Global behaviour of NBFIs focusing on open-ended collective investment funds and capital flows to EMEs

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Outline

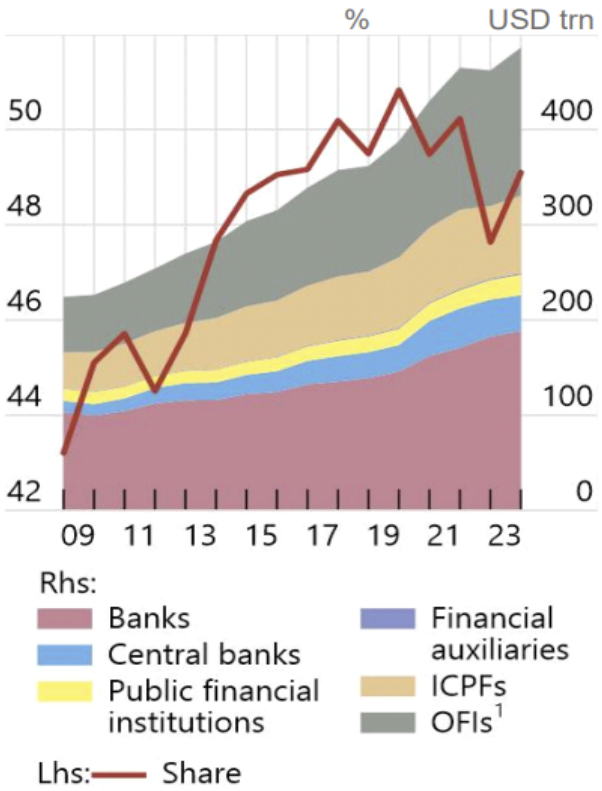
- Overview of global NBFIs including bond/equity investment funds
- NBFIs and systemic risk
- Systemic risk aspects of MFs and ETFs investing in EME bonds
- NBFIs, capital flows to and financial conditions in EMEs
- Bank-NBFI nexus
- Policy implications

Overview of global NBFIs including bond/equity investment funds

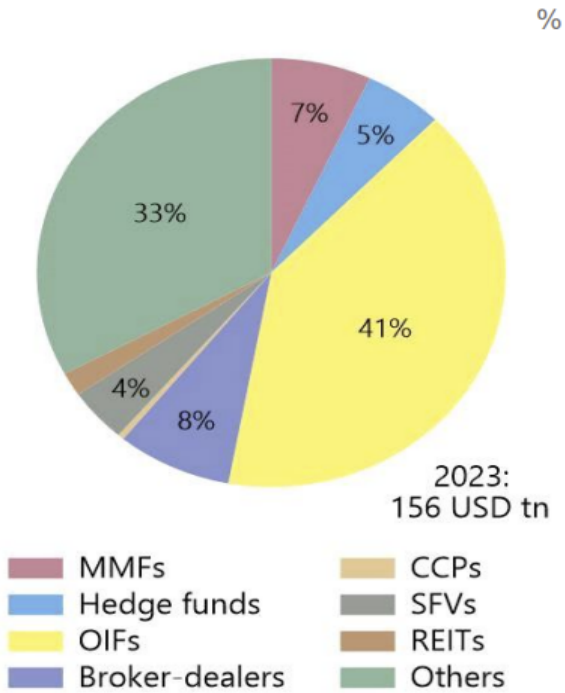
The NBFI sector has grown and evolved considerably in recent years

Graph 1

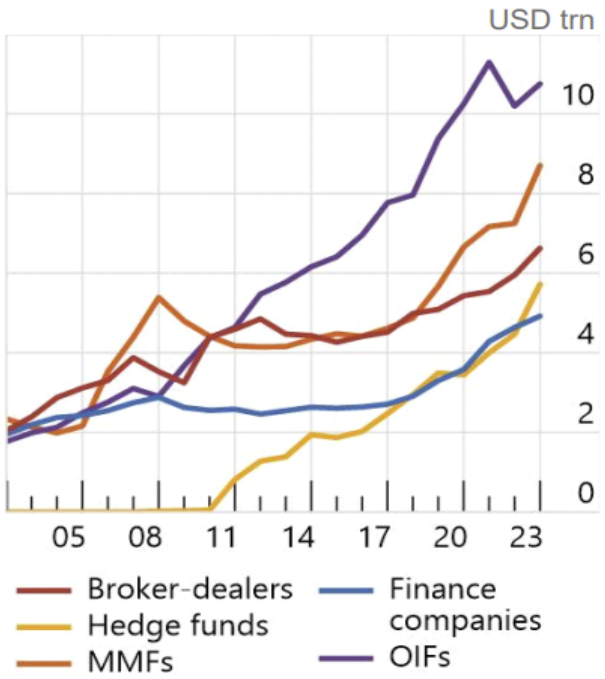
NBFI assets' rising share in total financial assets



Share of OFI's major subsectors to total OFI assets



Credit assets held by selected OFI sub-sectors[2]



CCPs = central counterparties; ICPFs = insurance corporations and pension funds; MMFs = money market funds; OFIs = other financial intermediaries; OIFs = investment funds other than MMFs and hedge funds; REITs = real estate investment trusts and real estate funds; SFVs = structured finance vehicles. Data used in the charts above covers 21 jurisdictions and euro area.

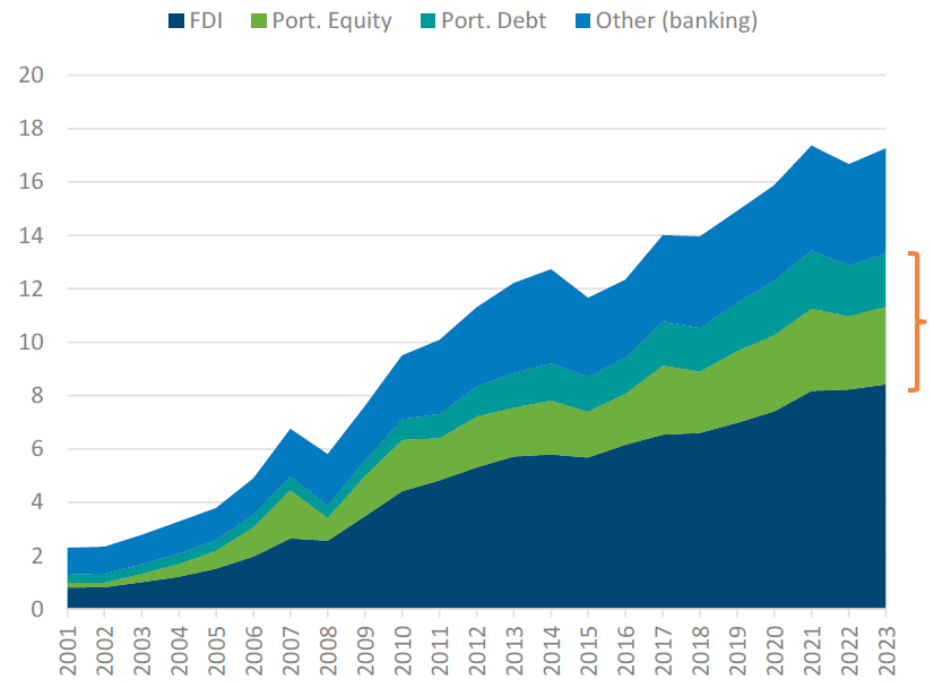
[1] OFIs (other financial intermediaries) is a subset of the NBFI sector, comprising all financial institutions that are not central banks, banks, public financial institutions, insurance corporations, pension funds, or financial auxiliaries. OFIs include, for example, investment funds, captive financial institutions, and money lenders (CFIMLs), CCPs, broker-dealers, finance companies, trust companies and structured finance vehicles. [2] Increases of aggregated data may also reflect improvements in the availability of data over time at a jurisdictional level.

