Monetary Policy Cyclicality in Emerging Economies*

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Abstract

We document a disconnect between policy rates and short-term market rates in emerging economies. While central banks in these economies adhere to Taylor-type rules and lower their policy rates when economic activity slows down, including in response to U.S. monetary policy tightening, the transmission of policy rates to short-term market rates is imperfect. Unlike in advanced economies, short-term market rates tend to rise during recessions. We find that this disconnect between market and policy rates strongly correlates with global financial conditions, such as the dollar premium and the CIP premium. This suggests that the divergence arises due to these countries' dependence on fluctuating global financial conditions. To explain this phenomenon, we present a simple model in which domestic banks transmit fluctuations in global financial conditions to short-term market rates. This model successfully reproduces the co-movement between international premia and the local short-term disconnect. Through our findings, we shed light on the cyclical nature and effectiveness of monetary policy in emerging economies.

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*The views expressed in this paper are those of the authors and do not necessarily represent the views of the IMF, its Executive Board, or IMF management.

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1 Introduction

Emerging economies are often susceptible to capital inflows, outflows, sudden stops, and flow reversals, as they are highly exposed to global financial conditions. During these episodes of capital flow volatility, monetary authorities face intricate dilemmas. Let's consider the effects of a U.S. monetary tightening, which leads to tight global financial conditions and a downturn in economic activity both in the U.S. and worldwide. In such a scenario, emerging economies' central banks have two options. First, they can choose to increase their policy rate in line with the Federal Reserve, aiming to prevent significant fluctuations in capital flows and exchange rates (Calvo and Reinhart, 2002). Alternatively, central banks can opt to lower their policy rate to mitigate the negative impact of contracting global demand and tighter global financial conditions on domestic economic activity.

We argue that the country's exposure to the global financial cycle, and whether it allows for effective monetary independence (Miranda-Agrippino and Rey, 2020) and the monetary policy's ability to affect local financial conditions (Kalemli-Ozcan, 2019) are at the center of these issues. We show that central banks in emerging economies do reduce their policy rates in response to declining local economic activity. However, the transmission of these policy rates to short-term market rates is significantly hindered due to their vulnerability to global financial conditions, particularly the fluctuations in domestic financial intermediaries' funding markets.

We begin by studying the typical behavior of emerging economies' policy rates vis-à-vis local inflation and economic activity. To do so, we first estimate policy rules à la Taylor (1993, 1999) and find that central banks adjust the policy rate in response to changes in both inflation and economic conditions (as measured by the output gap or GDP growth). In this regard, we observe that central banks in emerging economies operate similarly to their counterparts in advanced economies. We then study the correlation of local interest rates with local economic activity (as measured by real GDP growth). Our findings reveal that policy rates are lower when local economic activity decelerates. However, we also uncover that short-term market rates, including 3-month treasury or money market rates, tend to increase during economic recessoions. This stands in contrast to advanced economies where policy rates and short-term market rates decrease in tandem when economic activity slows down. This evidence indicates that local monetary policy in both emerging and advanced economies has demonstrated counter-cyclical characteristics over the past three decades. However, emerging economies' market rates exhibit a *disconnect* from local policy rates, which tends to move countercyclically.

We also observe that the disconnect between policy rates and market rates emerges following a U.S. monetary policy tightening, which we identify using the high-frequency identification approach outlined in Gertler and Karadi (2015).[1] Such shocks have been identified as significant drivers of the global financial cycle (Miranda-Agrippino and Rey, 2020). They are associated with a contraction in capital inflows, tighter financial conditions (as reflected by the VIX), and a deceleration in economic activity and CPI inflation within emerging economies.[2] Based on this evidence, we hypothesize that the local short-term disconnect, the difference between local market rates and policy rates, may originate from emerging economies' reliance on fluctuating global funding conditions.

We document a significant co-movement between the local short-term disconnect and global financial conditions. We emphasize three key findings that shed light on this relationship. First we find that the short-term disconnect is more pronounced when the dollar premium, the premium a country pays on its dollar-denominated bonds compared to U.S. bonds (measured by the EMBI spread), is higher. Specifically, a 1 percent increase in the EMBI spread corresponds to an average 0.4 percent increase in the short-term market rate relative to the policy rate. Second, we observe that the short-term disconnect is lower when the CIP premium, which captures the difference between a short-term synthetic dollar bond and the U.S. short-term bond, is higher. A 1 percent increase in the CIP premium is associated with approximately a 0.15 percent decrease in the short-term market rate relative to the policy rate. Third, our analysis indicates that the short-term disconnect is also negatively correlated with the UIP premium, although less systematically than it is relative to dollar and CIP premium. Taken together, these findings suggest that global funding conditions may be responsible for the incomplete pass-through of monetary policy in emerging economies.

We present a simple model that focuses on the role of domestic banks in transmitting fluctuations in global financial conditions domestically, influencing the dynamics of local short-term market rates. Within our model, domestic banks hold the home market bond while they rely not only on domestic deposits but also on international markets for dollar

[1] The response of short- term domestic household-firm borrowing/bank lending rates in emerging economies to exogenous U.S. tightening was originally documented in Kalemli-Ozcan, 2019.

[2] See also Dedola et al. (2017) and Degasperi et al. (2023).

funding (in line with the evidence in Baskaya et al. (2017) and Hahm et al. (2013)). According to our model, fluctuations in global financial premia, determined by global intermediaries, directly impact the marginal funding costs of domestic banks, and, consequently, influence the equilibrium market rates. As a result, the pass-through of monetary policy to short-term rates becomes incomplete and is inversely proportional to the extent to which domestic banks rely on the global funding market.

Our model rationalizes the observed co-movement between the short-term disconnect and the dollar premium. When dollar funding costs rise, domestic banks require a market rate that exceeds the policy rate to hold the market bond. Additionally, the model accounts for the impact of CIP and UIP premia on the equilibrium market rate. In fact, if domestic banks hedge a fraction their currency mismatch, as mandated by prevailing regulatory regimes in many emerging economies, the short-term disconnect will be negatively related to CIP premia as well as UIP premia, as we find in the data. The intuition is that higher UIP and CIP premiums are both associated with cheaper dollar funding for domestic banks, resulting in a lower required return on the home market bond.

Related literature Our paper contributes to a well-established literature in international monetary economics and finance, and our model and empirical findings align with previous studies that have examined the transmission of the global financial cycle through local banks' funding conditions (di Giovanni et al., 2022; Fendoglu et al., 2019) and changes in global risk perceptions related to U.S. monetary policy (Miranda-Agrippino and Rey, 2020; Kalemli-Ozcan, 2019; Chari et al., 2021).[3]

The literature on monetary and fiscal policies in emerging markets was initiated by the seminal work of Kaminsky et al. (2005). In a sample that covers 1960–2003, Kaminsky et al. find strong evidence in favor of procyclical fiscal policy (see also Gavin and Perotti, 1997), and some evidence in support of the notion of procyclical monetary policy, though the authors acknowledge the limitations of this finding since they do not have enough data on monetary policy rates from emerging economies and hence use short-term market rates to proxy for policy rates. More recently, in a sample that covers 1960–2009, Vegh and Vuletin (2013) find a positive correlation between the cyclical components of policy rates and real GDP in emerging economies especially in the more recent part of the sample, after 2000. Our contribution is to show that even though emerging markets' central banks' monetary policy have been counter-

[3] See also Avdjiev et al. (2020).

cyclical in the last three decades, this counter-cyclical stance implied by the policy rates does not directly transmit to short-term market rates.[4] We thus emphasize that the common practice of using short-term market rates to proxy for the stance of monetary policy may lead one to draw inaccurate conclusions about the cyclical properties of the monetary policy in emerging economies, even though this practice appears justified for advanced economies.

Our research is also closely related to the empirical literature that examines the challenges to monetary policy effectiveness in emerging economies. In particular, we draw upon the work of Rey (2013) and Miranda-Agrippino and Rey (2020), who argue that countries with floating exchange rate regimes may not have full monetary autonomy due to the influence of the global financial cycle. They demonstrate that changes in global risk aversion and U.S. monetary policy significantly impact global leverage and capital flows, in both floaters and peggers. Obstfeld et al. (2019) contribute to this discussion by documenting that floating exchange rate regimes experience milder macroeconomic and financial fluctuations compared to pegged regimes during periods of heightened global risk aversion. This finding is further supported by Kalemli-Ozcan (2019), who shows that risk premia in short-term market rates play a crucial role in explaining the responses of leverage and capital flows to U.S. monetary policy. Floating rates, by absorbing shocks to risk premia, provide some degree of insulation from external influences.[5] Building upon these studies, our research reveals that the incomplete monetary autonomy of central banks in emerging economies manifests itself through a disconnect between policy rates and relevant short-term market rates. This disconnect highlights the factors that prevent floaters from fully enjoying insulation from external shocks.[6]

Our paper also contributes to the existing literature on emerging economies' business cycles and the determinants of countercyclical real interest rates, initiated by Neumeyer and Perri (2005). The question was later explored by several insightful studies, such as Aguiar and Gopinath (2007), García-Cicco et al. (2010), Fernández and Gulan (2015), Fernández-Villaverde et al. (2011), and Coulibaly (2021). Our paper focuses on a mechanism where

[4] Of course there were countries with procyclical policy, however, our research makes a strong case that these were outliers and not represent the average and/or the median emerging market.

[5] See also Chari et al. (2022), and Corsetti et al. (2021)

[6] Some papers analyze the cross-country co-movement of interest rates, although also using market rates to proxy for the monetary policy stance. Shambaugh (2004) examines the extent to which short-term rates co-move with U.S. interest rates, finding that floaters' rates follow U.S. interest rates much less closely than pegs, consistent with the notion that floating exchange rates absorb the risk premia to a certain extent in short-term rates. This result also emerges for exogenous U.S. monetary policy shocks, not just for actual U.S. Fed Funds rate movements (Bluedorn and Bowdler, 2010), and does not appear to rely on the presence of capital controls (Miniane and Rogers, 2007; Klein and Shambaugh, 2015).

local banks' reliance on international markets for funding exposes local short-term funding conditions to global financial fluctuations, with implications for their business cycles.

Furthermore, our research is related to a substantial empirical and theoretical literature that examines fluctuations in Uncovered Interest Parity (UIP) and Covered Interest Parity (CIP) premia. This body of work includes Du et al. (2018); Kalemli-Ozcan and Varela (2021); Kalemli-Ozcan (2019); Lustig et al. (2011); Du and Schreger (2016); Cormun and De Leo (2021); Gabaix and Maggiori (2015); di Giovanni et al. (2022); Itskhoki and Mukhin (2021); Engel (2014, 2016); Engel and Wu (2018); Bianchi et al. (2021); Jiang et al. (2021), among others. Our paper does not take a specific stance on the underlying sources of UIP and CIP premia. Instead, we empirically and theoretically examine whether and how these premia contribute to the emergence of the disconnect between short-term market rates and policy rates in emerging economies, towards understanding the implications for the effectiveness of monetary policy transmission in these economies.

The rest of the paper proceeds as follows. Section 2 studies the behavior of monetary policy rates in emerging economies. Section 3 documents the disconnect between policy rates and short-term market rates in emerging economies, and Section 4 studies the comovement between the short-term disconnect and global financial conditions. Section 5 develops a partial-equilibrium model that rationalizes these properties of the short-term disconnect. Section 5 concludes.

