

# Transmission of U.S. Long-term Rate to EM Local Currency Sovereign Bonds

## The Role of the Investor Composition

Prepared by Zixuan Huang and Xiang-Li Lim

WP/26/214

*IMF Working Papers* describe research in progress by the author(s) and are published to elicit comments and to encourage debate.

The views expressed in IMF Working Papers are those of the author(s) and do not necessarily represent the views of the IMF, its Executive Board, or IMF management.

**2026  
OCT**



**IMF Working Paper**

Monetary and Capital Markets Department

**Transmission of U.S. Long-term Rate to EM Local Currency Sovereign Bonds: The Role of the Investor Composition****Prepared by Zixuan Huang and Xiang-Li Lim\***

Authorized for distribution by Jason Wu

October 2026

**IMF Working Papers describe research in progress by the author(s) and are published to elicit comments and to encourage debate.** The views expressed in IMF Working Papers are those of the author(s) and do not necessarily represent the views of the IMF, its Executive Board, or IMF management.

**ABSTRACT:** This paper investigates how shocks to the U.S. long-term risk-neutral interest rate influence emerging market local currency sovereign bonds and how domestic investor participation affects this relationship. We focus on the expected-future-short-rate, or risk-neutral, component of U.S. long-term rates, which reflects U.S. monetary policy and serves as a purer form of the global risk-free benchmark, rather than term premia. Using the instrumental variable approach and data on investor types in local currency sovereign bond markets, we have two main findings. First, a rise in the U.S. long-term interest rate leads to an increase in both local currency sovereign yields and term premia in emerging markets. Second, domestic investor participation mitigates these spillover effects from the U.S. interest rate, primarily driven by domestic banks and non-bank institutional investors rather than central banks. These results underscore the importance of policies aimed at broadening and deepening local investor bases to strengthen local market resilience against unexpected external interest-rate shocks.

**RECOMMENDED CITATION:** Huang, Z. and X. Lim. 2026. Transmission of U.S. Long-term Rate to EM Local Currency Sovereign Bonds: The Role of the Investor Composition. IMF Working Paper WP/26/214. Washington, DC: International Monetary Fund.

|                             |                                                                              |
|-----------------------------|------------------------------------------------------------------------------|
| JEL Classification Numbers: | F30, F31, G10, G15                                                           |
| Keywords:                   | Sovereign bonds, emerging markets, U.S. long-term rate, investor composition |
| Authors' email addresses:   | zhuang2@IMF.org<br>xlim@IMF.org                                              |

---

\* We thank Jason Wu for insightful comments and discussions. The views expressed in this paper are those of the authors and do not necessarily represent those of the International Monetary Fund or its board. All errors are our own.

---

WORKING PAPERS

# **Transmission of U.S. Long-term Rate to EM Local Currency Sovereign Bonds**

The Role of the Investor Composition

Prepared by Zixuan Huang and Xiang-Li Lim

---

# Contents

|                                                               |           |
|---------------------------------------------------------------|-----------|
| <b>Acronyms/Glossary .....</b>                                | <b>3</b>  |
| <b>Executive Summary .....</b>                                | <b>4</b>  |
| <b>1 Introduction .....</b>                                   | <b>5</b>  |
| <b>2 Data .....</b>                                           | <b>8</b>  |
| <b>3 Effects of U.S. Long Term Risk Neutral Rate .....</b>    | <b>10</b> |
| 3.1 Identification Strategy .....                             | 10        |
| 3.2 Investor Composition and How it Shifts EM Resilience..... | 17        |
| <b>4 Conclusion.....</b>                                      | <b>27</b> |
| <b>Appendix.....</b>                                          | <b>28</b> |
| <b>References.....</b>                                        | <b>30</b> |

## FIGURES

|                                                                                                            |    |
|------------------------------------------------------------------------------------------------------------|----|
| Figure 1. U.S. 10-year Risk Neutral Rate.....                                                              | 10 |
| Figure 2. Changes in U.S. Long-term Interest Rates and High-frequency Changes in Yields at Fed Events .... | 12 |
| Figure 3. Responses of 5-year EM Sovereign Bonds to U.S. Long-term Interest Rates: Simple LP .....         | 15 |
| Figure 4. Responses of 10-year EM Sovereign Bonds to U.S. Long-term Interest Rates: Simple LP.....         | 15 |
| Figure 5. Response of 5-year EM Sovereign Bonds to U.S. Long-term Interest Rates: LP-IV .....              | 16 |
| Figure 6. Response of 10-year EM Sovereign Bonds to U.S. Long-term Interest Rates: LP-IV .....             | 16 |
| Figure 7. Outstanding Local Currency Sovereign Debt by Holders .....                                       | 17 |
| Figure 8. Local Currency Sovereign Debt Holdings by Holders Share .....                                    | 18 |

## TABLES

|                                                                                  |    |
|----------------------------------------------------------------------------------|----|
| Table 1. U.S. Long-term Rates and High-Frequency Changes in Treasury Yields..... | 13 |
| Table 2. Marginal Investors in Local Currency Government Bonds .....             | 19 |
| Table 3. Marginal Investors in Local Currency Government Bonds by Country .....  | 20 |
| Table 4. Effect of Domestic Investors on EM 5-year Sovereign Yields.....         | 21 |
| Table 5. Effect of Domestic Investors on EM 10-year Sovereign Yields.....        | 22 |
| Table 6. Effect of Domestic Investors on EM 5-year Term Premia .....             | 23 |
| Table 7. Effect of Domestic Investors on EM 10-year Term Premia .....            | 23 |
| Table 8. Investor base sources .....                                             | 28 |
| Figure 9. Robustness Checks .....                                                | 28 |

## Acronyms/Glossary

DII..... Domestic Institutional Investors  
EM..... Emerging Markets  
FOMC..... Federal Open Market Committee  
GDP ..... Gross Domestic Product  
IV..... Instrumental Variable  
IMF ..... International Monetary Fund

LC .....Local Currency  
LP .....Local Projections  
U.S.....United States  
UST.....United States Treasury  
VIX.....CBOE Volatility Index

## Executive Summary

**This paper examines how changes in U.S. long-term risk-neutral interest rates transmit to emerging market (EM) local currency sovereign bond markets, and whether the composition of domestic investors influences the strength of these spillovers.** The paper focuses on the component of U.S. long-term rates that reflects expected future short rates—the risk-neutral component shaped by U.S. monetary—rather than term premium, on three grounds. First, the expected path of short rates is the global risk-free benchmark against which assets are priced worldwide, so a shock to it is a repricing of the global cost of capital, distinct from a change in the compensation investors demand for bearing duration risk. Second, isolating it complements the global financial cycle literature, which stresses spillovers through a risk-taking channel operating on global risk appetite and risk premia; our channel is the transmission of the benchmark rate itself. Third, our identification speaks to this component directly: high-frequency surprises around Federal Reserve announcements are revisions to the expected policy path, so they directly identify the risk-neutral rate. U.S. long-term rates serve as a key global benchmark for risk-free pricing and therefore play a central role in shaping financial conditions worldwide. While the 2013 “Taper Tantrum” highlighted the vulnerability of EM local currency bond markets to abrupt increases in U.S. yields, recent evidence suggests that EMs have become more resilient, supported in part by the development of deeper domestic investor bases and stronger local currency debt markets.

Using high-frequency changes in U.S. Treasury yields around Federal Reserve announcements as an instrumental variable, the paper identifies the causal impact of U.S. long-term rate shocks on EM sovereign yields. The results show that increases in U.S. long-term rates lead to significant and persistent rises in EM local currency sovereign yields and term premia across both 5-year and 10-year maturities. The pass-through is economically large, approaching a near one-for-one relationship within days of the shock. To analyze the role of investor composition, the paper constructs a novel dataset covering sovereign bond holdings across five investor categories in 12 major EMs over 2012–2024. The data reveals a notable shift toward greater domestic participation, with the median share of domestic investors increasing from 72.2 percent in 2012 to 80.6 percent in 2024.

The paper further finds that a larger and more diversified domestic investor base helps mitigate the transmission of U.S. interest rate shocks to EM local currency government bond markets. In particular, greater participation by domestic banks, non-bank institutional investors, and other resident investors significantly reduces the impact of external shocks on sovereign yields and term premia, whereas central bank participation does not appear to provide the same stabilizing effect. These findings suggest that the resilience of EM local currency bond markets increasingly depends not only on macroeconomic fundamentals, but also on the structure and diversity of domestic financial intermediation. More broadly, the paper highlights the importance of investor composition as a key factor shaping how global financial conditions transmit across EM sovereign debt markets.

# 1 Introduction

**U.S. long-term interest rates anchor global fixed-income pricing and transmit to emerging market (EM) financial conditions.** An aggregate U.S. Treasury yield, however, bundles two different forces: the expected path of future short-term rates and a term premium that compensates investors for bearing duration risk (Adrian et al. (2013)). This paper focuses on the first, the expected-future-short-rate or risk-neutral component, and studies how shocks to it transmit to EM local currency (LC) sovereign bond markets. This component reflects the stance and expected path of U.S. monetary policy and the perceived equilibrium real rate,  $r^*$ ; it is, in effect, a purer form of the global risk-free benchmark against which assets are priced worldwide.

We isolate this component for three reasons. First, the expected path of short rates is the fundamental global benchmark, the risk-free discount rate common to all markets, so a shock to it is an economy-wide repricing of the global cost of capital rather than a change in the compensation for bearing a particular risk. Indeed, prior work finds that this expected-path component, rather than the term-premium component, could dominate U.S. spillovers to EM asset prices and capital flows (Chen et al. (2014)). Second, isolating it sharpens the comparison with the large literature on global financial cycle, which shows that U.S. monetary policy spills over to the rest of the world largely through a risk-taking channel operating on global risk appetite and risk premia, compressing risk compensation, expanding intermediary leverage, and driving capital flows (Rey (2015), Miranda-Agrippino and Rey (2020), Bruno and Shin (2015), Kalemli-Ozcan (2019)). We instead trace the transmission of the risk-free benchmark itself. Third, our identification speaks to this component directly. High-frequency surprises in the 10-year Treasury yield around Federal Reserve announcements are revisions to the expected path of policy. The instrument is therefore strong for the risk-neutral component.

We investigate how fluctuations in this pure risk-free rate are transmitted to emerging market local currency sovereign bond yields. These local yields play a pivotal role in domestic financial conditions: they determine home-currency borrowing costs and reflect a country's monetary sovereignty, unlike hard currency debt. As these local markets continue to develop and attract global capital, understanding their sensitivity to changes in benchmark rates is thus crucial for policy makers, as external shocks can tighten local financing conditions even absent direct foreign-currency exposure. The 2013 "Taper Tantrum" demonstrated the vulnerability of EM local yields to abrupt U.S. rate shocks. Yet the landscape has since evolved. Many EMs have broadened their domestic investor base, with greater participation of domestic institutions in local currency bond markets (Hardy et al. (2024), IMF (2025)). We therefore examine the role of domestic investors' composition in the transmission mechanism. In light of these structural shifts, assessing the cross-border transmission of the fundamental global risk-free rate into EM yields in both timely and policy-relevant.

Examining these spillovers over the past decade is particularly important, given the increasing reliance on LC issuance across major emerging economies (IMF (2025), Nose and Menkulasi (2025)). Despite structural market reforms, strengthened macroeconomic frameworks, and concerted efforts to reduce currency mismatches, EM LC bond markets remain susceptible to external volatility, most notably fluctuations in U.S. interest rates. The 2013 "Taper Tantrum" is a prime example. A sharp rise in U.S. long-term yields, triggered by the Fed's signaling of quantitative easing tapering, precipitated rapid capital outflows, steep currency depreciation, and heightened sovereign yields across EMs. Given that U.S. interest rate shocks continue to play a central role in shaping EM financial conditions, identifying and quantifying their specific effect is essential for both researchers and policymakers.

Emerging evidence indicates that while EMs remain vulnerable, they are now demonstrating greater resilience to external shocks than in the past. Meanwhile, the investor base in several markets has undergone a structural shift, with a steady expansion of resident investors relative to nonresidents (IMF (2025)). Indeed, the median share of nonresident investors contracted from 27.8 percent in January 2012 to 19.4 percent in December 2024. Within this context, the composition of the investor base can be a critical determinant of market resilience, dictating the extent to which EM local currency debt markets absorb or transmit external shocks. It is therefore essential to assess whether this evolution in investor composition bolsters the resilience of EM local currency sovereign bond markets against U.S. interest rate volatility. Understanding this dynamic is crucial for the design of local market development policies, and offer insights for EM policymakers, particularly those who now rely on their respective domestic markets for fiscal financing.