Sources: FSB (2024), *Global Monitoring Report on Non-Bank Financial Intermediation 2024*; FSB calculations.

Source: FSB (2025)

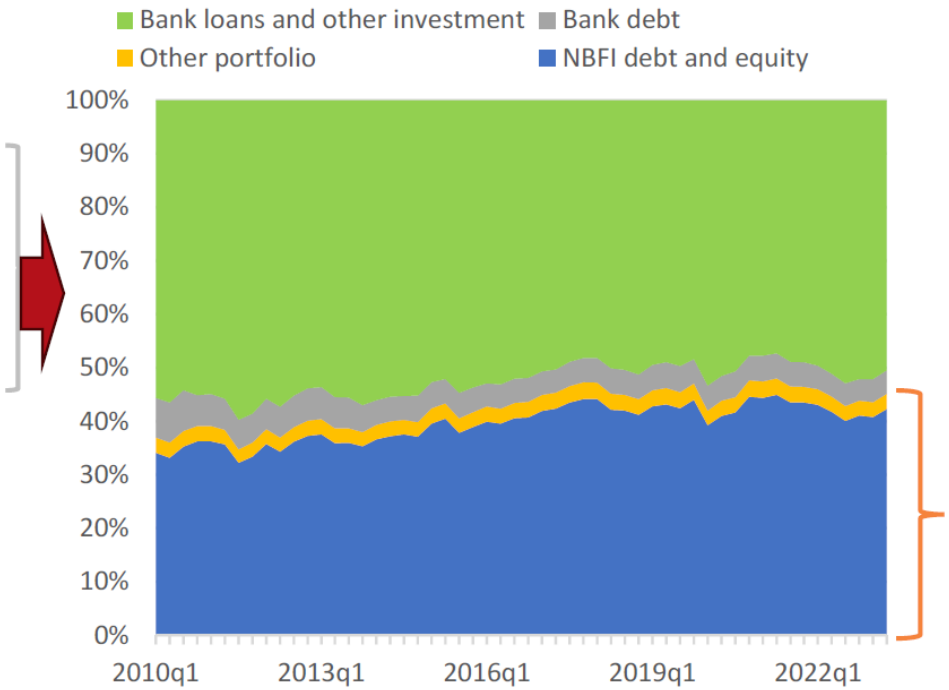
PORTFOLIO INVESTMENTS TO EMDE HAVE GROWN SUBTANTIALLY, LED BY NBFI

External liabilities of EMs (USD bln)



Source: External Wealth of Nations (2024). Note: 18 largest EMs.

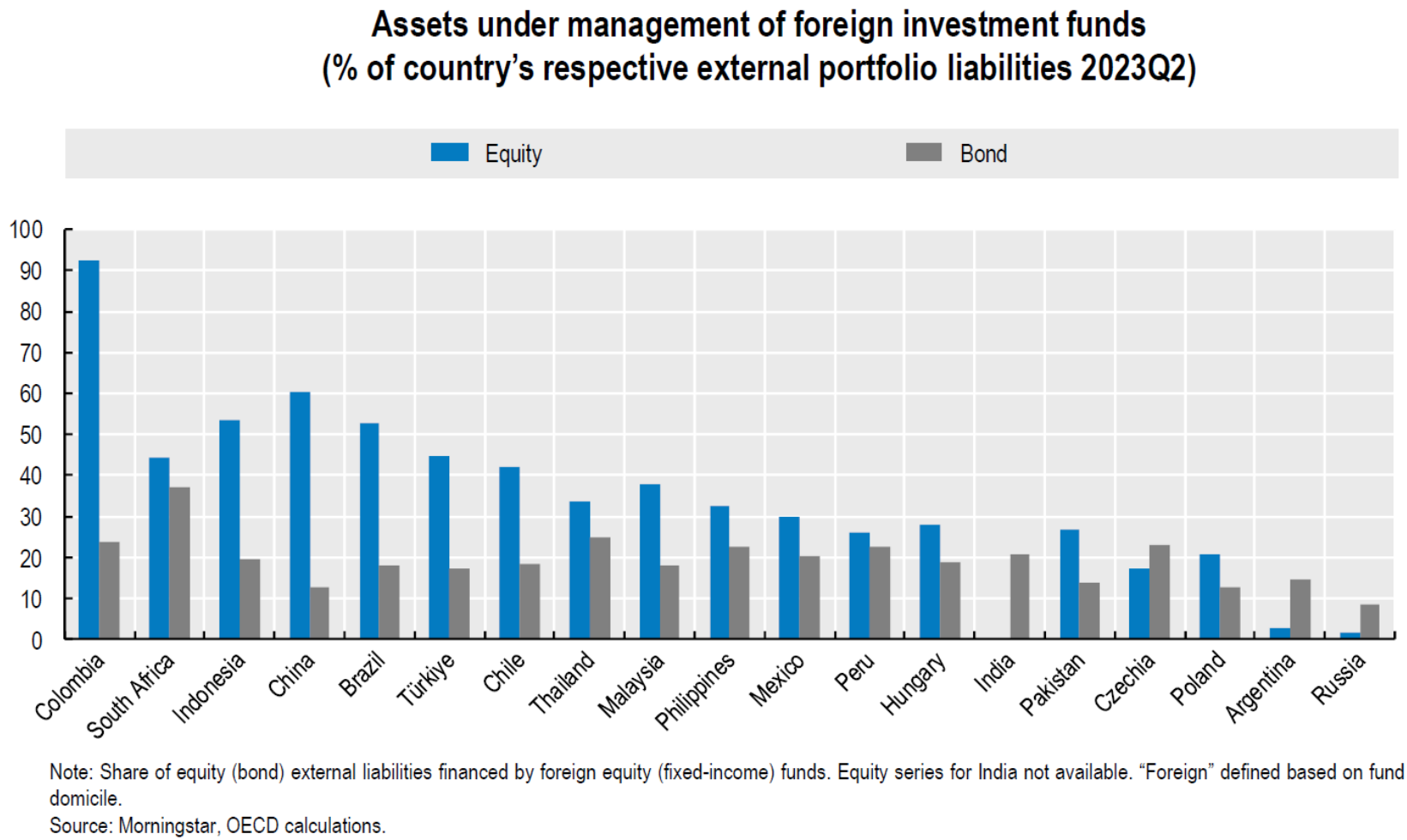
Liabilities of EMDEs by institution (% of total external financing)



Source: IMF, BIS, OECD calculations based on FSB (2021). Note: NBFIs include investment funds, insurance companies, pension funds and other financial intermediaries.