2 What do central banks in emerging economies do?

We document the behavior of monetary policy vis-à-vis local inflation and economic activity. To characterize the monetary policy stance we use publicly announced *policy rates*.

Dataset Our sample focuses on countries and time periods that are characterized by a flexible exchange rate regime. For the classification of exchange rate regimes we rely on the historical exchange rate classification in Ilzetzki et al. (2019), which is a country-quarter level time varying classification.[7] We use available quarterly data from 1990:Q1 to 2018:Q4, an unbalanced sample. Appendix A lists the countries included in the dataset.

We collect all available data on policy rates (i^P). Policy rates are the target interest rate

[7] A country is considered to have a flexible exchange rate regime if, in a given quarter, its exchange rate was within a moving band that is narrower than or equal to +/-2 percent or was classified as managed floating, freely floating or freely falling in Ilzetzki et al. (2019).

set by central banks in their efforts to influence short-term interest rates as part of their monetary policy strategy. For policy interest rates, our preferred data source is the *BIS*. If *BIS* data are not available we use data from the *IMF International Financial Statistics* or from national sources retrieved from *Bloomberg*. The choices of the sources are of no material difference. In fact, when all sources are available the correlation between *BIS* rates and data from alternative sources is always above 0.96.

We also collect all available data on short-term market rates (i^M), specifically treasury rates and interbank money market rates.The maturity of short-term interest rates in our sample is 3 months.[8] The sources of treasury and money market rates are *IMF International Financial Statistics* or national sources retrieved from *Bloomberg*. See Appendix Tables A.2-A.4 for more details about the data.

Policy rates around episodes of global distress To present few examples from our dataset, we explore the behavior of policy rates during three noteworthy episodes of global distress (often referred to as "risk-off" shocks), namely the Global Financial Crisis, Taper Tantrun, and COVID-19. It is evident from Figure 1 that both advanced and emerging economies lowered their policy rates during these episodes of global recessions.[9] We find this result noteworthy as emerging economies currencies have also depreciated during these events and given a high degree of exchange rate pass-through, such currency depreciations can feed back into inflation.[10] In addition, depreciations can cause balance sheet distress for governments and firms that have borrowed in foreign currency. Below, we have a deeper look on the behavior of policy (and market) rates.

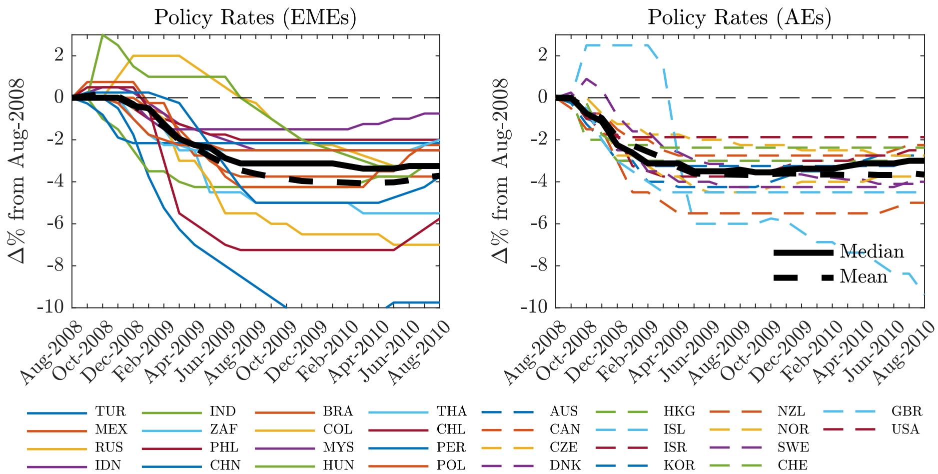
Estimation of central banks' reaction function To summarize a central bank's reaction function, macroeconomists frequently use interest rate rules, such as the ones put forward by Taylor (1993, 1999). Such policy rules describe how the monetary authority adjusts its policy instrument (typically the short-term policy rate) in response to deviations of inflation and economic conditions from their objectives. A standard version of a Taylor-type rule is:

[8] We find similar results when using 1-month rates or 12-month rates.

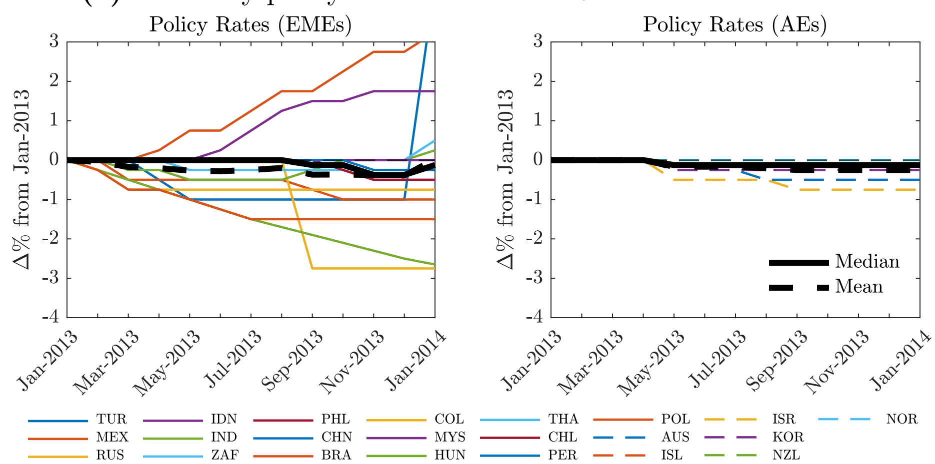
[9] Figure 1 uses data from Bloomberg Finance L.P.; IMF, World Economic Outlook database. Focusing largely on the sudden stops occurred in 2008Q4 around GFC, Eichengreen and Gupta find that monetary policy was eased in response to these sudden stops more often than it is tightened (only 8 out of 43 EMs tightened). They rely on IMF reports and market commentary to code changes in monetary policies, following the narrative approach of Romer and Romer (1989) and Alesina et al. (2018).

[10] Several studies document a high exchange rate pass-through into import prices in EMEs (see, for example, Burstein and Gopinath, 2014).

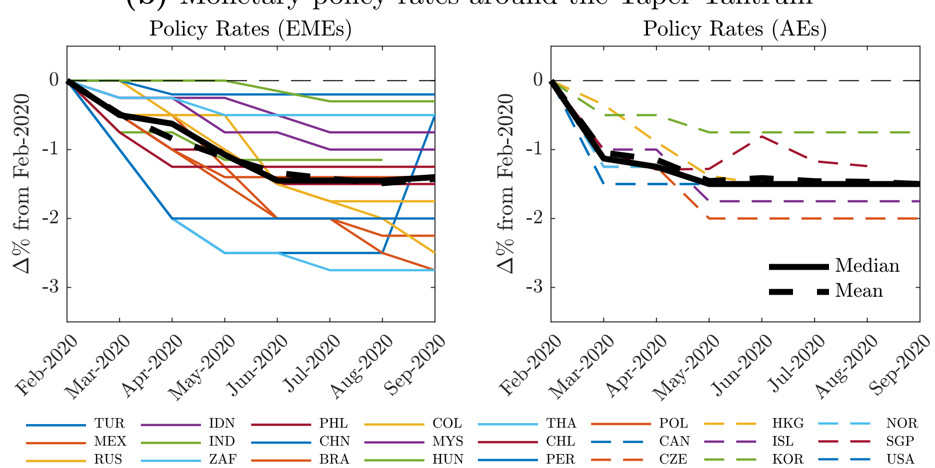
Figure 1: Monetary policy rates around episodes of global financial distress



(a) Monetary policy rates around the Global Financial crisis



(b) Monetary policy rates around the Taper Tantrum



(c) Monetary policy rates around COVID-19

$i_t^P = \rho i_{t-1}^P + (1-\rho)(\phi_\pi \pi_t + \phi_y \tilde{y}_t) + \varepsilon_t^P$. According to this rule, the central bank adjusts the policy rate in response to changes in inflation (with coefficient ϕ_π) and economic conditions, such as output growth or the output gap (with coefficient ϕ_y). The rule allows for policy smoothing by including a first-order autoregressive term, and for i.i.d. monetary policy shocks, ε_t^P.

To estimate the central bank's reaction function we thus consider the following regression:

$$i_t^P = \alpha + \beta_1 i_{t-1}^P + \beta_2 \pi_t + \beta_3 \tilde{y}_t + \epsilon_t \tag{1}$$

We follow Carvalho et al. (2021) in using OLS to estimate the parameters of the Taylor rule. To estimate equation (1) we use the country's policy rate. Inflation is the rate of change in the consumer price index (CPI). To measure economic conditions, we use either the rate of change in the country's real gross domestic product (Δgdp_t) or the country's output gap, *Output gap*$_t$, from IMF (2020, Chapter 3).[11]

Table 1: Estimated central banks' reaction function

	Emerging Economies		*Advanced Economies*	
	i_t^P	i_t^P	i_t^P	i_t^P
	(1)	(2)	(3)	(4)
i_{t-1}^P	0.860***	0.826***	0.944***	0.930***
	(0.0058)	(0.0079)	(0.0075)	(0.0082)
π_t	0.394***	0.419***	0.304***	0.265***
	(0.027)	(0.034)	(0.029)	(0.028)
Δgdp_t	0.00892**		0.00133	
	(0.0037)		(0.0017)	
Output gap$_t$		0.0591***		0.0844***
		(0.020)		(0.011)
R-Squared	0.93	0.87	0.96	0.95

Notes: The table reports estimates of equation (1) by OLS. For both emerging and advanced economies, columns (1) and (3) use real GDP growth to proxy for economic activity while columns (2) and (4) use the output gap. These regressions feature country fixed effects. Data are at a quarterly frequency. The sample period is 1990:q1–2018:q4. Standard errors are reported in parentheses (* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$).

[11] Spline interpolation is applied to annual output gap data to obtain quarterly figures.

We report the results of the estimated central banks' reaction function in Table 1 for both advanced and emerging economies.

First, we note that the R-squared of these regressions is high, indicating that Taylor rules appear to describe the conduct of monetary policy in these countries fairly well. Second, the estimates of Taylor rule coefficients are generally similar across emerging and advanced economies, both qualitatively and quantitatively. In both sets of economies, the central bank raises its policy rate in response to higher inflation and improving economic conditions, measured either with GDP growth or the output gap. For emerging economies, the specification with the output gap implies that the point estimates for ϕ_π and ϕ_y are around 2.4 and 0.34, respectively.[12] These estimates are both statistically and economically significant and, again, similar to the corresponding estimates for advanced economies. In line with the literature, we estimate a significant amount of interest rate smoothing by central banks in both sets of economies.

We verify that these results are not driven by the high-inflation countries or crisis periods. To do so, we exclude countries that have experienced inflation rates above 40 percent over a 12-month period and periods during the 6 months immediately following a currency crisis and accompanied by a regime switch.[13] Appendix Table A.6 reports the estimates of Taylor rule coefficients for this modified sample. All results remain statistically significant.

We thus observe that the monetary policy behavior, as captured by estimated central banks' reaction functions, suggests that the stance of monetary policy in emerging economies is countercyclical.

The cyclical behavior of policy rates We now turn to examining the cyclical behavior of policy rates. This is a commonly used metric to assess whether monetary policy acts pro- or countercyclically (see, for example, Kaminsky, Reinhart, and Végh, 2005, and Vegh and Vuletin, 2013).