We begin by identifying the effect of U.S. long-term risk-free interest rates on EM local currency sovereign bonds. In practice, establishing this causal relationship presents significant identification challenges. The presence of confounding factors, such as common shocks to the global economy that simultaneously influence U.S. interest rates and EM bond markets, poses a substantial endogeneity concern. To address this, we use high-frequency surprises in the 10-year UST yield at Federal Reserve (Fed) events as an instrumental variable (IV) for U.S. long-term interest rates. We then use local projections (LP) to estimate the dynamic effects (Jorda (2005), Jorda and Taylor (2025)). Our results show that an increase in U.S. long-term interest rates leads to higher EM local currency sovereign yields and term premia at both the 5-year and 10-year maturities. Notably, the impact on nominal yields approaches a nearly one-to-one relationship within five days of the shock and exhibits persistence. Because Fed announcements occur during US trading hours, some EM local bond markets may be closed or thinly traded when policy surprises occur, potentially delaying price discovery. We therefore allow for next-day repricing and beyond, recognizing that the full adjustment to US term-premium shocks may be reflected only when local markets reopen. Furthermore, we find that traditional local projections substantially underestimate the impact on EM sovereign yields compared to the local projections with instrumental variables (LP-IV), highlighting the importance of addressing bias in the baseline estimates.

Examining whether the types of domestic investors affect the spillover from U.S. interest rate shocks requires granular data on the ownership in local currency sovereign bond markets in major EM economies. To this end, we collect and organize a novel dataset of investors' holdings of local currency sovereign bonds from various sources of national authorities. Specifically, we decompose LC sovereign debt into nonresidents and domestic holdings, further disaggregating the domestic category into four distinct subgroups: central banks, domestic commercial banks, domestic non-bank institutional investors, and other domestic investors. As a result, our sample provides country-month observations of the debt decomposition of local currency debt for 12 major EM countries, whose bonds are consistently included in global index, spanning the period 2012–2024.

Using data on local-currency sovereign bond holdings across five investor categories, we first document the composition of investors and its evolution over time. The data reveal a significant shift: domestic investors collectively held a substantially larger market share in 2024 than in 2012. Among domestic investors, banks exhibited the most pronounced growth until recent years, with their average share rising sharply from 22.6 percent at end-2019 to 28.1 percent by end-2021 amid the COVID-19 crisis. Since that peak, bank holdings have gradually retrenched, whereas domestic non-bank institutional investors, central banks<sup>1</sup>, and other domestic investors have steadily expanded their respective footprints in the market.

<sup>1</sup> Central banks' holdings may include securities held temporarily through repo operations, as data aggregation is constrained by authorities' disclosure practices.

We further investigate how the investor composition influences the spillover effects of U.S. long-term interest rate shocks. We find that greater participation by domestic investors mitigates these spillovers. Specifically, higher shares held by domestic banks, non-bank institutional investors, and other domestic investors reduce the pass-through to both yields and term premia across 5-year and 10-year tenors. In contrast, central bank participation exerts no statistically significant effect on these dynamics. These findings provide robust empirical evidence supporting the efforts of policymakers and market authorities to cultivate a diversified domestic investor base, thereby enhancing the resilience and stability in EM local-currency bond markets in the face of external interest rate volatility.

**Literature.** This paper builds upon several strands of literature. First, it contributes to the understanding of the impact of external shocks to EM financial markets. The “global financial cycle” illustrates how common factors originating in advanced economies drive financial conditions across a broad set of countries including emerging markets (Rey (2015), Cerutti et al. (2017), Cerutti et al. (2019), Miranda-Agrippino and Rey (2020), Miranda-Agrippino and Rey (2022)). Global factors such as U.S. monetary policy, liquidity supply, and global risk aversion have emerged as the primary drivers of cross-border capital flows. Distinguishing itself from studies that focus on broad capital flows or macroeconomic aggregates, this paper specifically isolates the transmission of U.S. long-term interest rates to EM local currency sovereign bond markets.

Second, this paper contributes to the literature investigating the spillovers of U.S. financial conditions on EM sovereign bonds. Solís (2025) examines how U.S. monetary policy transmits to the sovereign yields of emerging markets while accounting for credit risk. Juselius et al. (2025) finds that U.S. dollar depreciation against EM currencies correlates with tighter sovereign yield spreads of emerging markets. Burger et al. (2017) analyzes the impact of U.S. monetary policy on EM sovereign and corporate bonds with a focus on the size and currency composition of EM bond markets. Our paper adds to this line of research by focusing explicitly on the U.S. long-term risk-neutral rate

Third, our research relates to the growing literature that uses high-frequency asset price movements around Fed events. Such studies typically leverage intraday data to identify monetary policy surprises, effectively mitigating endogeneity concerns by isolating the unanticipated component of policy decisions (Nakamura and Steinsson (2018); see also Rogers et al. (2014), Rogers et al. (2018), Gilchrist et al. (2019)). Drawing on data from Georgiadis and Jarocinski (2025), we exploit narrow-window changes in 10-year UST yields surrounding Fed events as an instrumental variable for the U.S. long-term interest rate to analyze its effect on EM sovereign bonds. This high-frequency identification approach allows us to plausibly isolate exogenous shocks to U.S. rates.

Fourth, this study contributes to the literature examining the determinants that affect the transmission of global financial conditions to domestic financial and macroeconomic outcomes in emerging markets. For instance, Obstfeld et al. (2019) demonstrates that the transmission of global financial shocks to domestic credit and house price growth is amplified under fixed exchange rate regimes relative to more flexible ones. Cerutti et al. (2019) shows that global factors do not affect all emerging markets uniformly. Specifically, EMs with a greater reliance on global mutual funds exhibit higher sensitivity in equity and bond inflows. Building on this line of research, we advance this transmission literature by introducing another mechanism: the structural composition of domestic investor base. We demonstrate that investor composition is a factor that explains the heterogeneous transmission of external shocks across countries.

Finally, the work connects with burgeoning literature on investor composition and demand-based asset pricing. Kojen and Yogo (2019) develops characteristics-based demand system, allowing flexible heterogeneity in asset demand across investors, and thus the aggregate demand elasticity varies if the types of investors

holding the assets are different. Similarly, Fang et al. (2025) finds that investor heterogeneity and composition affects the sovereign debt markets. IMF (2026) also examines how different investor types adjust their positions in response to increases in the VIX. Our findings align with this strand of literature, suggesting that varying sensitivities across investor types drive the heterogeneous impact of U.S. long-term interest rates on EM sovereign yields. Specifically, our results imply that domestic investors may possess a more inelastic demand with respect to U.S. long-term rates or a different risk-assessment profile than their nonresident counterparts, thereby stabilizing local markets during external shocks.

The rest of this paper is organized as follows. Section 2 describes the datasets used in the empirical analysis. Section 3 details the identification strategy, presents the stylized facts about investor base composition in EMs, and discusses empirical results. Finally, Section 4 concludes.

## 2 Data

**Our sample comprises 12 major emerging market (EM) economies, including Brazil, Chile, Colombia, Hungary, Indonesia, Malaysia, Mexico, Peru, Poland, Romania, South Africa and Thailand.** These local currency government bond markets are amongst the largest amongst the EMs<sup>2</sup> universe, and have been consistently included in the JP Morgan GBI-EM Global Diversified index from January 2013 to December 2024. Restricting the sample to global index constituents ensure cross-country comparability by ensuring minimum standard for market accessibility, liquidity, and position replicability for global investors, thereby providing a consistent basis for assessing price dynamics over the study period<sup>3</sup>. Markets subject to explicit capital controls or insufficient liquidity are excluded from the index, as these factors hinder the ability of global investors to replicate market weights. To further improve comparability, we exclude markets where domestic banks dominate, defined as holding more than 50 percent of outstanding debt on average over the sample period. Such markets may exhibit price dynamics that could be heavily influenced by financial repression, regulatory incentives, or captive investor bases rather than market-based factors. Furthermore, the selected markets also represent a relatively advanced segment of the EM universe in terms of local bond market development, making them a useful benchmark from which less-developed markets may draw relevant policy lessons. Collectively, these local currency government bond markets accounted for 76 percent of the GBI-EM Global Diversified Index market capitalization as of December 2024, and 78 percent as of January 2013, representing a large enough majority of investable EM universe that are available to global investors

**Data on asset prices.** Data on EM LC sovereign bonds include daily 5-year and 10-year zero coupon yields and their corresponding term premia. Zero-coupon yields are sourced directly from Bloomberg, while data on term premia are decomposed following the methodology of Adrian et al. (2013). Similarly, we use U.S. 10-year risk-neutral interest rates, derived using the same methodology in Adrian et al. (2013). As discussed in Section 1, fluctuations in U.S. 10-year UST yields within 30-minute windows surrounding Fed events serve as our

---

<sup>2</sup> Excluding China and Russia.

<sup>3</sup> We focus on markets that were continuously included in the index throughout the sample period to avoid distortions arising from index entry, exclusion, or major changes in market accessibility. Countries that entered the index later or were subsequently removed often experienced significant structural shifts, including capital account liberalization, market reforms, liquidity improvements, or changes in investor access that can complicate comparisons of market pricing dynamics over time.

instrumental variable. These high-frequency yield changes are obtained from Georgiadis and Jarocinski (2025) and cover five distinct types of Fed events: FOMC meetings, Fed Chair speeches, testimonies, press conferences and minutes releases, through 2024.

**Data on investor participation.** Data on investor participation are collected from various national authorities including central banks, ministry of finance, and treasuries. Table 8 in the Appendix provides a comprehensive list of these data sources by country. While most of the dataset is available at a monthly frequency, two countries report data on a quarterly basis. To ensure a consistent panel, these quarterly series are converted to a monthly frequency by assuming that investor participation remains constant across all months within a given quarter, which is a plausible interpolation method for slow-moving ownership data. Investors are classified into five categories: nonresident investors, the central bank, domestic banks, domestic non-bank institutional investors (DIIs), and other domestic investors<sup>4</sup>. Domestic non-bank institutional investors include pension funds, insurance companies, social security funds, and related entities. While the specific coverage may vary slightly across jurisdictions based on data availability, the precise composition for each country is detailed in Table 8 of the Appendix. The “other domestic” category captures all remaining resident holdings. By construction, the market shares of these five categories sum to unity.

Overall, we break down the local currency sovereign debt by its investor holdings for a sample of 12 countries at a monthly frequency from 2012 to 2024. The main advantage of our dataset is its granular allocation of local currency sovereign debt across various investor types, within major EM economies. However, such broad coverage comes with drawbacks. First, our dataset lacks detailed information regarding the maturity structure of the holdings. Second, the definition of domestic non-bank institutional investors (DIIs) exhibits slight cross-country heterogeneity due to reporting differences. For instance, while DIIs in most sample countries include both pension funds and insurance companies, the Romanian data only captures pension funds. By contrast, Thailand classifies insurers and pension funds within a broader category, “financial corporations not elsewhere classified”, which could also include securities firms, mutual funds, and other institutions. This classification nuance may slightly obscure the distinct effects of DIIs relative to the residual category.

**Other macro and financial variables.** To account for domestic and global conditions, we incorporate several additional control variables. Monthly inflation, quarterly real GDP growth, and the quarterly current account-to-GDP ratio are sourced from Bloomberg. To capture global financial sentiment and currency dynamics, we include the daily CBOE Volatility Index (VIX) and the Nominal Advanced Foreign Economies U.S. Dollar exchange rate index (Dollar index), computed by the Board of Governors of the Federal Reserve System, also retrieved from Bloomberg. Quarterly variables are interpolated to a monthly frequency to maintain consistency with our panel analysis.

---

<sup>4</sup> Unlike much of the existing literature, which generally aggregates sovereign debt holders into domestic central banks, domestic banks, nonresidents, and a residual category of other domestic investors, this study disaggregates domestic nonbank institutional investors as a distinct investor group. Doing so highlights their increasing presence and importance in the local currency sovereign bond markets of the sample economies and allows for a more granular assessment of their market-stabilizing role.

## 3 Effects of U.S. Long Term Risk Neutral Rate

This section illustrates the empirical approach to identify the effect of U.S. long-term risk-neutral rates on yields and term premia of EM local currency sovereign bonds. We begin by illustrating the instrumental variable approach we apply to estimate the causal effect of U.S. long-term interest rates on EM yields and term premia. We then present the local projection analysis using the instrumental variable approach (LP-IV). Finally, we study how the investor composition shifts the effect.

