CHAPTER 2

CAPITAL FLOWS TO EMERGING MARKETS: THE ROLE OF GLOBAL NONBANK INVESTORS

Chapter 2 at a Glance

- Cross-border portfolio flows to emerging markets have risen sharply since the global financial crisis, driven largely by nonbank financial investors, with cumulative inflows approaching $4 trillion in 2025.
- By supporting market development and expanding financing options, cross-border portfolio flows offer important opportunities but also carry risks, such as heightened sensitivity to shifts in global risk sentiment.
- Sensitivity to global risk varies significantly across the types of investors. Hedge funds and investment funds react more strongly to shifts in global risk than other nonbanks, with passive mutual funds and exchange-traded funds showing the greatest sensitivity within the investment fund sector.
- During periods of global market stress, emerging markets that are more exposed to risk-sensitive investors face tighter financial conditions—including reduced debt issuance and wider spreads—with adverse implications for macrofinancial stability.
- Robust policy frameworks can mitigate the impact of adverse shocks. Nonbank financial investors pull back less from countries with stronger institutions, ample reserve buffers, or lower fiscal risks when global risk increases.
- Cross-border private credit and stablecoin flows into emerging markets are expanding rapidly, creating opportunities but also challenges. Stablecoin flows remain closely tied to crypto market dynamics, although demand is often elevated in countries with weak fundamentals and policy frameworks, raising currency substitution concerns.

Policy Implications

- To reduce volatility in cross-border portfolio flows, countries—especially those reliant on more risk-sensitive investors—should strengthen macroeconomic fundamentals and institutional quality, build robust fiscal and external buffers, and pursue proactive risk management consistent with the IMF's Integrated Policy Framework.
- International cooperation is essential to close regulatory gaps in nonbank financial intermediation and limit the cross-border propagation and amplification of global financial shocks.
- More comprehensive disclosure and enhanced international data sharing on nonbank exposures and vulnerabilities could strengthen market surveillance and improve risk management practices.
- The rapid expansion of private credit markets and stablecoins in emerging markets warrants continued, proportionate monitoring, particularly where interlinkages with regulated financial institutions are material.

Introduction

Cross-border capital flows from the nonbank financial intermediation (NBFI) sector are an important source of funding for emerging markets. Since the global financial crisis, nonresident portfolio flows to emerging markets—particularly investments in debt securities—have grown markedly compared with bank flows, constituting a key source of external financing for these countries (Figure 2.1, panels 1 and 2).[1] The

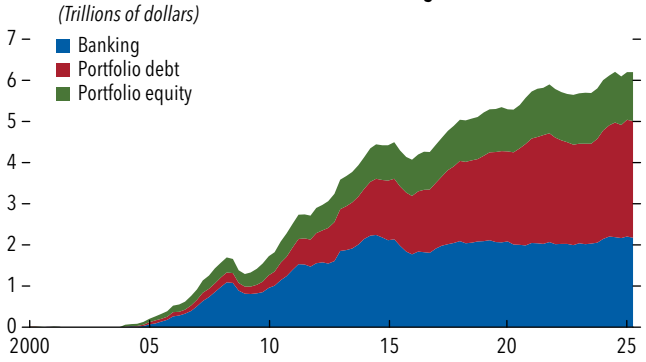
The authors of this chapter are Salih Fendoglu (co-team lead), Oksana Khadarina, Li Lin, Kohei Maehashi, Taneli Mäkinen, Enyu Shao, Felix Suntheim (co-team lead), Mingmei Xiao, and Mustafa Yenice, with contributions from Jakree Koosakul, Corrado Macchiarelli, Andrew Usher, and Dmitry Yakovlev, under the supervision of Mahvash Qureshi. Marcin Kacperczyk served as an external advisor.

[1]According to the IMF *Integrated Balance of Payments and International Investment Position Manual*, seventh edition (BPM7) portfolio investment is defined as cross-border flows and positions involving debt or equity securities, other than those included in direct investment or reserve assets. The flows discussed here refer to net incurrence of liabilities in the financial account under BPM7.

Figure 2.1. Cross-Border Investment by Nonbank Financial Investors in Emerging Markets

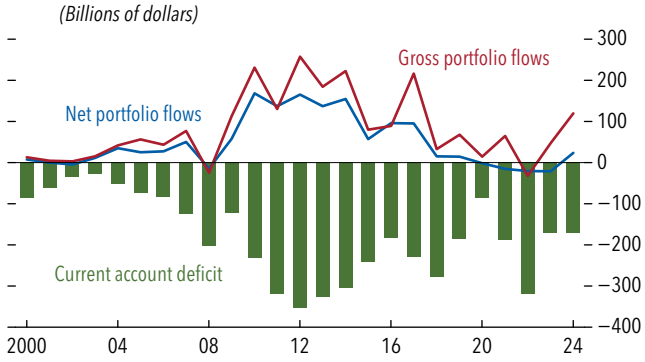
Emerging markets have received substantial cross-border portfolio flows, especially debt flows, since the global financial crisis.

1. Cumulative Nonresident Portfolio and Banking Flows
(Trillions of dollars)



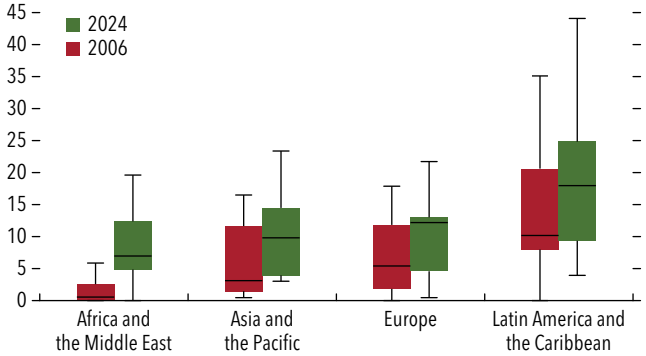
Portfolio flows constitute an important source of financing for emerging markets.

2. Current Account Deficit and Portfolio Flows
(Billions of dollars)



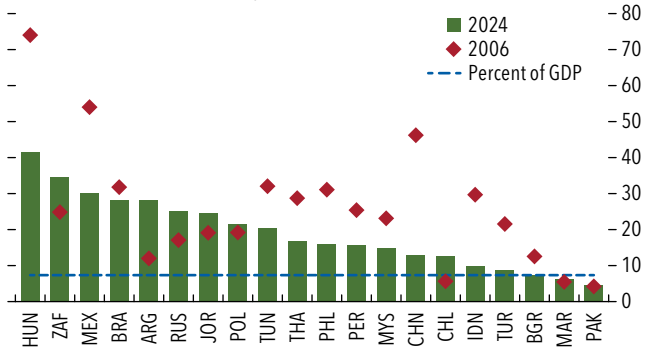
External portfolio debt liabilities are sizable in some emerging markets ...

3. External Portfolio Debt Liabilities
(Percent of GDP, interquartile range, median)



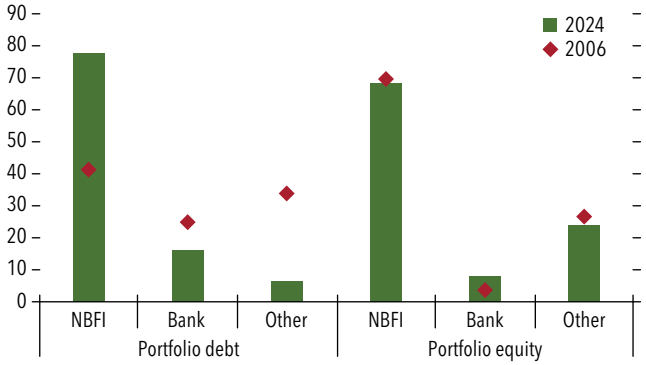
... along with portfolio equity liabilities.

4. External Portfolio Equity Liabilities
(Percent of stock market capitalization)



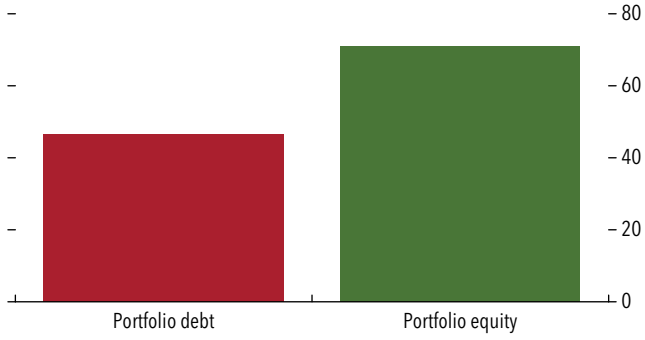
Portfolio liability flows to emerging markets are primarily driven by nonbank financial intermediaries ...

5. Share of the Nonresident Nonbank Financial Intermediary Sector in Portfolio Debt and Equity Investment
(Percent)



... most notably by investment funds.

6. Share of Nonresident Investment Funds in Portfolio Debt and Equity Investment, 2024
(Percent)



Sources: Bank for International Settlements; IMF, Balance of Payments Statistics; IMF, Portfolio Investment Positions by Counterpart Economy database; IMF, World Economic Outlook database; and IMF staff calculations.

Note: Panel 1 shows nonresident portfolio debt and equity liability flows and banking flows to emerging markets expressed in cumulative terms since 2000. Panel 2 shows the current account balance and associated portfolio flows for countries included in the MSCI Emerging Markets index that recorded a current account deficit in the respective years. Panel 4 ranks the top 20 countries by gross external portfolio equity liabilities relative to stock market capitalization in 2024. The dashed line denotes the average of gross external portfolio equity liability relative to GDP across the same sample of countries. Data labels in panel 4 use International Organization for Standardization (ISO) country codes. Panel 5 uses a balanced country-pair sample starting from 2006. Panel 6 shows the approximate share of nonresident "other financial institutions," which are mainly investment funds (including hedge funds) (FSB 2025a). NBFI = nonbank financial intermediation. See Online Annex 2.2 for the list of emerging markets considered in the sample.

stock of external portfolio liabilities is sizable: portfolio debt liabilities average about 15 percent of GDP and exceed 20 percent of GDP in one-fifth of emerging markets (Figure 2.1, panel 3), whereas portfolio equity liabilities average about 7 percent of GDP and represent an economically meaningful share of stock market capitalization in some emerging markets (Figure 2.1, panel 4). This investment comes largely from the NBFI sector, including investment funds, pension funds, insurance companies, and hedge funds, whose share in emerging market portfolio debt liabilities has doubled to 80 percent over the past two decades (Figure 2.1, panels 5 and 6), mirroring their growing prominence in global financial markets.[2]

The increasingly important role of nonresident NBFI significantly benefits emerging markets. After the global financial crisis, the deleveraging of international banks led emerging market firms and sovereigns to rely heavily on international capital markets to meet their financing needs. Ample global liquidity has enabled many emerging market issuers to place debt at longer maturities and lower costs (Calomiris and others 2022; De Gregorio and Jara 2024) and to raise equity more efficiently (Calomiris, Larrain, and Schmukler 2021), supporting investment, capital deepening, and productivity gains (Didier and others 2021). Market-based finance has also facilitated the integration of emerging market firms into global value chains and eased financing constraints for firms in globally connected sectors (Buch and Goldberg 2024).

Nonresident financial investors can diversify funding sources and help deepen financial markets. Their heterogeneous risk appetites, investment strategies, and investment horizons can enhance market efficiency and facilitate risk sharing, while a broader investor base enables funding to be more flexible and resilient during periods of market stress (Jang 2017; Fang, Hardy, and Lewis 2025; October 2025 *Global Financial Stability Report*). These investors also contribute to price discovery (Kacperczyk, Nosal, and Wang 2025), higher market liquidity, and the development of local yield curves. Over time, sustained access to international capital markets can help discipline macroeconomic and financial policies, encourage adoption of stronger regulatory and disclosure frameworks, and promote convergence toward international standards. Taken together, these dynamics can accelerate the maturation of domestic financial systems and support long-term financial development.