To this end, we study the relationship between current GDP growth and policy rates both contemporaneously and at short-term horizons. We do so because policy rates tend to respond gradually to observed changes in GDP (see, for example, Table 1). In particular, we use a reduced form local projection approach where we regress policy rates at horizons within 2 years on current real GDP growth, controlling for lag of the dependent variable.

[12] These numbers are obtained by simply mapping the estimates of equation (1) to the reaction function: $i_t^P = \rho i_{t-1}^P + (1-\rho)\left(\phi_\pi \pi_t + \phi_y \tilde{y}_t\right) + \varepsilon_t^P$.

[13] Thus, we exclude the "freely falling" category in Ilzetzki et al. (2019).

More specifically, we consider the following regression relationships:

$$i^P_{t+h} = \alpha^P_h + \beta^P_h \Delta gdp_t + \gamma^P_h i^P_{t-1} + \epsilon^P_{t+h}; \tag{2}$$

for $h = 0, \ldots, 8$ quarters.

The coefficients of interest are the β^P_h's in equation (2). The β^P_h's in equation (2) captures the relationship between current real GDP growth and the policy rate, both contemporaneously and in the near future.

Figure 2 depicts the estimated β^P_h's in regression equation (2) (blue line) for both emerging and advanced economies. We observe that in both advanced and emerging economies high real GDP growth predicts a significant increase in policy rates within two years. These results are consistent with the estimates of the Taylor rule coefficients (Table 1), and indicate that the monetary policy stance is generally countercyclical in emerging economies. We also observe that the correlation between policy rates and GDP growth is milder in emerging when compared to advanced economies. This difference might be due to the relative prevalence of supply shocks in emerging economies (as argued, for example, in Frankel (2010)).

3 Short-term market rates in emerging economies

Policy rates are defined as the target interest rate set by central banks in their efforts to influence short-term interest rates as part of their monetary policy strategy. For this reason, we now explore whether the monetary policy stance implied by policy rates is reflected in the dynamics of short-term market rates. In doing so, we move away from a common practice of using short-term market rates to proxy for the stance of monetary policy. Short-term market rates such as treasury rates or interbank money market rates are not necessarily "risk-free" in emerging economies. Treasury rates are rates at which governments issue their debt instruments, money market rates are rates charged on loans among banks. While closely related, these market rates are not directly comparable, and they measure the stance of monetary policy only imperfectly. Below, we show that distinguishing between policy rates and market rates is of first-order importance in emerging economies.

The cyclical behavior of short-term market rates We now turn to examining the cyclical behavior of short-term rates. The short-term market rates we consider are 3-month treasury rates and 3-month interbank money market rates.

As in equation (2) above, we study the dynamic relationship between GDP growth and market rates using reduced form local-projections. That is:

$$i^M_{t+h} = \alpha^M_h + \beta^M_h \Delta gdp_t + \gamma^M_h i^M_{t-1} + \epsilon^M_{t+h}; \tag{3}$$

for $h = 0, \ldots, 8$ quarters.

In regression equation (3), i^M denotes the country's short-term market rate and gdp_t is the country's real GDP. Figure 2 depicts the estimated β^M's in regression equation (3) for both emerging and advanced economies, for both treasury and money market rates (red lines). Although in emerging economies high real GDP growth predicts a significant increase in policy rates within two years, high real GDP growth also predicts a significant decline in 3-month treasury rates and money market rates within two years. To the contrary, in advanced economies policy and market rates exhibit a very similar relationship with real GDP growth, moving very much in tandem over the business cycle.

The above evidence reveals that, unlike in advanced economies, there is a disconnect between policy rates and market rates over the business cycle in emerging economies. We define the *short-term disconnect* as the difference between market rates and policy rates ($i^M_t - i^P_t$), and explore the dynamics of this object vis-a-vis real GDP growth in the same local-projection setting as above:

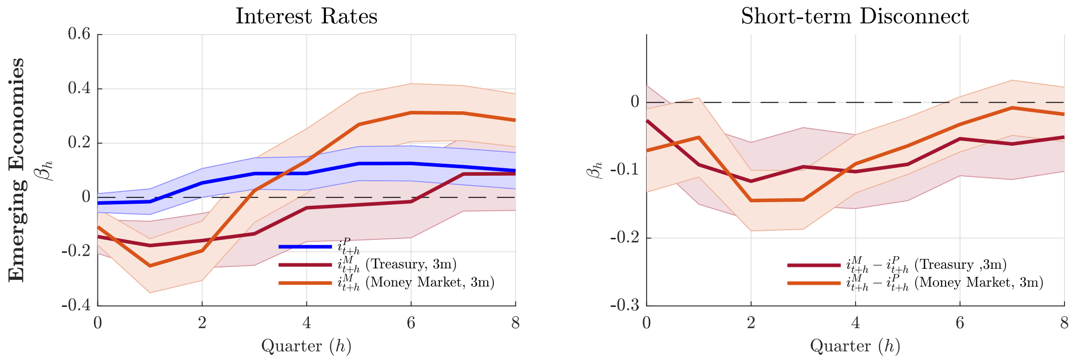
$$i^M_{t+h} - i^P_{t+h} = \alpha^d_h + \beta^d_h \Delta gdp_t + \gamma^d_h \left(i^M_{t-1} - i^P_{t-1}\right) + \epsilon^d_{t+h}; \tag{4}$$

The right panels of Figure 2 depicts the estimated β^d_h's in regression equation (4). The results confirm that high GDP growth is associated with a systematic divergence between policy rates and market rates (whether measured using treasury rates or money market rates). In particular, the short-term disconnect is countercyclical: during recessions market rates tend to be systematically above policy rates. This is not the case in advanced economies, where the market-policy differential is virtually uncorrelated with GDP growth.

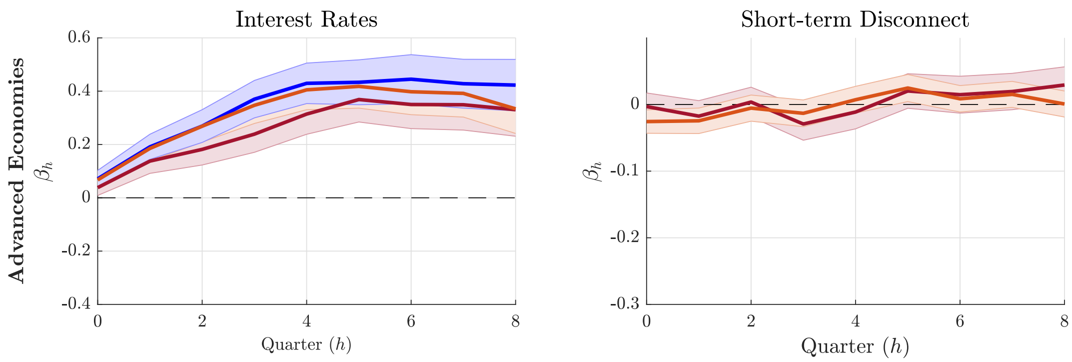
Taken together, these findings indicate that there is a systematic difference in the cyclical behavior of short-term market rates between emerging and advanced economies. In fact, the short-term disconnect is strongly countercyclical in emerging economies while acyclical in advances economies. One implication of this result is that the common practice of using short-term market rates to proxy for the stance of monetary policy may lead to inaccurate

Figure 2: Cyclical behavior of policy rates and short-term market rates

(a) Emerging Economies



(b) Advanced Economies



Notes: The figure reports the panel estimates of β_h's in regression equations (2), (3) (left panels) and (4) (right panels). 90% confidence intervals are shown by the shaded areas. These regressions feature country fixed effects. Data are at a quarterly frequency.

conclusions about monetary policy stance cyclicality in emerging economies.

Policy rates as measures of the monetary policy stance In the context of emerging and developing economies, one may be concerned that policy rates are not an appropriate measure of the monetary policy stance. In fact, some of these countries may not use an interest rate as the main monetary policy tool. To address this concern, we reproduce our main results for the subsample of emerging economies that conduct interest-rate-based monetary policy. To determine whether the central bank uses a policy rate as the primary monetary policy instrument for most part of the sample period, we follow Brandão-Marques et al.'s (2021) classification based on the examination of historical reports, such as IMF Article IV staff reports, and monetary policy reports issued by central banks.[14] Notwithstanding the smaller sample size, the results for this subsample of emerging economies, reported in Figure A.1 align closely with the baseline results, indicating a strong degree of monetary policy countercyclicality and a significant difference in cyclicality between policy rates and short-term market rates.

Dynamic effects of a U.S. monetary policy shock The cyclical behavior of policy rates summarizes the general tendencies of monetary policy in emerging economies. However, this may conceal a different behavior of central banks in response to different shocks. We now study the effects of an identified U.S. monetary policy shock, which is exogenous and external from the viewpoint of the small open economies in the sample. We trace out the effects of the U.S. monetary policy shocks on policy rates as well as short-term market rates and macroeconomic aggregates.

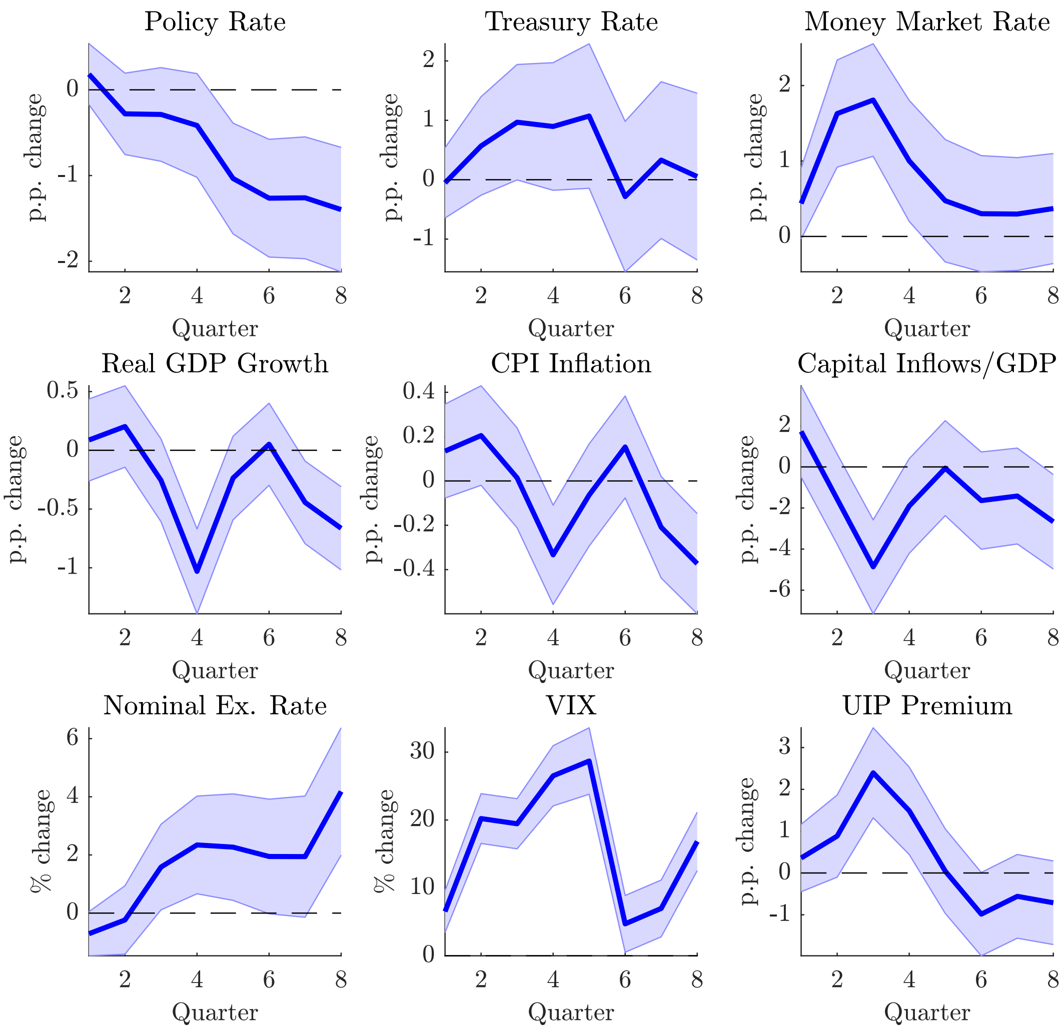
All economic agents in emerging economies pay close attention to the stance of U.S. monetary policy as it affects global demand as well as the cost of international borrowing. To extract the exogenous component in U.S. monetary policy changes we follow the high-frequency identification approach in Gertler and Karadi (2015). In particular, the baseline U.S. policy indicator is the 12-month U.S. treasury rate, and it is instrumented with Gertler and Karadi's (2015) estimated surprises in 3-month Fed Fund Futures (FF4). To trace out the effects of U.S. monetary policy shocks, we use panel local projections with instrumental variables (see Jordà, 2005, and Stock and Watson, 2018). Our regression specification is:

$$y_{j,t+h} = \alpha_j + \beta_h \hat{i}_t^{US} + \gamma_h W_t + \varepsilon_{j,t+h} \quad h = 0, 1, 2, 3 \dots \tag{5}$$

where, as above, $y_{j,t+h}$ is a vector of macro and financial variables of country j at time $t + h$, and controls (W_t) include four lags of the dependent variable, U.S. 12-month treasury rate, global capital inflows, output growth differentials and inflation differentials. In regression equation (5), $\hat{i}_t^{US}$ denote the instrumented 12-month U.S. treasury rate, obtained from the first stage regression equation: $\hat{i}_t^{US} = \alpha + \delta Z_t + u_t$ where Z_t are Gertler and Karadi's (2015) estimated surprises in 3-month Fed Fund Futures.

[14] The countries selected as conducting interest-rate based monetary policy are: Armenia, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Egypt, Guatemala, Hungary, Malaysia, Mexico, Pakistan, Paraguay, Peru, Philippines, Poland, Romania, Russia, South Africa, Sri Lanka, Thailand, Turkey, Ukraine, Uruguay, and Vietnam.

Figure 3: Dynamic effects of a U.S. monetary policy tightening



Notes: Impulse responses are obtained from panel local projections. 90% confidence intervals (calculated using Newey-West standard errors) are shown by the shaded areas. The U.S. policy (12-month U.S. treasury rate) is instrumented by Gertler and Karadi (2015) shock FF4 (estimated from surprises in 3-month Fed Fund Futures). Controls include 4 lags of the dependent variable, U.S. 12-month treasury rate, output growth and inflation differentials. The impulse is an impact 1 percentage point increase in the U.S. policy rate.

Figure 3 reports the impulse responses to an identified U.S. monetary tightening. We find that an exogenous increase in U.S. interest rates leads to a delayed decline in emerging economies' GDP, CPI inflation and capital inflows, in spite of monetary policy easing.[15] The responses of VIX, exchange rate, UIP premia, and short term lending rates, are consistent

[15] Our measure of capital inflows is total debt inflows to GDP from Avdjiev et al. (2022).

with those in Miranda-Agrippino and Rey (2020), and in (Kalemli-Ozcan, 2019).[16]

Let us elaborate on the response of the policy rate and the short-term interest rates. In the wake of an exogenous tightening in U.S. monetary policy, central banks in EMEs cut their policy rates while both treasury and money market rates significantly increase. This evidence is consistent with the notion U.S. monetary policy shocks brings about a significant changes in risk premia, as in (Kalemli-Ozcan, 2019).

We emphasize that the fact that emerging economies' central banks cut rates when the Fed raises the Fed Funds rate does not necessarily imply that they are insulated from the actions of the Fed. We simply observe that the response of emerging economies is to lower rates after an exogenous US monetary policy tightening. The impact of exchange rate/balance sheet effects may still be important and induce emerging economies' central banks to lower rates *less* than what they would have done if they were solely looking at domestic economic conditions.

4 Short-term disconnect and global financial conditions

We have documented that short-term market rates tend to depart from policy rates over the business cycle in emerging economies. In this section, we explore whether this time-varying "short-term disconnect" – the difference between the short-term market rate and the policy rate – correlates with a set of financial premia that originate in global financial markets.[17] In particular, we consider the following premia:

1. the "dollar premium," defined as the premium that a country pays on its dollar-denominated bonds relative to U.S. bonds. Defining $\hat{i}_t^\star$ the return on a dollar-denominated bond of the emerging economy and $i_t^\star$ the return on a (risk-free) U.S. bond, the dollar premium is $\hat{i}_t^\star - i_t^\star$. Bianchi and Lorenzoni (2022) propose a model in which time-varying dollar premium – due to changes in risk appetite of global intermediaries – is a primary source of economic fluctuations in emerging economies.

2. the "UIP Premium," that is the excess currency return on the home-currency bond relative to the U.S. short-term bond. Defining i_t^M as the return on the short-term

[16] See also Dedola et al. (2017) Degasperi et al. (2023)

[17] Note that our definition of short-term disconnect is different from Lenel et al.'s (2019) notion of short-term disconnect, which is the spread between a "shadow" short rate – measured as the short end of a yield-curve model estimated with only medium and long maturity Treasury rates – and the three month T-bill rate.

home-currency market bond and s_t as the exchange rate (home currency per dollar), the UIP premium is $i_t - i_t^\star - (E_t s_{t+1} - s_t)$. Kalemli-Ozcan and Varela (2021) document that UIP premia in emerging economies are sizable and volatile. Recent evidence linked fluctuations in UIP premia to measures of global risk aversion and uncertainty, such as the VIX, and U.S. monetary policy shocks (Lustig et al., 2011; Kalemli-Ozcan, 2019; Cormun and De Leo, 2021). Gabaix and Maggiori (2015) propose a framework in which global intermediaries with limited risk-bearing capacity require excess currency returns on the home bond as a compensation for holding the country's currency risk. In that framework, a time-varying UIP premium can result from fluctuations in global intermediaries' risk-bearing capacity.

3. the "CIP Premium," the difference between a short-term synthetic dollar bond, obtained by investing in short-term emerging-economy market bond and swapping the emerging-economy currency into U.S. dollars, and the U.S. short term bond. Defining f_t as the forward exchange rate, the CIP premium is $i_t - i_t^\star - (f_t - s_t)$. A recent literature has documented the presence of time-varying CIP premia (Du and Schreger, 2016; Du et al., 2018). Du et al. (2018) document that CIP premia are related to regulatory constraints faced by global intermediaries. Keller (2021) studies how banks in Peru change bank lending in the wake of time-varying CIP premia.

We choose these three premia, as they can be readily measured and linked to specific wedges in modern macro models in international finance. We use the EMBI spread to proxy for the dollar premium, and use 12-m market rates (either treasury rates or money market rates) to construct the UIP premium and the CIP premium. To construct the UIP premium we use either realized 12-month exchange rates or survey-based 12-month ahead forecasts. To construct the CIP premium we use cross-currency swaps (as in Du and Schreger (2016) and Du et al. (2018)).[18]

Tables 2 and 3 report the estimated coefficients of a panel regression of the short-term disconnect on the dollar premium, the UIP premium, and/or the CIP premium. The regression is at monthly frequency and includes country fixed effects. The empirical analysis in these tables relies on a balanced sample of countries, outlined in Table A.5. We use sample periods for which observations on dollar premium (EMBI), UIP Premium, and CIP Premium, are

[18] We obtain similar results when using 3-month-horizon UIP and CIP measures. Yet, the estimates are less precise because of the higher amount of noise in 3-month variation in exchange rates, relative to 12 months.

available and reliable. In the top panel of each table, the measure of short-term disconnect is the 3-month treasury rate relative to the policy rate. Instead, in the bottom panel, the measure of short-term disconnect is the 3-month money market rate relative to the policy rate. For each panel, columns (2) and (4) include UIP premium computed using realized future exchange rates, while columns (5) and (6) use survey-based exchange rate (12m-ahead) forecasts to compute the UIP premium. We use 12-month treasury rates to build UIP and CIP deviations in Table 2, while we use 12-month money-market rates to build UIP and CIP deviations in Table 3.

Results Tables 2 and 3 reveal that the short-term disconnect – the difference between the *home* market rate and the *home* policy rate – significantly comoves with these measures of global financial conditions, suggesting that global financial fluctuations transmit to the short-term market rate and potentially contribute to its divergence from the policy rate.

We now discuss the sign of the comovement between the short-term disconnect and the different premia. First, we find that, in virtually all regression specifications, the short-term disconnect wedge positively and significantly comoves with the dollar premium. A 1 percent increase in the EMBI spread is typically associated with around 0.4 percent increase in the short-term market rate relative to the policy rate. Second, we find that the comovement between the short-term disconnect and the UIP is predominantly negative, with few exceptions. Last, we find a strong and negative comovement between the short-term disconnect and the CIP premium.[19] When the short-term synthetic dollar bond return is larger than the U.S. short term bond, we find that the short-term market disconnect is below its mean.

To summarize, we find that the short-term disconnect is systematically higher when the dollar premium is higher and when the UIP and CIP premium is lower – these are all instances in which dollar funding conditions for emerging economies' banks is more expensive. In the next section we present a simple model of banks in emerging economies that rationalizes these empirical comovements.

Sources of risk underlying global premia In general, the three premia considered above can reflect multiple sources of risk, such as default risk differentials between U.S. and the emerging economies' bonds, currency risk, convenience yield differentials between U.S. and emerging economies' bonds, and market segmentation and other financial frictions. In

[19] Appendix Tables A.7 and A.8 report the standardized coefficients of 2 and 3

Table 2: Relationship between short-term disconnect and dollar premium, UIP premium and CIP premium (using 12-month treasury rates to compute the UIP and CIP premium)

	Treasury rate disconnect					
	(1)	(2)	(3)	(4)	(5)	(6)
Dollar Premium	0.454***			0.455***		0.489***
	(0.050)			(0.049)		(0.051)
UIP Premium		-0.008**		-0.008*	-0.028***	-0.034***
		(0.003)		(0.003)	(0.008)	(0.009)
CIP Premium			-0.098***	-0.080***		-0.058**
			(0.020)	(0.019)		(0.021)
R2	0.882	0.876	0.877	0.885	0.876	0.885
R2 (within)	0.058	0.005	0.018	0.078	0.008	0.083
Obs	1372	1372	1372	1372	1372	1372
Countries	13	13	13	13	13	13

	Money market rate disconnect					
	(1)	(2)	(3)	(4)	(5)	(6)
Dollar Premium	0.411***			0.395***		0.353***
	(0.041)			(0.038)		(0.039)
UIP Premium		-0.008**		-0.002	-0.001	0.029***
		(0.003)		(0.003)	(0.007)	(0.007)
CIP Premium			-0.211***	-0.203***		-0.234***
			(0.015)	(0.015)		(0.017)
R2	0.601	0.572	0.625	0.654	0.569	0.658
R2 (within)	0.074	0.007	0.129	0.197	0.000	0.207
Obs	1263	1263	1263	1263	1263	1263
Countries	11	11	11	11	11	11

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Notes: The empirical analysis in this table relies on a balanced sample of countries, outlined in Table A.5. We use sample periods for which observations on Dollar Premium (EMBI), UIP Premium, and CIP Premium, are available and reliable. In the top panel, the dependent variable is the 3-month treasury rate relative to the policy rate. In the bottom panel. In the bottom panel, the dependent variable is the 3-month money market rate relative to the policy rate. For each panel, columns (2) and (4) include UIP premium computed using realized future exchange rates, while columns (5) and (6) use while survey-based exchange rate (12m-ahead) forecasts to compute the UIP premium. We use 12-month treasury rates to build UIP and CIP deviations in this table. The frequency of the data is monthly. The regression includes country fixed effects.