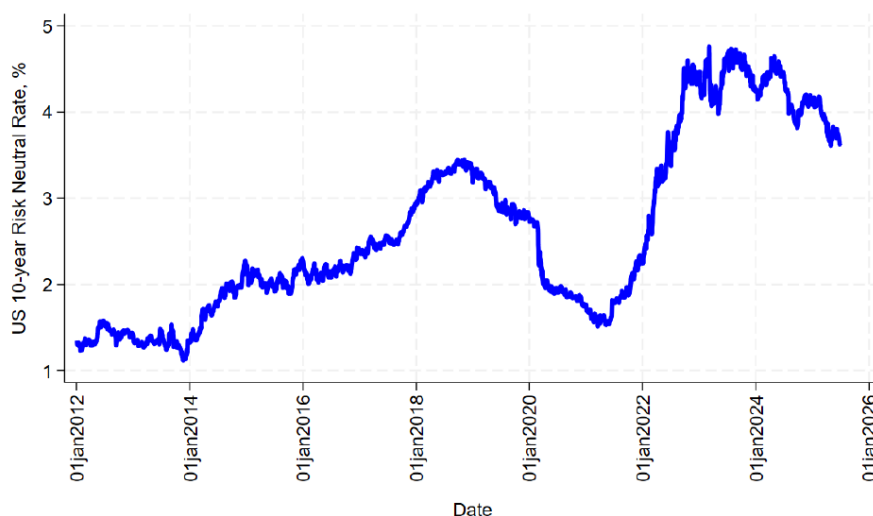
### 3.1 Identification Strategy

#### 3.1.1 US long term risk neutral rate

We measure the U.S. long-term risk-neutral rate by applying Adrian et al. (2013), a widely used affine structure model designed to decompose nominal yields into the expectation of the future path of short-term rates and a term premium. Specifically, the 10-year risk-neutral rate is essentially the average expected short rate over a 10-year horizon, under the risk-neutral measure.

Figure 1 plots the U.S. 10-year risk-neutral rates from 2012 through 2025. The 10-year rate was suppressed during the zero-lower-bound period, followed by a gradual ascent as the Federal Reserve (Fed) began its previous normalization cycle. It slumped significantly during the COVID-19 pandemic and has surged since late 2021, driven by the tightening cycle initiated to combat inflationary pressures. During the most recent Fed hiking cycle, the U.S. 10-year risk neutral rate peaked in April 2024, before retreating.

Figure 1. U.S. 10-year Risk Neutral Rate



Sources: Bloomberg Finance L.P.; IMF staff calculations

Note: This figure plots the daily U.S. 10-year risk-neutral interest rate from 2012 to 2025. The interest rate is obtained by decomposing U.S. 10-year Treasury yields using Adrian et al. (2013).

#### 3.1.2 Instrumental Variable Approach

In practice, identifying a causal relationship between U.S. risk-neutral rates and EM LC sovereign bonds presents considerable challenges. Primarily, the presence of confounding factors that influence both U.S. interest rates

and emerging market bonds poses a substantial obstacle to identification. A wide range of global macro-financial conditions such as shifts in global risk appetite and common shocks to global economic growth or inflation can drive co-movements in both U.S. risk-neutral rates and emerging market borrowing costs, making it challenging to disentangle the effect of U.S. interest rates from other confounding factors.

Second, reverse causality could be another concern of endogeneity, which could lead to a misattribution of the effects of U.S. long-term interest rates. For instance, financial or macroeconomic shocks originating in major EMs can propagate to advanced economies, ultimately influencing U.S. long-term interest rates. Deepening global economic integration through trade linkages and global value chains implies that shocks emanating from systemically important EMs can meaningfully alter global growth prospects. Such shifts have direct implications for both the demand for safe-haven assets, such as U.S. Treasuries, and investor expectations regarding the future path of U.S. monetary policy. Consequently, movements in EM yields may endogenously influence U.S. long-term interest rates.

We address these identification challenges by using the instrumental variable approach. Inspired by literature identifying the monetary policy shocks, we use unanticipated changes in the U.S. 10-year Treasury yield, measured within a narrow 30-minute window around Fed events, as an instrument for U.S. long-term risk-neutral rate.

The change in the 10-year Treasury yield within this short window reflects a shift in investors' expectations about the future monetary policy stance, thereby driving the long-term risk-neutral rate. Importantly, the short-window surprises at Fed events can be considered exogenous to emerging markets. As documented in the literature studying monetary policy shocks, for instance Gertler and Karadi (2015), Wright (2012), and Georgiadis and Jarocinski (2025), using asset price changes within a short window (e.g. thirty minutes) as the shock assumes these high-frequency changes are solely driven by the event and orthogonal to other economic and financial variables. Indeed, those asset price movements over such narrow windows would capture exogenous innovations to public market expectations associated with the events, which are unlikely to be contaminated by broader economic and financial conditions or idiosyncratic EM specific shocks. The high-frequency identification strategy directly mitigates the concern of endogeneity.

A prominent strand of literature decomposes Fed surprises into target-rate, forward guidance, and LSAP components. Rather than relying on these model-dependent monetary policy shocks as instruments, we choose to use the 30-minute change in the 10-year UST yield, which is completely model-free and directly observable. In the following section, we formally present the instrumental variable and document the empirical relationship between high-frequency yield surprises and the U.S. long term risk-neutral rates.

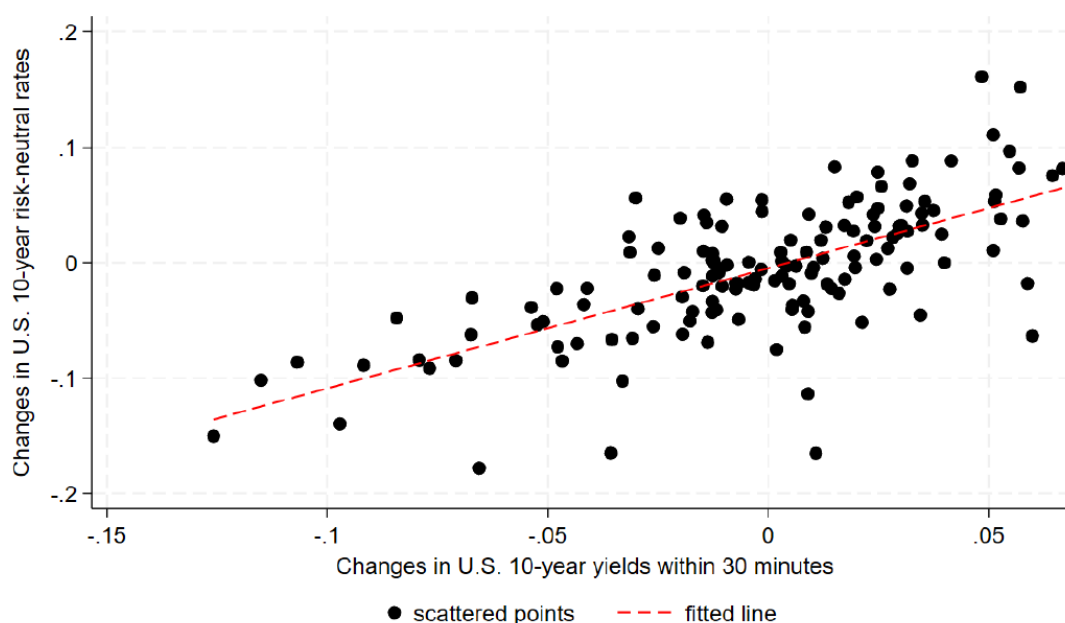
Following the methodology in Georgiadis and Jarocinski (2025) and benefiting from the database constructed by Georgiadis and Jarocinski (2025), we focus on the five types of Fed's events: Federal Open Market Committee (FOMC) meetings, Fed Chair speeches, testimonies, press conferences, and minutes releases.

$$Fed\ events\ s : s \in \{FOMC, Speech, Testimony, Press\ Conferece, Minute\} \quad (1)$$

We borrow the data from Georgiadis and Jarocinski (2025) on the high-frequent changes in U.S. 10-year Treasury yields at Fed events and investigate the relationship between the U.S. long-term risk-neutral rates and the high-frequent changes in 10-year UST yields.

Figure 2 demonstrates the relationship between the daily changes in 10-year UST risk-neutral rates and the high-frequency changes in 10-year UST yields at Fed events from 2012 to 2024. Observations without Fed events are omitted. This figure reveals a strong, positive relationship, indicating that a hawkish surprise in the 10-year yield leads to a significant upward revision in the risk-neutral component of long-term interest rates.

**Figure 2. Changes in U.S. Long-term Interest Rates and High-frequency Changes in Yields at Fed Events**



Sources: Georgiadis and Jarocinski (2025); IMF staff calculations

Note: This figure plots the relationship between daily change in U.S. long-term interest rates and high-frequency changes in 10-year yields at Fed events, from 2012 to 2024. The U.S. long-term interest rate is defined as the 10-year risk neutral rate, obtained by decomposing 10-year UST yields using Adrian et al. (2013). The high-frequency change in yields at Fed events is the change in the 10-year Treasury yields within a 30-minute window around five types of Fed events including FOMC meetings, Fed Chair speeches, testimonies, press conferences, and minutes releases. Data is from Georgiadis and Jarocinski (2025). Days when no Fed event occur are excluded.

To confirm the first-stage relevance of our instrument, we further explore the following:

$$\Delta r_t = \alpha + \beta_1 z_t + X_t \gamma + e_t \quad (2)$$

Where  $\Delta r_t$  denotes the daily change in U.S. risk-neutral interest rates between  $t$  and  $t - 1$ .  $z_t$  represents the high-frequency surprise in 10-year UST yields within 30-minute around the event during the day  $t$ . For multiple Fed events occurring on the same day, we aggregate all surprises by summing up all the 30-minute surprises on day  $t$ . If no Fed event occurs on a given day,  $z_t$  is set to zero. The vector of controls,  $X_t$  includes the logarithms of the VIX and the U.S. Dollar exchange rate index to account for contemporaneous global risk sentiment and dollar fluctuations. Lastly, standard errors are Newey-West standard errors.

Table 1 presents the first-stage regression results. Column (1) and (2) display the estimates without and with the inclusion of macroeconomic control variables, respectively. The coefficients of interest  $\beta_1$  in both columns

are statistically significant and positive, confirming a robust relation between high-frequency U.S. 10-year Treasury yield surprises and changes in the U.S. long-term risk-neutral rate. Note that the coefficient is close to one in magnitude. This does not necessarily imply that changes in 10-year UST yields are fully transmitted to the expected short-term interest rates, with no role for term premia. As shown by Georgiadis and Jarocinski (2025), different types of monetary policy shocks can have heterogeneous effects on term premia even when they move yields in the same direction. When aggregating across events, these heterogeneous effects may offset each other, leading to muted average changes in term premia on impact days. Since our identification strategy is designed to capture exogenous variation in U.S. long-term risk-free rates, and does not require distinguishing among different types of shocks, this consideration does not undermine the validity of our instrumental variable approach.

**Table 1. U.S. Long-term Rates and High-Frequency Changes in Treasury Yields**

|                                       | (1)                                    | (2)                 |
|---------------------------------------|----------------------------------------|---------------------|
|                                       | Changes in US Long-term Interest Rates |                     |
| 30-min surprise in 10y treasury yield | 1.049***<br>(0.091)                    | 1.048***<br>(0.091) |
| Lagged log(VIX)                       |                                        | -0.003<br>(0.002)   |
| Lagged log(USD)                       |                                        | -0.002<br>(0.005)   |
| Constant                              | 0.001<br>(0.001)                       | 0.017<br>(0.026)    |
| Observations                          | 3,373                                  | 3,373               |

*Note:* This table presents the results of regressing the daily change in U.S. 10-year risk-neutral interest rates on the high-frequency changes in 10-year U.S. Treasury yields at Fed events. Data on the latter is from Georgiadis and Jarocinski (2025). Fed events include FOMC meetings, Fed Chair speeches, testimonies, press conferences, and minutes releases. Columns (1) shows the result of the regressions without control variables, while Column (2) presents results with control variables. Controls include the lagged log of VIX index and the lagged log of Dollar index. Newey West standard errors with one-day lag are in reported in the parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Taken together, Figure 2 and the first stage estimates in Table 1 clarify why the announcement-window surprise is a valid instrument in our setting. Relevance is strong and specific to the object we study: Table 1 shows that the surprise moves the U.S. risk-neutral rate almost one-for-one, because such surprises are revisions to the expected path of policy, whereas, as noted above, they move the term premium only weakly and in offsetting directions across shock types (Georgiadis and Jarocinski (2025)). The instrument is thus powerful for the expected-rate component we study, though it would be weak for the term premia. Turning to the exclusion restriction, identification requires that the announcement-window surprise affect EM sovereign yields only through the U.S. long-term risk-free rate. Two features of our setting make this plausible. First, the thirty-minute window is far too short for EM-specific macroeconomic news to occur within it, so the surprise is orthogonal to slow-moving EM state variables and to domestic conditions that independently move local yields. Second, the more substantive concern is not EM-specific news but a common global factor: an announcement could shift global risk appetite within the same window, and that shift could reach EM yields directly rather than through the U.S. risk-free rate. Appendix addresses this by augmenting the specification with the high-frequency changes in financial asset prices including stock performance. The estimated responses are essentially unchanged, indicating that the surprise is not simply proxying for a contemporaneous repricing of global risk.