Source: OECD (2024)

EMERGING MARKET EXPOSURE TO FOREIGN INVESTMENT FUNDS



Source: OECD (2024)

NBFIs and systemic risk

Macroprudential approaches to capital market activities
(from BIS Annual Economic Report 2018, Chapter IV, box IV.A)

- As current macroprudential measures focus mainly on banks, they may be less effective in dealing with risks arising from NBFIs.
- How can macroprudential approaches help address systemic risk arising from asset management funds and other institutional investors?
- **Correlated and procyclical trading** by asset management funds could destabilise asset markets, resulting in large losses in financial system.
  - Current regulation on the asset management fund industry mainly focusing on microprudential/consumer protection objectives
  - Macroprudential perspectives should be extended to NBFIs, so as to fully incorporate how actions by one player can affect the health of others via asset prices, FX, market liq interacting with funding liq.
- Options to address systemic risks from NBFIs
  - Minimum liquidity requirements for asset management funds
  - Liquidity stress tests for asset management funds
  - Close cooperation among CBs, bank/insurance/securities regulators
  - The growing importance of NBFIs in cross-border financial activity requires monitoring potential systemic risks at global/int'l levels

Systemic risk from NBFIs

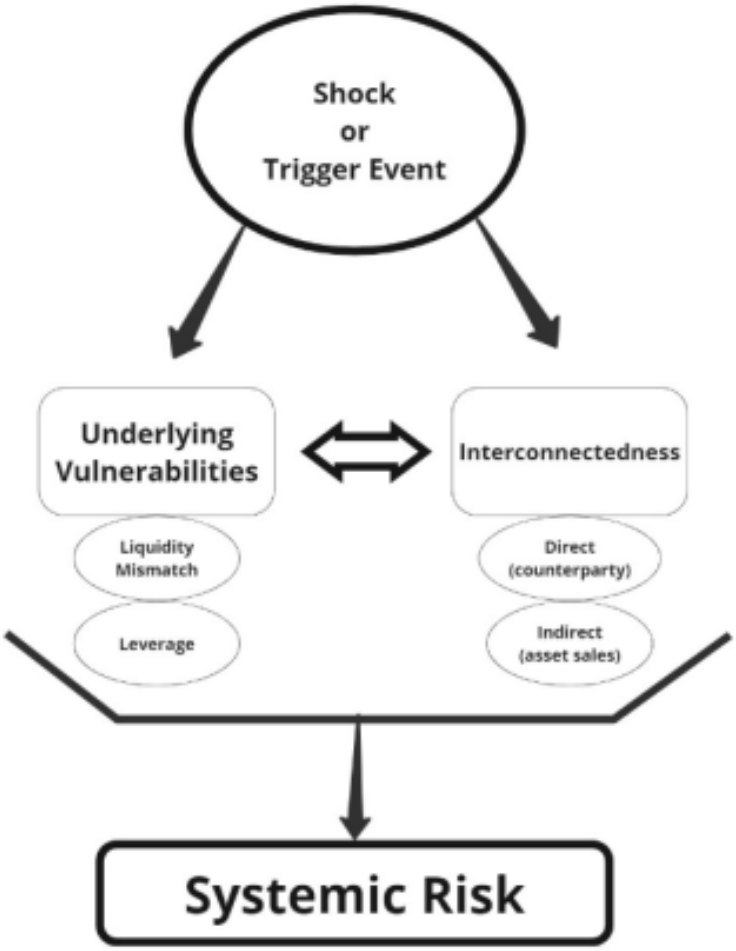
- European Commission consultation launched in May 2024

Table 1 – Key vulnerabilities and systemic risks stemming from NBFI

Vulnerabilities	Systemic risks
Unmitigated liquidity mismatches	Liquidity risk
Excessive leverage	Liquidity risk, counterparty risk, concentration risk
Interconnectedness	Liquidity risk, counterparty risk, concentration risk, risk amplification, underestimation of risk, spillover risks

- Liquidity risks
  - MMFs, open-ended funds, insurance companies, other NBFIs and markets (eg pension funds, commodity traders)
- Leverage
  - Pension funds, insurance companies, OEFs, hedge funds, etc
- Monitoring interconnectedness
  - Risk of amplification and herding behaviours embedded in large portfolio overlaps among banks and NBFIs
  - Balance sheet interconnections between banks and NBFIs

Chart 4: Interaction between shock/ trigger event, underlying vulnerabilities and crystallisation of systemic risk



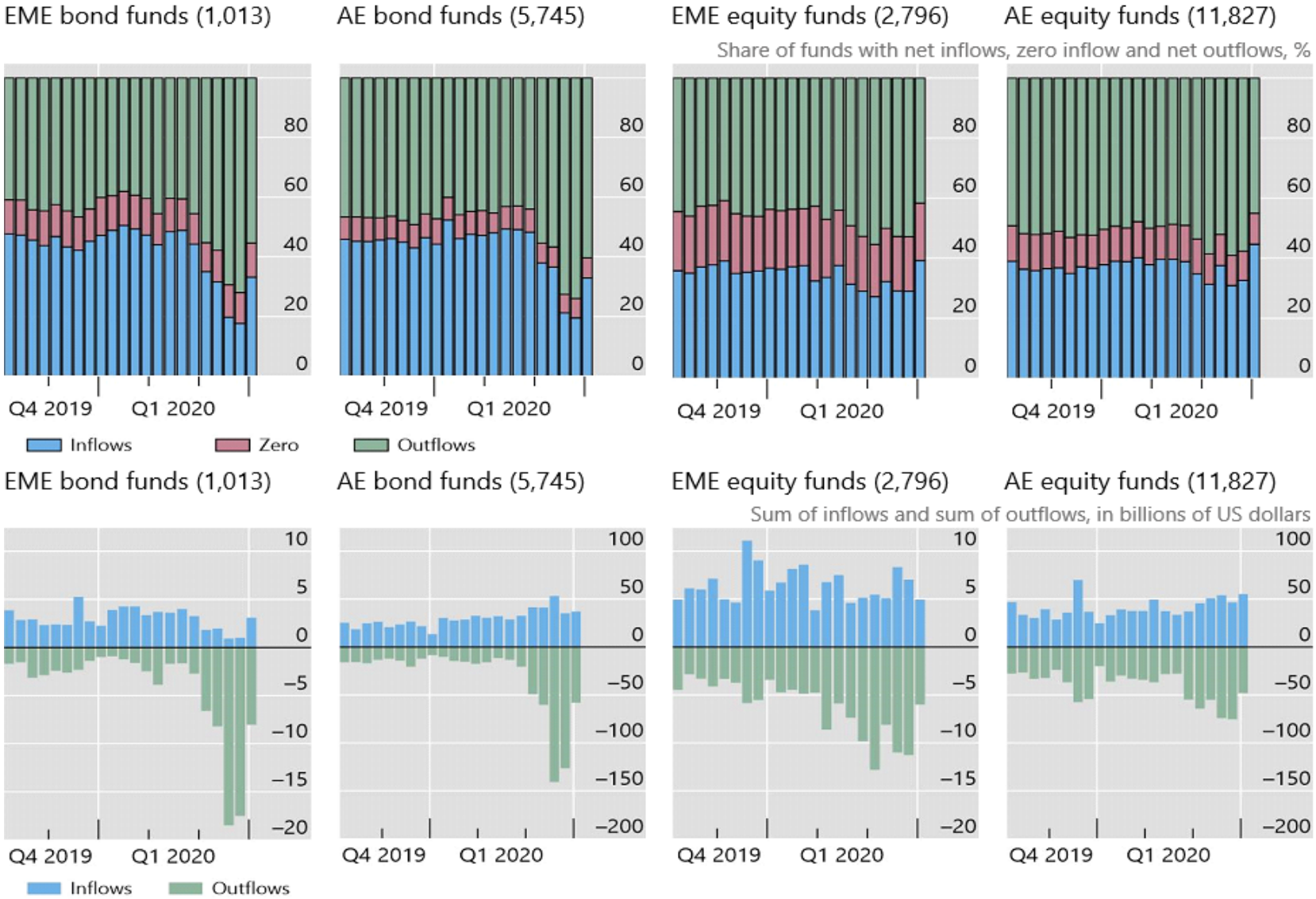
"Leverage-like" behaviour without leverage (H S Shin 2014)

- Longer maturities mitigate rollover risk for borrowers, but at the expense of greater duration risk for investors.
- Although asset managers do not operate with much leverage, their duration-related risks could generate leverage-like behaviour if they are subject to risk limits, relative performance metrics, or engage in dynamic hedging.
  - That is, risk mitigation or hedging techniques elicit behaviour similar to leveraged players.
  - **An internal VaR constraint of asset managers** affects their risk-taking capacity (eg, a model in Hofmann, Shim and Shin (2022)).
  - This could disrupt market functioning and spill back to borrowers.
- Convexity mismatches arise because the duration of the liabilities of pension funds and life insurance companies is typically more sensitive to changes in market yields than the duration of their assets.
  - When yields snap back and long-term rates spike higher, in order to match the duration of both sides of their balance sheet, long-term investors look to reduce the duration of their assets by selling long-term bonds, generating perverse demand responses.