The growing role of nonresident NBFI also introduces important vulnerabilities for emerging markets. Portfolio flows into these markets tend to be highly volatile, and their sensitivity to shifts in global financial conditions appears to have increased since the global financial crisis (Boonman 2023; Buch and Goldberg 2024; Pagliari and Hannan 2024). A sudden drop in these flows could intensify external financing pressures, widen corporate and sovereign spreads, and trigger sharp currency depreciations. In turn, this could tighten domestic financial conditions and increase the risk of an adverse macrofinancial feedback loop (Adrian, Boyarchenko, and Giannone 2019). Compared with advanced economies, these risks may be more pronounced for emerging markets because of the greater volatility of portfolio flows, shallower financial markets, and more limited policy capacity to absorb shocks (Claessens and Ghosh 2013; Ghosh, Ostry, and Qureshi 2017; Kacperczyk, Nosal, and Wang 2025; April 2020 *Global Financial Stability Report*).

However, sensitivity to global financial conditions may vary across different types of nonbank financial investors. For example, during major episodes of global market stress, including the 2013 taper tantrum, the COVID-19 shock, and the monetary policy tightening in advanced economies after the pandemic, hedge funds pulled back from emerging markets far more sharply than other nonbank investors (Figure 2.2). This pattern reflects their generally higher liquidity needs, greater use of leverage, and more procyclical investment strategies, which make them more vulnerable to adverse global financial shocks.

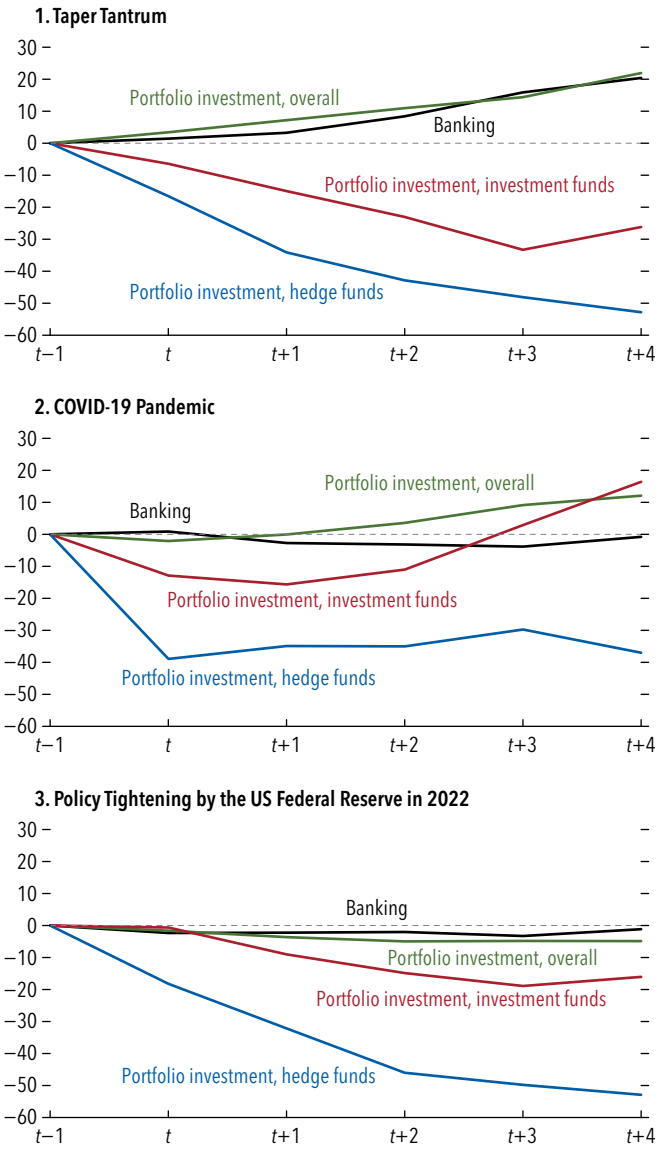
Against this backdrop, this chapter analyzes the transmission of global financial shocks to emerging markets through nonresident NBFI portfolio flows and discusses policies to strengthen resilience to capital flow volatility. The chapter lays out a simple conceptual framework that clarifies how global risk shocks can spread to emerging markets through the nonresident NBFI investor base. It then examines the strength of

[2]Since the global financial crisis, the NBFI sector has grown much faster than the traditional banking sector, accounting for more than half of global financial assets in 2025 (FSB 2025a). This growth reflects a combination of postcrisis regulatory reforms and bank deleveraging, technological shifts in market structure, search-for-yield behavior, and the inclusion of more emerging markets in key investment fund benchmarks (Pascual, Singh, and Surti 2021). In this chapter, the term *nonbank investor* refers broadly to nonbank financial intermediaries, and the term *investment fund* refers to mutual funds and exchange-traded funds, unless otherwise indicated; Online Annex 2.1 provides a detailed description of the different types of NBFI.

Figure 2.2. Portfolio and Bank Liability Flows to Emerging Markets in Stress Episodes

Emerging markets have experienced significant reversals in investment and hedge fund flows during major episodes of market stress since the global financial crisis.

Cross-Border Portfolio and Bank Liability Flows
(Cumulative quarterly flows as a percent of initial stock)



Sources: Bank for International Settlements; Emerging Portfolio Fund Research; FactSet; IMF, Balance of Payments Statistics; and IMF staff calculations.

Note: Portfolio investment flows include portfolio debt and equity liability flows, except in panel 1, where portfolio investment of hedge funds includes equities only because of data limitations. On the *x*-axis, *t* indicates the quarter of the respective shock: the first quarter of 2013 in panel 1, the first quarter of 2020 in panel 2, and the first quarter of 2022 in panel 3.

this shock transmission relative to that of nonresident banks, nonresident NBFI investors in advanced economies, and the resident NBFI sector in emerging markets. It also explores how recipient countries' institutional and policy frameworks shape the risk sensitivity of NBFI flows. The chapter then draws on granular data to quantify risk sensitivity across major NBFI groups—investment funds, hedge funds, pension funds, and insurers—and within key investment fund segments, distinguishing between institutional and retail investors, passive and active strategies, and exchange-traded funds and mutual fund structures. It concludes by assessing the broader macrofinancial risks associated with increased reliance on volatile nonresident NBFI investors and outlining policy options to strengthen emerging market resilience.[3]

To examine these issues, the chapter draws on various empirical approaches and diverse data sources. Vulnerabilities differ across types of NBFIs, but most existing studies focus on aggregate relationships or on narrow investor segments, largely because of data limitations. This chapter provides a novel and comprehensive assessment of the NBFI sector by combining information on NBFI flows and security-level holdings across sovereigns and firms to identify which investor segments are most sensitive to global financial shocks. The analysis uses country-level data on cross-border portfolio and bank flows from 2003 to 2025 at a quarterly frequency, together with data on NBFI security-level holdings from 2010 to 2025 that cover about 7,000 institutional investors and 4,000 mutual funds, primarily domiciled in advanced economies and investing in about 50 emerging markets.

A Conceptual Framework on Nonbank Investors and the Transmission of Global Shocks to Emerging Markets

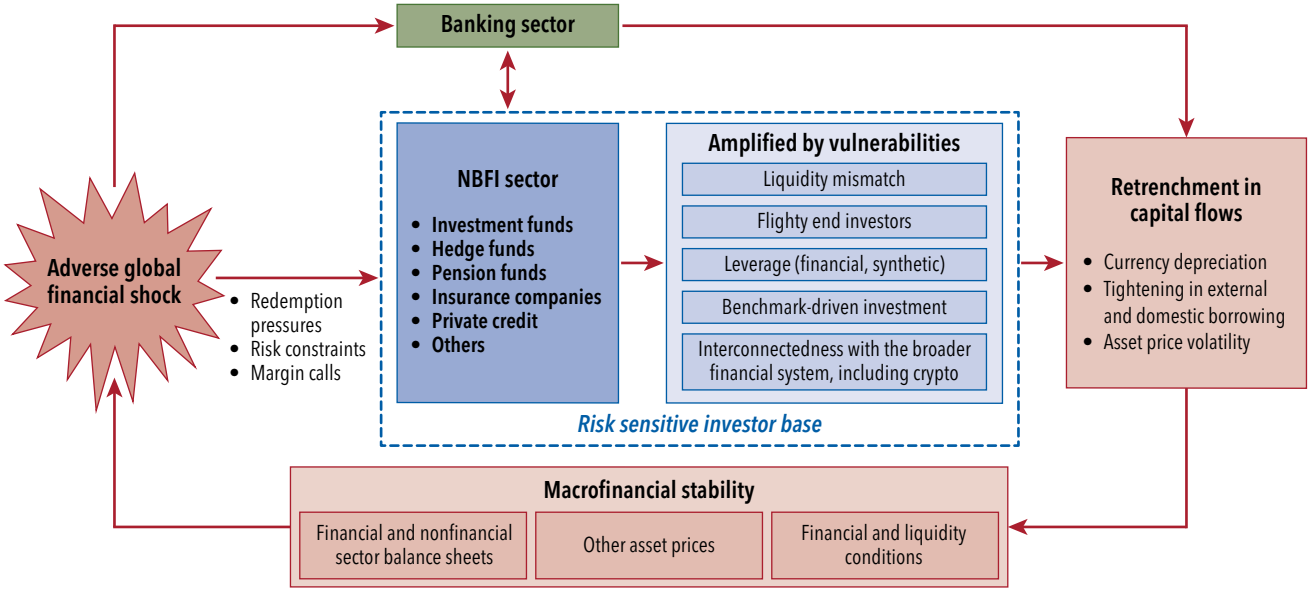
Structural vulnerabilities associated with certain nonbank investors can amplify the transmission of global shocks (Adrian 2025; April 2023 *Global Financial Stability Report*; Figure 2.3).[4] For example,

[3]The chapter focuses on how global financial shocks affect NBFI dynamics. Other global shocks, such as geopolitical risk shocks, can also affect cross-border capital flows to emerging markets (Catalan, Fendoglu, and Tsuruga 2024; April 2023 *Global Financial Stability Report*).

[4]The idea that the composition of foreign investors can influence capital flows or asset prices is well established. For example, Chavaz and Flandreau (2017) note that the Colonial Stock Acts of 1877 and 1900 sought to attract long-term buy-and-hold savers—that is, "pensioners"—into colonial bonds to stabilize demand and limit sharp yield fluctuations.

Figure 2.3. Key Channels for the Transmission of Global Financial Shocks through the NBFI Sector

An adverse global financial shock may adversely affect macrofinancial stability in emerging markets through various channels, amplified by structural vulnerabilities associated with certain nonbank investors.



Source: IMF staff.

Note: The degree of retrenchment in capital flows by nonresident NBFI also depends on borrower vulnerabilities and structural characteristics, such as the extent of external and fiscal buffers, institutional capacity, and the depth of domestic financial markets. NBFI = nonbank financial intermediation.

investment funds, which account for the bulk of portfolio debt and equity investment in emerging markets (Figure 2.1, panel 6), are exposed to sudden redemption demands from end investors. Open-end mutual funds, in particular, typically offer daily liquidity, yet often hold relatively illiquid assets, making them vulnerable to large redemptions from end investors and potential asset fire sales when liquidity management tools are insufficient (Goldstein, Jiang, and Ng 2017; October 2022 *Global Financial Stability Report*).[5]

The vulnerability associated with investment funds may be amplified when the funds' end-investor base is dominated by institutional clients. These investors tend to behave more procyclically during periods of market stress (Shek, Shim, and Shin 2018). Although such liquidity risks are not unique to the NBFI sector, many nonbank entities face less stringent prudential oversight and liquidity requirements than banks and lack access to deposit insurance or central bank liquidity backstops. As a result, greater exposure to open-end mutual funds can heighten the sensitivity of portfolio inflows to global financial conditions and increase the likelihood of abrupt and extreme flow movements (Cerutti, Claessens, and Puy 2019; Chari, Stedman, and Lundblad 2022).

