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# Comments on “State-Dependent Exchange Rate Pass-through”

by Yan Carriere-Swallow, Melih Firat, Davide Furceri and Daniel Jimenez

Comments by **Ramon Moreno**

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# Introduction and General comments

- This is an interesting paper that provides a comprehensive overview of the drivers of exchange rate passthrough.
- It provides updated estimates of (i) the passthrough globally and in advanced and emerging economies (respectively smaller and higher). (ii) how the pass through may be affected by certain variables such as whether inflation is high (higher), the exchange rate reflects a foreign monetary policy shock (higher), or uncertainty (unclear).

# Two sets of comments

- Is uncertainty indicator accurate?
- Does monetary shock indicator give a complete picture of possible shocks to exchange rate and pass through originating from Federal Reserve?

Try to highlight possible gaps based on studies current paper has relied upon. Not necessarily criticism of current paper per se. Perhaps an encouragement to authors and other researchers to do research that may address questions raised.

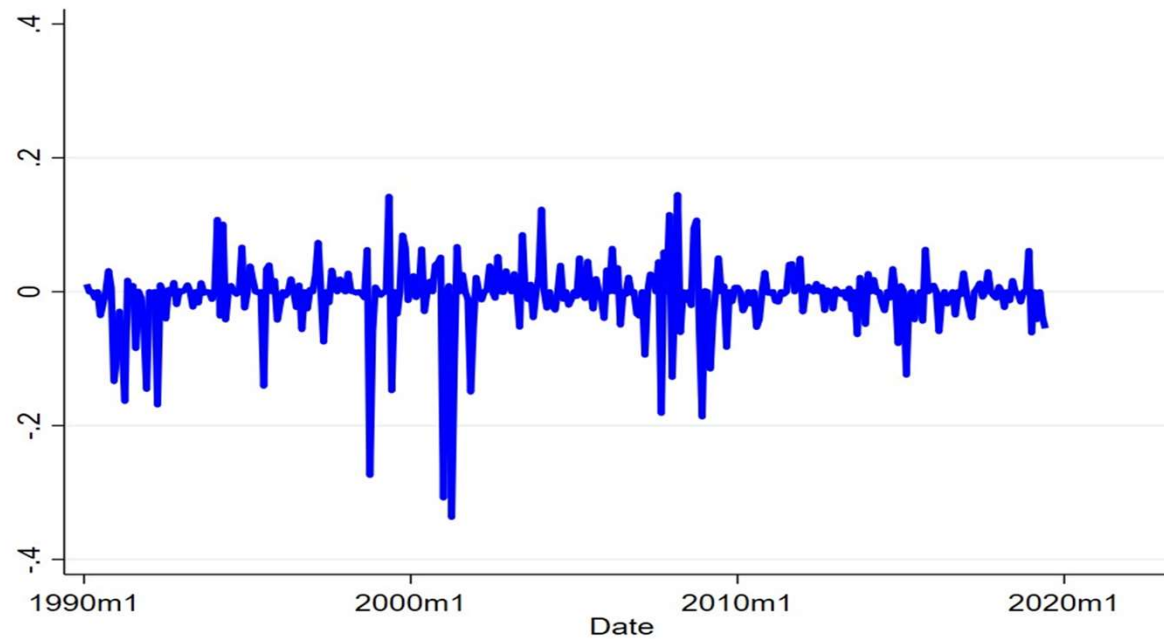
## Comments World Uncertainty Index by Ahir et al

- ***Index used by authors to assess impact of uncertainty on passthrough***
- **Accuracy.** Basing the index only on EIU means there is only one observation (per period per country) used to construct the Uncertainty index. To get larger samples, could try to do word counts of uncertainty searches in news databases or Google trends for a subset of countries (it may be possible to do for all countries if news databases all integrated, eg Lexis-Nexis). Results can then be compared to EIU index. A larger sample is probably more accurate. This is partly done by comparing WUI to Economic Policy Uncertainty index which is based on news searches. The two are correlated.