Systemic risk aspects of MFs and ETFs investing in EME bonds

Clustering of investor flows to global portfolio investment funds

Graph 4

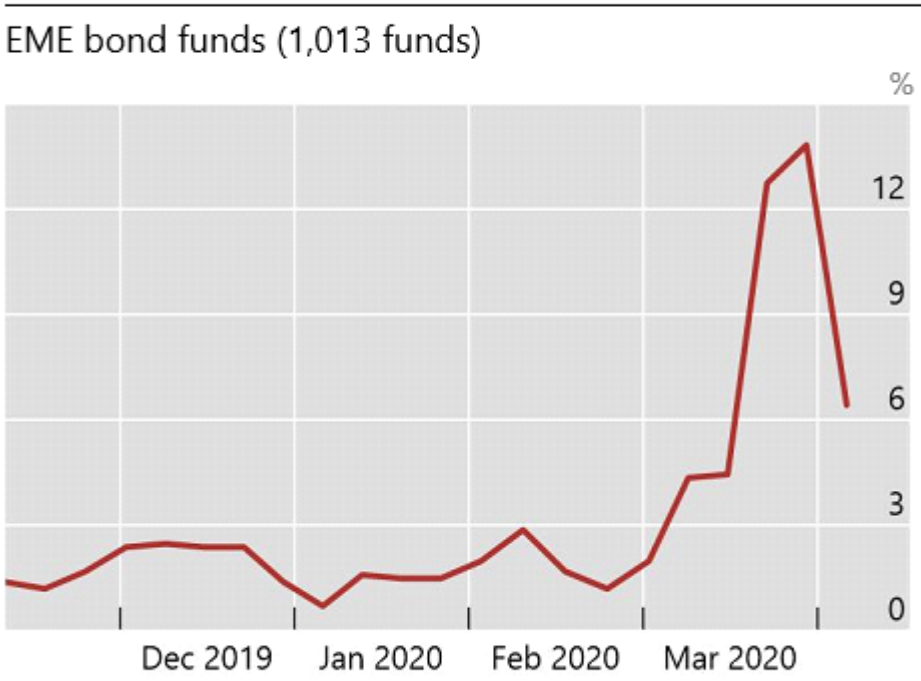


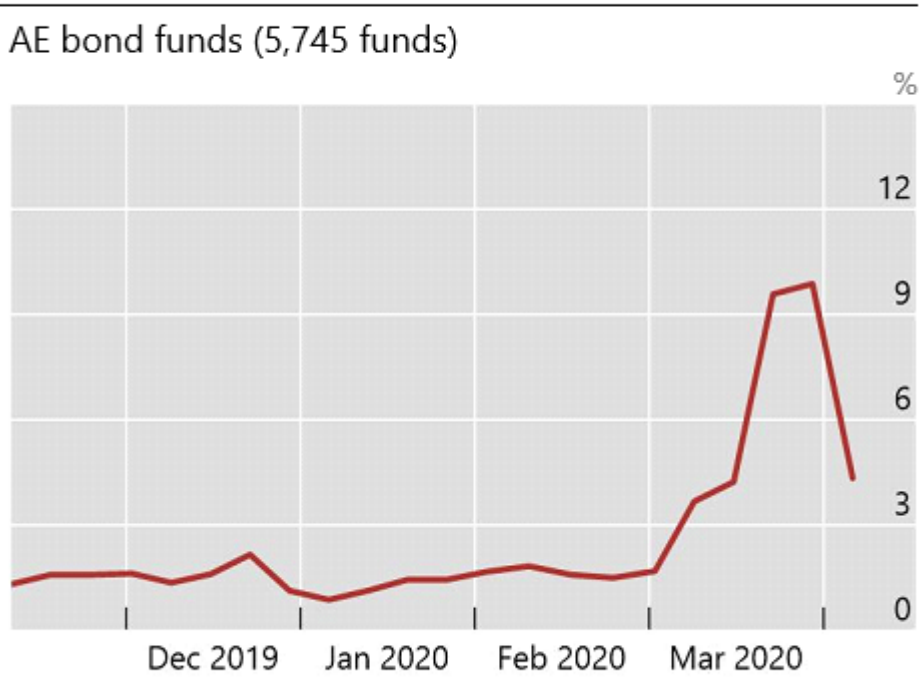
The numbers in parentheses are the number of funds.

Sources: EPFR; authors' calculations.