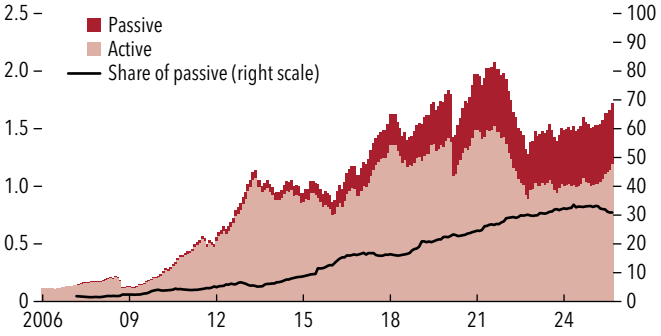
The increasing prevalence of benchmark-driven investors could pose an additional vulnerability. Passive funds, which track specific market indices, account for a growing share of portfolio investment in emerging markets (Figure 2.4, panels 1 and 2). This trend, along with the inclusion of additional emerging market issuers in major bond and equity indices, has helped attract a broader investor base and reduce firms' financing costs (Figure 2.4, panel 3) (Raddatz, Schmukler, and Williams 2017; Calomiris and others 2022). However, passive funds adjust portfolios mechanically in response to benchmark changes, which can generate synchronized trading across funds holding overlapping emerging market securities and raise the risk of sharp asset price declines (Anadu and others 2018; Haddad, Moreira, and Muir 2021). In addition, because investors in passive funds may differentiate less across countries based on their fundamentals, such funds may respond more strongly to shifts in global financial conditions, increasing the likelihood of sudden stops across countries (Arslanalp and

[5]Common asset holdings across investors can amplify the effect of asset fire sales by triggering losses for other investors, thereby exacerbating asset price fragilities and increasing redemption risks (Greenwood and Thesmar 2011; Claessens and Lewrick 2021).

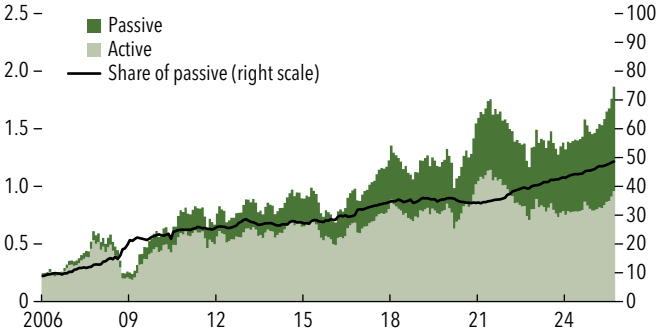
Figure 2.4. Passive Investment Strategies

The share of passive funds relative to active funds investing in debt and equity markets in emerging markets has steadily risen.

1. Investment Funds' Portfolio Debt Allocation to Emerging Markets by Strategy
(Trillions of dollars, left scale; percent, right scale)

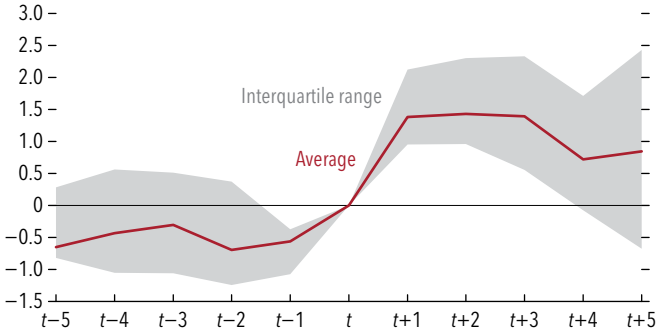


2. Investment Funds' Portfolio Equity Allocation to Emerging Markets by Strategy
(Trillions of dollars, left scale; percent, right scale)



Inclusion in well-tracked indices boosts local stock market returns.

3. Excess Stock Returns after Inclusion in the MSCI Emerging Market Index
(Percent)



Sources: Emerging Portfolio Fund Research; London Stock Exchange Group; MSCI Emerging Markets Index; and IMF staff calculations.

Note: Panels 1 and 2 show total portfolio investment in emerging markets by nonresident investment funds with passive or active investment strategies. Panel 3 presents excess returns over a five-day window before and after the announcement of inclusion in the MSCI Emerging Markets index (day *t* on the *x*-axis), covering events after 2000 (excluding Argentina). These include Pakistan (June 14, 2016), Saudi Arabia (June 20, 2018), Kuwait (June 25, 2019), Qatar (June 11, 2013), the United Arab Emirates (June 11, 2013), and China A-shares (June 20, 2017). Excess returns are defined as the difference between returns of a country's stock market index (in dollars) and the MSCI World Index (in dollars).

others 2020). These pressures can be amplified when the end investors are institutions facing liquidity needs, which is often the case for exchange-traded funds, whose trading is heavily driven by liquidity-motivated investors and institutional hedging activities (Converse, Levy-Yeyati, and Williams 2023; Cai and others 2025).

High leverage-driven investments by some NBFI entities constitute another structural vulnerability. For example, hedge funds—an increasingly important investor group in some emerging markets (Figure 2.5)—typically use financial or synthetic leverage more extensively to boost exposure and returns compared with other NBFI entities (FSB 2023a). Such strategies can create fragilities given that an increase in market volatility may trigger margin calls or binding risk constraints, forcing asset sales and amplifying price pressures (Baranova and others 2017; Aramonte, Schrimpf, and Shin 2023). In emerging markets, where market depth is limited, these dynamics can generate outsized effects, as reflected in the sharp retrenchment of hedge funds during episodes of global market stress (Figure 2.2). Nevertheless, hedge funds can also act as stabilizers when they are less leveraged, have stronger liquidity terms, or pursue hedged strategies. This can provide liquidity, support price discovery and absorb sales by more constrained investors (Aragon and Strahan 2012; Çötelioğlu, Franzoni, and Plazzi 2021).

Nonbank financial intermediaries managing long-term liabilities, such as insurers and pension funds, may be relatively less procyclical than investment and hedge funds, but vulnerabilities remain. The investment strategies of such institutions typically focus on stability and duration matching rather than short-term returns. Insurers, in particular, operate under strict solvency and capital adequacy regulations that limit excessive risk taking and leverage. Also, unlike open-end mutual funds, these institutions generally do not face daily redemption pressures, reducing the likelihood of fire sales during stress periods (Coppola 2025). Nonetheless, some vulnerabilities remain: leverage, mark-to-market accounting, and solvency rules can still force asset sales during downturns, potentially amplifying stress.

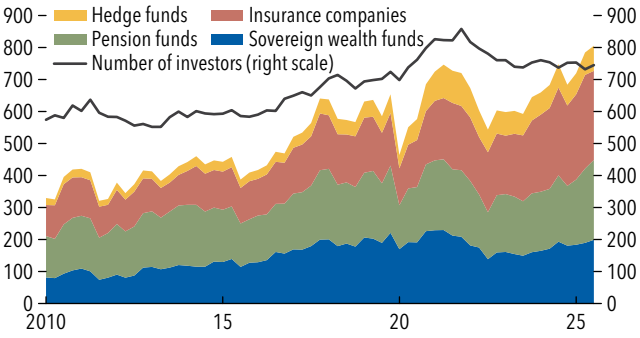
As private credit has expanded, a new class of increasingly important nonbank lenders has arisen in emerging market financing. As investors search for yields and diversification, lending by private credit firms to emerging markets has risen markedly from a low base, with assets under management exceeding $50 billion as of the end of 2024 (Box 2.1).

Figure 2.5. Holdings of Emerging Market Securities by Nonbank Financial Investors

Global hedge funds, pension funds, and sovereign wealth funds have been increasing their exposure to emerging markets ...

1. Emerging Market Security Holdings of Reporting Nonbanks Other than Mutual Funds

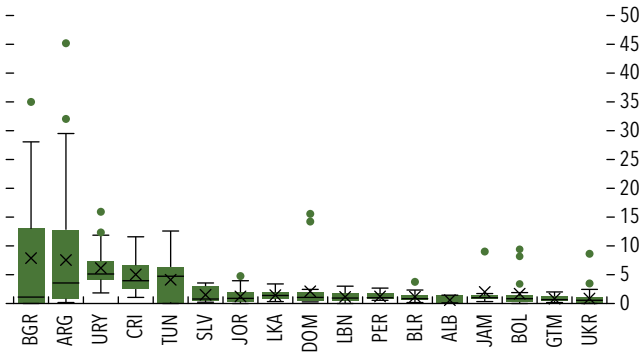
(Billions of dollars, left scale; number of investors, right scale)



... with known hedge fund positions being sizable relative to the market value of securities in some countries.

2. Hedge Funds' Ownership Share, 2010–25

(Percent, relative to market value)



Sources: FactSet; and IMF staff calculations.

Note: Panel 1 illustrates the holdings of emerging market debt and equity securities, at market values, for nonbank financial investors reporting holdings of such securities. Panel 2 shows hedge funds' ownership share in emerging market securities over the period 2010–25 across selected emerging markets. The boxes represent the interquartile range of the share; "×" and "–" denote the average and the median share, respectively; the whiskers illustrate the range of the shares, excluding outliers, which are shown by the dots outside the whiskers. Data labels in panel 2 use International Organization for Standardization (ISO) country codes.

This expansion has broadened financing options for emerging market borrowers—including infrastructure finance, asset-based finance, and various forms of mezzanine and leveraged finance—particularly where bank lending has been constrained. However, private credit funds often operate through opaque structures with limited regulatory oversight, making it difficult to assess systemic risks (April 2024 *Global Financial Stability Report*). In many emerging markets, these challenges are compounded by weak supervisory and data frameworks to monitor private credit exposures, increasing uncertainty about potential spillovers to domestic financial systems.

The strong interconnectedness between the NBFI sector and the broader global financial system creates multiple channels for the transmission of shocks. Banks in advanced economies are increasingly exposed to the NBFI sector through, for example, credit lines, repos, derivatives, and prime brokerage services, with exposures particularly concentrated in hedge funds. This growing interconnectedness implies that stress in nonbank entities can spill back into the banking system, prompting deleveraging and a broader pullback of nonresident flows from emerging markets. The NBFI sector also relies heavily on banks for foreign exchange swaps to hedge exposures. Thus, during global risk-off episodes, surging hedging demand can strain foreign exchange liquidity and amplify emerging market currency volatility (October 2025 *Global Financial Stability Report*).

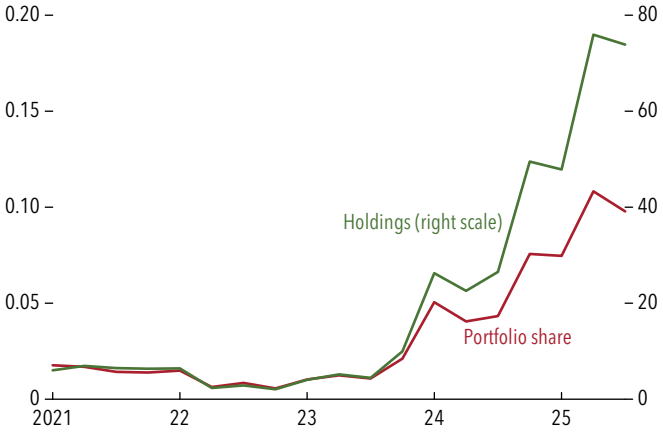
Linkages between NBFI and crypto markets are deepening, increasing contagion risks. Asset managers have introduced a growing range of crypto-related products, including exchange-traded products and tokenized instruments, and many NBFI entities now hold crypto assets or gain exposure through crypto-sensitive securities (Figure 2.6).[6] Stablecoins—widely used as settlement assets in crypto markets—are also becoming more prevalent in NBFI portfolios, and their use in cross-border transactions, including in emerging markets, has been growing (Box 2.2). As these connections expand, shocks in crypto markets can propagate more easily through nonbank portfolios, heightening contagion risks.