A related concern is the Federal Reserve information effect, whereby a surprise may bundle news about U.S. and global fundamentals with the policy signal (Nakamura and Steinsson (2018), Jarocinski and Karadi (2020)). This bears directly on the exclusion restriction, since fundamentals news revealed by an announcement could reach EM yields through channels other than the U.S. long-term risk-free rate. We address this by conditioning on the high-frequency changes in other asset prices. The within-window equity response is the standard marker of an information effect. Conditioning on the high frequency change in asset prices, including stock market performance and Eurodollar futures, absorb the component of the surprise that carries such news.

3.1.3 U.S. Long-Term Interest Rates and EM Sovereign Yields

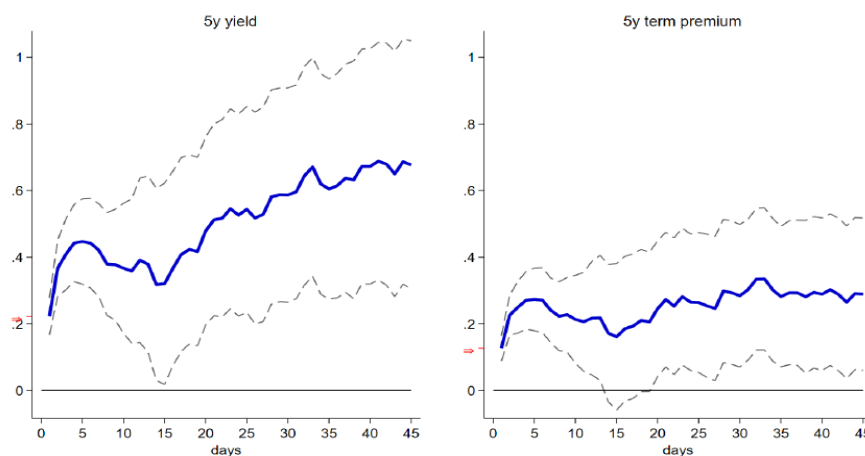
The results from the regression (2) confirm the relationship between the U.S. long-term interest rates and high-frequent changes in UST yields at Fed events, which we use as an instrumental variable for the former. To assess the dynamic effect of the U.S. long-term rates on EM LC sovereign bond markets, we apply the following panel local projection with an instrumental variable (LP-IV).

$$y_{i,t+h} - y_{i,t-1} = \alpha_{h,i} + \beta_h \Delta r_t + \gamma_h X_{t-1} + \eta_h c_t + e_{i,t} \quad (3)$$

where  $h$  denotes the horizon in days with  $h = 0, 1, 2, \dots, 45$ . The dependent variable  $y$  is either the yield or the term premium for 5-year and 10-year local currency sovereign bonds. The term premium is estimated using Adrian et al. (2013).  $\Delta r_t$  is the change in U.S. long-term interest rates between day  $t$  and  $t - 1$ , instrumented by the high-frequency changes in 10-year UST yields at Fed events  $z_t$ .  $\alpha_{h,i}$  represents the country's fixed effects, controlling time-invariant country characteristics.  $X_{t-1}$  indicates the control variables including lagged log of VIX and the dollar exchange rate. Control variables include: a lag of country  $i$ 's inflation, GDP growth, and current account to GDP ratio, a lag of the yield or term premium depending on the dependent variable, and changes in U.S. term premium at time  $t$ . Since inflation is at a monthly basis and GDP growth is at the quarterly basis, the lag terms refer to the data in the previous period (last month for inflation, and last quarter in GDP growth). Standard errors are Driscoll-Kraay standard errors, which allow for serial and cross-sectional correlations.

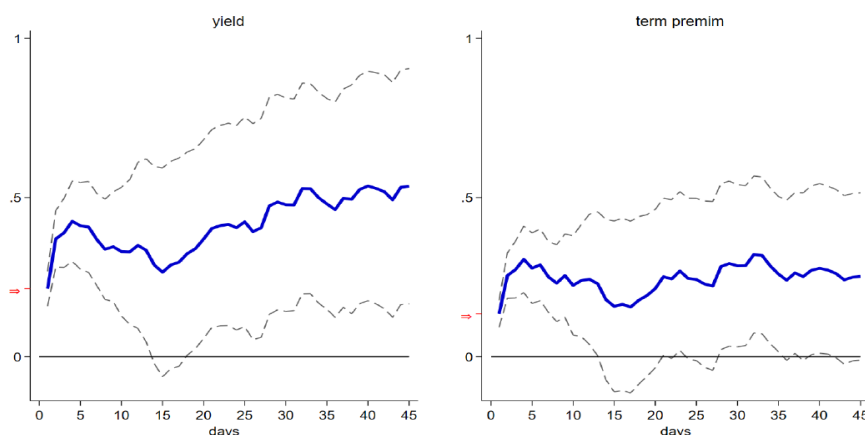
The coefficients of interest,  $\beta_h$  measure the average dynamic response of EM sovereign yields and term premia on an exogenous shock in the U.S. long-term interest rate at horizon  $h$ . A positive innovation  $\Delta r_t$  indicates as an increase in U.S. long-term risk-neutral rates. A positive coefficient  $\beta_h$  suggests that a rise in U.S. long-term risk-neutral interest rates results in an increase in yields or term premia of emerging market sovereign bonds. In contrast, a negative coefficient  $\beta_h$  implies that higher U.S. long-term interest rates result in a decline in these EM yields or term premia.

Figures 3 and 4 present the results of simple local projections without the instrumental variable, for 5- and 10-year EM local currency sovereign bonds, respectively. The estimates demonstrate that both 5-year and 10-year yields exhibit a significant upward jump in response to an increase in U.S. long-term risk-neutral rates. A similar positive response is observed for the term premia across both maturities.

**Figure 3. Responses of 5-year EM Sovereign Bonds to U.S. Long-term Interest Rates: Simple LP**

Source: IMF staff estimates

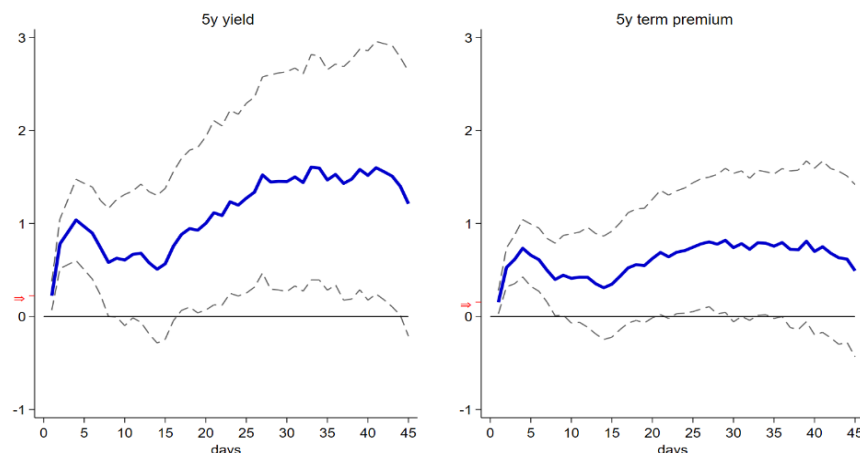
*Note:* This chart presents the results of simple local projections without the instrumental variable. The dependent variable is the change in 5-year EM local currency sovereign yields and term premia, respectively, as shown in regression (3). The independent variable is the daily change in the U.S. long-term interest rate. The term premia of EM local currency sovereign yields are obtained by decomposing the 5-year zero-coupon yields using Adrian et al. (2013). The U.S. long-term interest rate is defined as the U.S. 10-year risk-neutral rate, obtained by decomposing U.S. 10-year Treasury yields using Adrian et al. (2013).

**Figure 4. Responses of 10-year EM Sovereign Bonds to U.S. Long-term Interest Rates: Simple LP**

Source: IMF staff estimates

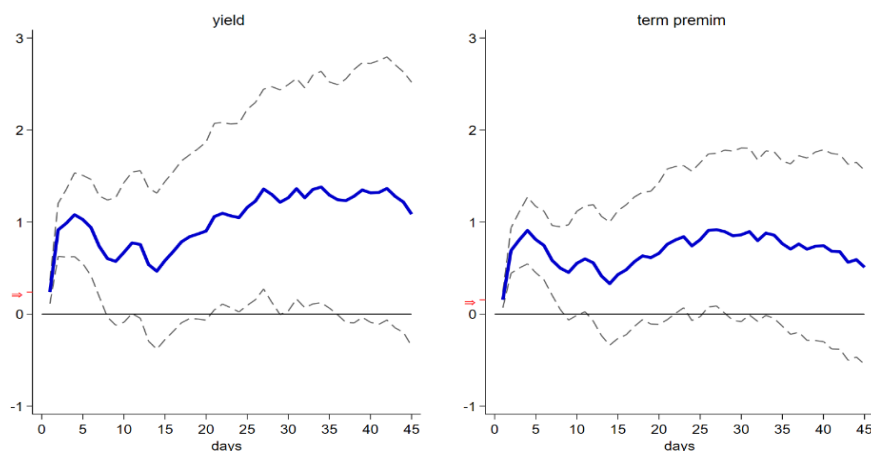
*Note:* This chart presents the results of simple local projections without the instrumental variable. The dependent variable is the change in 10-year local currency sovereign yields and term premia in emerging markets (EM), respectively, as shown in regression (3). The independent variable is the daily change in the U.S. long-term interest rate. The term premia of EM local currency sovereign yields are obtained by decomposing the 5-year zero-coupon yields using Adrian et al. (2013). The U.S. long-term interest rate is defined as the U.S. 10-year risk-neutral rate, obtained by decomposing U.S. 10-year Treasury yields using Adrian et al. (2013).

Figures 5 and 6 present the results of instrumental variable local projections (LP-IV) for 5-year and 10-year emerging market sovereign yields. Similar to Figures 3 and 4, these LP-IV estimates reveal a positive effect of U.S. long-term interest rates on EM yields. An increase in the U.S. long-term risk-neutral rate elevates both yields and term premia across the 5-year and 10-year tenors.

**Figure 5. Response of 5-year EM Sovereign Bonds to U.S. Long-term Interest Rates: LP-IV**

Source: IMF staff estimates

*Note:* This chart presents the results of local projections with the instrumental variable (LP-IV). The dependent variable is the change in 5-year EM local currency sovereign yields and term premia, respectively, as shown in regression (3). The independent variable is the daily change in the U.S. long-term interest rate, instrumented by the high-frequency change in the U.S. 10-year Treasury yields at the Fed events. The term premia of EM local currency sovereign yields are obtained by decomposing the 5-year zero-coupon yields using Adrian et al. (2013). The U.S. long-term interest rate is defined as the U.S. 10-year risk-neutral rate, obtained by decomposing U.S. 10-year Treasury yields using Adrian et al. (2013). The data on high-frequency change in the U.S. 10-year Treasury yields at the Fed events are from Georgiadis and Jarocinski (2025). Fed events include FOMC meetings, Fed Chair speeches, testimonies, press conferences, and minutes releases.

**Figure 6. Response of 10-year EM Sovereign Bonds to U.S. Long-term Interest Rates: LP-IV**

Source: IMF staff estimates

*Note:* This chart presents the results of local projections with the instrumental variable (LP-IV). The dependent variable is the change in 10-year EM local currency sovereign yields and term premia, respectively, as shown in regression (3). The independent variable is the daily change in the U.S. long-term interest rate, instrumented by the high-frequency change in the U.S. 10-year Treasury yields at the Fed events. The term premia of EM local currency sovereign yields are obtained by decomposing the 10-year zero-coupon yields using Adrian et al. (2013). The U.S. long-term interest rate is defined as the U.S. 10-year risk-neutral rate, obtained by decomposing U.S. 10-year Treasury yields using Adrian et al. (2013). The data on high-frequency change in the U.S. 10-year Treasury yields at the Fed events are from Georgiadis and Jarocinski (2025). Fed events include FOMC meetings, Fed Chair speeches, testimonies, press conferences, and minutes releases.

Two key observations emerge from this analysis. First, relative to simple local projections, LP-IV produces larger coefficients,  $\beta_n$ , for both maturities, implying a stronger causal impact of U.S. rates on EM sovereign yields than baseline estimates suggest. Second, the effects are notably persistent. Over the post-shock 45 days depicted in Figures 5 and 6, responses in both yields and term premia last for a few weeks.