Share of funds facing weekly outflows greater than 5% of total net assets

Graph 5

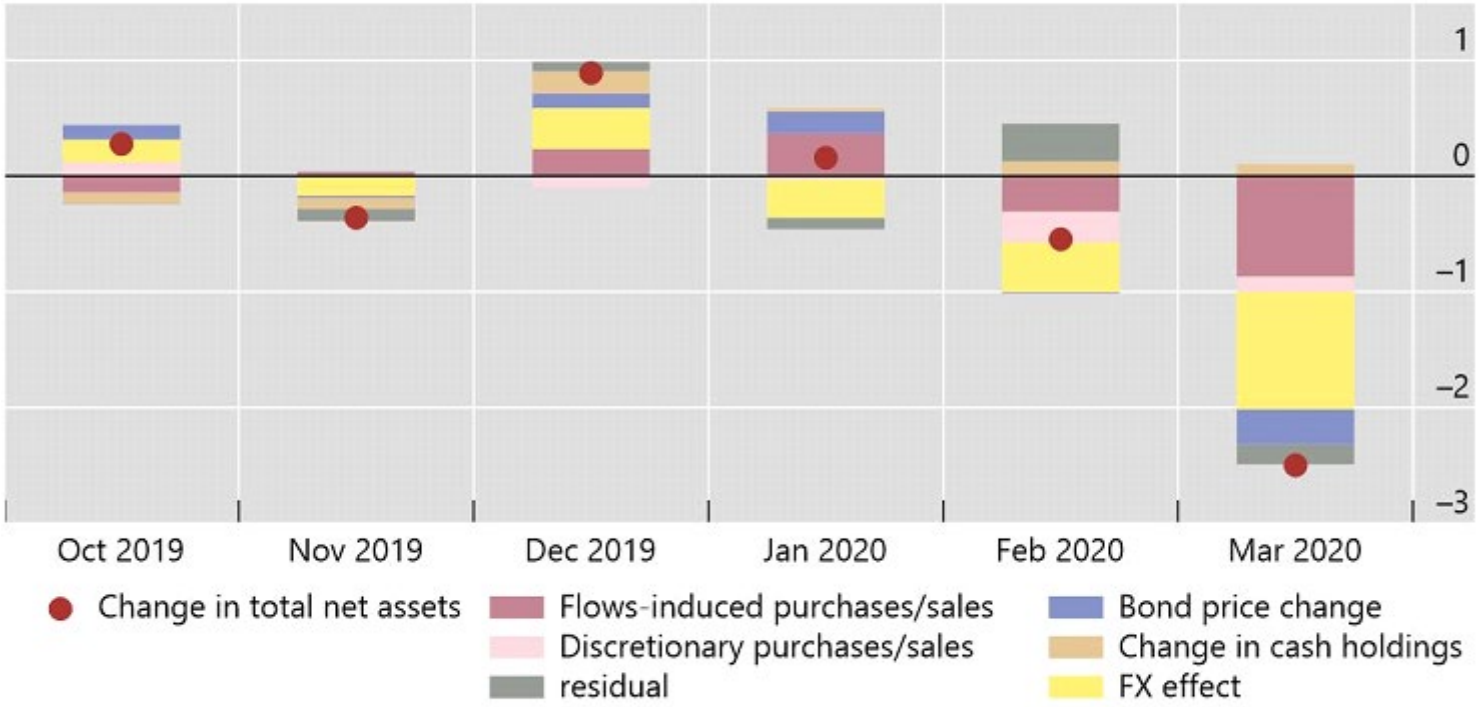




Sources: EPFR; authors' calculations.

Breakdown of monthly changes in net asset value[1]

In billions of US dollars

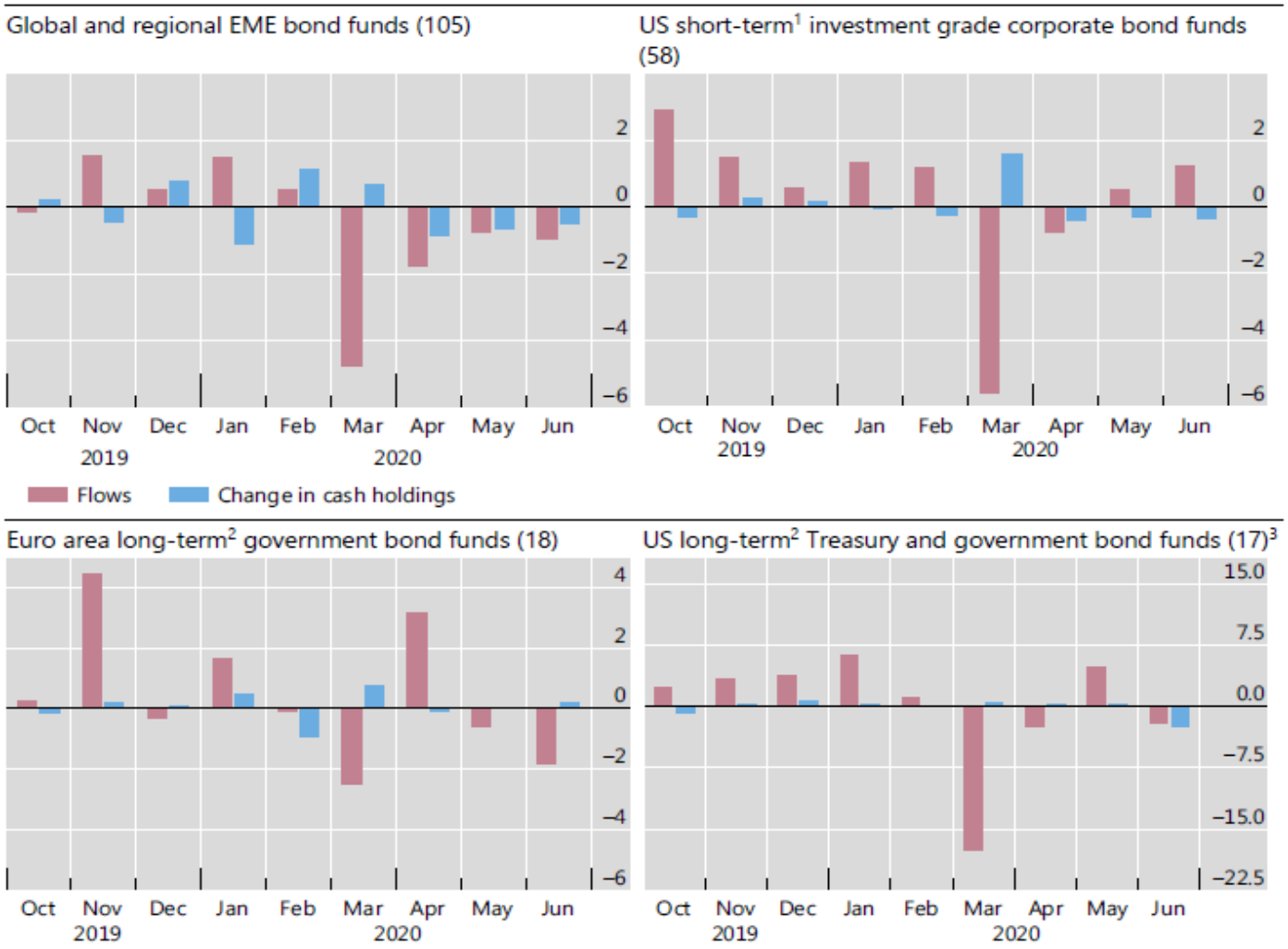


[1] Sum over nine global EME local currency government bond mutual funds.

Sources: EPFR; authors' calculations.

Investor flows and change in cash holdings of AE and EME bond mutual funds

As a percentage of total net assets — Graph 2



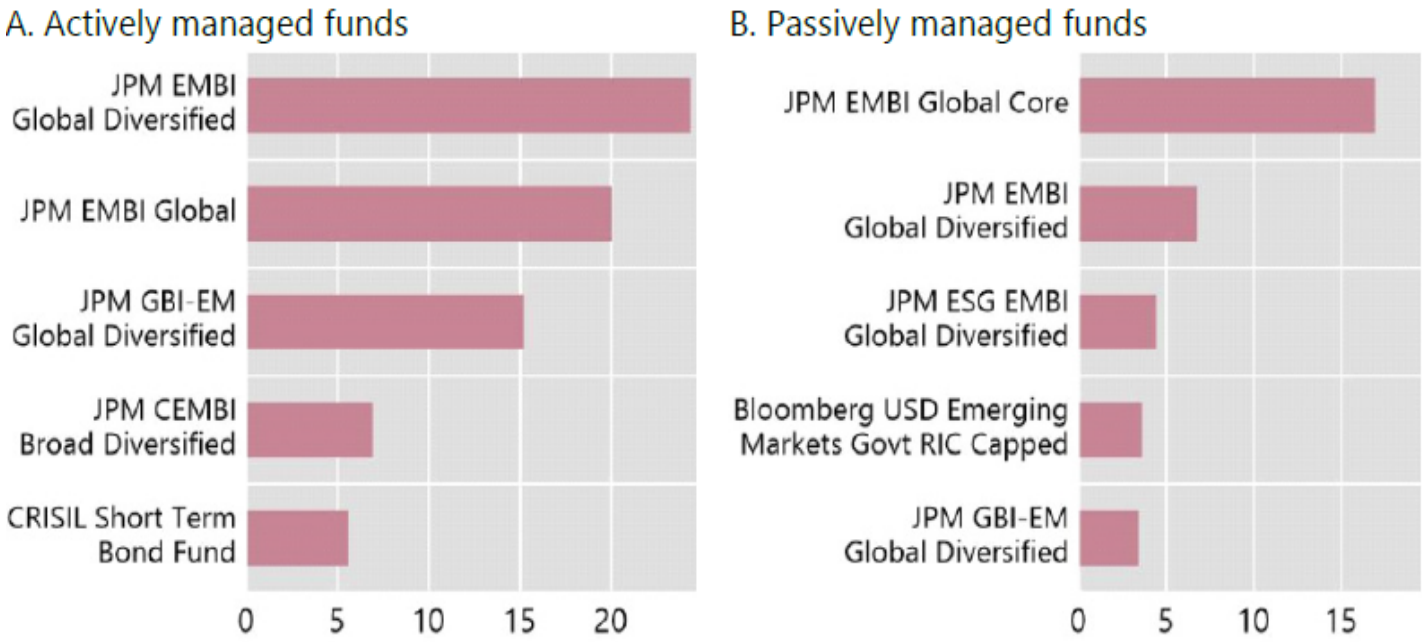
The number in brackets shows the number of funds in each category whose data on cash holdings and investor flows are available in EPFR or Lipper between September 2019 and June 2020.