Sovereigns and firms that rely heavily on relatively volatile nonresident NBFI flows may be particularly vulnerable to global financial shocks. When global

[6]The number of globally listed crypto exchange-traded products and exchange-traded funds rose from 19 in 2020 to 405 by November 2025 (Exchange Trade Funds Global Insights, "Crypto ETFs Listed Globally Suffered Net Outflows of US$2.95 Billion in November According to New Research by ETFGI," press release, December 31, 2025, https://etfgi.com/news/press-releases/2025/12/crypto-etfs-listed-globally-suffered-net-outflows-us295-billion).

Figure 2.6. Holdings of Crypto-Related Assets by Institutional Investors
(Percent, left scale; billions of dollars, right scale)

Nonbank investors have been increasing their exposure to crypto-related assets.



Sources: FactSet; Lipper; MSCI; and IMF staff calculations.

Note: The figure shows the market value of exchange-traded fund holdings in crypto currencies (excluding stablecoins) and equities of digital asset treasury companies held by nonbank financial institutions with more than $10 million in emerging market exposure, expressed both as a share of portfolio market value and in billions of dollars.

financial conditions tighten, these borrowers can face sharp increases in bond yields and equity risk premiums, delayed market access, and currency depreciations. Risks are further amplified when sovereigns and firms face elevated vulnerabilities, such as high debt, unhedged foreign exchange exposures, or rollover risks from short-term foreign currency debt (Ghosh, Ostry, and Qureshi 2017; Bräuning and Ivashina 2020; Bianchi and Sosa-Padilla 2024; Chari and others 2024). These dynamics pose broader macrofinancial stability risks given that rising sovereign spreads can strengthen the sovereign–bank nexus and tighten domestic lending conditions. Moreover, higher funding costs can compress firms' capital spending and aggregate demand, weighing on real activity and eroding financial sector profitability. Large currency depreciations can compound these effects by exacerbating balance sheet mismatches, triggering deleveraging, and leading to cascades of defaults as domestic financial conditions deteriorate further.

The Transmission of Global Risk Shocks by Nonbank Financial Investors

The global financial crisis marked a turning point in the relative sensitivity of cross-border bank and portfolio flows to global risk. Financial regulatory reforms after the crisis raised the cost of risk taking for global banks, likely pushing riskier borrowers toward nonbank financing (Avdjiev and others 2025). Consistent with this shift, econometric evidence shows that since the crisis, the sensitivity of cross-border bank lending to changes in global risk, proxied by the Chicago Board Options Exchange Volatility Index (VIX), has diminished relative to that of portfolio debt flows (Figure 2.7, panel 1; Online Annex Figure 2.3.2).[7] Specifically, a one-standard-deviation increase in the VIX—about 7 percentage points, comparable to the increase in the VIX observed in early 2022 when the Federal Reserve tightened monetary policy—is associated, on average, with a decline of about 0.3 standard deviations (equivalent to around 1 percent of GDP) in quarterly portfolio debt flows, compared with a drop of about 0.2 standard deviations (0.8 percent of GDP) for banking flows. For portfolio equity flows, a similar shock implies a decline of 0.1 standard deviations—around 0.1 percent of GDP (Figure 2.7, panel 1)—somewhat smaller than in the precrisis period. This result aligns with evidence of a structural shift in the international financial system, whereby global liquidity has become more responsive to risk through international debt issuance rather than through cross-border bank lending (Avdjiev and others 2025).

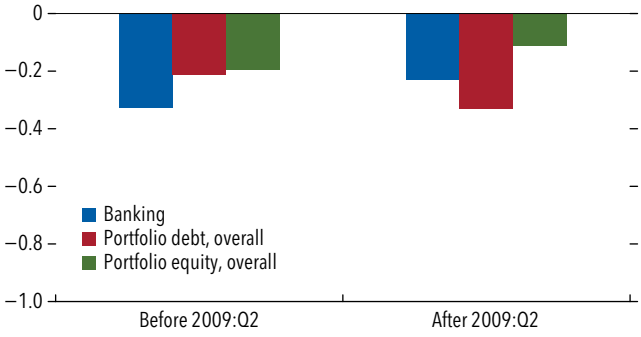
Portfolio debt flows to emerging markets tend to be more sensitive to heightened global risk than flows to advanced economies. A one-standard-deviation increase in the VIX is associated with statistically and economically negligible changes in portfolio debt flows to advanced economies, but with a large and statistically significant decline in emerging markets (Figure 2.7, panel 2). However, portfolio equity flows to emerging markets appear less sensitive to the VIX than those to advanced economies, reflecting stronger interdependence among advanced economy equity markets.

[7]The VIX, derived from option-implied volatility of the S&P 500 index, is widely used as a benchmark measure of financial uncertainty and global risk aversion. The empirical findings are largely robust to alternative measures of the global risk factor, such as the risk on–risk off (RORO) index (Chari and others 2024), the World Uncertainty Index (WUI), and the US Dollar Index (DXY). Whether the sensitivity of portfolio debt flows to changes in the global risk factor increased after the global financial crisis depends on the measure used; however, the decline in the sensitivity of banking flows relative to that of portfolio debt flows after the second quarter of 2009 is a robust finding. See Online Annex 2.3 for details.

Figure 2.7. Global Risk Sensitivity of Cross-Border Portfolio and Bank Liability Flows to Emerging Markets
(Relative to GDP, standard deviations)

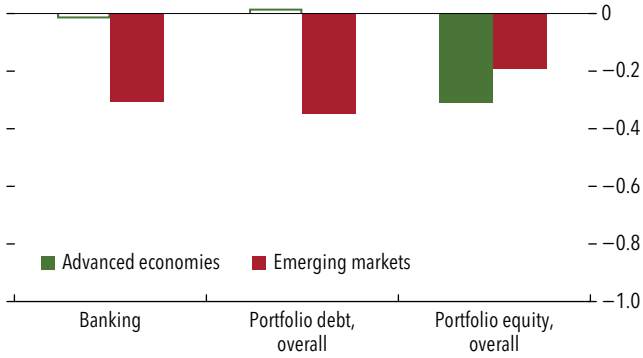
Since the global financial crisis, the sensitivity of cross-border bank lending to global risk has declined relative to portfolio debt flows for emerging markets.

1. Portfolio and Bank Liability Flows to Emerging Markets following an Increase in the VIX



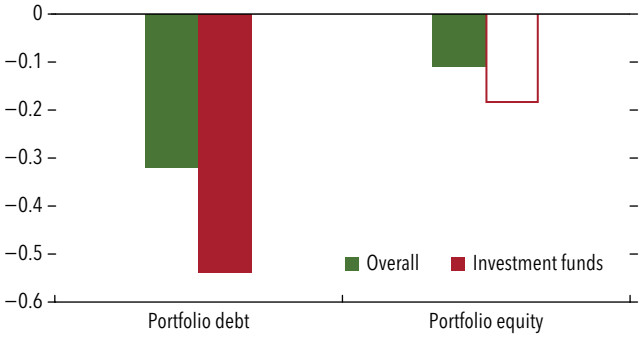
Portfolio debt liability flows to emerging markets are more sensitive to global risk than those to advanced economies.

2. Portfolio and Bank Liability Flows to Advanced Economies and Emerging Markets following an Increase in the VIX, after the Second Quarter of 2009



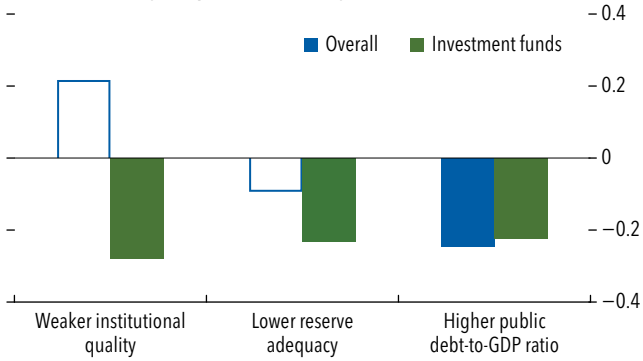
Of portfolio flows, those by investment funds are particularly sensitive to global risk.

3. Portfolio Liability Flows to Emerging Markets following an Increase in the VIX, after the Second Quarter of 2009



Macro vulnerabilities can increase the sensitivity of portfolio debt liability flows to market stress.

4. Portfolio Debt Liability Flows to Emerging Markets following an Increase in the VIX by Recipient Vulnerability, after the Second Quarter of 2009



Sources: Bank for International Settlements; Emerging Portfolio Fund Research; IMF, Balance of Payments Statistics; and IMF staff calculations.

Note: Panel 2 excludes traditional safe-haven countries (Japan, Switzerland, and the United States). In panels 1–3, the bars indicate the sensitivity of cross-border portfolio liability or banking flows (relative to GDP), expressed in standard deviations, in response to a one-standard-deviation increase in the VIX. In panel 4, the bars indicate the additional sensitivity of portfolio liability flows (overall or investment funds) relative to GDP. Sensitivity is expressed in standard deviation, in response to a one-standard-deviation increase in the VIX, for countries with weaker fundamentals–below-median institutional quality and reserve-to-import ratio, or above-median public-debt-to-GDP ratio–relative to countries with stronger fundamentals. See Online Annex 2.3 for additional data and methodological details. Solid bars indicate statistical significance at 10 percent or lower. VIX = Chicago Board Options Exchange Volatility Index.

Among nonbank financial investors, investment funds appear particularly sensitive to changes in global risk. Investment funds investing in portfolio debt securities react almost twice as strongly as portfolio investors considered collectively (Figure 2.7, panel 3). A one-standard-deviation increase in the VIX is associated with a decline of more than 0.5 standard deviations of debt flows to emerging markets by investment funds—an economically meaningful effect of about 0.8 percent of GDP—compared with about 0.3 standard deviations for aggregate portfolio debt flows. For equity flows, a similar shock is linked to a decline of almost 0.2 standard deviations—about twice the size of the response for total portfolio equity flows—although this estimate is not statistically significant at conventional levels.

The effect of global risk shocks on NBFI behavior depends on the size of the shock. Portfolio debt flows

to emerging markets become increasingly sensitive to the VIX as it rises, remaining relatively unresponsive when the VIX is below its historical average of about 20 but reacting strongly at higher levels. Sensitivity is also greater when portfolio debt flows are particularly large relative to GDP, which may reflect a buildup of vulnerabilities or increased exposure to more risk-sensitive investors (Online Annex Figure 2.3.6).

Country-specific vulnerabilities affect the extent to which nonresident investors respond during global risk-off episodes. Portfolio debt flows, especially those intermediated by investment funds, appear to be significantly more sensitive to global risk in countries with weaker institutional quality, lower official reserve buffers, and higher public-debt-to-GDP ratios (Figure 2.7, panel 4).

