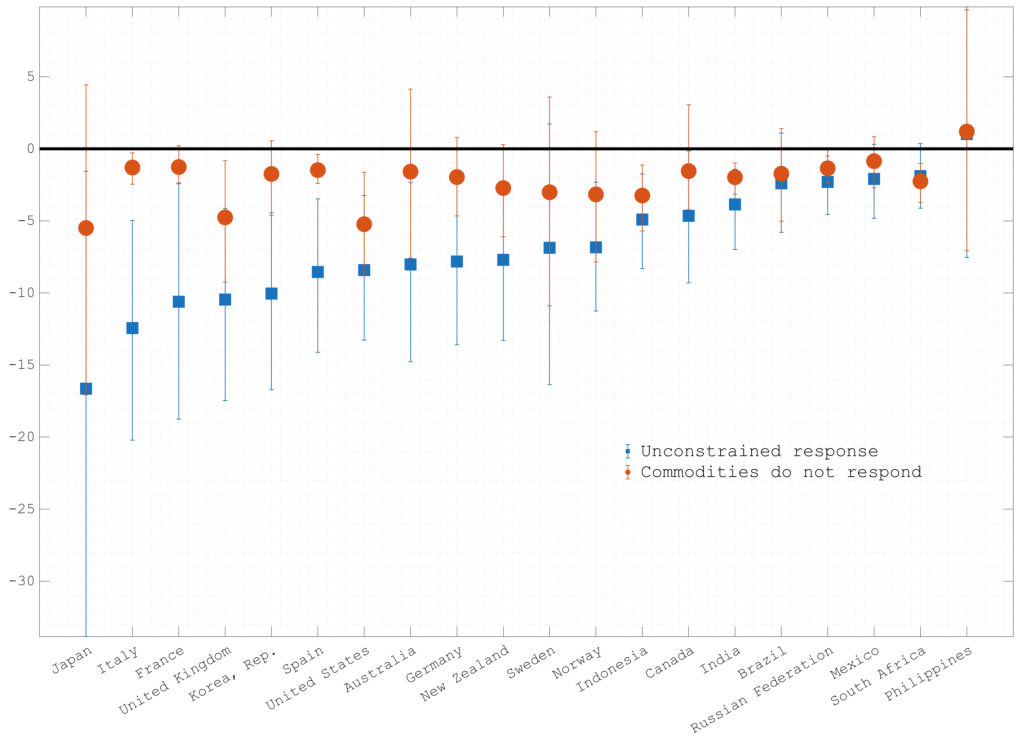


Figure D3: PPI (normalized) spillovers from Chinese monetary policy shocks

Note. Spillovers to PPI of foreign economies (peak response over 16 quarters). Blue: commodity channel active. Orange: commodity channel shut-down. Quarterly data, sample: 2000-2018, 90% confidence intervals