[1] Average maturity of one to three years. [2] Average maturity of five years or longer. [3] Sum of six US long-term Treasury funds and 11 US long-term government bond funds.

Sources: EPFR; Lipper Investment Management; authors' calculations.

Key emerging market benchmark by bond mutual funds and ETF

As of end-June 2024, as a % of total net assets



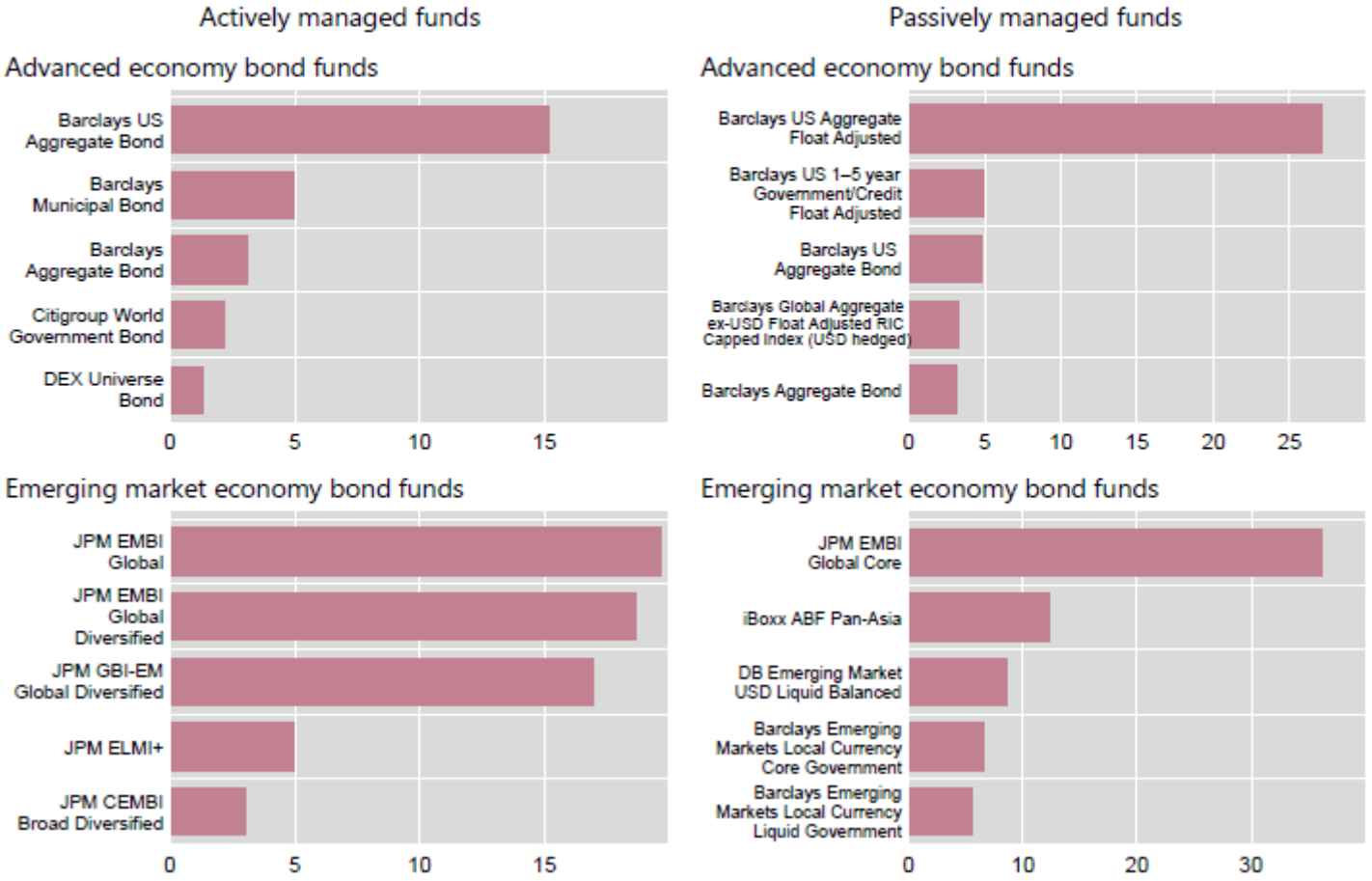
Source: EPFR.

- Top 5 benchmarks took up more than 70% of total net assets of actively managed EME bond funds as of mid-2024 according to EPFR data.
- Among EME local currency bond indices, JPM GBI-EM Global Diversified index is most widely used among EME bond funds.

Source: J Lee (2024)

Key benchmarks used by bond and equity mutual funds and ETFs

As of end-May 2014, as a percentage of total net assets — Graph A



- Top 5 benchmarks took up around 70% of total net assets of actively managed EME bond funds as of mid-2014 according to EPFR data.

Source: Miyajima and Shim (2014)

Measuring the degree of similarity of leading benchmarks

- The comparable global and EM bond indices have more than an 85% and 67% overlap in country weight.

Index pair	Overlap[1]	Index pair	Overlap[1]
(Global bond indices)			
FTSE WGBI (25)[2] – Barclays Global Aggregate (86)[2]	85	FTSE WGBI (25) - Barclays Global Aggregate (25)[3]	88
(EME bond indices)			
JPMorgan GBI-EM Broad index (24)[2] – Bloomberg Emerging Markets Local Currency Government Diversified TR (22)[2]	68	JPMorgan GBI-EM Broad index (21)[4] – Bloomberg Emerging Markets Local Currency Government Diversified TR (21)[4]	67

[1] In per cent. Average over the period October 2012 – January 2024, $Overlap_t^{B1,B2} = 1 - \frac{1}{2}\sum_{c=1}^{N} |w_{ct}^{B1} - w_{ct}^{B2}|$. [2] Figures in parentheses are the number of countries in each index with at least one positive value of monthly country weights since October 2012. [3] To make the indices comparable, we exclude 61 countries not included and recalculate the weights for the remaining countries in the Barclays Global Aggregate index. [4] To make the indices comparable, we include 21 common countries and recalculate the weights for the remaining countries in the two indices.

Sources: Barclays Capital; LSEG.

Source: J Lee (2024)

Measuring the degree of similarity between two benchmark indices

Table 4

Index pair	Overlap[1]	Index pair	Overlap[1]
JPMorgan GBI-EM Broad index (20)[2] – Barclays Emerging Markets Local Currency Government Universal Bond index (25)[2]	72	JPMorgan GBI-EM Broad index (20)[2] – redefined Barclays Emerging Markets Local Currency Government Universal Bond index (20)[3]	81
JPMorgan GBI-EM Global index (17)[2] – Barclays Emerging Markets Local Currency Government Bond index (22)[2]	62	JPMorgan GBI-EM Global index (17)[2] – redefined Barclays Emerging Markets Local Currency Government Bond index (17)[3]	85

[1] In per cent. $Overlap_t^{B1,B2} = 1 - \frac{1}{2}\sum_{c=1}^{N}|w_{ct}^{B1} - w_{ct}^{B2}|$. [2] Figures in parentheses are the number of countries in each index with at least one positive value of monthly country weights since January 2011. [3] To make the JPMorgan index and Barclays Capital index comparable, we exclude five countries not included in the former from the latter, and recalculate the weights for the remaining countries in the Barclays Capital index.