Global Risk Sensitivity across Different Types of Nonbank Financial Investors

To examine the sensitivity of different types of nonbank investors to global risk shocks, this analysis draws on granular security-level holdings data of individual investors.[8] It begins by comparing the responses of nonresident and resident investors. Econometric estimates show that nonresident investors decrease their emerging market investments significantly more than domestic investors do when global risk rises. Following a one-standard-deviation increase in the VIX, nonresident investors reduce their emerging market bond and equity investments by 0.6 percentage points more than resident investors (Figure 2.8, panel 1).[9] This effect is economically meaningful, amounting to about one-third of the decline in nonresident NBFI emerging market investments during the COVID-19 shock in the first quarter of 2020. By contrast, for advanced economy securities, nonresident nonbank investors do not react differently from resident investors. Further analysis suggests that in countries with shallower financial markets, weaker reserve adequacy, lower institutional quality, or higher sovereign risk, nonresident nonbank investors retrench more sharply than resident investors after risk-off shocks, reinforcing the results in Figure 2.7 and underscoring the role of strong institutions and buffers in mitigating portfolio flow volatility (Online Annex Figure 2.4.7).[10]

Responses to global risk shocks vary markedly across types of nonresident NBFI investors. Hedge funds appear to be the most sensitive, or flightiest, followed by other investment funds. When market volatility rises, nonresident hedge funds and mutual funds reduce their emerging market investments significantly more than resident investors do, whereas nonresident insurance companies and pension funds show no meaningful adjustment on average (Figure 2.8, panel 2). The sensitivity of hedge funds, which is statistically significantly greater than that of mutual funds, might reflect their greater use of leverage, which can trigger forced asset sales when volatility spikes. Substantial heterogeneity also exists across hedge funds and mutual funds: the flightiest quartile reduces emerging market holdings by more than twice the median response, although a significant share reacts less than resident holders (Online Annex Figure 2.4.2).

The flightiness of investment funds appears closely linked to key structural vulnerabilities. As noted in the conceptual framework (Figure 2.3), structural vulnerabilities include (1) redemption pressures amplified by liquidity mismatches and risk-sensitive end investors; (2) the use of leverage, which can trigger margin calls and liquidity spirals during volatility spikes; and (3) benchmarking against major indices and common asset holdings that lead to correlated trading. Within the investment fund universe, nonresident passive funds and exchange-traded funds display markedly higher sensitivity than active mutual funds (Figure 2.8, panel 3).[11] Although on average there is no significant difference between institutional- and retail-focused funds, notable heterogeneity emerges within these categories. For example, among active

[8]Nonbank investors include asset managers, hedge funds, insurance companies, pension funds, sovereign wealth funds, foundations, and family offices. The use of granular data helps improve the identification of the impact of global risk shocks, allowing for a clearer separation of investor-specific behavior and the underlying transmission channels. Specifically, the regressions control for time-varying recipient-side factors, to capture source-side effects. Further details on the data, methodology, and robustness analysis are provided in Online Annex 2.4.

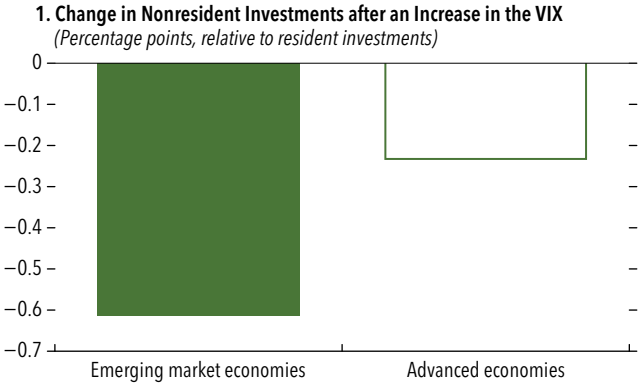
[9]These findings are consistent with the October 2025 *Global Financial Stability Report*, which shows that larger presence of nonresident investors is associated with greater sensitivity of domestic sovereign bond markets to global shocks.

[10]Specifically, lower international reserves are associated with a larger decline in nonresident NBFI investment in jurisdictions with managed exchange rate regimes.

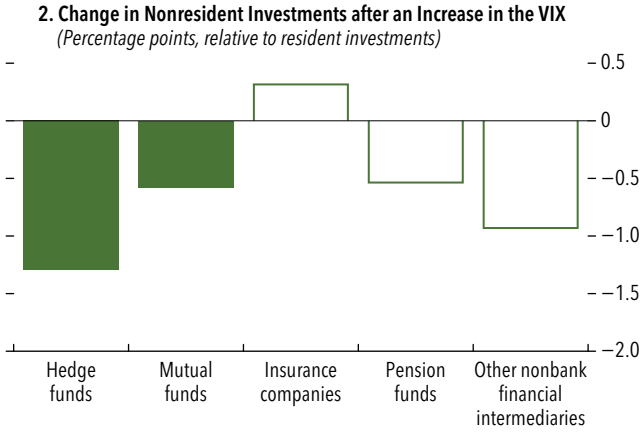
[11]This is consistent with the observation of Chari, Stedman, and Lundblad (2022) that passive investment vehicles amplify the transmission of global risk shocks to emerging market flows and asset prices because portfolio construction is benchmark driven. For a similar finding, see Arslanalp and others (2020).

Figure 2.8. Sensitivity of Institutional Investors' Emerging Market Holdings to the VIX

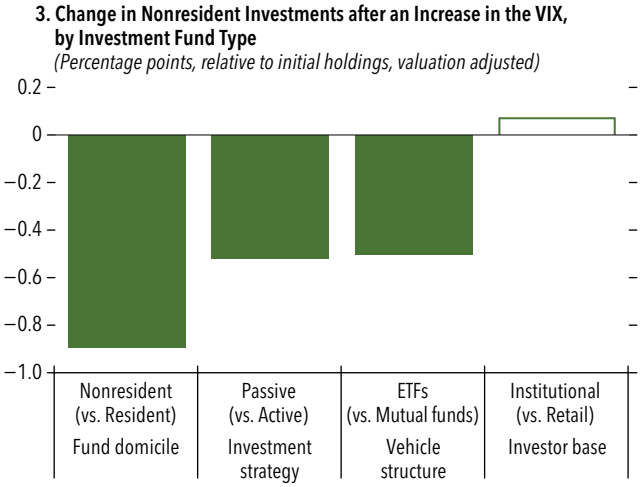
Nonresident nonbank financial investors reduce emerging market investments more than resident investors when global risk rises.



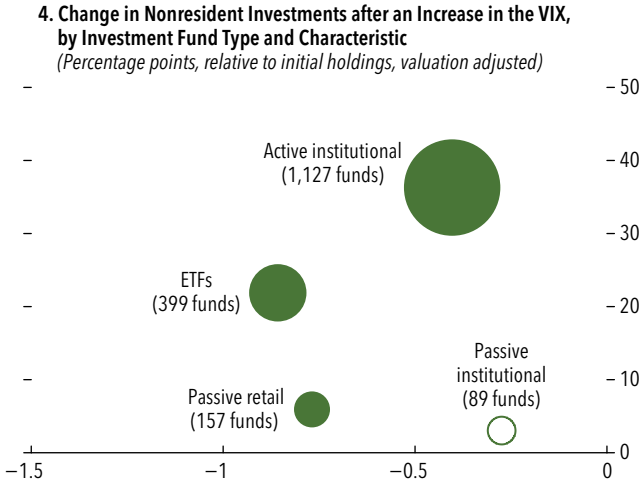
Sensitivity to global risk shock varies across types of nonbank financial investors.



Nonresident passive funds and exchange-traded funds tend to exhibit higher sensitivity to the VIX.



There is substantial variation within and across investor bases and fund structures.



Sources: Chicago Board Options Exchange; FactSet; Lipper; and IMF staff calculations.

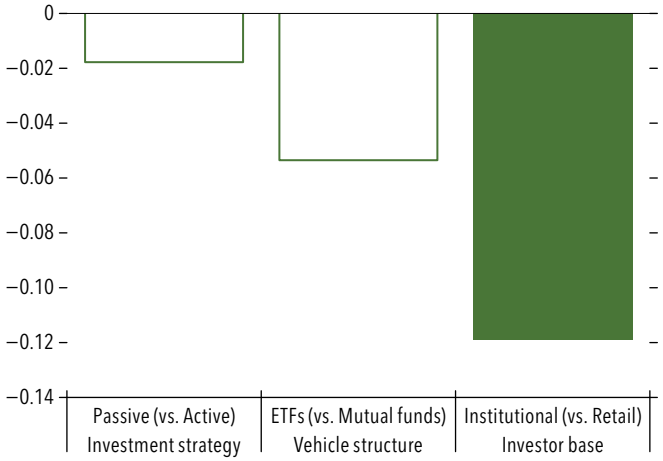
Note: The panels show estimates of the valuation-adjusted change in the growth of nonresident NBFI securities holdings (relative to initial levels) for a one-standard-deviation increase in the VIX. Panels 1 and 2 compare nonresident with resident nonbank financial investors using a specification with an issuer–security type–time fixed effect and an investor–issuer–security type fixed effect. Panel 3 reports emerging market holding sensitivities from separate regressions, with coefficients interpreted relative to each column's omitted group (columns 2–4 are restricted to nonresident emerging market holdings). Panel 4 reports sensitivities from a single regression across mutually exclusive fund groups relative to a common base category (Mutual Funds: Retail, Active), and the marker position shows the estimate, while the marker size and height indicate the number of funds and the group's share of holdings in the data, respectively. Regressions include fund–issuer–security type and issuer–security type–time fixed effects. Solid bars or circles indicate statistical significance at 10 percent or lower. See Online Annex 2.4 for details. Other nonbank financial intermediaries are sovereign wealth funds, family offices, endowments, and foundations. ETFs = exchange-traded funds; VIX = Chicago Board Options Exchange Volatility Index.

funds, institutional-focused investment vehicles exhibit greater sensitivities to global risk; among passive funds, retail-focused vehicles tend to react more, although the difference is not statistically significant at conventional levels (Figure 2.8, panel 4).

Investor redemptions in response to global risk shocks are an important driver of emerging market asset sales. Institutional investors, in particular, tend to redeem from funds with emerging market exposures during periods of heightened global risk (Figure 2.9). However, such redemptions do not always translate into additional asset sales. For example, actively managed funds serving institutional clients seem to be able to manage liquidity demands in periods of high global

Figure 2.9. Sensitivity of Funds' End Investors to the VIX
(Percent)

Funds with institutional investors generally experience larger outflows than retail funds when the VIX rises.



Sources: FactSet; Lipper; and IMF staff calculations.

Note: This figure shows the sensitivity of end-investor flows to a one-standard-deviation increase in the VIX across different fund types. Bars report estimated coefficients from regressions run relative to the reference category shown in parentheses. Estimates are based on nonresident funds' holdings of emerging market securities. End-investor flows are measured as valuation-adjusted changes in fund size. Regressions control for lagged fund size and returns, portfolio-weighted country-level pull factors, and fund fixed and time fixed effects. The solid bar indicates statistical significance at 10 percent or lower. ETFs = exchange-traded funds; VIX = Chicago Board Options Exchange Volatility Index.

risk with limited asset sales (Online Annex 2.4B).[12] By contrast, passive funds and exchange-traded funds are more likely to pass investor redemptions through to underlying asset markets, reflecting their more limited flexibility to use cash buffers to absorb outflows.[13] When selling emerging market assets, institutional investors seem to differentiate among asset classes, rotating out of corporate bonds into equities and out of foreign-currency-denominated assets to local-currency-denominated assets (Online Annex Figure 2.4.8).