Table 3: Relationship between short-term disconnect and dollar premium, UIP premium and CIP premium (using 12-month money-market rates to compute the UIP and CIP premium)

	Treasury rate disconnect					
	(1)	(2)	(3)	(4)	(5)	(6)
Dollar Premium	0.420***			0.406***		0.475***
	(0.054)			(0.054)		(0.055)
UIP Premium		-0.009*		-0.010**	-0.041***	-0.055***
		(0.004)		(0.004)	(0.010)	(0.010)
CIP Premium			-0.109***	-0.071*		-0.012
			(0.031)	(0.030)		(0.032)
R2	0.887	0.882	0.883	0.889	0.883	0.891
R2 (within)	0.050	0.006	0.011	0.062	0.014	0.078
Obs	1175	1175	1175	1175	1175	1175
Countries	12	12	12	12	12	12

	Money market rate disconnect					
	(1)	(2)	(3)	(4)	(5)	(6)
Dollar Premium	0.393***			0.367***		0.342***
	(0.041)			(0.041)		(0.043)
UIP Premium		-0.004		-0.005	0.016*	0.017*
		(0.003)		(0.003)	(0.008)	(0.008)
CIP Premium			-0.136***	-0.103***		-0.125***
			(0.024)	(0.023)		(0.025)
R2	0.642	0.614	0.624	0.649	0.614	0.649
R2 (within)	0.074	0.002	0.028	0.093	0.004	0.094
Obs	1154	1154	1154	1154	1154	1154
Countries	11	11	11	11	11	11

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Notes: The empirical analysis in this table relies on a balanced sample of countries, outlined in Table A.5. We use sample periods for which observations on Dollar Premium (EMBI), UIP Premium, and CIP Premium, are available and reliable. In the top panel, the dependent variable is the 3-month treasury rate relative to the policy rate. In the bottom panel. In the bottom panel, the dependent variable is the 3-month money market rate relative to the policy rate. For each panel, columns (2) and (4) include UIP premium computed using realized future exchange rates, while columns (5) and (6) use while survey-based exchange rate (12m-ahead) forecasts to compute the UIP premium. We use 12-month money-market rates to build UIP and CIP deviations in this table. The frequency of the data is monthly. The regression includes country fixed effects.

general, the relative importance of these drivers depend on the specific premium and maturity under study. While in our model of Section 5 we take these premia as given and do not take a stance on the sources of risk driving them, we find it reasonable to interpret the dollar premium as primarily capturing default risk, the UIP premium as predominantly reflecting currency risk, and the CIP premium as resulting from convenience yield differentials and regulatory constraints. Note that regardless of the underlying source of variation, both higher UIP and CIP will result in cheaper dollar funding conditions for emerging economies' banks, as highlighted in the next section.

5 A model of banks in emerging economies

We now introduce a partial equilibrium model of the banking sector in emerging economies. The purpose of the model is to study how the balance sheet of the local banking sector can transmit global financial conditions to home market rates and generate an incomplete pass through of local monetary policy. The model is intentionally simple and meant to capture empirical properties of emerging economies' banking sectors. We make a number of simplifying assumptions to keep the analysis tractable and derive clear predictions that can be linked to the empirical evidence in Section 4.

5.1 Environment

We start from the observation that short (safe) instruments are predominantly held by intermediaries in the country, such as commercial banks and money-market mutual funds. We argue that these intermediaries, which we call "home banks" throughout this paper, are the marginal investor in treasury and money market, hence determine home-currency market rate. This aspect of the model is consistent with the fact that local banks are often designated market makers in treasury bond markets, as well as a dominant player in the money market, in many emerging economies.

Home Banks Risk-neutral banks hold short-term market bonds (B_{t+1}^M) with gross returns in home currency R_t^M. On the liability side, home banks issue deposits to households (D_{t+1}) at the gross policy rate R_t^P in home currency or borrowing from foreigners ($D_{t+1}^{\star,\$}$) at the gross dollar interest rate $\hat{R}_t^{\ *}$.

We assume all financial contracts are short term and non-contingent. We also assume that foreign financial contracts are all denominated in foreign currency, in line with empirical evidence. Thus, home banks' assets are in home-currency but (part of) thier liabilities are in foreign currency. As a result, the home banks' balance sheet features a currency mismatch, unless they hedge by using forward contracts, as we describe below.

The balance sheet accounting identity reads

$$\frac{B^M_{t+1}}{R^M_t} = \frac{D_{t+1}}{R^P_t} + \frac{S_t D^{\star,\$}_{t+1}}{\hat{R}^\star_t} \tag{6}$$

while the banks' realized profits at $t+1$ are

$$\Pi^B_{t+1} = B^M_{t+1} - D_{t+1} - S_{t+1} D^{\star,\$,unhedged}_{t+1} - F_t D^{\star,\$,hedged}_{t+1} \tag{7}$$

where $D^{\star,\$,unhedged}_{t+1}$ and $D^{\star,\$,hedged}_{t+1}$ are the unhedged and hedged position in foreign liabilities such that $D^{\star,\$}_{t+1} = D^{\star,\$,unhedged}_{t+1} + D^{\star,\$,hedged}_{t+1}$, and F_t denotes the forward exchange rate, defined as the forward price of dollars in terms of home currency. We consider the possiblity home banks to hedge their foreign-currency liability positions, motivated by the prevailing regulatory regimes in many emerging economies that limit currency mismatches on the balance sheet of financial intermediaries.

We use ω_t to denote the share of foreign liabilities (as a fraction of total liabilities):

$$\omega_t = \frac{S_t D^{*,\$}_{t+1}}{B^M_{t+1}} \frac{R^M_t}{\hat{R}^*_t},$$

while we use ϕ_t to denote the share of hedged foreign-currency liabilities (as a fraction of foreign-currency liabilities) as:

$$\phi_t = \frac{D^{\star,\$,hedged}_{t+1}}{D^{\star,\$}_{t+1}}.$$

Using these definitions, home bank's expected profits can be written as

$$E_t \Pi^B_{t+1} \equiv E_t \left(1 - (1-\omega_t) \frac{R^P_t}{R^M_t} - \omega_t \left((1-\phi_t) \frac{S_{t+1}}{S_t} + \phi_t \frac{F_t}{S_t} \right) \frac{\hat{R}^\star_t}{R^M_t} \right) B^M_{t+1} \tag{8}$$

In this model, home banks choose between home and foreign sources of funding taking as given the respective rates, R^P_t and $\hat{R}^\star_t$, as well as spot and forward exchange rates, S_t and F_t.

We assume that home banks face a convex cost in adjusting their liability composition, ω_t, as well as their hedging share, ϕ_t, relative to constant (steady-state) levels, ω and ϕ. We specify the adjustment cost as follows:

$$\frac{1}{1+\chi}\left(\omega_t-\omega\right)^{1+\chi} \qquad \frac{1}{1+\psi}\left(\phi_t-\phi\right)^{1+\psi} \tag{9}$$

where $\chi, \psi > 0$. These reduced-form adjustment costs can reflect different frictions, regulation, or internal risk-management practices that apply to the individual bank or to the overall banking sector.

To simplify the analysis, we assume that adjusting the liability composition and the hedging share of foreign currency borrowing is infinitely costly for the bank, that is we assume that $\chi \to \infty$ and $\psi \to \infty$ in eq. (9). While these shares are in equilibrium variables that can vary over time, we specifically focus on the scenario where these shares remain constant. Our objective is to understand the impacts of relatively high-frequency fluctuations, such as monthly changes, in financial wedges, when these shares are plausibly stable. That said, as long as $\chi > 0$ and $\psi > 0$ the the fundamental predictions of this model would not change qualitatively.

Under these assumptions, risk-neutrality and perfect competition across banks drive expected bank profits to zero in each period. The first order conditions of the maximization problem thus imply that home bank is willing to hold short-term market bonds as long as the short-term market rate satisfies the following condition:

$$R_t^M = (1-\omega)R_t^P + \omega\left((1-\phi)\frac{E_t S_{t+1}}{S_t} + \phi\frac{F_t}{S_t}\right)\hat{R}_t^* \tag{10}$$

We discuss the implications of equation (10) below in Section 5.2.

Global banks We assume that global banks that operate in international markets, such as the international funding market, the spot FX market, the forward FX market, and they charge time-varying premia resulting in time-varying dollar, UIP and CIP premium:

$$\frac{\hat{R}_t^\star}{R_t^\star} = \text{Dollar Premium}_t \qquad \frac{R_t^M}{R_t^\star} E_t\left(\frac{S_t}{S_{t+1}}\right) = \text{UIP Premium}_t \qquad \frac{R_t^M}{R_t^\star}\left(\frac{S_t}{F_t}\right) = \text{CIP Premium}_t \tag{11}$$

This assumption is consistent with the evidence, cited above, that these premia largely originate from variation in global risk aversion and uncertainty. We model these premia as exogenous variable, and study how changes in them influence the home bank's demand for the market bond.[20]

5.2 Model predictions

We now consider the equilibrium relationship between the market rate relative to the policy rate in the wake of changes in the dollar, UIP and CIP premium. To do so, we log-linearized the bank's demand function for the home market bond (eq. (10)) around a steady state where all premia are nil:

$$i_t^M = (1-\omega)i_t^P + \omega\left[\phi\left(f_t - s_t + \hat{i}_t^\star\right) + (1-\phi)\left(E_t s_{t+1} - s_t + \hat{i}_t^\star\right)\right] \tag{12}$$

where lower-case letters denote log-linear deviations from steady state, and i_t^X denotes the log-deviation of R_t^X from its steady state.

Examining equation (12), we observe that short-term market rates i_t^M reflect the marginal funding costs of home banks. These are a weighted average of local policy rates, i_t^P, and international funding costs, once converted in pesos (and depend on the hedging share ϕ).

A first implication of equation (12) is that the pass-through of monetary policy to short-term rates is incomplete. In fact, *ceteris paribus* a 1% increase in the local policy rate implies a $(1-\omega)$% increase in the short-term market rate i_t^M. In fact, the degree of pass-through incompleteness depends on local banks' reliance on the global funding market, governed by ω. If $\omega = 0$, the pass-through is complete because local banks entirely rely on local deposits. Instead, if $\omega = 1$ the pass-through is zero as local banks only borrow from international market for funding. For intermediate values of ω, the case studied below, the pass-through is incomplete.