Sources: Barclays Capital; JPMorgan Chase; authors' calculations.

Source: Miyajima and Shim (2014)

NBFIs, capital flows to and financial conditions in EMEs

NBFIs and capital flows to and financial conditions in EMEs

- NBFIs have become key players in global capital flows to EMEs.
  - Through local currency bonds, equities and FX bonds (and FX loans).
  - How their incentives/mandates, risk-taking behaviors, funding and investment currencies, and regulatory and economic constraints influence capital flows to EMEs remains underexplored.
- Different types of NBFIs play distinct roles in these financial sources:
  - Mutual funds are crucial in EME local currency bonds and equities, driven primarily by short-term return-chasing behavior.
  - Insurance companies and pension funds tend to focus on stable long-term income flows from their investments and play a more important role in foreign investments in EME FX bonds.
- Mutual funds are more susceptible to redemption shocks, while insurance companies face capital and liquidity requirements. Pension funds are typically not subject to liquidity shocks or prudential requirements, but more focused on stable income flows, high yield & asset-liability matching.
- Understanding these differences is critical in predicting how NBFIs could respond to changes in global financial conditions, global investor risk appetite and major advanced economies' monetary policy, as well as EMDEs' local macroeconomic and financial market developments.

Change of bond holdings by type of investors during the taper tantrum — Table 3

	Emerging Asia				Developed Asia			
	Corporate		Government		Corporate		Government	
Taper period x MF	−134.886		−203.341***		80.411**		141.538	
	(168.925)		(74.326)		(38.602)		(98.458)	
Taper period x Ins/Ann/PF		138.574		204.424***		−82.730**		−105.691
		(168.794)		(74.682)		(39.271)		(112.607)
Fund fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
Year-quarter fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
Bond fixed effects	NO	NO	NO	NO	NO	NO	NO	NO
Observations	176,090	176,090	197,808	197,808	1,089,312	1,089,312	1,052,552	1,052,552
Within R-squared	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
R-squared overall	0.157	0.157	0.0319	0.0319	0.0269	0.0269	0.0582	0.0582

MF = Mutual funds. Ins/Ann/PF = Insurance/Annuity/Pension funds.

Numbers in brackets are standard errors, clustered by investor. ***, ** and * denote the significance levels of 1%, 5% and 10%, respectively.

Mutual funds were net sellers of EM Asia government bonds during the taper tantrum relative to other times. In contrast, insurance companies, annuities and pension funds were net buyers of EM Asian government bonds during the taper tantrum relative to other times.

Mutual funds, which are more subject to outflow pressures, would reduce their bond holdings in the relatively risky EM Asian government bond markets, while insurance companies, annuities and pension funds, which are not subject to outflow pressures, would increase their bond holdings in these markets.

This confirms institutional fire sale hypothesis: fund outflows drive institutional sale of bonds.

Source: Ng, Shim and Vidal Pastor (2019)

Change of bond holdings by type of investors during the taper tantrum

In foreign and local currencies

	Foreign currency							
	Emerging Asia				Developed Asia			
	Corporate		Government		Corporate		Government	
Taper period x MF	−36.911		−116.804*		174.477***		23.163	
	(54.551)		(66.206)		(39.768)		(117.836)	
Taper period x Ins/Ann/PF		37.074		118.102*		−176.061***		−23.764
		(54.597)		(66.392)		(40.067)		(117.870)
Fund fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
Year-quarter fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
Bond fixed effects	NO	NO	NO	NO	NO	NO	NO	NO
Observations	114,922	114,922	89,220	89,220	661,964	661,964	45,392	45,392
Within R-squared	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
R-squared overall	0.0209	0.0209	0.0256	0.0256	0.0267	0.0267	0.0449	0.0449

MF = Mutual funds. Ins/Ann/PF = Insurance/Annuity/Pension funds.

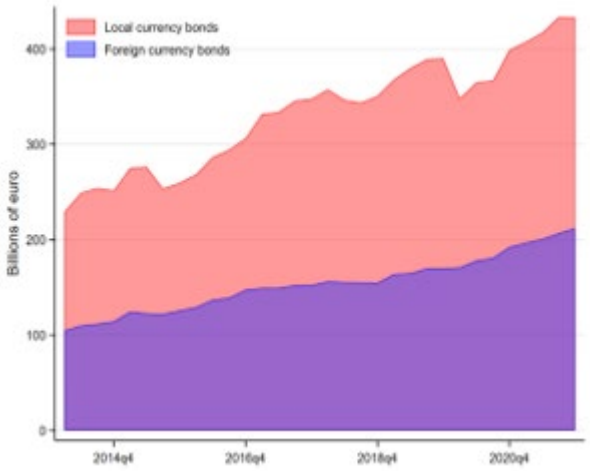
Numbers in brackets are standard errors, clustered by investor. ***, ** and * denote the significance levels of 1%, 5% and 10%, respectively.

The differential bond purchase patterns primarily occurred in FX bond markets. During the taper tantrum, (i) mutual funds reduced their holdings of EM Asian foreign currency government bonds while insurance companies, annuities and pension funds increased their holdings of such bonds; and that (ii) mutual funds increased their purchases of developed Asia-Pacific corporate bonds, which are considered safer, while insurance companies, annuities and pension funds decreased their purchases.

Source: Ng, Shim and Vidal Pastor (2019)

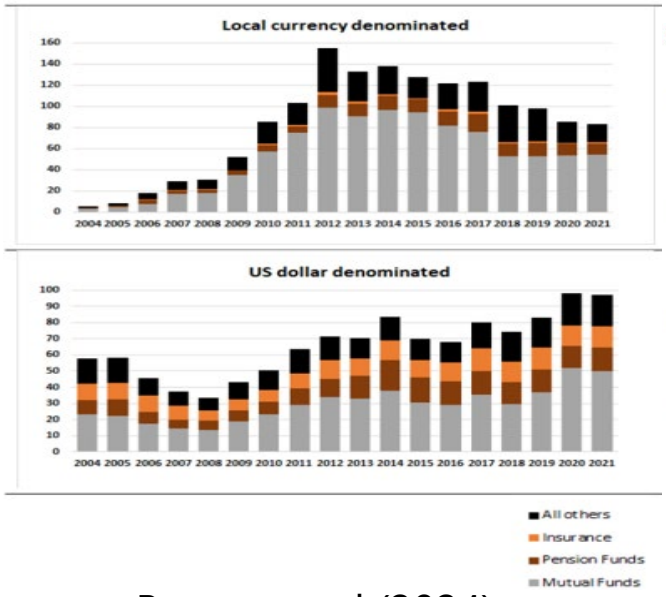
US- and Europe-domiciled NBFIs in capital flows to EME local currency government bonds