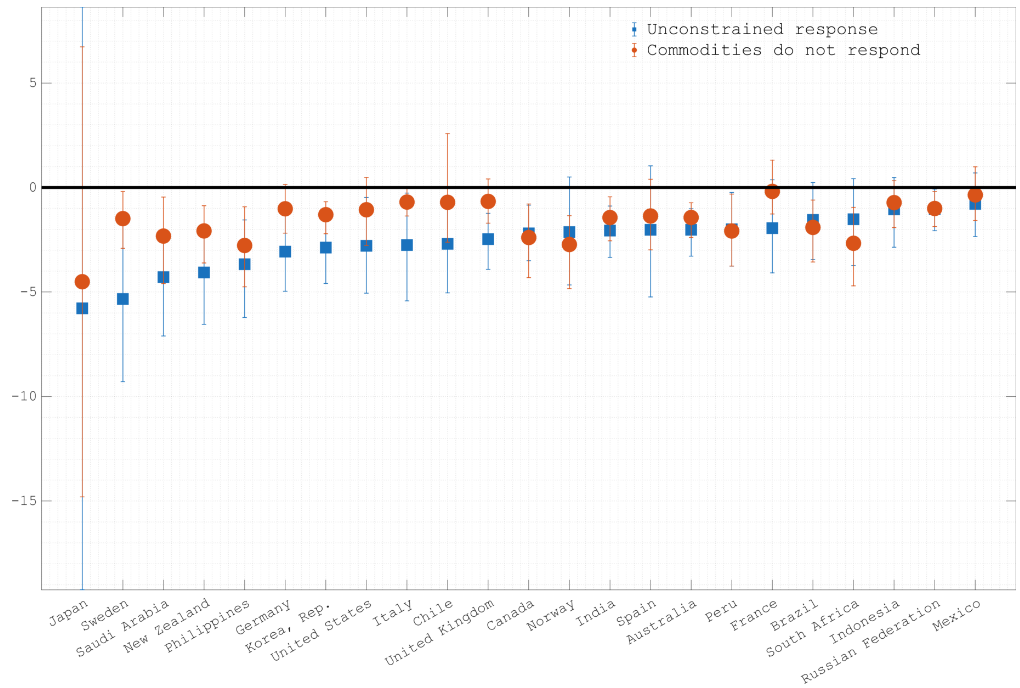


Figure D4: CPI (normalized) spillovers from Chinese monetary policy shocks

Note. Spillovers to CPI of foreign economies (peak response over 16 quarters). Blue: commodity channel active. Orange: commodity channel shut-down. Quarterly data, sample: 2000-2018, 90% confidence intervals

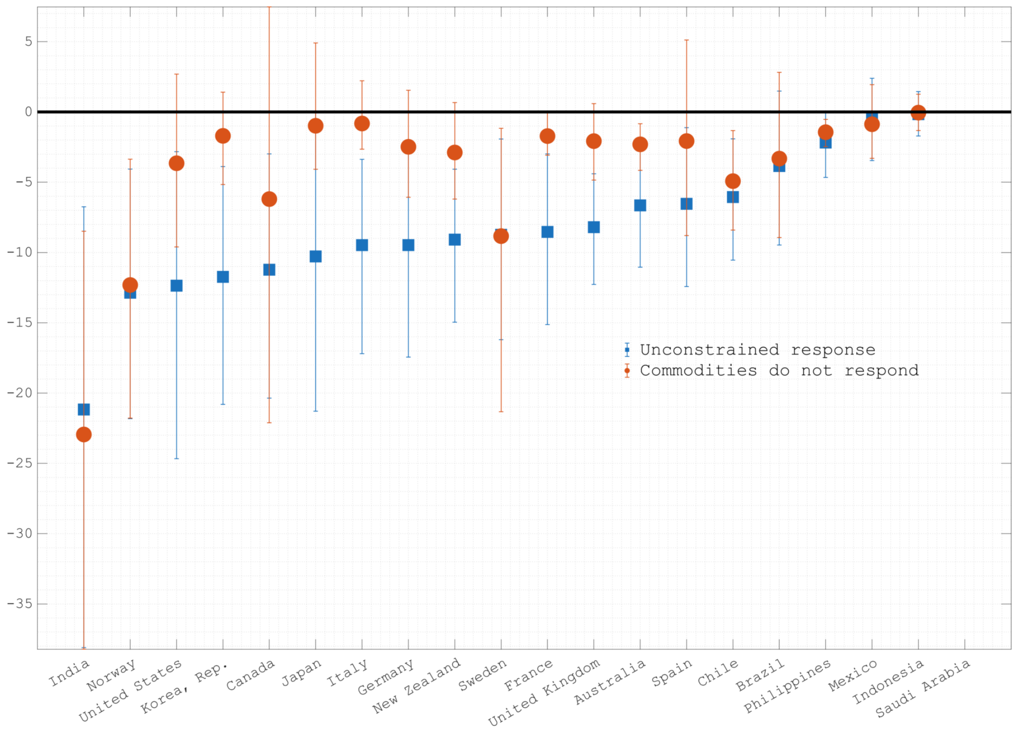


Figure D5: Energy CPI (normalized) spillovers from Chinese monetary policy shocks

Note. Spillovers to CPI of foreign economies (peak response over 16 quarters). Blue: commodity channel active. Orange: commodity channel shut-down. Quarterly data, sample: 2000-2018, 90% confidence intervals

E Additional results on McKay and Wolf (2023) counterfactuals

The simpler counterfactuals in the main text are intuitive but potentially subject to the Lucas Critique. In this section, we present the full set of results using the method proposed by McKay and Wolf (2023), which constructs counterfactuals using a sequence of structural shocks to offset the commodity price response. Figure E1 and Figure E2 confirm that our main findings are robust to this approach. The commodity channel remains a primary driver of inflationary spillovers, particularly for the energy component of the CPI basket.