We can rearrange eq. (12) to characterize how the short-term disconnect – the difference between the short-term market rate and the policy rate – is related to the three premia described above:

$$i_t^M - i_t^P = \frac{\omega}{1-\omega}\left[\underbrace{\left(\hat{i}_t^\star - i_t^\star\right)}_{\text{dollar premium}_t} - (1-\phi)\underbrace{\left(i_t^M - i_t^\star - E_t s_{t+1} + s_t\right)}_{\text{UIP premium}_t} - \phi\underbrace{\left(i_t^M - i_t^\star - f_t + s_t\right)}_{\text{CIP premium}_t}\right] \tag{13}$$

Equation (13) reveals that a the difference between market and policy rates comoves with

[20] In principle, these premia can be correlated among each other as well as correlated with US monetary policy surprises

dollar premium, UIP premium and CIP premium as long as the foreign liability share is positive ($\omega > 0$). This is intuitive, as these financial premia influence home banks' marginal funding costs and thus the market rate required for them to hold the market bond.

Equation (13) allows us to inspect the direction of comovement between the short-term disconnect and the three premia implied by our simple model.

First, as long as local banks borrow from the international funding market ($\omega > 0$) the short-term disconnect in the home economy will fluctuate along with the dollar premium. In fact, a higher dollar premium will results in an increase in the short-term disconnect, as we find in the data (see Tables 2 and 3). Intuitively, a higher dollar borrowing cost increases the cost of funding of local banks which, in turn, pass it to the market rate in proportion of the foreign liability share ω.

Second, as long as local banks do not fully hedge their foreign currency liability position ($\phi < 1$), the short-term market disconnect will comove with the UIP premium. In particular, the short-term market disconnect comoves *negatively* with the UIP premium on the home-currency market bond. Because home banks borrow in dollars and lend in home currency, a higher UIP premium makes dollar funding cheaper once expressed in home currency, resulting into a lower home-currency market rate. We stress that if banks fully hedge their currency position ($\phi = 1$) then the UIP premium does not affect the market rate in the home economy. We believe that $\phi = 1$ may be a reasonable empirical approximation for some emerging economies that are subject to regulatory limits on currency mismatch. This feature of local banks in emerging economies can explain why one does not always find a systematic relationship between short-term disconnect and UIP premium in the data (see Tables 2 and 3).

Third, as long as local banks hedge part of their foreign-currency liability positions ($\phi > 0$), the short-term disconnect wedge will also be related to the CIP premium. More specifically, a higher CIP premium reduces the short-term market rate relative to the policy rate. In fact, a higher CIP premium means that investors can go short in the US dollar and long in the home currency, thus generating arbitrage profits. In a nutshell, borrowing in dollars is relatively cheap when compared to a synthetic US dollar transaction $i_t^M - f_t + s_t$. In our model, the home bank is short in the US dollar and long in the home currency, and it uses forwards to hedge the peso returns. Thus, it is effectively investing in synthetic dollar and borrowing in the cash dollar market, which is a profitable position when the CIP premium increases. Thus, when the CIP premium increases the market rate has to decline for the zero expected profits condition to hold. In other words, a higher CIP premium lowers the funding costs of home banks and results in a lower required return on the home market bond. Our simple model can thus rationalize the negative coefficient on the CIP premium in Tables 2 and 3, as resulting from banks' hedging the currency mismatch that results from their reliance on dollar borrowing. This logic is also consistent with the recent evidence in Keller (2021) that banks in Peru appear to arbitrage higher CIP premia by borrowing dollars directly, converting these dollars to home currency, and lending in home currency while engaging in a forward contract that sells the home-currency loan proceeds to convert them to dollars.

To summarize, the model of the banking sector presented above can explain why the short-term disconnect is positively (negatively) correlated with the dollar (CIP) premium as well as, under some conditions, negatively correlated with the UIP premium. The three key elements of the model that deliver these relationship are that home financial intermediaries are the key player in the short-term home-currency bond market, these intermediaries borrow a fraction of their liabilities from the global funding market in US dollar, and they hedge a fraction of their currency mismatch by resorting to the forward market.

6 Conclusions

Understanding how central banks conduct monetary policy in emerging economies is crucial as they face complex and evolving trade offs (Gourinchas, 2018; Akinci and Queraltó, 2018; Egorov and Mukhin, 2020; Boz et al., 2020; Auclert et al., 2021). In this paper, we documented that the monetary policy transmission in emerging economies is impaired and this manifests itself through a disconnect between policy rates and short-term market rates. Thus, even though central banks respond to worsening economic activity by cutting policy rates – a "counter-cyclical" monetary policy stance – their stimulus transmits to short-term market rates – the rates relevant for consumption and investment decisions – only imperfectly.

We provided evidence that the short-term disconnect is, at least in part, related to fluctuations in global financial conditions. We interpreted this evidence through the lenses of a simple model of the banking sector of emerging economies. In the model, emerging economies' financial intermediaries price the short-term home-currency market bond. We show that if they borrow a fraction of their liabilities from the global funding market in US dollar and hedge a portion of their currency mismatch, the market rates will depart from the policy rate and the disconnect will be related to global funding conditions such as the dollar premium, the UIP and the CIP premium, as supported by empirical evidence.

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Appendix

A Sample

Table A.1: List of countries

A. Emerging Economies			
Afghanistan, Islamic Republic of	Ecuador	Malta	Serbia, Republic of
Albania	Egypt	Mauritania	Seychelles
Angola	Gambia, The	Mauritius	Sierra Leone
Argentina	Georgia	Mexico	Singapore
Armenia, Republic of	Ghana	Moldova	Slovak Republic
Azerbaijan, Republic of	Guatemala	Mongolia	Slovenia
Bangladesh	Hungary	Morocco	South Africa
Belarus	India	Mozambique	Sri Lanka
Bolivia	Indonesia	Myanmar	Tanzania
Brazil	Iraq	Nepal	Thailand
Bulgaria	Jamaica	Nicaragua	Tunisia
Cambodia	Kazakhstan	Nigeria	Turkey
Chile	Kenya	Pakistan	Uganda
China	Korea, Republic of	Paraguay	Ukraine
Colombia	Kosovo, Republic of	Peru	Uruguay
Congo, Democratic Republic of	Kuwait	Philippines	Vietnam
Costa Rica	Kyrgyz Republic	Poland	Zambia
Croatia	Latvia	Romania	
Czech Republic	Libya	Russian Federation	
Dominican Republic	Malaysia	Rwanda	
B. Advanced Economies			
Australia	Germany	Japan	Sweden
Canada	Iceland	New Zealand	Switzerland
Denmark	Ireland	Norway	United Kingdom
Euro Area	Israel	Portugal	
Finland	Italy	Spain	

Table A.2: Dataset: policy rates

Country	Start	End	Observations	Country Group	Source	*Bloomberg* ticker
Australia	1990q1	2018q4	116	AE	BIS, IMF	
Canada	1992q4	2017q3	100	AE	BIS, IMF	
Denmark	1990q1	1998q4	36	AE	BIS, IMF	
Euro Area	1998q4	2018q4	81	AE	Bloomberg	EURR002W
Germany	1990q1	1998q4	36	AE	Bloomberg	DERPDRT

Iceland	1998q1	2018q4	76	AE	BIS, Bloomberg	ICBRANN
Israel	1995q1	2018q4	96	AE	BIS, Bloomberg	ISBRANN
Japan	2008q4	2015q4	29	AE	BIS, Bloomberg	BOJDPBAL
New Zealand	1999q1	2018q4	80	AE	BIS, IMF	
Norway	1990q1	2017q1	109	AE	BIS, IMF	
Portugal	1990q1	1993q2	14	AE	IMF	
Sweden	1994q2	2014q4	75	AE	BIS, Bloomberg	SWRRATEI
Switzerland	2000q1	2011q2	46	AE	BIS, Bloomberg	SZLTTR
United Kingdom	1990q1	2018q4	116	AE	BIS, Bloomberg	UKBRBASE
Afghanistan, Islamic Republic of	2015q1	2018q4	16	EME	.	
Albania	1992q3	2013q4	86	EME	IMF	
Angola	2011q4	2018q4	29	EME	IMF	
Argentina	2002q1	2018q4	68	EME	BIS, Bloomberg	ARLLMONP
Armenia, Republic of	1999q4	2018q4	77	EME	IMF	
Azerbaijan, Republic of	1993q1	2018q4	27	EME	IMF	
Bangladesh	1990q1	2011q4	88	EME	Bloomberg	BNRPREPO
Belarus	2000q1	2018q4	44	EME	IMF	
Bolivia	1999q1	2008q3	39	EME	Bloomberg	BOPXIX
Brazil	1994q3	2018q4	98	EME	BIS, IMF	
Bulgaria	1991q1	1996q4	24	EME	IMF	
Cambodia	1994q1	1997q3	13	EME	IMF	
Chile	1995q2	2018q4	95	EME	BIS, IMF	
China	2005q3	2018q4	54	EME	BIS, Bloomberg	CHLR12MC
Colombia	1995q2	2018q4	95	EME	BIS, IMF	
Congo, Democratic Republic of	2006q1	2018q2	26	EME	IMF	
Costa Rica	2006q1	2018q4	52	EME	IMF	
Croatia	1993q4	1998q4	21	EME	BIS, IMF	
Czech Republic	1995q4	2018q4	93	EME	BIS, Bloomberg	CZARANN
Dominican Republic	2004q1	2017q3	55	EME	Bloomberg	BCRDONRT
Egypt	2006q1	2018q4	39	EME	Bloomberg	EGBRDRAR
Gambia, The	1990q1	2018q4	116	EME	IMF	
Georgia	2008q1	2018q4	44	EME	Bloomberg	9151P270
Ghana	1990q1	2018q1	113	EME	Bloomberg	GHBRPOLA
Guatemala	1997q1	2018q4	88	EME	Bloomberg	GUIRLR
Hungary	1990q1	2018q4	116	EME	BIS, Bloomberg	HBBRANN
India	1990q1	2018q4	100	EME	BIS, Bloomberg	RSPOYLDP
Indonesia	1990q1	2018q4	116	EME	BIS, IMF	
Iraq	2004q3	2008q4	18	EME	Bloomberg	IQITPR
Jamaica	2002q1	2018q1	65	EME	.	
Kazakhstan	2005q2	2018q4	55	EME	IMF	
Kenya	2006q2	2018q3	50	EME	IMF	
Korea	1999q2	2018q4	79	EME	BIS, IMF	
Kuwait	1990q1	2002q4	50	EME	IMF	
Kyrgyz Republic	2000q1	2018q4	76	EME	IMF	
Libya	1990q1	2013q1	76	EME	IMF	
Malaysia	1995q4	2018q4	66	EME	BIS, IMF	
Malta	1990q1	2007q4	72	EME	IMF	
Mauritania	1990q1	2012q4	92	EME	IMF	
Mauritius	2006q4	2018q4	49	EME	IMF	
Mexico	1998q4	2018q4	81	EME	BIS, Bloomberg	2736R001
Moldova	2000q1	2018q4	76	EME	Bloomberg	9216R001
Mongolia	2007q3	2018q4	46	EME	IMF	
Morocco	1994q1	2008q2	48	EME	IMF	