## Exchange rate passthrough and tighter US monetary policy

- Authors define US MP shock. Following Jarocinski and Karadi (2020) or **JK**, use high frequency central bank announcement surprises.
- *Identification by noting puzzle*: Mar 20,2001: Larger-than-expected 50 bps FF rate cut announced. Normally S&P500 stock market would rise, instead it fell within 30 minutes of announcement. But accompanying statement highlighted risks that demand and production could remain soft.
- Classify Federal Reserve communications as a (1) **Monetary policy shock** if (as expected) decline (increase) in the Fed Funds future rate is associated with a rise (decline) in the stock price, and (2) **Information shock** (regarding the state of the economy) if the stock price falls instead of rising with rate cut (about 30% of the time).
- In recent quarters Fed Funds rate has been rising, so information shock would be determined by unexpected FF rate increases that do not lead to stock price decline.

**Figure A1: U.S. Monetary Policy Shocks by Jarocinski and Karadi (2020)**



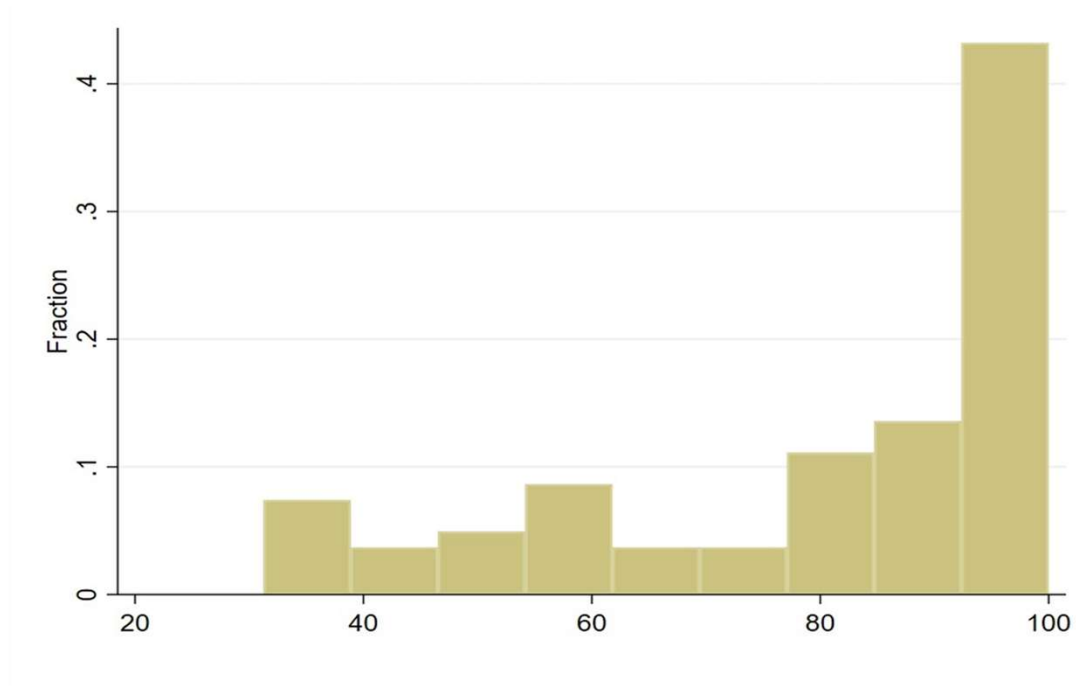
Source: Jarocinski and Karadi (2020).

Source: Yan Carriere-Swallow et al (2023), paper presented in current session

## Exchange rate passthrough and US monetary policy shock: capital account openness

- Assume US monetary policy shock affects exchange rate mainly via portfolio investment channel, ie bilateral exchange rate will depreciate (appreciate) if US portfolio investment flows away from (to) the destination country.
- Exchange rate fluctuations will be seen in countries with fewer capital controls.
- *Quinn<sub>i</sub>* Indicator of Annual capital account openness Quinn and Toyoda 2008. Based on IMF AREAER, annual score 0 to 100 (higher is more open) for each country through 2014.
- Graph: Openness skewed to the left

**Figure A2: Cross Country Distribution of Quinn and Toyoda (2008) Index**



Source: Quinn and Toyoda (2008).