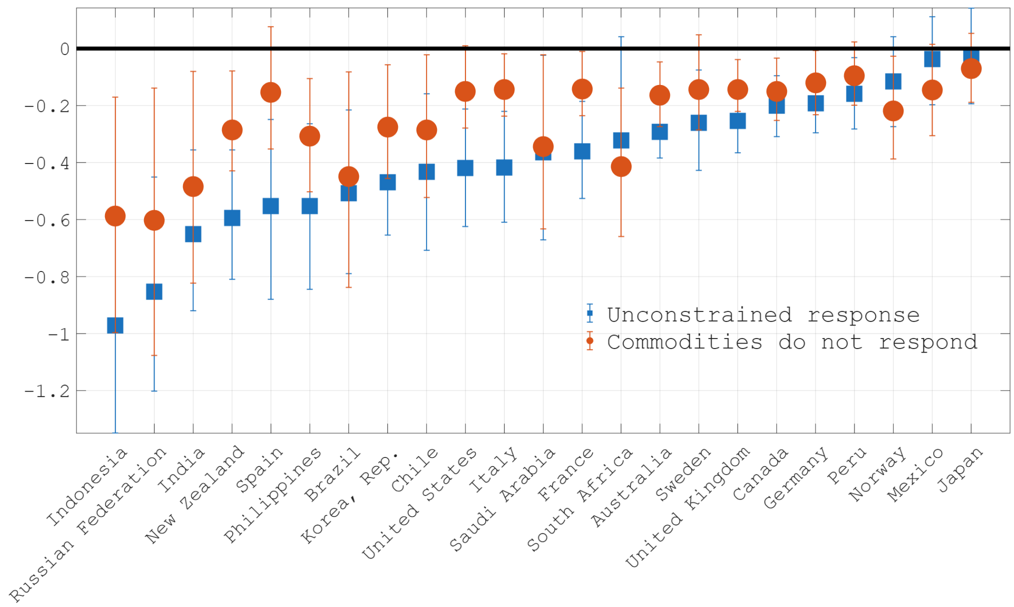


Figure E1: McKay and Wolf (2023) Counterfactual - CPI Spillovers (Peak Response)

Note. Spillovers to CPI of foreign economies (peak response over 16 quarters). Blue: commodity channel active. Orange: commodity channel shut-down. Quarterly data, sample: 2000-2018, 68% confidence intervals. This figure shows the results for headline CPI, confirming the commodity channel is a significant driver.

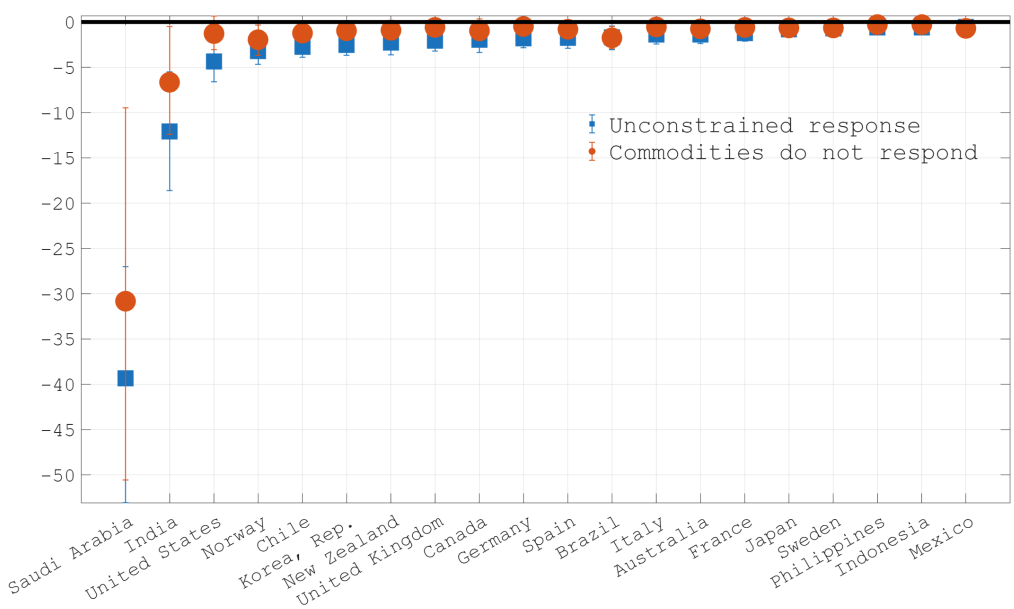


Figure E2: McKay and Wolf (2023) Counterfactual - Energy CPI Spillovers (Peak Response)

Note. Spillovers to Energy CPI of foreign economies (peak response over 16 quarters). Blue: commodity channel active. Orange: commodity channel shut-down. Quarterly data, sample: 2000-2018, 68% confidence intervals. This figure shows a particularly strong role for the commodity channel in transmitting shocks to energy prices, consistent with the findings from the simple counterfactual.