Mozambique	2012q1	2018q4	23	EME	Bloomberg	MZBRANN
Myanmar	2012q2	2018q2	25	EME	Bloomberg	MMDRCBR
Nepal	1990q1	2018q4	105	EME	IMF	
Nicaragua	1990q1	1995q1	14	EME	IMF	
Nigeria	2007q1	2018q4	48	EME	Bloomberg	NGCBANN
Paraguay	2011q1	2018q4	32	EME	IMF	
Peru	2001q1	2018q4	72	EME	BIS, Bloomberg	PRRRONUS
Philippines	1990q1	2018q4	108	EME	BIS, Bloomberg	PPCBON
Poland	1993q1	2018q4	96	EME	BIS, Bloomberg	POREANN
Romania	2003q1	2012q3	39	EME	BIS, Bloomberg	ROKEPOLA
Russia	1992q1	2018q4	98	EME	BIS, IMF	
Rwanda	1990q1	2017q2	99	EME	IMF	
Serbia	1997q1	2018q4	80	EME	BIS, Bloomberg	SEKEPOLA
Sierra Leone	1990q1	2018q4	44	EME	Bloomberg	7246R001
Singapore	1990q1	2018q4	116	EME	Bloomberg	5766R001
Slovak Republic	2001q2	2008q4	31	EME	IMF	
Slovenia	1992q1	2001q2	38	EME	IMF	
South Africa	1995q1	2018q4	96	EME	BIS, IMF	
Tanzania	1992q2	2012q4	83	EME	IMF	
Thailand	2000q2	2018q4	75	EME	BIS, Bloomberg	BTRRHALL
Tunisia	2000q1	2018q4	76	EME	Bloomberg	TNPORATE
Turkey	1990q1	2018q4	115	EME	BIS, Bloomberg	TUBROBRA
Uganda	2011q3	2018q4	22	EME	Bloomberg	UGCBANNC
Uruguay	2007q3	2018q2	44	EME	Bloomberg	URDAIC
Vietnam	1996q1	2018q3	91	EME	IMF	
Zambia	2012q2	2018q4	27	EME	Bloomberg	ZMCBRATE

Notes: The table reports the sample coverage of policy rates and their sources. When data come from national sources we retrieve it from *Bloomberg* and report the relevant *Bloomberg* ticker in the last column.

Table A.3: Dataset: treasury rates

Country	Start	End	Observations	Country Group	Source	*Bloomberg* ticker
Australia	2009q2	2018q4	39	AE	Bloomberg	GACGB3M
Canada	1997q3	2018q4	85	AE	IMF, Bloomberg	GCAN3M,1566591
Denmark	1993q2	1998q4	23	AE	Bloomberg	GDGT3M
Germany	1993q2	1998q4	23	AE	Bloomberg	GETB1
Iceland	2000q1	2018q3	51	AE	Bloomberg	ICLB3MAY
Israel	1992q1	2018q4	108	AE	Bloomberg	ISMB03M
Italy	1990q4	1996q3	24	AE	Bloomberg	GBOTS3MO
Japan	1992q3	2014q3	89	AE	Bloomberg	GJTB3MO,GTJPY3MGovt
New Zealand	1999q1	2018q4	80	AE	Bloomberg	NZB3MAY
Norway	1995q2	2018q4	95	AE	Bloomberg	GNGT3M
Portugal	1990q1	1993q2	14	AE	IMF, Bloomberg	GTPTE3MGovt,1826591
Sweden	1993q2	2015q1	88	AE	Bloomberg	GSGT3M
Switzerland	2002q1	2011q2	38	AE	Bloomberg	SWIB3MAY
United Kingdom	2000q1	2018q4	76	AE	Bloomberg	UKTT3MAY
Albania	2010q1	2013q4	16	EME	IMF, Bloomberg	ALAT3MAV,9146591
Angola	2004q3	2018q3	34	EME	Bloomberg	AOTB3MAY,6146R005
Argentina	2015q4	2018q3	12	EME	Bloomberg	LBAC3MAY
Armenia, Republic of	2010q4	2018q4	32	EME	Bloomberg	ARTB3MAY

Brazil	2007q1	2018q4	48	EME	IMF, Bloomberg	2236591,GEBR03M
China	2011q1	2018q4	32	EME	Bloomberg	GCNY3M,OECNR002,findIMFversion
Czech Republic	1993q3	2018q4	83	EME	Bloomberg	9356R003,CZTA3MAY
Egypt	2006q1	2018q4	52	EME	Bloomberg	EGTBY3,EGPT3MCBEP
Gambia, The	2015q3	2018q4	12	EME	Bloomberg	CBGMTP3M
Ghana	1990q1	2018q4	116	EME	IMF, Bloomberg	6526591,GHAB3MAY
Hungary	1990q1	2018q3	114	EME	IMF, Bloomberg	HUTZ3MAY,GTHUF3MGovt,9446591
India	2000q2	2018q1	72	EME	Bloomberg	IYTB3M,FBTB3M
Indonesia	2012q1	2018q4	28	EME	Bloomberg	BV3M0132,ASCIAY3M
Iraq	2002q4	2008q4	22	EME	Bloomberg	4336R002
Jamaica	1997q4	2018q4	75	EME	Bloomberg	JMTB3MYL
Kenya	1995q1	2018q4	96	EME	IMF, Bloomberg	KNRETB91,6646591
Korea	1999q2	2018q4	69	EME	Bloomberg	GTKRW3MGovt
Kosovo, Republic of	2012q1	2017q1	12	EME	Bloomberg	KSTT3MAY
Kuwait	1990q1	2002q4	46	EME	IMF	
Kyrgyz Republic	1994q1	2018q4	100	EME	IMF	
Latvia	1994q3	1999q4	22	EME	IMF, Bloomberg	LRTB03AD,9416591
Malaysia	1990q1	2016q4	80	EME	IMF, Bloomberg	MA3MAY,C1133M,5486R001,5486591
Malta	1990q1	2007q4	72	EME	IMF, Bloomberg	1816591,CBMP3M
Mauritius	1997q3	2018q4	77	EME	Bloomberg	BMTB91WY
Mexico	1991q1	2018q4	105	EME	Bloomberg	GCETAA91,MPTBCCMPNCurncy
Moldova	2013q2	2018q4	23	EME	Bloomberg	MKTB3MNY
Mongolia	2012q4	2017q3	18	EME	Bloomberg	MGFX12WK
Mozambique	2003q2	2018q3	62	EME	IMF, Bloomberg	MZTB3MAY,6886591
Myanmar	2015q1	2018q4	16	EME	Bloomberg	MB3MAY
Nepal	1990q1	2018q4	106	EME	IMF, Bloomberg	NPRTTB91,5586591
Nigeria	2008q1	2018q4	44	EME	Bloomberg	NIAT3MAV,NGTB3M
Pakistan	1998q3	2018q4	81	EME	Bloomberg	PAK3CY
Philippines	1990q1	2018q3	106	EME	IMF, Bloomberg	GTPHP3MGovt,5666591
Poland	1995q2	2008q4	48	EME	Bloomberg	PDAT3MAY
Romania	1994q1	2012q3	67	EME	IMF	
Russia	2010q1	2018q4	36	EME	Bloomberg	MICXRU3M
Rwanda	2009q2	2018q4	38	EME	Bloomberg	RWTB3MAY
Serbia	2003q2	2016q1	49	EME	Bloomberg	SRAT3MAV,BIEEBO3M
Seychelles	2008q1	2018q4	44	EME	Bloomberg	SCTB3MAY
Sierra Leone	1990q1	2018q4	116	EME	IMF, Bloomberg	SETT3MAY,7246591
Singapore	1998q1	2018q4	84	EME	Bloomberg	MASB3M
Slovenia	1998q2	2001q2	13	EME	IMF, Bloomberg	9616591,SVAT3MAY
South Africa	1995q1	2018q4	96	EME	IMF, Bloomberg	SATA3MAV,1996591
Sri Lanka	1995q1	2018q4	96	EME	Bloomberg	SLTN3MYD
Tanzania	1993q4	2018q2	99	EME	IMF, Bloomberg	TZTB3MAY,7386591
Thailand	1999q4	2018q2	58	EME	Bloomberg	TH3MAY
Turkey	1990q1	2008q2	58	EME	IMF	
Uganda	1990q1	2018q4	116	EME	IMF, Bloomberg	UATB3MAY,7466591
Ukraine	2014q1	2018q4	11	EME	Bloomberg	UKAUAY3M
Uruguay	2015q2	2018q3	13	EME	Bloomberg	NUTB3MAY
Zambia	2003q4	2018q4	61	EME	Bloomberg	ZMITTBAM,ZITB3MAY

Notes: The table reports the sample coverage of treasury rates and their sources. When data come from national sources we retrieve it from *Bloomberg* and report the relevant *Bloomberg* ticker in the last column.

Table A.4: Dataset: money market rates

Country	Start	End	Observations	Country Group	Source	*Bloomberg* ticker
Australia	1996q4	2018q4	89	AE	Bloomberg	ADBB3MCMPNCurncy
Canada	1991q4	2018q4	109	AE	Bloomberg	CDOR03
Denmark	1990q1	1998q4	36	AE	Bloomberg	CIBO03M
Euro Area	1998q4	2014q4	65	AE	Bloomberg	EUDRCCMPNCurncy
Finland	1990q1	1994q4	20	AE	IMF	
Iceland	1998q3	2018q4	82	AE	Bloomberg	SEDL3MDE
Ireland	1991q2	1996q3	22	AE	Bloomberg	DIBO03M
Israel	2000q4	2018q4	73	AE	Bloomberg	TELBOR03
Italy	1991q1	1996q3	23	AE	Bloomberg	RIBORM3M
Japan	1990q1	2017q2	106	AE	Bloomberg	JY0003M
New Zealand	1995q4	2018q4	93	AE	Bloomberg	NDBB3MCMPNCurncy
Norway	1990q1	2018q4	116	AE	Bloomberg	NIBOR3M
Portugal	1990q1	1993q2	14	AE	Bloomberg	OEPTR005
Sweden	1990q1	2015q1	101	AE	Bloomberg	STIB3M
Switzerland	1990q1	2011q2	86	AE	Bloomberg	SF0003M
United Kingdom	1990q1	2018q4	116	AE	Bloomberg	BP0003M
Argentina	2001q4	2011q4	41	EME	Bloomberg	ARLBP90
Chile	2001q4	2018q4	69	EME	Bloomberg	CLTN90DS,CLTN90DN
China	2005q3	2018q4	54	EME	Bloomberg	CNIBR3M,SHIF3M
Colombia	1995q1	2018q4	96	EME	Bloomberg	COMM90D
Costa Rica	2016q1	2018q4	12	EME	Bloomberg	CRRI3M
Czech Republic	1993q2	2018q4	103	EME	Bloomberg	PRIB03M
Hungary	1997q2	2018q4	87	EME	Bloomberg	BUBOR03M
India	1998q4	2018q4	81	EME	Bloomberg	IN003M
Indonesia	1997q2	2018q4	87	EME	Bloomberg	JIIN3M
Kazakhstan	2001q3	2018q4	70	EME	Bloomberg	KZDR90D
Korea	2004q3	2018q4	58	EME	Bloomberg	KRBO3M
Kuwait	1990q1	2002q4	44	EME	IMF, Bloomberg	KIBOB3M,4436586
Malaysia	1990q1	2018q4	89	EME	Bloomberg	KLIB3M
Mexico	1997q1	2018q4	88	EME	IMF, Bloomberg	MXIB91DT,2736586
Nigeria	2008q1	2018q4	42	EME	Bloomberg	NRBO3M
Pakistan	2001q3	2018q4	69	EME	Bloomberg	PKDP3M
Paraguay	2012q3	2018q4	26	EME	Bloomberg	PYMM3MON
Peru	2002q3	2018q4	66	EME	Bloomberg	PRBOPRB3
Philippines	2001q2	2018q4	70	EME	Bloomberg	PREF3MO
Poland	1996q3	2018q4	90	EME	Bloomberg	WIBR3M
Romania	1998q1	2012q3	59	EME	Bloomberg	BUBR3M
Russia	2000q3	2018q4	74	EME	Bloomberg	MMIBR3M,MOSKP3
Serbia	2005q3	2018q4	54	EME	Bloomberg	9421P276
Singapore	1999q3	2018q4	78	EME	Bloomberg	SIBF3M
Slovak Republic	1995q1	2008q4	56	EME	Bloomberg	BBOR3M
South Africa	1999q1	2018q4	80	EME	Bloomberg	JIBA3M
Sri Lanka	2000q4	2018q4	70	EME	Bloomberg	SLBR3MON
Thailand	2002q2	2018q4	67	EME	Bloomberg	BOFX3M
Tunisia	2016q2	2018q4	11	EME	Bloomberg	TUNBOR3M
Turkey	2006q4	2018q4	49	EME	Bloomberg	TRLXB3M
Vietnam	2009q2	2018q4	39	EME	Bloomberg	VNCD3MO

Notes: The table reports the sample coverage of money market rates and their sources. When data come from national sources we retrieve it from *Bloomberg* and report the relevant *Bloomberg* ticker in the last column.