Source: Yan Carriere-Swallow et al (2023), paper presented in current session



## Exchange rate fluctuations due to tighter US monetary policy (2)

- $Instrument_{i,t} = Quinn_i XUSMPShock_t$
- Quinn indicator skewed (Figure) dummy variable 1 if average capital account indicator is above 10<sup>th</sup> percentile
- IV strategy
- $p_{i,t+h} - p_{i,t-1} = \beta_h \overbrace{\Delta ER_{i,t}} + \sum_{i=0}^{12} \theta_t^Z M_{i,t-1} + \delta_i + \delta_t + \varepsilon_{i,t}$
- With
- $\overbrace{\Delta ER_{i,t}} = \beta_h^1 Instrument_{i,t}$  plus other terms

# Beyond current monetary policy shock (1)

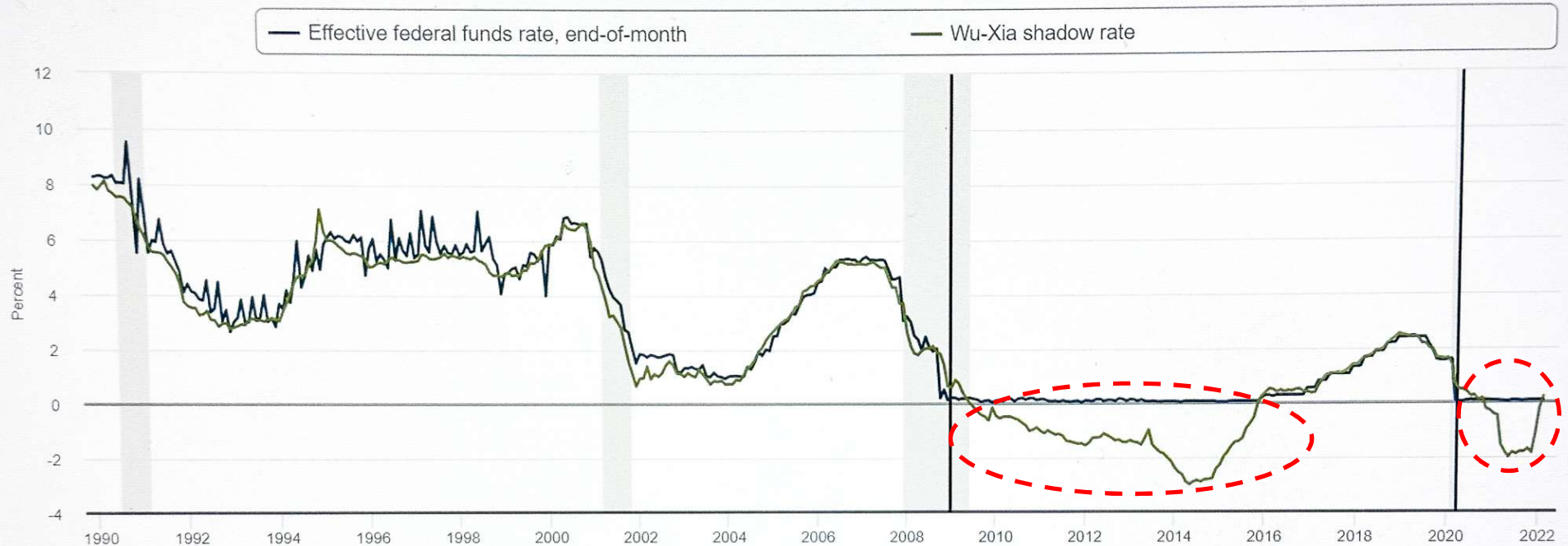
- Paper approach: US Monetary Policy Shock (unexpected current increase in US Fed funds rate). This is a very standard way to model shocks, enhanced by isolating effects of information shock following **JK**. However, from point of view of policymakers attempting to assess impact of Federal Reserve policy pure Fed Funds rate shocks may not give a complete picture.
- As noted, **JK** also identify information shocks embedded in Federal Reserve statements, which for example, can imply that the stock price will unexpectedly rise instead of falling in response to an unexpected rise in the US Fed Funds rate.
- In **JK** setting used in present paper, the information shock may *offset* impact of monetary policy shock. This in turn may dampen depreciation pressures and the passthrough effects of the US monetary policy shock.
- If these shocks are important policymakers would benefit from knowing when they are present and their effects. **JK** discuss information shocks extensively but current paper does not discuss implications for exchange rate pressures and passthrough outside US.