Investment funds also use synthetic leverage and hedging, which influence their retrenchment from emerging market assets during periods of elevated global risk.[14] Investment funds that use leveraged and hedged strategies hold a meaningful share of emerging market assets (Figure 2.10, panel 1), with leveraged funds concentrated in equities and hedged funds mainly invested in sovereign bonds (Online Annex Figure 2.4.11). Synthetically hedged funds, on average, do not reduce their emerging market investments as much as funds without identifiable synthetic exposures, suggesting that hedging mitigates return volatility and redemption pressures (Figure 2.10, panel 2). By contrast, leverage effects are more uneven and are most pronounced among exchange-traded funds, consistent with their mechanical rebalancing and reliance on margin financing, which can amplify shock transmission during stress episodes.[15]

Risk-Sensitive Nonbank Financial Investors and Macrofinancial Stability

Sudden retrenchment by nonresident investors during global risk-off episodes can pose significant macrofinancial risks for emerging markets. Asset sales and widening sovereign spreads can trigger an adverse sovereign–bank feedback loop, resulting in tighter borrowing conditions and potentially spilling over to the real economy as firms cut or delay investment (April 2022 *Global Financial Stability Report*). In severe episodes, sharp currency depreciations may exacerbate balance sheet mismatches, especially in countries with high financing needs, further tightening financial conditions and increasing default risks. This section examines these channels through primary and secondary debt markets by identifying "flighty" NBFI investors on the basis of their sensitivity to global risk and assessing how ex ante reliance on such investors affects emerging market issuers' financing conditions.[16]

[12]This is supported by Figure 2.8, panel 3, which shows that institutional investors do not respond significantly differently from retail investors in withdrawing from emerging markets after an increase in global risk. The availability and adoption of liquidity management tools may affect funds' exposure to redemption risks, especially in periods of market stress (October 2022 *Global Financial Stability Report*).

[13]*Investor redemptions* refers to net outflows from a fund, measured as valuation-adjusted declines in fund size. For exchange-traded funds for which end investors do not transact directly with the fund issuer, redemptions are executed by authorized participants after netting secondary-market investor demand.

[14]The analysis examines how funds' synthetic leverage profiles—capturing both risk-enhancing and risk-mitigating exposures—impact the transmission of global shocks. Synthetic leverage is constructed following Fricke (forthcoming). See Online Annex 2.4B for details.

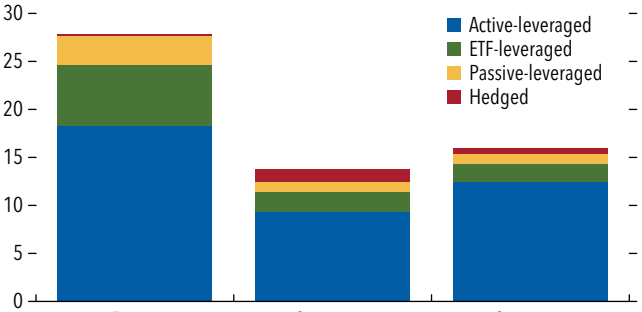
[15]These findings are consistent with earlier studies showing that leverage can exacerbate market dislocations, whereas hedged exposures tend to be more resilient during risk-off periods (Baranova and others 2017; Alfaro, Calani, and Varela 2021).

[16]Flighty investors—defined as the top quintile of nonresident investors by global risk sensitivity, mainly hedge funds and mutual funds—account on average for about 1 percent of emerging market bond markets, rising to as much as 14 percent in some countries.

Figure 2.10. Sensitivity of Emerging Market Holdings of Mutual Funds and Exchange-Traded Funds to the VIX

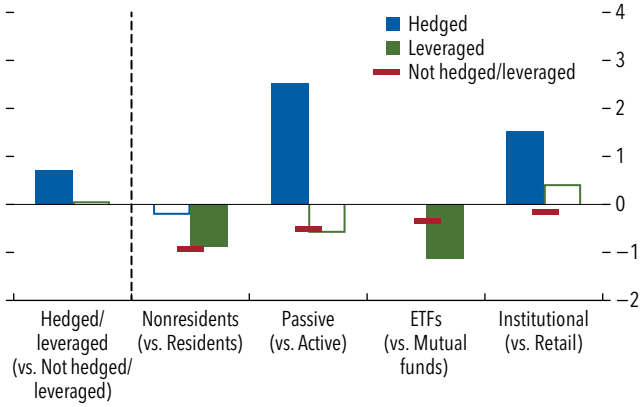
Synthetically leveraged funds hold substantially more emerging market assets than synthetically hedged funds.

1. Share of Nonresident Emerging Market Holdings in Synthetically Leveraged or Hedged Funds across Mutual Funds and Exchange-Traded Funds, Third Quarter of 2025
(Percent)



Hedging dampens global risk sensitivity, whereas leverage amplifies it among exchange-traded funds.

2. Change in Nonresident Investment after a VIX Increase, by Fund Characteristic
(Percentage points, relative to initial holdings, valuation adjusted)



Sources: FactSet; Lipper; and IMF staff calculations.

Note: Panel 1 shows the share of each nonresident fund type in total nonresident emerging market holdings by asset class, highlighting exposure across investor categories. Panel 2 reports estimated sensitivities of valuation-adjusted fund flows to the VIX: red horizontal markers denote funds with no detectable use of synthetic leverage or hedging. The first set of bars shows overall differences relative to the baseline; subsequent bars compare sensitivities across fund-type categories relative to respective reference groups. The nonresident–resident comparison uses the full sample, whereas the remaining estimates focus on nonresident emerging market holdings. Standard errors are computed using the delta method. Solid bars in panel 2 indicate statistical significance at 10 percent or lower. ETFs = exchange-traded funds; VIX = Chicago Board Options Exchange Volatility Index.

The analysis further differentiates between issuers with existing vulnerabilities and explores implications for firm leverage, investment, and secondary bond markets.[17]

Sovereigns and firms that rely more heavily on investors sensitive to global risk issue significantly less debt in international bond markets during periods of stress.[18] Econometric analysis indicates that ex ante reliance on such investors is associated with a reduction in international market access, especially for firms. A one-percentage-point increase in the ex ante reliance on flighty investors implies a 28 percent decline in the volume of sovereign debt issuance and a 45 percent decline in the volume of corporate bond issuance during stress episodes (Figure 2.11, panel 1).

Consistent with a tightening of credit supply, spreads at issuance also widen during stress, especially for firms domiciled in countries with a higher ex ante reliance on flighty investors. Sovereign and corporate spreads rise by about 30 and 120 basis points, respectively, which is economically sizable relative to average stress-period issuance spreads of 313 and 481 basis points.[19]

As foreign investors withdraw from international bond markets, some issuers turn to alternative funding sources. Facing tighter funding conditions in international debt markets, sovereigns with ex ante greater reliance on flighty investors seem to tap domestic bond markets more actively (Figure 2.11, panel 2, left chart; Online Annex 2.5). By contrast, firms do not seem to be able to increase issuance in domestic bond markets or syndicated loan markets, suggesting binding financing constraints. Consistent with this finding, the total

[17]The analysis uses issuance-level transaction data for underwritten sovereign and corporate bond issuances, and focuses on bond rather than equity issuance, as bond market withdrawals have more direct implications for firms' funding costs given the need to roll over debt.

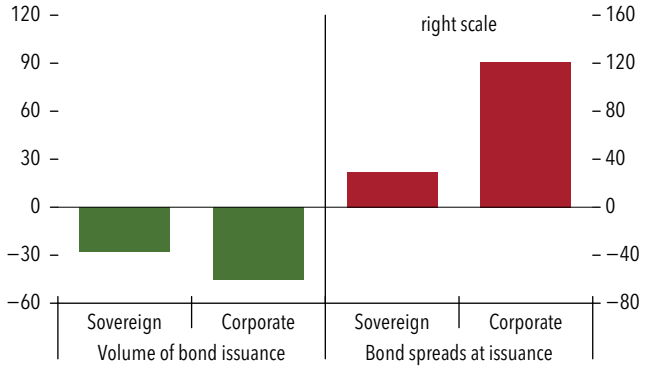
[18]A higher share of flighty investors is associated with tighter international bond market conditions, with effects that are typically stronger during stress episodes than in normal times. See Online Annex 2.5 for details.

[19]This finding is consistent with Coppola (2025), who shows that a 50-percentage-point increase in the insurer share of the investor base was associated with a 120-basis-point decline in corporate bond issuance spreads during 2008–09.

Figure 2.11. Greater Reliance on Investors Sensitive to Global Risk and Implications for Emerging Market Bond Markets

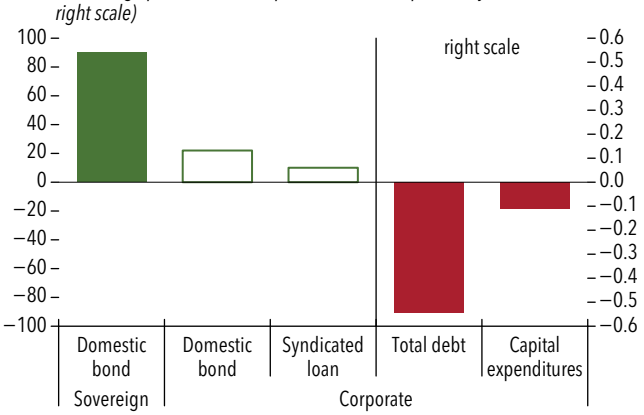
During stress episodes, emerging market issuers with greater ex ante reliance on flighty investors issue less debt and face higher spreads ...

1. Volume and Spreads of Bond Issuance by Issuers with Higher Ex Ante Reliance on Flighty Investors
(Percentage points, left scale; basis points, right scale)



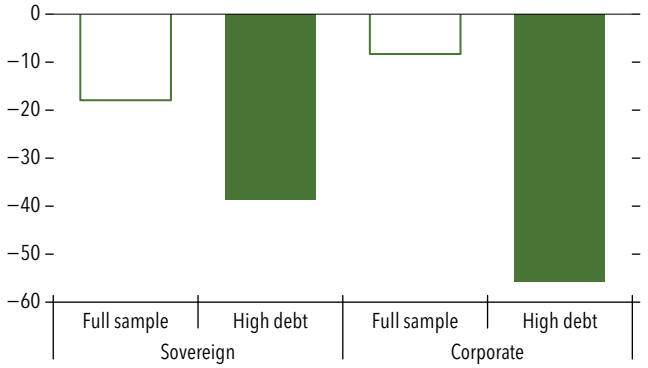
... and while governments may shift issuance domestically, firms struggle to replace lost funding, reducing leverage and investment.

2. Volume of Alternative Funding by Issuers with Higher Ex Ante Reliance on Flighty Investors and Firms' Debt and Capital Expenditure
(Percentage points, left scale; percent relative to previous year's total assets, right scale)



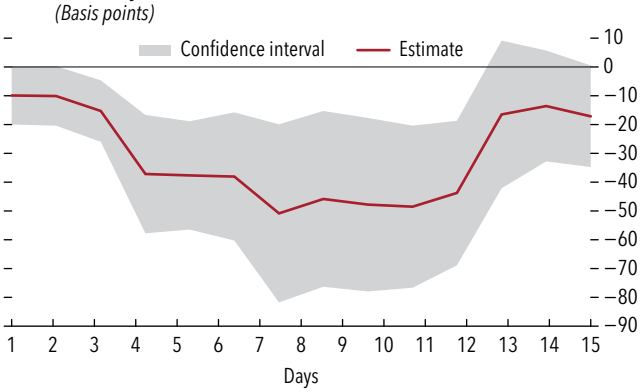
The impact on issuance volume is more pronounced for issuers with preexisting vulnerabilities.

3. Volume of Bond Issuance by Issuers with Preexisting Vulnerabilities
(Percentage points)



Sovereign bonds with greater ex ante exposure to flighty investors experienced a sharper price decline after the COVID-19 global risk-off shock.

4. Higher Share of Flighty Investors and Sovereign Bond Returns in Secondary Market, March 2020
(Basis points)



Sources: Dealogic; FactSet; Federal Reserve Economic Database (FRED); London Stock Exchange Group; WorldScope; and IMF staff calculations.