Table A.5: Sample for regressions in Section 4

Country	Sample period
Brazil	June 2010 - October 2017
China	July 2005 - October 2017
Hungary	March 2012 - August 2017
India	October 2012 - October 2017
Indonesia	January 2012 - September 2017
Korea	April 2003 - March 2004
Malaysia	November 2006 - October 2017
Mexico	March 2003 - October 2017
Philippines	December 2000 - October 2017
Poland	March 2005 - September 2017
Russia	April 2010 - October 2017
South Africa	September 2009 - October 2017
Turkey	July 2008 - October 2017

B Additional Tables and Figures

Taylor rule estimates excluding high-inflation countries and crisis periods Table A.6 reports the estimates of Taylor rule coefficients for a sample that excludes countries that have experienced inflation rates above 40 percent over a 12-month period and periods during the 6 months immediately following a currency crisis and accompanied by a regime switch.[21] The results for this subsample of EMEs are reported in Table A.6.

Results for subsample of EMEs that conduct interest-rate-based monetary policy Here we report our main results for the subsample of EMEs that uses a policy rate as the primary monetary policy instrument for most part of the sample period, following Brandão-Marques et al.'s (2021) classification based on the examination of historical reports, such as IMF Article IV staff reports, and monetary policy reports issued by central banks. The countries selected as conducting interest-rate based monetary policy are: Armenia, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Egypt, Guatemala, Hungary, Malaysia,

[21] Thus, we exclude the "freely falling" category in Ilzetzki et al. (2019).

Table A.6: Estimated central banks' reaction function (excluding high-inflation countries and crisis periods)

	Emerging Economies		*Advanced Economies*	
	i_t^P	i_t^P	i_t^P	i_t^P
i_{t-1}^P	0.889***	0.873***	0.944***	0.930***
	(0.0066)	(0.0073)	(0.0075)	(0.0082)
π_t	0.213***	0.330***	0.304***	0.265***
	(0.023)	(0.027)	(0.029)	(0.028)
Δgdp_t	0.0102***		0.00133	
	(0.0034)		(0.0017)	
$Output\ gap_t$		0.0324**		0.0844***
		(0.016)		(0.011)
R-Squared	0.90	0.89	0.96	0.95

Notes: The table reports estimates of equation (1) by OLS. For both emerging and advanced economies, the first specification uses real GDP growth to proxy for economic activity while the second specification uses the output gap. These regressions feature country fixed effects. Data are at a quarterly frequency. Standard errors are reported in parentheses (* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$).

Mexico, Pakistan, Paraguay, Peru, Philippines, Poland, Romania, Russia, South Africa, Sri Lanka, Thailand, Turkey, Ukraine, Uruguay, and Vietnam. The results for this subsample of EMEs are reported in Figure A.1.

Table A.7: Relationship between short-term disconnect and dollar premium, UIP premium and CIP premium (using 12-month treasury rates to compute the UIP and CIP premium) — Standardized regression coefficients

	Treasury rate disconnect					
	(1)	(2)	(3)	(4)	(5)	(6)
Dollar Premium	0.105***			0.105***		0.113***
	(0.012)			(0.011)		(0.012)
UIP Premium		-0.026**		-0.024*	-0.035***	-0.043***
		(0.010)		(0.009)	(0.010)	(0.011)
CIP Premium			-0.052***	-0.043***		-0.031**
			(0.011)	(0.010)		(0.011)
R2	0.882	0.876	0.877	0.885	0.876	0.885
R2 (within)	0.058	0.005	0.018	0.078	0.008	0.083
Obs	1372	1372	1372	1372	1372	1372
Countries	13	13	13	13	13	13

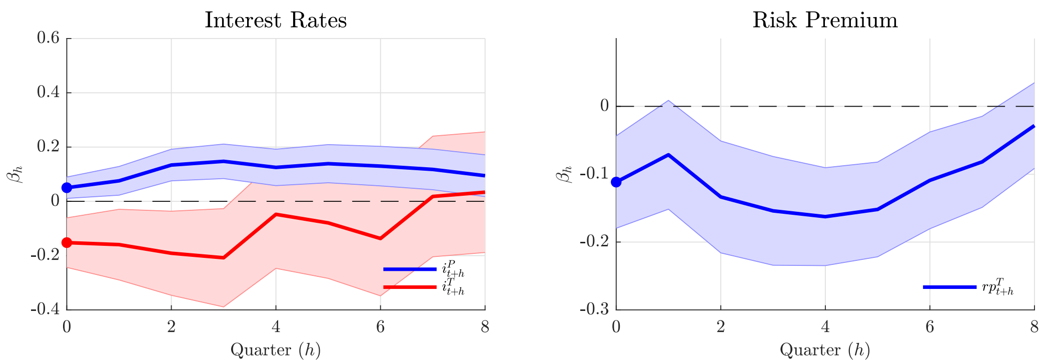
	Money market rate disconnect					
	(1)	(2)	(3)	(4)	(5)	(6)
Dollar Premium	0.217***			0.208***		0.186***
	(0.022)			(0.020)		(0.021)
UIP Premium		-0.055**		-0.014	-0.003	0.080***
		(0.021)		(0.021)	(0.021)	(0.019)
CIP Premium			-0.255***	-0.245***		-0.283***
			(0.015)	(0.018)		(0.021)
R2	0.601	0.572	0.625	0.654	0.569	0.658
R2 (within)	0.074	0.007	0.129	0.197	0.000	0.207
Obs	1263	1263	1263	1263	1263	1263
Countries	11	11	11	11	11	11

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

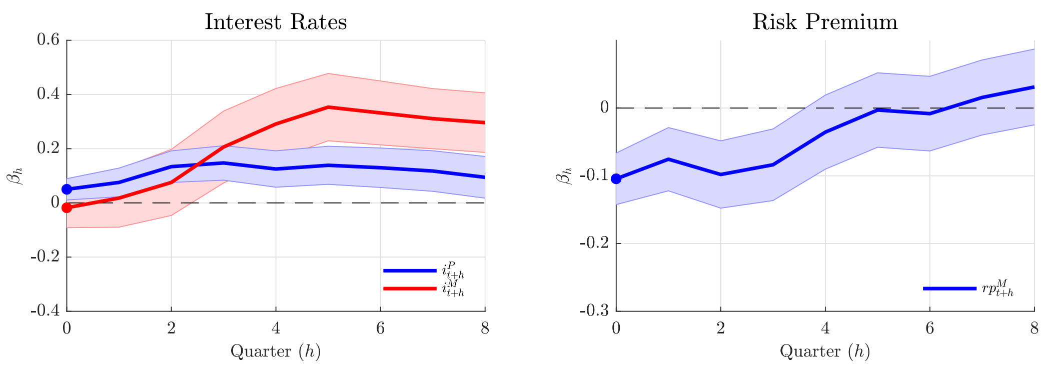
Notes: The empirical analysis in this table relies on a balanced sample of countries, outlined in Table A.5. We use sample periods for which observations on Dollar Premium (EMBI), UIP Premium, and CIP Premium, are available and reliable. In the top panel, the dependent variable is the 3-month treasury rate relative to the policy rate. In the bottom panel. In the bottom panel, the dependent variable is the 3-month money market rate relative to the policy rate. For each panel, columns (2) and (4) include UIP premium computed using realized future exchange rates, while columns (5) and (6) use while survey-based exchange rate (12m-ahead) forecasts to compute the UIP premium. We use 12-month treasury rates to build UIP and CIP deviations in this table. The frequency of the data is monthly. The regression includes country fixed effects.
The standardized coefficients are obtained by a regression that uses standardized variables.

Figure A.1: Dynamic properties of interest rates and risk premia (subsample of EMEs that conduct interest-rate-based monetary policy)

(a) Emerging Economies – Treasury Rates



(b) Emerging Economies – Money Market Rates



Notes: The figure reports the panel estimates of β_h's in regression equations (2), (3), and (4). 90% confidence intervals are shown by the shaded areas. These regressions feature country fixed effects. Data are at a quarterly frequency.

Table A.8: Relationship between short-term disconnect and dollar premium, UIP premium and CIP premium (using 12-month money-market rates to compute the UIP and CIP premium) — Standardized regression coefficients

	Treasury rate disconnect					
	(1)	(2)	(3)	(4)	(5)	(6)
Dollar Premium	0.094***			0.091***		0.106***
	(0.012)			(0.012)		(0.012)
UIP Premium		-0.026*		-0.028**	-0.047***	-0.064***
		(0.012)		(0.011)	(0.011)	(0.012)
CIP Premium			-0.041***	-0.027*		-0.004
			(0.012)	(0.011)		(0.011)
R2	0.887	0.882	0.883	0.889	0.883	0.891
R2 (within)	0.050	0.006	0.011	0.062	0.014	0.078
Obs	1175	1175	1175	1175	1175	1175
Countries	12	12	12	12	12	12

	Money market rate disconnect					
	(1)	(2)	(3)	(4)	(5)	(6)
Dollar Premium	0.206***			0.193***		0.179***
	(0.021)			(0.022)		(0.023)
UIP Premium		-0.029		-0.031	0.042*	0.047*
		(0.022)		(0.019)	(0.021)	(0.022)
CIP Premium			-0.117***	-0.088***		-0.107***
			(0.021)	(0.020)		(0.021)
R2	0.642	0.614	0.624	0.649	0.614	0.649
R2 (within)	0.074	0.002	0.028	0.093	0.004	0.094
Obs	1154	1154	1154	1154	1154	1154
Countries	11	11	11	11	11	11

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Notes: The empirical analysis in this table relies on a balanced sample of countries, outlined in Table A.5. We use sample periods for which observations on Dollar Premium (EMBI), UIP Premium, and CIP Premium, are available and reliable. In the top panel, the dependent variable is the 3-month treasury rate relative to the policy rate. In the bottom panel. In the bottom panel, the dependent variable is the 3-month money market rate relative to the policy rate. For each panel, columns (2) and (4) include UIP premium computed using realized future exchange rates, while columns (5) and (6) use while survey-based exchange rate (12m-ahead) forecasts to compute the UIP premium. We use 12-month money-market rates to build UIP and CIP deviations in this table. The frequency of the data is monthly. The regression includes country fixed effects. The standardized coefficients are obtained by a regression that uses standardized variables.