Our findings are aligned with established channels through which global factors influence emerging markets. Higher U.S. risk-free rates raise the opportunity cost of investing in EM assets, tending to trigger capital outflows from EMs, tighten the global liquidity, and exert upward pressure on EM sovereign yields. Conversely, periods of lower U.S. long-term interest rate, such as the zero-lower-bound era, led to surges in capital inflows into EM local currency debt markets.

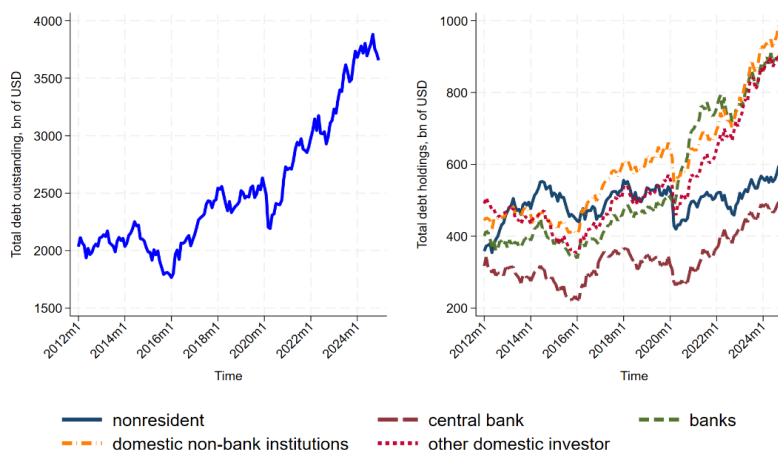
### 3.2 Investor Composition and How it Shifts EM Resilience

Having established the spillover effects of U.S. long-term interest rates on emerging market sovereign bonds, we now examine the role of market participants in this transmission. In the following section, we document the evolution of the investor composition in local currency sovereign bond markets following the global financial crisis. We then investigate how these shifts in the investor base alter the sensitivity of emerging market local currency sovereign bond yields to movements in the U.S. long-term risk-neutral rate.

#### 3.2.1 Evolution of the Investor Composition

A prominent development in the local currency sovereign bond markets of major emerging economies is the increasing participation of domestic investors following the global financial crisis. Figure 7 displays the total local currency sovereign debt outstanding for the emerging market countries in our sample. The data reveals a substantial expansion in total debt for these 12 major EM economies over the past decade, increasing from about \$2 trillion in early 2012 to \$4 trillion at the end of 2024.

Figure 7. Outstanding Local Currency Sovereign Debt by Holders

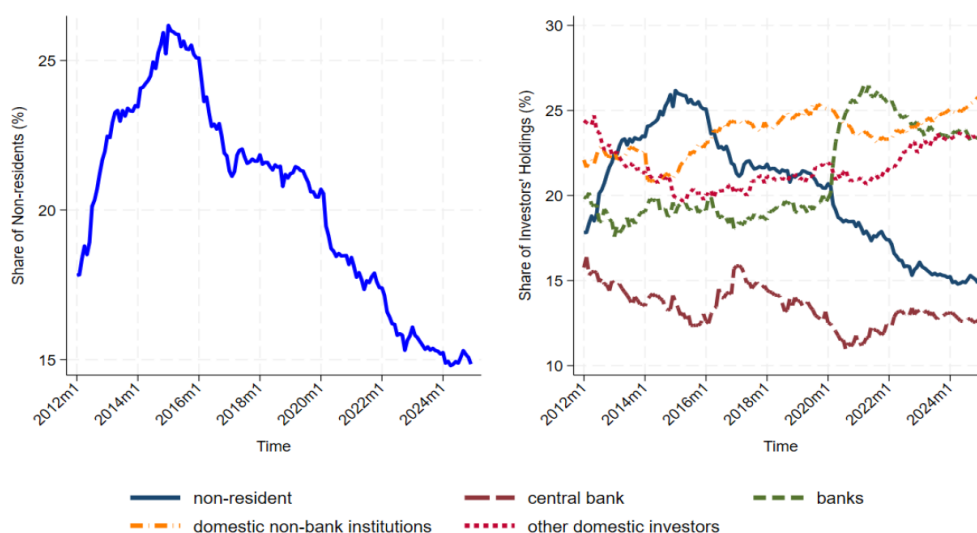


Sources: National authorities; IMF staff calculations

*Note:* This figure plots the local currency sovereign bonds of all EM countries in our sample from January 2012 to December 2024. The left figure shows the total debt outstanding, and the right figure plots the debt holdings by each type of investor. Investors are classified as nonresidents, central bank, banks, domestic institutional investors, and other domestic investors. 12 EM economies include Brazil, Chile, Colombia, Hungary, Indonesia, Malaysia, Mexico, Peru, Poland, Romania, South Africa, and Thailand. Domestic investors include all investors that are not classified as nonresident investors. Details on data collection sources and methodology are demonstrated in Appendix.

As a result, the share of nonresident investors has declined drastically, as shown in the left panel of Figure 8. After peaking at 25 percent in 2015, the nonresident share has trended downward steadily, reaching 15 percent in 2024. During the pandemic period, this share exhibited a pronounced retrenchment amid heightened global risk aversion. This gap was largely filled by domestic banks. Most EMs observed domestic banks and some central banks took up most of the slack as demand for liquidity was high during an uncertain period while many governments expanded fiscally.

**Figure 8. Local Currency Sovereign Debt Holdings by Holders Share**



*Note:* This figure plots investors' shares of local currency sovereign bonds of all emerging market countries in our sample. The left figure shows the share of nonresident investors, and the right figure plots the shares of debt holdings by each type of investor. Investors are classified as nonresidents, central bank, banks, domestic institutional investors, and other domestic investors. 12 EM economies include Brazil, Chile, Colombia, Hungary, Indonesia, Malaysia, Mexico, Peru, Poland, Romania, South Africa, and Thailand. Domestic investors include all investors that are not classified as nonresident investors. Details on data collections are demonstrated in Appendix.

Notably, nonresident participation continued to decline despite rate cuts by global central banks. Since 2022, this downward trend has continued as global financial conditions have tightened sharply. The reduction in nonresident participation has been offset in several countries by increased shares in domestic investors. Nonetheless, nonresident shares did not actively liquidate their holdings. Rather, the decline in their shares was primarily driven by the rapid expansion of total local currency government debt. Among domestic participants, the share of banks rose sharply during the COVID from 19 percent in 2019 to 26 percent in 2021 before subsequently declining, while the share of domestic non-bank institutional investors and other domestic investors have risen in recent years.

We further investigate the marginal investor in emerging markets is. We run the following regression.

$$\frac{H_t^j - H_{t-1}^j}{D_{t-1}} = c_j + a_j \frac{D_t - D_{t-1}}{D_{t-1}} + \epsilon_t^j \quad (4)$$

where  $H_t^j$  are the holdings of total LC sovereign debt by investor group  $j$  of all EM economies in our sample, and  $D_t$  the total local currency sovereign debt outstanding of all EMs at month  $t$ . In the regression, both the change in debt held by each investor type and the change in total debt are scaled by the lagged total debt. By construction, the sum of the coefficient  $a_j$  should sum to one.  $c_j$  is the country's fixed effect, which controls the time invariant country's characteristics and allows us to explore the time-series variations within a country. Standard errors are clustered at the country's level.

Table 2 reports the result, with Columns (1) through (5) displaying the marginal contribution of each investor category. Although domestic investors have increased their overall shares in emerging markets as a whole over the last several years, as shown in Figure 4, nonresident investors remain the primary marginal buyers on average during our sample period, absorbing 29 percent. The second largest marginal contributors are domestic non-bank institutional investors, followed by domestic banks, with contributions of 26 and 23 percent, respectively.

**Table 2. Marginal Investors in Local Currency Government Bonds**

|                                    | (1)                                     | (2)                                       | (3)                                      | (4)                                      | (5)                                     |
|------------------------------------|-----------------------------------------|-------------------------------------------|------------------------------------------|------------------------------------------|-----------------------------------------|
|                                    | $\frac{\Delta Debt_t^{cb}}{Debt_{t-1}}$ | $\frac{\Delta Debt_t^{bank}}{Debt_{t-1}}$ | $\frac{\Delta Debt_t^{dii}}{Debt_{t-1}}$ | $\frac{\Delta Debt_t^{oth}}{Debt_{t-1}}$ | $\frac{\Delta Debt_t^{nr}}{Debt_{t-1}}$ |
| $\frac{\Delta Debt_t}{Debt_{t-1}}$ | 0.06<br>(0.036)                         | 0.23***<br>(0.032)                        | 0.26***<br>(0.041)                       | 0.16***<br>(0.027)                       | 0.29***<br>(0.040)                      |
| Observations                       | 1,846                                   | 1,846                                     | 1,846                                    | 1,846                                    | 1,846                                   |
| Country FE                         | Yes                                     | Yes                                       | Yes                                      | Yes                                      | Yes                                     |

*Note:* This table shows the results of regressing changes in the holdings of each domestic investor type on the lagged total local currency sovereign bonds.  $\Delta Debt$  denotes the change in the total debt outstanding from month  $t - 1$  to month  $t$ . The dependent variables from Column (1) to (5) are the change in the holdings of domestic central bank, domestic banks, domestic non-bank institutional investors, other domestic investors, and nonresident investors, scaled by the lagged debt outstanding  $Debt_{t-1}$ . There are 12 EM economies used in our sample, including Brazil, Chile, Colombia, Hungary, Indonesia, Malaysia, Mexico, Peru, Poland, Romania, South Africa, and Thailand.

Note that while these aggregate results represent the sample average, there is significant cross-country heterogeneity. Table (3) provides the country's level estimates for the same regression, during the sample period. Nonresident investors are the largest marginal contributors in five out of the twelve countries in our sample: Hungary, Indonesia, Mexico, Peru, and South Africa. In contrast, domestic non-bank institutional investors act as the largest marginal investors in Chile, Colombia, Malaysia, and Thailand.

**Table 3. Marginal Investors in Local Currency Government Bonds by Country**

|     | (1)<br>Central bank | (2)<br>Banks | (3)<br>Domestic<br>Non-bank<br>Institutions | (4)<br>Other domestic<br>Investors | (5)<br>Nonresident |
|-----|---------------------|--------------|---------------------------------------------|------------------------------------|--------------------|
| BRL | 0.29                | 0.22         | 0.17                                        | 0.24                               | 0.08               |
| CLP | 0.00                | 0.18         | 0.46                                        | 0.04                               | 0.32               |
| COP | 0.05                | 0.16         | 0.34                                        | 0.22                               | 0.23               |
| HUF | 0.05                | 0.26         | 0.08                                        | 0.24                               | 0.37               |
| IDR | 0.09                | 0.21         | 0.14                                        | 0.16                               | 0.40               |
| MXN | 0.00                | 0.13         | 0.29                                        | 0.27                               | 0.30               |
| MYR | 0.02                | 0.29         | 0.33                                        | 0.04                               | 0.32               |
| PEN | 0.00                | 0.11         | 0.27                                        | 0.03                               | 0.59               |
| PLN | 0.02                | 0.44         | 0.11                                        | 0.17                               | 0.25               |
| RON | 0.00                | 0.52         | 0.12                                        | 0.13                               | 0.22               |
| THB | 0.08                | 0.18         | 0.33                                        | 0.22                               | 0.18               |
| ZAR | 0.00                | 0.15         | 0.34                                        | 0.11                               | 0.39               |

Sources: National authorities; IMF staff estimates

Note: This table shows the results of regressing changes in the holdings of each domestic investor type on the lagged total local currency sovereign bonds for all countries in our sample.

The trend of increasing domestic participation in local currency sovereign bond markets is driven by a combination of external financial dynamics and domestic structural shifts within emerging market economies. The global financial crisis triggered a “flight to safety”, prompting foreign investors to retrench from riskier emerging market assets and creating a void that domestic investors subsequently filled. Again, during the COVID pandemic, foreign investors withdrew massively from emerging market local currency bonds due to multiple reasons such as currency depreciation and liquidity needs. Domestically, many emerging markets accelerated reforms to deepen and broaden their local bond markets post-GFC by improving market infrastructure and transparency and regulation, and developing benchmark yield curves, which made local currency bonds more attractive and accessible to domestic investors (see IMF (2025)).