## Beyond current US monetary policy shock (2)


- Since the global financial crisis of the late 2000s, unexpected one period shocks to the Fed funds rate may not fully reflect monetary policy surprises.
- Example: Monetary policy at ***the zero (or effective) lower bound***. From around December 2008 to November 2015, and during pandemic 2020 to 2021, FF rate close to zero but term structure models yielded **shadow Fed funds rate estimates that were below zero** (eg Wu and Xia (2016) Measuring the Macroeconomic Impact of Monetary Policy at the Zero Lower Bound, JMCB.) See **graph**.
- Monetary policy in effect too tight so Fed (and the ECB) resorted to **large scale asset purchases (or QE)** to boost the economy. Wu and Xia estimates: “efforts by the Federal Reserve to stimulate the economy since July 2009 succeeded in making the unemployment rate in December 2013 1% lower...”
- **Does identification procedure take ZLB and QE into account?**

## Wu-Xia Shadow Federal Funds Rate

☰ Export



Note: The black vertical lines at December 2008 and March 2020 indicate months where the Federal Open Market Committee lowered the target range for the federal funds rate to 0 to 1/4 percent.  
Sources: Board of Governors of the Federal Reserve System and Wu and Xia (2016)

 Federal Reserve Bank of Atlanta

Note: Highlighted areas (red dashed lines) periods in which zero lower bound constrains policy, shadow Fed Funds rate below zero. See <https://www.atlantafed.org/cqer/research/wu-xia-shadow-federal-funds-rate>

## Beyond current US monetary policy shock (3)

- **Shocks to expected future monetary policy matter**
- **Market volatility after Feb 1994.** For the first time since 1989, Fed raised target rate 25 bps. Fed announcements sporadic at the time and markets were not aware how much Fed perceived upside risks to outlook. Markets so surprised that US 10 year treasury yield increased 14 bps on day of announcement and 200 bps over next nine months. Uncertainty about path of interest rates increased. See <https://www.federalreserve.gov/econresdata/notes/feds-notes/2015/effects-of-fomc-communications-before-policy-tightening-in-1994-and-2004-20150924.html>.
- To avoid such large surprises, Federal Reserve adopted **forward guidance**, to let markets know if the Fed saw an increasing likelihood of tightening or easing before the actual decision was made.
- Economists at Chicago Fed model shocks to anticipated monetary policy. Stefania D'Amico and Thomas King (2017) "What does anticipated monetary policy do" WP 2015 10 (FRB Chicago). Has been updated several times but still in Working Paper form.
- Findings: News about future monetary policy can have large immediate and persistent effects on inflation and real activity that are larger than those of unanticipated monetary policy.
- A more forward-looking perspective could also allow taking into account other factors that may affect monetary policy, notably fiscal policy..

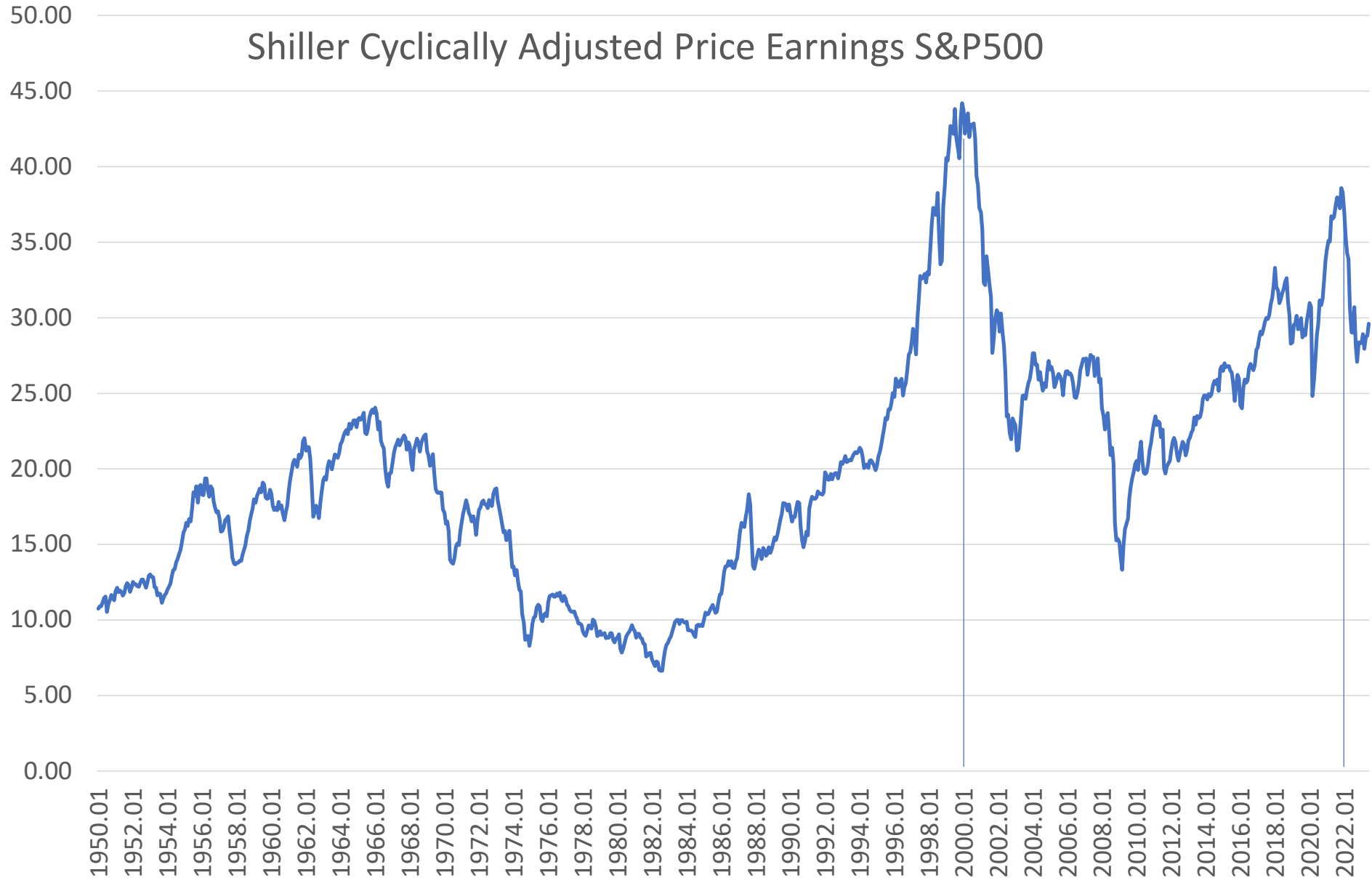
## Beyond current US monetary policy shock (4)