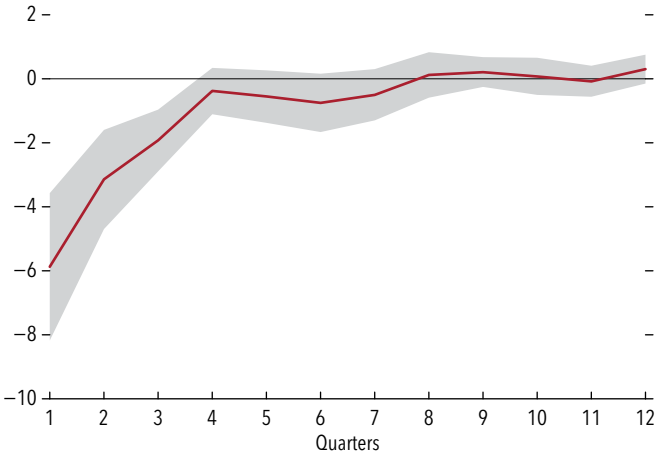
Note: Panels 1–3 present the impact of a one-percentage-point increase in the share of flighty investors, based on regressing (log) issuance volume or total borrowing in dollars (panels 1–3), bond spreads (panel 1), or total debt or capital expenditure relative to the previous year's total assets (panel 2), following a period of global stress, defined as the top decile of the Chicago Board Options Exchange Volatility Index. The analysis includes a large set of bond-, firm-, and country-level controls, as well as country, currency, and time fixed effects. In panel 2, the sample of domestic bond issuance is restricted to bonds with a duration of up to 10 years (see Online Annex 2.5 for details). "High debt" in panel 3 corresponds to sovereigns with an above-median public-debt-to-GDP ratio, or firms with above-sector-specific median total-debt-to-total-equity ratios. Panel 4 shows estimates of changes in sovereign bond returns after the COVID-19 shock (March 6, 2020) for a one-standard-deviation increase in the share of flighty nonresident investors. The specification for each holding period includes modified duration as a control and issuer-currency effects. Solid bars in panels 1–3 and the shaded area in panel 4 represent a 10-percent significance level and a 90-percent confidence interval, respectively.

debt of firms reliant on flighty nonresident investors seems to decline in periods of stress, indicating that firms cannot compensate for the loss in funding by tapping alternative funding sources (Figure 2.11, panel 2, right chart). This lack of access to financing has real implications, as exposed firms appear to reduce their capital expenditure significantly.

These effects are more pronounced for issuers with preexisting vulnerabilities. For sovereigns with high public-debt-to-GDP ratios and highly leveraged firms,

Figure 2.12. Growth-at-Risk after an Increase in the VIX for Countries with Greater Ex Ante Reliance on Flighty Investors
(Percent)

Greater reliance on flighty investors may increase downside risks to growth.



Sources: FactSet; IMF, Balance of Payments Statistics; and IMF staff calculations.

Note: The figure shows the differential impact between countries with greater ex ante reliance on flighty investors and those with lower reliance on a one-standard-deviation increase in the VIX on the 10th percentile of future real GDP growth distribution at different horizons. The solid line denotes the estimated coefficients, and the shaded areas indicate the 90 percent confidence intervals. The share of flighty investors is constructed by estimating each investor's sensitivity to the VIX and, for each emerging market bond market, computing the share held by the top quintile of nonresident investors with the highest sensitivity. VIX = Chicago Board Options Exchange Volatility Index.

greater reliance on flighty investors is associated with a stronger and more persistent decline in issuance volumes during stress episodes (Figure 2.11, panel 3).[20]

A flighty investor base affects both primary and secondary markets. Comparing otherwise similar emerging market securities that differ in their nonresident investor bases shows that flightier investors can amplify price movements in stress episodes. In particular, as seen at the onset of the COVID-19 pandemic, emerging market sovereign bonds with greater initial exposure to flighty nonresident investors may suffer larger price drops than comparable bonds with a more stable investor base (Figure 2.11, panel 4).

To assess the macrofinancial implications of volatile capital flows to emerging markets, an augmented growth-at-risk model is estimated (Figure 2.12).[21] During times of stress, reduced sovereign and corporate debt issuance and high borrowing costs—particularly in economies with a flightier investor base—weaken domestic demand through lower consumption and investment, increasing downside risks to future growth. Results on the left tail of the growth distribution (the 10th percentile) as a measure of downside risk indicate that a deterioration in global risk is associated with a significantly larger increase in downside risks to future GDP growth in countries with greater ex ante reliance on flighty investors. In these economies, a one-standard-deviation increase in the VIX lowers one-quarter-ahead (annualized) real GDP growth by an additional 6 percentage points relative to countries with lower reliance on flighty investors. The differential effect remains negative for up to four quarters, on average, tapering off subsequently.

Conclusions and Policy Recommendations

Cross-border portfolio flows to emerging markets, driven largely by nonbank investors, have risen sharply since the global financial crisis. Although these flows bring important benefits, they can also heighten sensitivity to shifts in global risk. This chapter shows that such sensitivity depends critically on the composition and structure of the investor base. Hedge funds and investment funds react more strongly to shifts in global risk than other nonbanks, and within investment funds, passive mutual funds and exchange-traded funds are generally the most sensitive to shifts in global risk. The composition of a country's nonbank investor base should therefore be an important consideration in policymaking and the monitoring of financial stability.

Robust policy frameworks can mitigate the impact of adverse global shocks. Nonbank investors are less responsive to an increase in global risk in countries with stronger institutions, ample reserve buffers, and lower fiscal risks. Strengthening fiscal positions and external buffers can therefore reduce the risk of capital

[20]The results are broadly robust to using sovereign credit default swap spreads as an alternative measure of fiscal vulnerabilities. See Online Annex 2.5 for details. It is plausible that country-level vulnerabilities are an important determinant of the investor base, with countries exhibiting weaker institutional quality or macroeconomic fundamentals tending to attract more flighty and fewer long-term investors. The analysis accounts for this by controlling for such factors and including country fixed effects.

[21]By modeling the full distribution of future growth, particularly its downside tail, the growth-at-risk model is well suited to capture the asymmetric macroeconomic effects of capital flow reversals and shifts in global risk, which tend to be muted in normal times but pronounced during periods of stress (Adrian, Boyarchenko, and Giannone 2019). See Online Annex 2.5 for analytical details.

flow reversals and improve a country's capacity to absorb external shocks, particularly where external financing needs are large. More fundamentally, maintaining credible and robust policy and institutional frameworks is important to attract stable, long-term investors. In addition, systemwide stress tests should be used to gauge the resilience of the domestic financial system to sudden capital flow reversals driven by nonresident investors. Expanding systemwide stress testing in source countries to include major nonbank financial intermediaries may also help assess spillovers and strengthen the monitoring and mitigation of potential cross-border risks. In the face of adverse financial shocks and capital flow volatility, countries should engage in proactive risk management through macroeconomic and macroprudential tools, consistent with the IMF's Integrated Policy Framework.[22]

The flightiness of institutional investors is closely linked to key structural vulnerabilities, including redemption risk, the use of leverage, and benchmarking practices. From a surveillance perspective, monitoring not only the aggregate volume of flows but also their composition—such as the share held by passive or leveraged funds and the extent of hedging—is important, as these features shape the likelihood of synchronized outflows under stress. Policies that strengthen liquidity management of investment funds and enhance transparency around leverage and derivative use can help mitigate correlated asset sales and improve resilience to global financial stress.

To reduce vulnerability to volatile cross-border portfolio flows, emerging markets should continue to deepen domestic local-currency bond markets and broaden the domestic investor base. More developed local bond markets can provide a stable alternative source of financing when external funding conditions tighten. A more diversified investor base—including long-term institutional investors, such as pension funds, insurers, and domestic mutual funds—can help mitigate the amplification of global financial shocks (October 2025 *Global Financial Stability Report*).

International cooperation is key for limiting the propagation and amplification of global financial shocks. Because jurisdictions may not internalize the cross-border spillovers of their regulatory frameworks, regulatory gaps in source countries—that is, where the investor is domiciled—can transmit vulnerabilities across borders. Coordinated policy action that mitigates NBFI vulnerabilities, such as implementing liquidity management tools for open-end mutual funds (FSB 2023c; October 2023 *Global Financial Stability Report*), can therefore play an important role in containing shock transmission and reducing the risk of global financial instability.

Closing data gaps on exposures and NBFI vulnerabilities is needed to strengthen risk management. Most information on the asset holdings of nonbank financial investors is collected in source countries, mainly advanced economies, limiting the ability of emerging market supervisors to assess exposures across different types of nonbank financial investors. Data gaps on key vulnerabilities, including leverage and exposure to derivatives, further constrain risk assessment. Improved regulatory reporting and international data sharing would help recipient countries monitor systemic risk and source countries to assess potential cross-border spillovers more effectively.

As private credit markets and cross-border stablecoin flows expand, their impact on financial stability in emerging markets warrants close monitoring. The growing exposure of global NBFIs to crypto assets, as well as the rapid adoption of stablecoins in emerging markets, requires enhanced regulatory oversight and contingency planning (FSB 2023b; Adrian and others 2025). Policy priorities should remain proportionate, country specific, and embedded within broader efforts to strengthen oversight of nonbank credit intermediation.

[22]The desirability of deploying specific macroprudential or capital flow management tools or of foreign exchange intervention depends on the extent to which they address certain frictions. Among these are destabilizing premiums from arbitrage frictions in shallow foreign exchange markets, financial stability risks from foreign currency mismatches on corporate balance sheets, and exchange rate changes that risk de-anchoring inflation expectations (IMF 2023). An adverse global financial shock, the transmission of which could be amplified by greater reliance on flighty investors as documented in this chapter, can therefore strengthen the case for such tools when these frictions are present.

Box 2.1. Private Credit in Emerging Markets

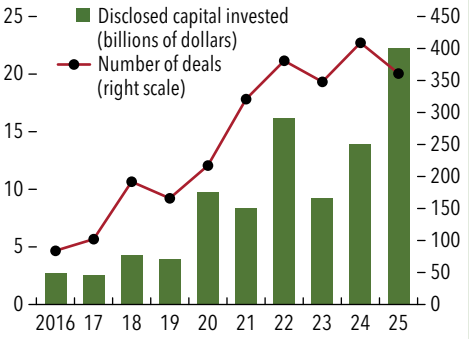
Private credit has the potential to support growth and deepen financial intermediation in emerging markets by providing bespoke credit solutions to borrowers underserved by banks. However, rapid expansion of private credit could generate financial stability risks if it amplifies leverage or operates with limited transparency, particularly in jurisdictions where supervisory and data frameworks remain less developed (April 2024 *Global Financial Stability Report*).

Assets under management of private credit funds have expanded rapidly over the past decade. Industry data suggest that emerging markets account for a single-digit share of the global total (less than 5 percent), with a pace of expansion broadly comparable with that of advanced economies (Chapter 2 of the April 2024 *Global Financial Stability Report*). However, deal activity in emerging markets has accelerated recently, with private credit transactions rising from about $14 billion in 2024 to more than $22 billion in 2025 (Figure 2.1.1). Recent estimates place emerging market private credit assets under management between roughly $50 billion and $100 billion, representing a fivefold increase over the past decade. About half of the total is attributed to India, with the rest mostly split between Latin America and China.[1]

Global and domestic asset managers serve distinct segments of the emerging market private credit market. Global managers tend to operate through offshore hard-currency funds raised internationally, placing foreign exchange risk on emerging market borrowers, and typically target larger companies and deal sizes. In contrast, domestic managers rely on locally domiciled vehicles with significant participation from domestic institutional investors (insurers, pension funds) and retail capital (family offices, high-net-worth individuals), enabling them to provide local-currency credit to smaller borrowers.

Figure 2.1.1. Private Credit Investment in Emerging Markets

(Billions of dollars, left scale; number of deals, right scale)



Source: Global Private Capital Association.