### 3.2.2 Investor Composition and Effect of U.S. Liquidity

Given the steady increase in domestic investors’ participation in the local currency sovereign bond market, we investigate whether the composition of investors influences the effect of U.S. interest rate on local bonds. The regression model is specified as

$$\Delta y_{i,t-1 \rightarrow t+4} = \alpha_i + \lambda \Delta r_t + \sum_j \beta_j \Delta r_t \times DomShare_{i,t-1}^j + \sum_j \rho_j DomShare_{i,t-1}^j + \eta X_{i,t-1} + \epsilon_{i,t} \quad (5)$$

where the dependent variable  $\Delta y_{i,t-1 \rightarrow t+4}$  represents the change in either the 5-year or 10-year sovereign yield or the term premium for country  $i$  from  $t - 1$  to  $t + 4$ . The interaction term  $\Delta r_t \times DomShare_{i,t-1}^j$  captures the effect of the change in U.S. interest rate interacted with the lagged share of domestic investor type  $j$ . Since the investor share data are monthly, the lag refers to the share in the previous month. This interaction term is instrumented by the interaction between the high frequent change in U.S. Treasury yields at Fed events and the lagged investor share,  $z_t \times DomShare_{i,t-1}^j$ , as argued above in section (3.1). By applying this instrumental variable, we also assume that the lagged domestic investor share is exogenous and does not relate to the current economic and financial conditions. To further address potential endogeneity of the investor base, we include country fixed effects,  $\alpha_i$ , to control for time invariant country’s characteristics, which control for time-invariant country-specific characteristics that may jointly influence investor composition and the transmission of external shocks. These characteristics include institutional quality, policy framework credibility or external sector position, all of which

may affect the responsiveness of nonresident investors to LC sovereign bond markets. Control variables follow the baseline regression in Equation (3). Standard errors are Driscoll-Kraay ones.

While concerns may arise regarding the endogeneity of lagged domestic share, using the lagged share makes it predetermined with respect to the shock we instrument. A share measured in the previous month cannot respond to the current-day innovation in U.S. rates, so reverse causation from the contemporaneous shock to the share is ruled out by construction, and the share is slow-moving at the monthly frequency. Country fixed effects further absorb persistent cross-country differences in the level of investor-base development, so identification comes from within-country variation interacted with an exogenous shock. This design does not fully eliminate time-varying endogeneity, since policymakers in countries with more volatile yields or greater external sensitivity may be more active in developing domestic investor bases. We therefore interpret the estimates as measuring how the transmission of an exogenous U.S. shock varies with a predetermined investor structure, and we regard constructing a direct instrument for investor composition as a valuable extension.

Tables 4 and 5 present the results of regressions (5), with the change in 5-year and 10-year sovereign yields being the dependent variable. An increase in the U.S. long-term risk-neutral interest rate leads to higher yields at both 5-year and 10-year tenors, as shown in Column (1) of both tables. Columns (2) in both tables demonstrate that a higher domestic investor share mitigates the impact of U.S. interest-rate shocks on local currency sovereign yields in emerging markets. Column (3) further disaggregates domestic investors into four types: central banks, banks, non-bank institutional investors, and other domestic investors. Column (3) in Tables 4 and 5 indicate that this mitigating effect on sovereign yields in emerging markets is primarily driven by domestic banks, non-bank institutional investors, and other domestic investors, with banks contributing the most in terms of economic magnitude.

In terms of economic significance, Column (2) in Table 4 demonstrates that a 10-percentage point increase in the share of domestic investors reduces the sensitivity of EM 5-year sovereign yields by approximately 26 basis points. Furthermore, at a theoretical upper bound of 100 percent domestic ownership, the EM 5-year sovereign yield increases by 30 to 40 basis points in response to a one percentage point increase in the U.S. long-term risk-free rate.

**Table 4. Effect of Domestic Investors on EM 5-year Sovereign Yields**

|                                       | (1)                                | (2)                                | (3)                                |
|---------------------------------------|------------------------------------|------------------------------------|------------------------------------|
|                                       | $\Delta y_{i,t-1 \rightarrow t+4}$ | $\Delta y_{i,t-1 \rightarrow t+4}$ | $\Delta y_{i,t-1 \rightarrow t+4}$ |
| $\Delta r_t$                          | 1.01***<br>(0.246)                 | 2.96***<br>(0.957)                 | 3.90***<br>(1.047)                 |
| $\Delta r_t \times DomShare_{t-1}$    |                                    | -2.63**<br>(1.274)                 |                                    |
| $\Delta r_t \times Share_{t-1}^{bk}$  |                                    |                                    | -5.46***<br>(2.031)                |
| $\Delta r_t \times Share_{t-1}^{cb}$  |                                    |                                    | -1.19<br>(2.613)                   |
| $\Delta r_t \times Share_{t-1}^{dii}$ |                                    |                                    | -3.65**<br>(1.518)                 |
| $\Delta r_t \times Share_{t-1}^{oth}$ |                                    |                                    | -2.90**<br>(1.457)                 |
| Observations                          | 39,011                             | 38,783                             | 38,783                             |
| Controls                              | Yes                                | Yes                                | Yes                                |
| Country FE                            | Yes                                | Yes                                | Yes                                |

*Note:* This table presents how domestic investors influence the effect of U.S. long-term interest rates on the local currency sovereign bond in emerging market economies. The dependent variable is the change in the nominal yield of 5-year yields between  $t - 1$  and

$t + 4$ . In Column (1),  $\Delta r_t$  represents the change in the U.S. long-term interest rate, which is instrumented by the high-frequency changes in U.S. 10-year Treasury yields at Fed events,  $z_t$ . Column (2) adds the interaction term  $\Delta r_t \times DomShare_{i,t-1}$ .  $\Delta r_t$  and  $\Delta r_t \times DomShare_{i,t-1}$  are instrumented by  $\Delta z_t$  and  $\Delta z_t \times DomShare_{i,t-1}$ . Similarly, Column (3) includes more disaggregated domestic investor shares interacted with  $\Delta r_t$  instrumented by their interactions with the high-frequency changes in U.S. 10-year Treasury yields at Fed events,  $z_t$ . Control variables for all three Columns include the lagged VIX index, inflation at the previous month, GDP growth at  $g$  the previous quarter, a lag of Dollar index, current account to GDP ratio at the previous quarter, and a lag of 5-year sovereign yields. Country and time fixed effects are indicated at the bottom of the table. Column (2) adds the lagged share of domestic investors as a control variable, and Column (3) adds the lagged share of domestic banks, central bank, non-bank institutional investors, and other domestic investors as control variables. Driscoll-Kraay standard errors at the country level are reported in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Table 5. Effect of Domestic Investors on EM 10-year Sovereign Yields

|                                       | (1)                                | (2)                                | (3)                                |
|---------------------------------------|------------------------------------|------------------------------------|------------------------------------|
|                                       | $\Delta y_{i,t-1 \rightarrow t+4}$ | $\Delta y_{i,t-1 \rightarrow t+4}$ | $\Delta y_{i,t-1 \rightarrow t+4}$ |
| $\Delta r_t$                          | 1.09***<br>(0.257)                 | 2.80***<br>(0.826)                 | 3.57***<br>(0.905)                 |
| $\Delta r_t \times DomShare_{t-1}$    |                                    | -2.31**<br>(1.113)                 |                                    |
| $\Delta r_t \times Share_{t-1}^{bk}$  |                                    |                                    | -4.40***<br>(1.635)                |
| $\Delta r_t \times Share_{t-1}^{cb}$  |                                    |                                    | -1.18<br>(2.229)                   |
| $\Delta r_t \times Share_{t-1}^{dii}$ |                                    |                                    | -3.33**<br>(1.322)                 |
| $\Delta r_t \times Share_{t-1}^{oth}$ |                                    |                                    | -2.56**<br>(1.237)                 |
| Observations                          | 39,011                             | 38,783                             | 38,783                             |
| Controls                              | Yes                                | Yes                                | Yes                                |
| Country FE                            | Yes                                | Yes                                | Yes                                |

Note: This table presents how domestic investors influence the effect of U.S. long-term interest rates on the local currency sovereign bond in emerging market economies. The dependent variable is the change in the nominal yield of 10-year yields between  $t - 1$  and  $t + 4$ . In Column (1),  $\Delta r_t$  represents the change in the U.S. long-term interest rate, which is instrumented by the high-frequency changes in U.S. 10-year Treasury yields at Fed events,  $z_t$ . Column (2) adds the interaction term  $\Delta r_t \times DomShare_{i,t-1}$ .  $\Delta r_t$  and  $\Delta r_t \times DomShare_{i,t-1}$  are instrumented by  $\Delta z_t$  and  $\Delta z_t \times DomShare_{i,t-1}$ . Similarly, Column (3) includes more disaggregated domestic investor shares interacted with  $\Delta r_t$  instrumented by their interactions with the high-frequency changes in U.S. 10-year Treasury yields at Fed events,  $z_t$ . Control variables for all three Columns include the lagged VIX index, inflation at the previous month, GDP growth at the previous quarter, a lag of Dollar index, current account to GDP ratio at the previous quarter, and a lag of 5-year sovereign yields. Country and time fixed effects are indicated at the bottom of the table. Column (2) adds the lagged share of domestic investors as a control variable, and Column (3) adds the lagged share of domestic banks, central bank, non-bank institutional investors, and other domestic investors as control variables. Driscoll-Kraay standard errors at the country level are reported in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Tables 6 and 7 report the results for the changes in 5-year and 10-year term premia, respectively. Similar to the results for the changes in sovereign yields in Tables 4 and 5, these estimates demonstrate domestic investors mitigate the spillover effect of shocks to U.S. long-term interest rates on term premia. This mitigating effect is similarly driven by domestic banks, non-bank institutional investors, and other domestic investors.

**Table 6. Effect of Domestic Investors on EM 5-year Term Premia**

|                                       | (1)                                | (2)                                | (3)                                |
|---------------------------------------|------------------------------------|------------------------------------|------------------------------------|
|                                       | $\Delta y_{i,t-1 \rightarrow t+4}$ | $\Delta y_{i,t-1 \rightarrow t+4}$ | $\Delta y_{i,t-1 \rightarrow t+4}$ |
| $\Delta r_t$                          | 0.70***<br>(0.181)                 | 2.70***<br>(0.888)                 | 3.72***<br>(0.913)                 |
| $\Delta r_t \times DomShare_{t-1}$    |                                    | -2.69**<br>(1.166)                 |                                    |
| $\Delta r_t \times Share_{t-1}^{bk}$  |                                    |                                    | -5.44***<br>(1.623)                |
| $\Delta r_t \times Share_{t-1}^{cb}$  |                                    |                                    | -1.31<br>(1.978)                   |
| $\Delta r_t \times Share_{t-1}^{dii}$ |                                    |                                    | -4.17***<br>(1.174)                |
| $\Delta r_t \times Share_{t-1}^{oth}$ |                                    |                                    | -2.85**<br>(1.171)                 |
| Observations                          | 39,011                             | 38,783                             | 38,783                             |
| Controls                              | Yes                                | Yes                                | Yes                                |
| Country FE                            | Yes                                | Yes                                | Yes                                |

*Note:* This table presents how domestic investors influence the effect of U.S. long-term interest rates on the local currency sovereign bond in emerging market economies. The dependent variable is the change in the term premia of 5-year yields between  $t - 1$  and  $t + 4$ . In Column (1),  $\Delta r_t$  represents the change in the U.S. long-term interest rate, which is instrumented by the high-frequency changes in U.S. 10-year Treasury yields at Fed events,  $z_t$ . Column (2) adds the interaction term  $\Delta r_t \times DomShare_{i,t-1}$ .  $\Delta r_t$  and  $\Delta r_t \times DomShare_{i,t-1}$  are instrumented by  $\Delta z_t$  and  $\Delta z_t \times DomShare_{i,t-1}$ . Similarly, Column (3) includes more disaggregated domestic investor shares interacted with  $\Delta r_t$  instrumented by their interactions with the high-frequency changes in U.S. 10-year Treasury yields at Fed events,  $z_t$ . Control variables for all three Columns include the lagged VIX index, inflation at the previous month, GDP growth at the previous quarter, a lag of Dollar index, current account to GDP ratio at the previous quarter, and a lag of 5-year sovereign yields. Country and time fixed effects are indicated at the bottom of the table. Column (2) adds the lagged share of domestic investors as a control variable, and Column (3) adds the lagged share of domestic banks, central bank, non-bank institutional investors, and other domestic investors as control variables. Driscoll-Kraay standard errors at the country level are reported in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

**Table 7. Effect of Domestic Investors on EM 10-year Term Premia**

|                                       | (1)                                | (2)                                | (3)                                |
|---------------------------------------|------------------------------------|------------------------------------|------------------------------------|
|                                       | $\Delta y_{i,t-1 \rightarrow t+4}$ | $\Delta y_{i,t-1 \rightarrow t+4}$ | $\Delta y_{i,t-1 \rightarrow t+4}$ |
| $\Delta r_t$                          | 0.86***<br>(0.198)                 | 2.82***<br>(0.752)                 | 3.43***<br>(0.830)                 |
| $\Delta r_t \times DomShare_{t-1}$    |                                    | -2.64***<br>(0.975)                |                                    |
| $\Delta r_t \times Share_{t-1}^{bk}$  |                                    |                                    | -4.60***<br>(1.334)                |
| $\Delta r_t \times Share_{t-1}^{cb}$  |                                    |                                    | -1.94<br>(1.829)                   |
| $\Delta r_t \times Share_{t-1}^{dii}$ |                                    |                                    | -3.37**<br>(1.366)                 |
| $\Delta r_t \times Share_{t-1}^{oth}$ |                                    |                                    | -2.47**<br>(1.009)                 |
| Observations                          | 39,011                             | 38,783                             | 38,783                             |
| Controls                              | Yes                                | Yes                                | Yes                                |
| Country FE                            | Yes                                | Yes                                | Yes                                |