***Market participants seem to believe future monetary policy is key element in driving stock prices*** In JK analysis, stock price behavior underlying information shock mainly reflects economic performance. Recent experience suggests that stock price movements for long periods may also be driven by monetary policy and liquidity conditions. *Stock prices and economic performance can disconnect.*

***From the GFC until the pandemic***, Stock prices rose way above what seemed to be warranted by economic conditions, eg PE ratios became highly inflated even if growth had been moderate and inflation low. P/E ratios were still quite rich during the pandemic in spite of disruptions to output. Possible explanation: monetary conditions easy after the GFC in 2008 and much easier during the pandemic (vs innovations boosting productivity).

***Post pandemic*** inflation rose well above targets and policy rates increased significantly (but in steps). Analyst commentary: News of ***strong economic and employment conditions*** may ***dampen stock prices*** because markets fear that this will prompt the Fed to continue to raise the policy rate, perhaps even more sharply. News of ***weaker economic activity*** seems to ***boost stock prices***, because markets expect pause or reversal in Fed rate increases.

# Shiller Cyclically Adjusted Price Earnings S&P500



# Closing remarks

- In assessing impact of US monetary policy shocks policymakers need to consider not only the current interest rate surprise or announcement, but the effects of other instruments (eg QE) or news on economic conditions and future monetary policy. Such news may reinforce or dampen the impact of the current monetary policy shock.
- Looking ahead, current as well as future monetary policy shocks give a more complete picture of likely pressures on the exchange rate and the pass through. Researchers can help policymakers understand these shocks by explicitly taking them into account.
- Thank you



# Additional references

- D'Amico, Stefania and Thomas King (2017) “What does anticipated monetary policy do” WP 2015 10 (FRB Chicago)
- Ahir, H, Nicholas Bloom, Davide Furceri (2022) The World Uncertainty Index NBER Working Paper No. w29763. Updated May 2023.
- Jarocinski, Marek and Peter Karadi (2020): “Deconstructing monetary policy surprises – The role of Information Shocks”. *American Economic Journal: Macroeconomics*, 12(2):1-43.
- Quinn, Dennis P and A. Maria Toyoda (2008), “Does capital account liberalization lead to growth”, *The Review of Financial Studies*. Vol 21, No. 3, May, pp 1403-1449.
- Wu and Xia (2016) Measuring the Macroeconomic Impact of Monetary Policy at the Zero Lower Bound, JMCB.