Private credit in emerging markets up until now has played a largely complementary role to domestic regulated institutions. It can help release the balance sheet capacity of banks, regulated nonbank financial intermediaries, and fintech firms by transferring credit risk to private credit funds through asset-backed finance and significant risk transfer transactions, as well as other structured exposures. Beyond the financing of firms, private credit also provides a variety of products related to development finance, including infrastructure credit, participation in public–private partnerships, coinvestments in domestic infrastructure with transnational companies, and impact investing. Such activities span various emerging markets and frontier economies, and are actively supported by development banks and development finance institutions.[2] Although such activities may improve risk allocation and help mobilize long-term capital, the growing interlinkages between private credit funds and, on the one hand, regulated financial institutions and, on the

This box was prepared by Corrado Macchiarelli and Dmitry Yakovlev.

[1]Estimates of the market size or private credit vary by methodology, differences in regional attribution (emerging-market-only funds versus proportional allocations from multiregional funds), fund coverage, and whether global data providers are supplemented with domestic sources. In this box, *private credit* is defined as credit intermediation provided through investment funds operated by asset managers, spanning strategies such as distressed debt, special situations, mezzanine financing, direct lending (leveraged finance), and various forms of infrastructure finance. Direct lending remains nascent across emerging markets but could become a significant driver of domestic private credit expansion in larger emerging markets. See Online Annex 2.1 for a description of the different types of private credit activities.

[2]For example, the Public–Private Partnership Resource Centers of the World Bank (https://ppp.worldbank.org) and the International Finance Corporation (https://www.ifc.org/en/what-we-do/sector-expertise/public-private-partnerships) routinely mobilize private capital for infrastructure, facilitate public–private partnership structures, and crowd in institutional investors for energy, transport, digital, and social infrastructure projects.

Box 2.1 *(continued)*

other, public sector balance sheets underscore the need for careful supervisory attention.

In summary, the expansion of private credit in emerging markets offers opportunities to broaden credit access. However, developing a resilient domestic ecosystem requires reforms, including stronger restructuring and insolvency regimes, clearer collateral-enforcement frameworks, and revised allocation limits for domestic institutional investors. At the same time, limited transparency—particularly regarding fund leverage, valuation practices, and interconnections—together with underdeveloped supervisory and data frameworks in some emerging markets, can complicate timely risk assessment from a financial stability perspective, especially where borrowers have weaker credit profiles.

Box 2.2. Rising Cross-Border Stablecoin Flows to Emerging Markets

Stablecoins—crypto assets that aim to maintain a stable value relative to a specified asset or a basket of assets—have gained prominence in recent years, primarily as settlement instruments in crypto-asset transactions across centralized and decentralized finance platforms (Adrian and others 2025). However, their use cases are expanding to areas such as cross-border payments and remittances. Looking ahead, stablecoins could offer a range of benefits, such as improved settlement efficiency, faster cross-border payments, increased competition in the payment space, and broader access to digital finance.

Absent adequate regulation and backstops, stablecoins may also pose risks to macrofinancial stability (Adrian and others 2025; October 2025 *Global Financial Stability Report*).[1,2] By engaging in liquidity transformation, stablecoins are exposed to run risk, with potential spillovers to traditional financial markets and the real economy. Their growing adoption could lead to currency substitution, with adverse consequences for the transmission of monetary policy,[3] a greater pass-through of global financial conditions, increased capital flow volatility, and challenges related to the circumvention of capital flow management measures. These vulnerabilities can be more acute as stablecoins scale relative to a country's macroeconomy and become more deeply integrated with the broader financial system. Against this backdrop, this box provides an overview of recent trends in cross-border stablecoin flows to emerging markets and discusses the possible drivers underlying these developments.

The Landscape

Cross-border crypto activity has risen sharply in recent years, with stablecoin flows accounting for a sizable and rising share of total activity (Figure 2.2.1, panel 1). Gross cross-border flows in the two largest dollar-pegged stablecoins—Tether (USDT) and USD Coin (USDC)—rose from an estimated $12 billion in the first quarter of 2020 to $316 billion in the first quarter of 2025, outpacing Bitcoin and Ethereum flows. A large share of these flows has been directed toward emerging markets (Figure 2.2.1, panel 1, black line), where cumulative net inflows have accelerated since late 2023 (Figure 2.2.1, panel 2).[4] Stablecoin flows are also material relative to the size of the macroeconomy for some emerging markets. Gross flows have reached double-digit shares of annual GDP for Ukraine, Vietnam, and Belarus. Net flows are considerably smaller at just under 1 percent of annual GDP in the largest recipients, consistent with stablecoins being used to facilitate transactions (Figure 2.2.1, panel 3).

Drivers

Panel regression analysis of the key factors driving gross stablecoin inflows into emerging markets suggests that such flows respond to a range of factors (Figure 2.2.1, panel 4). Although stablecoin flows exhibit the strongest comovement with unbacked crypto activity in a country—consistent with their role as settlement instruments within the broader crypto ecosystem—they also correlate significantly with remittance and trade flows. In addition, inflows are larger for countries with weaker institutional and political stability and without access to short-term dollar assets in the form of money market funds. Taken together, these findings suggest that stablecoins may serve as a vehicle for overcoming financial and institutional frictions, facilitating cross-border transactions, and allowing dollar exposure in constrained environments.

At the same time, greater stablecoin adoption is also associated with variables related to currency-substitution motives, as inflows are larger in countries with higher inflation and greater exchange rate volatility. Moreover, inflows also significantly comove with global financial and crypto market conditions. Inflows decrease when global funding costs are higher, reflecting tighter dollar liquidity and higher opportunity costs, and increase with global risk aversion (measured by the VIX) and Bitcoin price volatility, consistent

This box was prepared by Jakree Koosakul and Andrew Usher.

[1]In addition, stablecoins pose operational, legal, and financial integrity risks, as outlined by Adrian and others (2025).

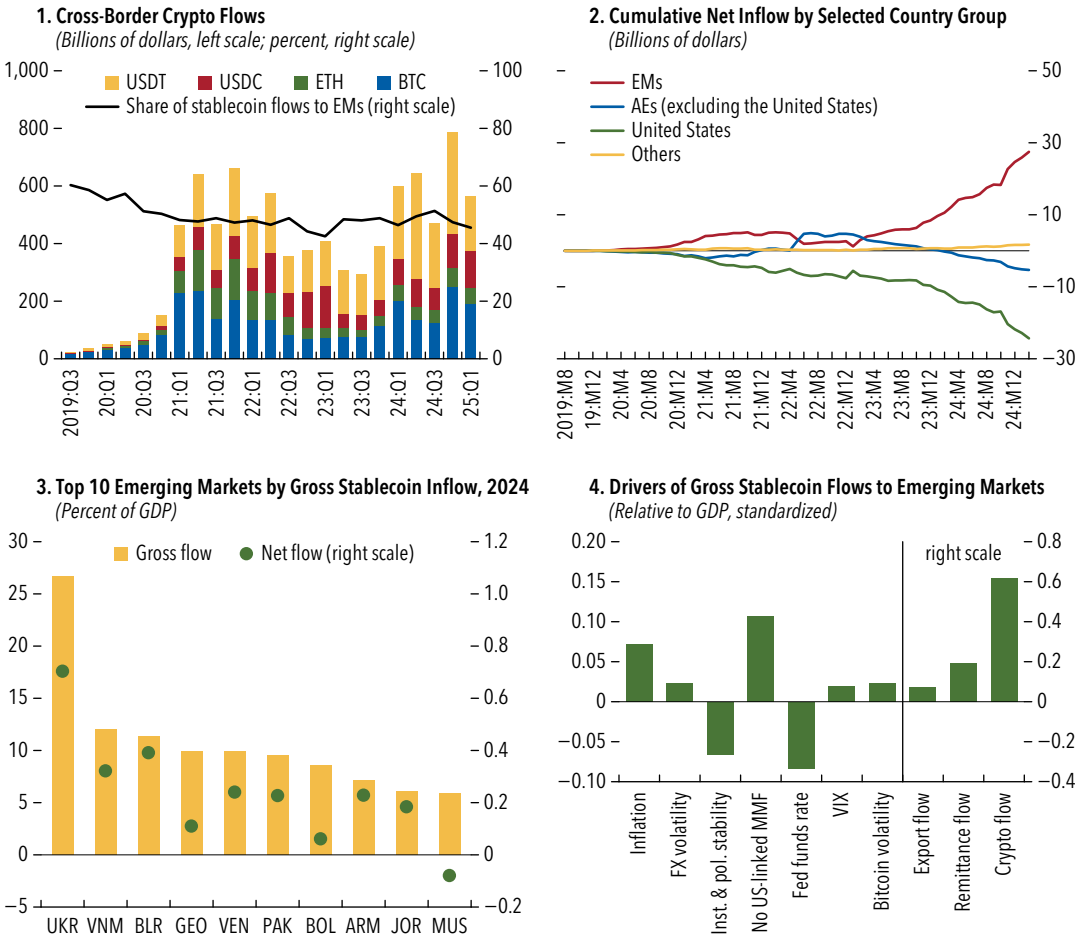
[2]Examples of research exploring the macrofinancial stability implications of stablecoins include Barthélemy, Gardin, and Nguyen (2023); Anadu and others (2024); Ahmed and Aldasoro (2025); Aldasoro, Ahmed, and Duley (2025); Gross and Senner (2026); and Cerutti and others (2026).

[3]Although currency substitution can be a rational choice by households and firms in the face of weak domestic economic fundamentals, it decreases policy space, for instance, by hampering the transmission of monetary policy.

[4]Country attribution relies on web traffic–based assignment of exchange activity. Exchange routing, unhosted wallets, and some decentralized finance venues may affect bilateral directions and corridor magnitudes.

Box 2.2 *(continued)*

Figure 2.2.1. Cross-Border Stablecoin Flows: Trends and Drivers



Sources: Chainalysis; and IMF staff calculations.

Note: Stablecoin flows are computed from the sum of gross USDC and USDT flows. Data labels in panel 3 use International Organization for Standardization (ISO) country codes. The bars in panel 4 represent estimated coefficients from a panel regression of the ratio of gross stablecoin inflows to GDP on explanatory variables controlling for a time trend. All variables are standardized. Solid bars indicate statistical significance at 10 percent or lower. The main sample includes 18 emerging markets from January 2020 to February 2025, in the preferred specification. Results are broadly robust to controlling for time fixed effects. Standard errors are clustered at the country level. See Online Annex 2.6 for additional details. AEs = advanced economies; BTC = Bitcoin; EMs = emerging markets; ETH = Ethereum; FX = foreign exchange; MMF = money market fund; USDC = USD Coin; USDT = Tether; VIX = Chicago Board Options Exchange Volatility Index. Higher values of Inst. & pol. stability indicate greater institutional and political stability.

Box 2.2 *(continued)*

with safe-haven behavior similar to that observed for the dollar (October 2025 *Global Financial Stability Report*). Such linkages could strengthen the cross-border transmission of global financial shocks and crypto shocks.

Policy Implications

The potential benefits and risks associated with stablecoins call for well-calibrated policies that preserve benefits while mitigating key risks. From a prudential perspective, proportionate oversight of stablecoin access and exposures by relevant intermediaries and financial institutions, together with robust anti–money laundering/combating the financing of terrorism measures consistent with international standards, can help mitigate relevant risks.[5] Moreover, given the cross-border nature of stablecoin flows, close international coordination is needed to address spillover risks, harmonize regulatory standards to limit regulatory arbitrage, fill in data gaps, and maintain open channels for effective supervisory and policy dialogue. In addition, sound macroeconomic policies alongside continued financial system development are essential to address macro fragilities and structural frictions that may lead to currency substitution pressures.

[5]While countries have taken steps to develop supervisory frameworks for stablecoins, progress has remained slow and fragmented, in part reflecting limitations in existing regulatory mandates and tools, as well as the cross-border nature of stablecoin activity. For details on progress, see FSB (2025b).

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