*Note:* This table presents how domestic investors influence the effect of U.S. long-term interest rates on the local currency sovereign bond in emerging market economies. The dependent variable is the change in the term premia of 10-year yields between  $t - 1$  and  $t + 4$ . In Column (1),  $\Delta r_t$  represents the change in the U.S. long-term interest rate, which is instrumented by the high-frequency changes in U.S. 10-year Treasury yields at Fed events,  $z_t$ . Column (2) adds the interaction term  $\Delta r_t \times DomShare_{i,t-1}$ .  $\Delta r_t$  and  $\Delta r_t \times DomShare_{i,t-1}$  are instrumented by  $\Delta z_t$  and  $\Delta z_t \times DomShare_{i,t-1}$ . Similarly, Column (3) includes more disaggregated domestic investor shares interacted with  $\Delta r_t$  instrumented by their interactions with the high-frequency changes in U.S. 10-year Treasury yields at Fed events,  $z_t$ . Control variables for all three Columns include the lagged VIX index, inflation at the previous month, GDP growth

at the previous quarter, a lag of Dollar index, current account to GDP ratio at the previous quarter, and a lag of 5-year sovereign yields. Country and time fixed effects are indicated at the bottom of the table. Column (2) adds the lagged share of domestic investors as a control variable, and Column (3) adds the lagged share of domestic banks, central bank, non-bank institutional investors, and other domestic investors as control variables. Driscoll-Kraay standard errors at the country level are reported in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Our results indicate that domestic banks exhibit the largest mitigating effects in economic significance than other types of domestic investors. This finding aligns with Van Doornik et al. (2024), who demonstrates that domestic banks enhance market liquidity in the aftermath of periods of heightened risk aversion. Similarly, Hoyos et al. (2020) examines the drivers of liquidity shortages in the Mexican government bond market and finds that domestic banks often absorb the liquidity shocks. These results suggest that the banking sector plays a pivotal role as a liquidity provider, stabilizing emerging market sovereign bond markets during financial stresses.

In this study, domestic non-bank institutional investors were also found to have meaningful mitigating effects. Unlike domestic banks, these institutions differ in their investment objectives, which in turn shape their trading behavior and market impact. Pension funds and insurance mandates can contribute to financial stability due to its long-term investment mandate, predictable cash flows and supported member contributions from expanding workforce and limited redemption options (IMF (2025)). Recognizing their capacity to support long-term finance, many emerging markets have actively promoted the development of non-bank financial institutions. For instance, Agrawal et al. (2025) finds that the growth rates of the EM pension funds have broadly tracked those of advanced economies over the past decade.

Our findings regarding domestic non-banks institutional investors as shock absorbers are aligned with Timmer (2018), which finds that insurance companies and pension funds act countercyclically due to their balance sheet structure. The liability side of insurance companies and pension funds is relatively more stable, and movements in their balance sheets are relatively orthogonal to economic and financial conditions. This stability allows them to view periods of negative shocks as potential investment opportunities. Generally, while prices fall at short horizons after insurance companies and pensions funds have bought the securities, they typically revert after several quarters, leading to larger capital gains in the medium run (Timmer (2018)).

### 3.2.3 Discussions

The results of this study complement and reinforce the findings of several earlier studies on the role of the investor base and the transmission of external shocks to EM LC bond markets. Ebeke and Kyobe (2015) show that beyond certain participation thresholds (of around 30 percent), a higher share of nonresident investors increases the sensitivity of EM LC sovereign bond yields to shifts in global market sentiment. Similarly, Ebeke and Lu (2014) find that, while greater nonresident participation is generally associated with lower borrowing costs, it can also contribute to heightened market volatility, particularly in countries with weaker macroeconomic fundamentals.

Our finding that domestic central bank holdings, for these constrained set of EM economies, do not significantly attenuate the transmission of U.S. financial shocks is consistent with the view that domestic central banks are policy-oriented holders rather than market-based shock absorbers. Unlike market-based participants, central bank demand for domestic government securities is often motivated by liquidity management objectives to address market dysfunction (IMF (2022)), which may limit its role in counteracting portfolio reallocations triggered by external shocks.

While domestic banks continue to constitute a core intermediary in local currency sovereign debt markets and exhibit the most significant mitigating impact amongst the investor group examined, the empirical evidence presented here indicates that market stabilization can be further enhanced through the expansion and deepening of the domestic institutional investor base. Large and concentrated banking sector exposure to domestic government debt can also deepen linkages between sovereign and the banking sector, giving rise to sovereign-bank nexus risk. An increase in sovereign risk poses direct and indirect impact to banks' balance sheets and credit supply, particularly in economies with less-capitalized banking system (Deghi et al (2022)). Major EMs have also undertaken substantial improvements in monetary, fiscal, and macroprudential policy frameworks in recent years, contributing to the resilience observed during the latest phase of external monetary tightening (Bolhuis (2025)).

In parallel, progress in developing market-based domestic institutional investors, such as pension funds and insurance companies, has strengthened the absorptive capacity of local markets. Our analysis suggests that these institutions play a non-trivial stabilizing role by mitigating the spillover of external shocks to local market conditions. The results show that a broader domestic investor base, particularly one characterized by longer-duration mandates and liability-matching investment objectives, could absorb temporary price dislocations arising from external developments. When returns-sensitive investors with shorter-term investment horizon and limited balance sheet capacity exit the domestic markets, domestic institutional investors, whose allocations are more closely aligned with domestic macro-financial fundamentals and through-the-cycle balance-sheet objectives, can partially offset these outflows. This real-money and stickier investor base helps dampen liquidity spirals, curtails excessive domestic yield overshooting, and supports orderly market functioning during periods of external shocks.

Consequently, the transmission of U.S. long-term interest rate shocks to local yield curves becomes more contained. This attenuation of spillovers can help stabilize term premia during episodes of global volatility, facilitate more effective monetary policy transmission, and preserve market access for both sovereigns and corporates even under tight external financial conditions. However, the development of a deeper domestic investor ecosystem is not a substitute for robust institutional and policy anchors. Weak policy credibility, governance shortcomings, or macroeconomic imbalances can offset the stabilizing effects of a diversified investor base and may, in some cases, induce procyclical investor behavior. Although not examined in detail in this paper, the factors underpinning the emergence of a broad and credible set of domestic market participants warrant further consideration. Domestic institutional quality and policy framework credibility are likely prerequisites for private investors to accumulate scale, maintain long-term mandates, and earn the public's trust. Accordingly, the resilience gains identified in this study hinge on the complementarities between robust macro-financial policies and the continued deepening of domestic institutional capacity.

Nonetheless, these findings should not downplay the role of nonresident investors. Tables 2 and 3 indicate almost balanced contribution from domestic banks, DII and nonresidents as marginal investors, which may appear inconsistent with the ownership dynamics presented in Figure 8. However, the two sets of results capture different dimensions of market participation: Figure 8 reflects changes in ownership shares of outstanding debt across all countries in our sample, while the regression analysis shows the investor groups that absorb incremental sovereign issuance at the margin on average. Taken together, the findings have several important implications.

- Nonresident demand remains an important consideration for debt management authorities when contemplating fiscal expansion. Although nonresidents may not always constitute the dominant holder

base, the results suggest they continue to play a meaningful role in absorbing additional sovereign issuance, particularly during periods of expanding borrowing needs;

- In the absence of significant fiscal expansion, resident investors can partially offset nonresident outflows.
- DII and banks remain central to LC debt market resilience. The depth and capacity of domestic banks, pension funds, insurers, and other institutional investors should remain a key consideration in debt management strategies and assessments of fiscal financing capacity.
- A diversified investor base enhances financing flexibility. Reliance on a broad mix of domestic and nonresident investors reduces dependence on any single investor group and strengthens the sovereign's ability to finance larger borrowing requirements while mitigating refinancing and market-access risks.

**Scope for further exploration.** This study focuses exclusively on the response of LC sovereign yields and does not explicitly examine exchange-rate adjustments. In practice, a tightening of U.S. financial conditions may be absorbed through a combination of higher local-currency yields, currency depreciation, or both. Consequently, changes in local yields should not be interpreted in isolation, but rather as one margin of adjustment within a broader macro-financial transmission mechanism. For nonresident investors, the attractiveness of LC bonds depends not only on bond returns but also on expected currency movements and the cost of hedging exchange-rate risk. Changes in hedging costs, currency expectations and depth of foreign exchange markets may therefore influence portfolio allocation decisions and alter the transmission of external shocks to local bond markets. Nonetheless, the focus on local-currency yields remains highly policy-relevant because sovereign yields directly determine government borrowing costs and influence local financing conditions across the broader economy. Going forward, it could also be useful to investigate how exchange-rate flexibility<sup>5</sup>, FX hedging behavior, and investor composition jointly shape the allocation of external shocks between currency and bond-market adjustments.

There are also several limitations of this study that warrant consideration and provide avenues for future research. First, the broader literature on spillovers to EM LC bond markets continues to evolve. While this study focuses specifically on movements in US long term risk-free rates, this represents only one specific channel through which global financial conditions may affect EM LC bond markets. A wider body of research examines alternative transmission mechanisms, including dollar strength, risk-on/risk-off indicators, and other macro-financial variables. Interaction between these variables and how these variables have evolved in response to risk events are worth exploring.

Second, the analysis is necessarily constrained by the historical sample period and prevalent market structure. Relationships observed over the past decade may not fully capture the continued evolution of EM markets, including changes in trading behavior, growing investor sophistication, intermediation infrastructure and consequently, the growing integration of domestic markets into global financial systems. The expansion and accessibility of derivatives markets, distinguishing different types of risk (local rates, FX, sovereign credit risk) alongside advancements in trading infrastructure, for example, may increasingly provide alternative avenues for sensitive investors to express duration and macroeconomic views more effectively, potentially reducing the role of cash bond transactions as the primary transmission channel for external shocks. Moreover, specific investors

<sup>5</sup> It is also worth noting that exchange rate regimes may influence the transmission of external financial shocks to local bond yields. The 12 EM economies included in this study predominantly operate under floating or managed-float exchange rate regimes, limiting the scope for assessing how alternative regimes may affect the strength and nature of this transmission channel.

may concentrate their positioning in specific segments of the yield curve while exhibiting limited activity in others, implying that aggregate measures of bond flows or yield movements may not fully capture the underlying transmission of shocks across maturities. As liquidity, trading strategies, and instrument availability continue to evolve, the nature of spillover transmission may also change, warranting continued investigation.

Third, much of the literature examining investor behavior in EM bond markets is constrained by the level of investor classification disclosed by national authorities. In particular, the nonresident investor category is often highly aggregated despite encompassing a diverse set of participants with potentially distinct investment objectives, risk tolerances, and trading behaviors. Limited disclosure of the composition of nonresident investor holdings restricts the ability to identify heterogeneity in responses to external shocks. Moreover, the sophistication of both nonresident and resident investor bases is likely to evolve over time, reflecting shifts in institutional mandates, investment strategies and the adoption of increasingly complex financial instruments. These developments may give rise to more nuanced interactions between global financial conditions and local bond markets than can be captured by currently available data and investor base classifications.

Fourth, while not explicitly examined in this study due to the focus on a constrained sample of major EM economies with relatively advanced local currency bond markets, the role of fiscal policy should not be overlooked when assessing the transmission of external spillovers. Nose and Menkulasi (2025) highlight that fiscal expectations are an important determinant of local sovereign yields, while observing that a diversified investor base can help mitigate the risk of abrupt shifts in market sentiment. At the same time, greater participation by nonresident investors increases the sensitivity of local bond markets to fiscal developments, raising the contribution of fiscal shocks to yield movements. These findings suggest that fiscal credibility, debt sustainability, and the composition of the investor base may interact with external financial shocks, even for local markets. More broadly, exchange rate regimes, institutional strength, capital account openness, fiscal positions, and macroeconomic policy frameworks also shape local market resilience, and our focus on investor composition is not meant to diminish their importance.

Overall, these findings underscore the critical relevance of investor composition as a stabilizer in EM LC bond markets. As global financial conditions remain susceptible to abrupt repricing episodes, policies that foster the growth, diversification, and credibility of domestic institutional investors can play an important role in mitigating external shock transmission and preserving domestic financial stability.