Extra slides

# Sample

- Monthly data, Jan 1990 to Dec 2022
- 46 countries, 28 advanced economies, 18 emerging market economies
- Sample based on joint availability of country-month observations for consumer prices, import prices and inflation expectations
- Robustness: unbalanced sample of 141 countries for which CPI available

# Baseline specification

- $p_{i,t+h} - p_{i,t-1} = \beta_h \Delta ER_{i,t} + \sum_{i=0}^{12} \theta_t^Z M_{i,t-1} + \delta_i + \delta_t + \varepsilon_{i,t}$
- $p_{i,t}$  log price index of interest (CPI, import price, expectations about future CPI)
- $\Delta ER_{i,t}$  change in log bilateral exchange rate vs USD for country  $i$  at  $t$
- $\beta_h$  % response of prices to a 1 ppt change in local currency vs USD at horizon of  $h$  months
- $M_{i,t}$  country-specific control variables with 12 lags of each (output gap, lagged inflation, lagged change in exchange rate, trade-weighted PPI of export partners)
- $\delta_i$  country fixed effects (including time unvarying unobservable characteristics, cross-country differences in average inflation)
- In words, **CPI inflation (LHS) equals the % change in the exchange rate times the pass through, effects of lagged country-specific control variables (output gap, lagged inflation, lagged change in exchange rate, trade-weighted PPI of export partners), country fixed effects and time fixed effects.**

# Exchange rate pass through: stylized facts

- *Domestic CPI.* **1%** local currency depreciation vs US dollar followed by **0.16** % CPI rise after one year (lower in advanced economies: **0.08%**, vs emerging economies **0.3%**).
- *Import prices:* much higher, **0.7%** rise one month after depreciation.
- *Inflation expectations,* **0.08** ppt rise 6 months after depreciation, higher in emerging economies (**0.12**) vs advanced economies (**0.03**).
- *State of economy.* Estimate passthrough rates for samples above and below the median of the relevant indicator (in bins corresponding to quartiles, and in regimes defined using smooth-transition functions).
- *Pass-through into consumer prices and inflation expectations* increasing in the *level of economic uncertainty, level of inflation, and extent of disagreement among professional forecasters.* (Taylor (2000): the incidence of the exchange rate is endogenous to the credibility of monetary policy.)

# Notes Exchange rate passthrough effects

- The five articles in this special issue are a selection of the work completed by the BIS-CCA Research Network on “Exchange rates: key drivers and effects on inflation and trade” in 2017–18. Published in JIMF. Academic adviser Professor Ariel Burstein UCLA (UCLA).
- Exchange rates influence the economy through different channels: inflation, trade, and financial conditions. The relative importance of these channels is key to determining the trade-offs central banks face in stabilising the economy. In emerging market economies (EMEs),
- ERPT tends to be higher or less stable in emerging than in advanced economies, even if ERPT fell a lot in the two decades before Covid 19 pandemic. The effect of the exchange rate on trade tends to be relatively weak given the prevalence of foreign currency invoicing and, especially in Latin America, commodity exports. With prices set in foreign currency and sticky, a change in the exchange rate tends to have little effect on exports, at least in the short run, letting most of the adjustment in trade occur through changes in imports.
- Currency mismatches (EME borrowers or foreign investors) exchange rate movements may also amplify the transmission of global financial conditions to domestic financial conditions. Namely, **an appreciation of the exchange rate would ease domestic financial conditions while a depreciation would tighten them** (Bruno and Shin, 2015; Hofmann et al., 2019). When the ERPT and the financial channel of the exchange rate are strong relative to the trade channel, central banks may face a trade-off between output and inflation stabilisation, which would not usually

# Fiscal policy (to revise)

- Fiscal shocks: purely domestic. Result on passthrough: countries with higher output gaps have higher passthroughs. (IRF with quantiles)
- Output gaps were recently used by Jorda and Necchio (EER) as a proxy for fiscal stimulus, which in turn was associated with monetary accommodation, higher inflation and higher inflation expectations.
- How about passthrough and fiscal imbalances  
<https://academic.oup.com/qje/advance-article-abstract/doi/10.1093/qje/qjad027/7181333>
- Francesco Bianchi, Renato Faccini, Leonardo Melosi (2023). A Fiscal Theory of Persistent Inflation, The Quarterly Journal of Economics,
- qjad027, <https://doi.org/10.1093/qje/qjad027>
- Published: 27 May 2023