## 4 Conclusion

This paper demonstrates that increases in the U.S. long-term risk-neutral interest rate raise emerging market local-currency sovereign yields and term premia. We find that greater participation by domestic banks, non-bank institutional investors, and other domestic investors mitigates these spillover effects. These findings provide empirical support for policymakers' and market authorities' efforts to cultivate a diversified domestic investor base. Such structural development bolsters the resilience and stability of local-currency bond markets, reducing their vulnerability to U.S. long-term interest rate shocks.

# Appendix

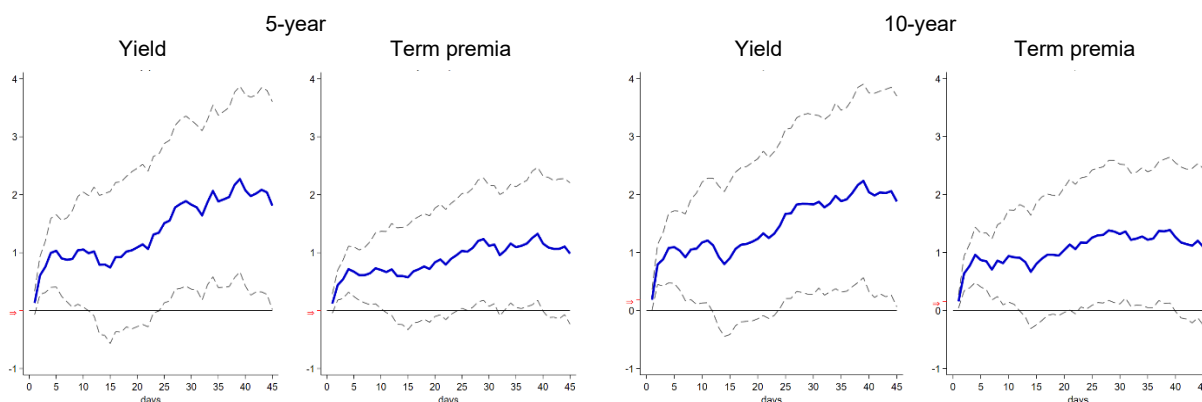
**Table 8. Investor base sources**

| (1)<br>Country | (2)<br>Source                              | (3)<br>Domestic institutional investors Composition             | (4)<br>Frequency |
|----------------|--------------------------------------------|-----------------------------------------------------------------|------------------|
| Brazil         | Banco Central do Brasil                    | Pension, insurers                                               | Monthly          |
| Chile          | Banco Central de Chile                     | Pension funds; insurance companies                              | Quarterly        |
| Colombia       | Ministerio de Hacienda y Crédito Público   | Pension and severance funds; insurance                          | Monthly          |
| Hungary        | Hungarian national Bank                    | Insurance corporations and pension funds; social security funds | Monthly          |
| Indonesia      | Bank Indonesia                             | Pension funds; insurance                                        | Monthly          |
| Malaysia       | Bank Negara Malaysia                       | Social security institutions; insurance companies               | Quarterly        |
| Mexico         | Banco de Mexico                            | Pension funds; insurance and surety companies                   | Monthly          |
| Peru           | Ministerio de Economía y Finanzas del Perú | Pension funds; insurance companies                              | Monthly          |
| Poland         | Ministry of Finance                        | Pension fund; insurance                                         | Monthly          |
| Romania        | Ministerul Finanțelor Publice              | Private pension funds                                           | Monthly          |
| South Africa   | National Treasury                          | Local pension funds; insurers                                   | Monthly          |
| Thailand       | Bank of Thailand                           | Financial corporations not elsewhere classified                 | Monthly          |

*Notes:* This table presents the data sources of the investor composition of local currency sovereign bonds. Column (1) and (2) show the country names and the respective data sources. Investors are classified as five types: nonresidents, central bank, banks, domestic institutional investors, and other domestic investors. Column (3) presents the definition of domestic institutional investors, and Column (4) shows the frequency at which national authorities disclose the information on the investor composition of local currency sovereign bonds.

**Figure 9. Robustness Checks**

To test whether the documented spillovers can be attributed to the risk-neutral rate changes rather than to other co-moving components, we add high frequency changes in other asset prices within the short window around Fed events as control variables. Specifically, we include changes in Eurodollar future and the S&P500 stock index as control variables. Results remain robust and are shown below.



*Sources:* IMF staff estimates

*Note:* This chart presents the results of local projections with the instrumental variable (LP-IV). The dependent variable is the change in 5-year and 10-year local currency sovereign yields and term premia in emerging markets (EM), respectively, as shown in regression (3). The independent variable is the daily change in the U.S. long-term interest rate, instrumented by the high-frequency change in the U.S. 10-year Treasury yields at the Fed events. The term premia of EM local currency sovereign yields are obtained by decomposing the 5-year zero-coupon yields using Adrian et al. (2013). The U.S. long-term interest rate is defined as the U.S. 10-year risk-neutral rate, obtained by decomposing U.S. 10-year Treasury yields using Adrian et al. (2013). The data on high-frequency change in the U.S. 10-year Treasury yields at the Fed events are from Georgiadis and Jarocinski (2025). Fed events include FOMC meetings, Fed Chair speeches, testimonies, press conferences, and minutes releases.

## References

- Adrian, T., Crump, R. K., and Moench, E. (2013). Pricing the term structure with linear regressions. *Journal of Financial Economics*, 110(1):110–138.
- Albagli, E., Ceballos, L., Claro, S., and Romero, D. (2019). Channels of US monetary policy spillovers to international bond markets. *Journal of Financial Economics*, 134(2):447–473.
- Agrawal, S., Broszeit, T., Singh, M. R., Sugimoto, N., Surti, J., and Vogelsang, S. J. (2025). *Pension Funds and Financial Stability*. International Monetary Fund.
- Bolhuis, Marijn, F. G. M. K. R. M. A. F. P. Z. Z. (2025). Emerging market resilience: good luck or good policies? *World Economic Outlook*. International Monetary Fund.
- Bruno, V. and Shin, H. S. (2015). Capital flows and the risk-taking channel of monetary policy. *Journal of Monetary Economics*, 71:119–132.
- Burger, J. D., Warnock, F. E., and Warnock, V. C. (2017). The effects of us monetary policy on emerging market economies' sovereign and corporate bond markets. Technical report, National Bureau of Economic Research.
- Cerutti, E., Claessens, S., and Puy, D. (2019). Push factors and capital flows to emerging markets: why knowing your lender matters more than fundamentals. *Journal of International Economics*, 119:133–149.
- Cerutti, E., Claessens, S., and Ratnovski, L. (2017). Global liquidity and cross-border bank flows. *Economic Policy*, 32(89):81–125.
- Chen, J., Mancini-Griffoli, T., and Sahay, R. (2014). Spillovers from United States monetary policy on emerging markets: Different this time? IMF Working Paper No. 14/240. International Monetary Fund.
- Deghi, A., Fendoglu, S., Iyer, T., Tabarraei H., Xu, Y. and Yenice, M. The Sovereign-Bank Nexus in Emerging Markets in the Wake of the COVID-19 Pandemic. IMF Working Paper No. 22/223. International Monetary Fund.
- Ebeke, C. and Kyobe, A.. (2015). Global Financial Spillovers to Emerging Market Sovereign Bond Markets. IMF Working Paper No. 15/141. International Monetary Fund.
- Ebeke, C. and Lu, Y. (2014). Emerging Market Local Currency Bond Yields and Foreign Holdings in the Post-Lehman Period—a Fortune or Misfortune?. IMF Working Paper No. 14/29. International Monetary Fund.
- Fang, X., Hardy, B., and Lewis, K. K. (2025). Who holds sovereign debt and why it matters. The Review of Financial Studies.
- Georgiadis, G. and Jarocinski, M. (2025). Global spillovers from multi-dimensional US monetary policy. *Journal of International Economics*.
- Gertler, M. and Karadi, P. (2015). Monetary policy surprises, credit costs, and economic activity. *American Economic Journal: Macroeconomics*, 7(1):44–76.
- Gilchrist, S., Yue, V., and Zakrajšek, E. (2019). US monetary policy and international bond markets. *Journal of Money, Credit and Banking*, 51:127–161.

- Greenwood, R. and Vayanos, D. (2014). Bond supply and excess bond returns. *Review of Financial Studies*, 27(3):663–713.
- Gürkaynak, R. S., Sack, B., and Swanson, E. T. (2005). Do actions speak louder than words? The response of asset prices to monetary policy actions and statements. *International Journal of Central Banking*, 1(1):55–93.
- Hardy, B., Igan, D., and Kharroubi, E. (2024). Resilience in emerging markets: what makes it, what could shake it? Technical report, Bank for International Settlements.
- Hoyos, R., Liu, Y., Miao, H., and Saborowski, C. (2020). Who drains bond market liquidity in an emerging market? IMF Working Paper No. 20/141. International Monetary Fund.
- International Monetary Fund (2022). Emerging-Market Central Bank Asset Purchases Can Be Effective but Carry Risks. IMF Blog. <https://www.imf.org/en/blogs/articles/2022/01/05/blog010522-emerging-market-central-bank-asset-purchases-can-be-effective-but-carry-risks>
- International Monetary Fund (2025). Global financial stability report: Shifting ground beneath the calm. International Monetary Fund, Washington.
- International Monetary Fund. 2026. Global Financial Stability Report: Global Financial Markets Confront the War in the Middle East and Amplification Risks. Washington, DC, April.
- Jarocinski, M. and Karadi, P. (2020). Deconstructing monetary policy surprises—the role of information shocks. *American Economic Journal: Macroeconomics*, 12(2):1–43.
- Jorda, O. (2005). Estimation and inference of impulse responses by local projections. *American economic review*, 95(1):161–182.
- Jorda, O. and Taylor, A. M. (2025). Local projections. *Journal of Economic Literature*, 63(1):59–110.
- Juselius, M., Wooldridge, P., and Xia, D. (2025). Financial channel implications of a weaker dollar for emerging market economies.
- Kalemli-Ozcan, S. (2019). U.S. monetary policy and international risk spillovers. NBER Working Paper No. 26297. National Bureau of Economic Research.
- Koijen, R. S. and Yogo, M. (2019). A demand system approach to asset pricing. *Journal of Political Economy*, 127(4):1475–1515.
- Krishnamurthy, A. and Vissing-Jorgensen, A. (2012). The aggregate demand for Treasury debt. *Journal of Political Economy*, 120(2):233–267.
- Miranda-Agrippino, S. and Rey, H. (2020). US monetary policy and the global financial cycle. *The Review of Economic Studies*, 87(6):2754–2776.
- Miranda-Agrippino, S. and Rey, H. (2022). The global financial cycle. In *Handbook of international economics*, volume 6, pages 1–43. Elsevier.
- Nakamura, E. and Steinsson, J. (2018). Identification in macroeconomics. *Journal of Economic Perspectives*, 32(3):59–86.
- Nose, M. and Menkulasi, J. (2025). Fiscal Determinants of Domestic Sovereign Bond Yields in Emerging Market and Developing Economies. International Monetary Fund.

- Obstfeld, M., Ostry, J. D., and Qureshi, M. S. (2019). A tie that binds: Revisiting the trilemma in emerging market economies. *Review of Economics and Statistics*, 101(2):279–293.
- Rey, H. (2015). Dilemma not trilemma: the global financial cycle and monetary policy independence. Technical report, National Bureau of Economic Research.
- Rogers, J. H., Scotti, C., and Wright, J. H. (2014). Evaluating asset-market effects of unconventional monetary policy: a multi-country review. *Economic Policy*, 29(80):749–799.
- Rogers, J. H., Scotti, C., and Wright, J. H. (2018). Unconventional monetary policy and international risk premia. *Journal of Money, Credit and Banking*, 50(8):1827–1850.
- Solis, P. (2025). Term premia and credit risk in emerging markets: The role of US monetary policy. *Journal of International Economics*, 154:104045.
- Timmer, Y. (2018). Cyclical investment behavior across financial institutions. *Journal of Financial Economics*, 129(2):268–286.
- Van Doornik, B. F. N., Frost, J., Guerra, R., Tombini, A., and Upper, C. (2024). Towards liquid and resilient government debt markets in emes. *BIS Quarterly Review*.
- Wang, J. and Wu, J. (2021). Is capital flow management effective? Evidence based on U.S. monetary policy shocks. *Journal of International Money and Finance*, 118:102451.
- Wright, J. H. (2012). What does monetary policy do to long-term interest rates at the zero lower bound? *The Economic Journal*, 122(564):F447–F466.



## PUBLICATIONS

**Transmission of U.S. Long-term Rate to EM Local Currency Sovereign Bonds: The Role of the Investor Composition**  
Working Paper No. WP/2026/214