Euro area-domiciled investors



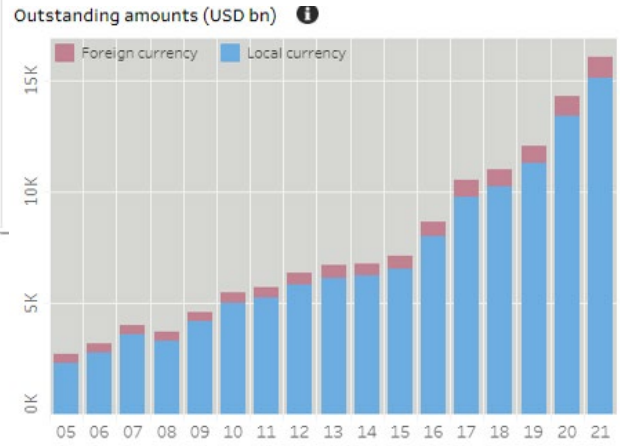
Jansen et al (2024)
using ECB data

US-domiciled investors



Bertaut et al (2024)
using FED data

EME government bonds

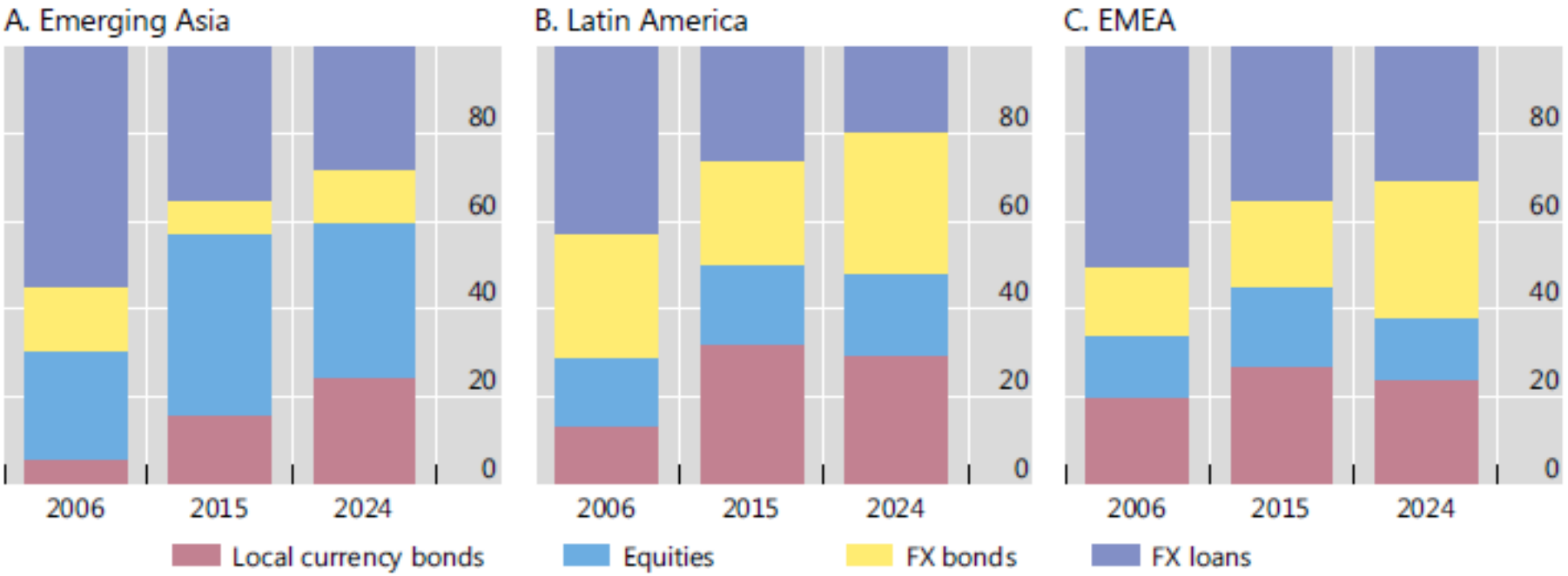


Onen et al (2023)
using BIS data

Changing composition of external financing by EMEs[1]

In per cent

Graph 2



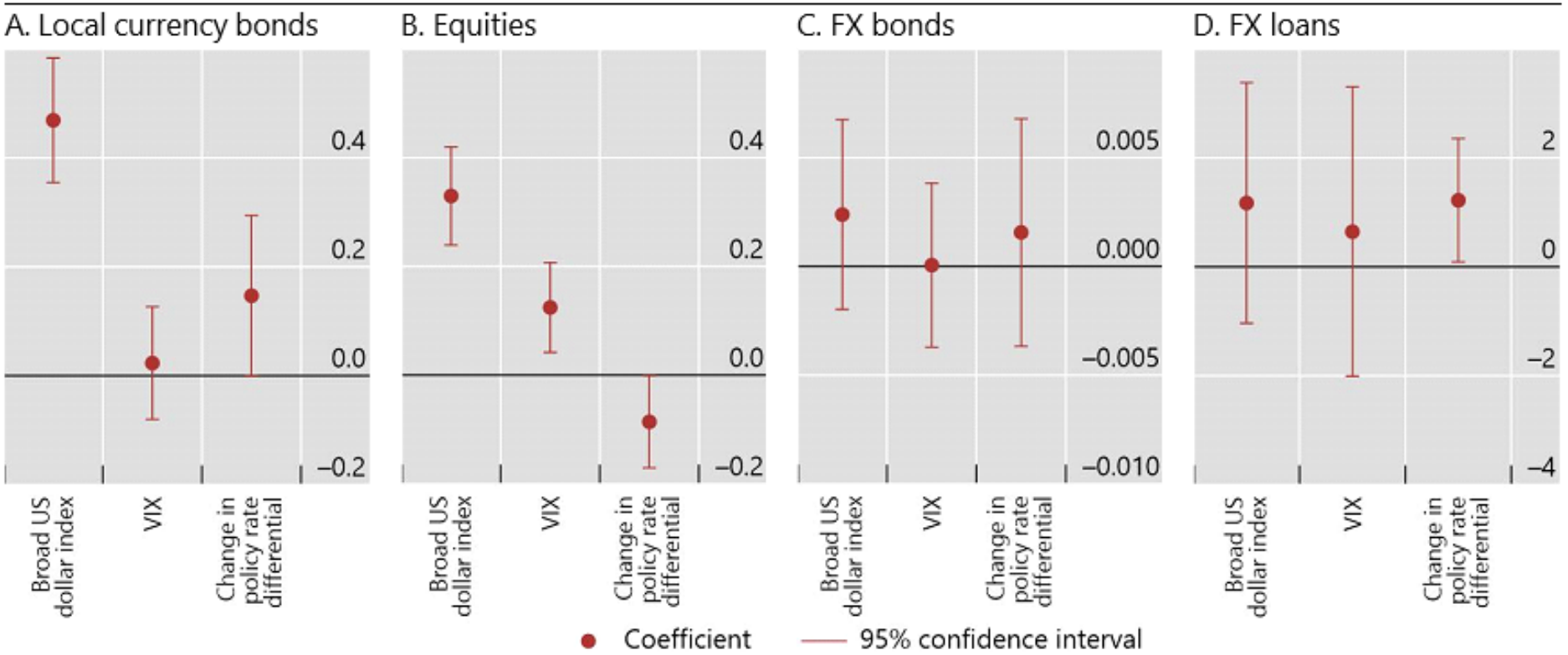
[1] External financing comprises foreign currency (FX) credit to EMEs via FX loans and bonds, and foreign investment in EME local currency assets via equities and local currency bonds. Data for each year correspond to Q1.

Sources: IMF; BIS global liquidity indicators; BIS locational banking statistics.

Source: Gelos, Patelli and Shim (2024)

Standardise impact of global factors and policy rate differential on capital inflows

Coefficients from monthly joint regressions of portfolio flows and quarterly joint regressions of bank flows



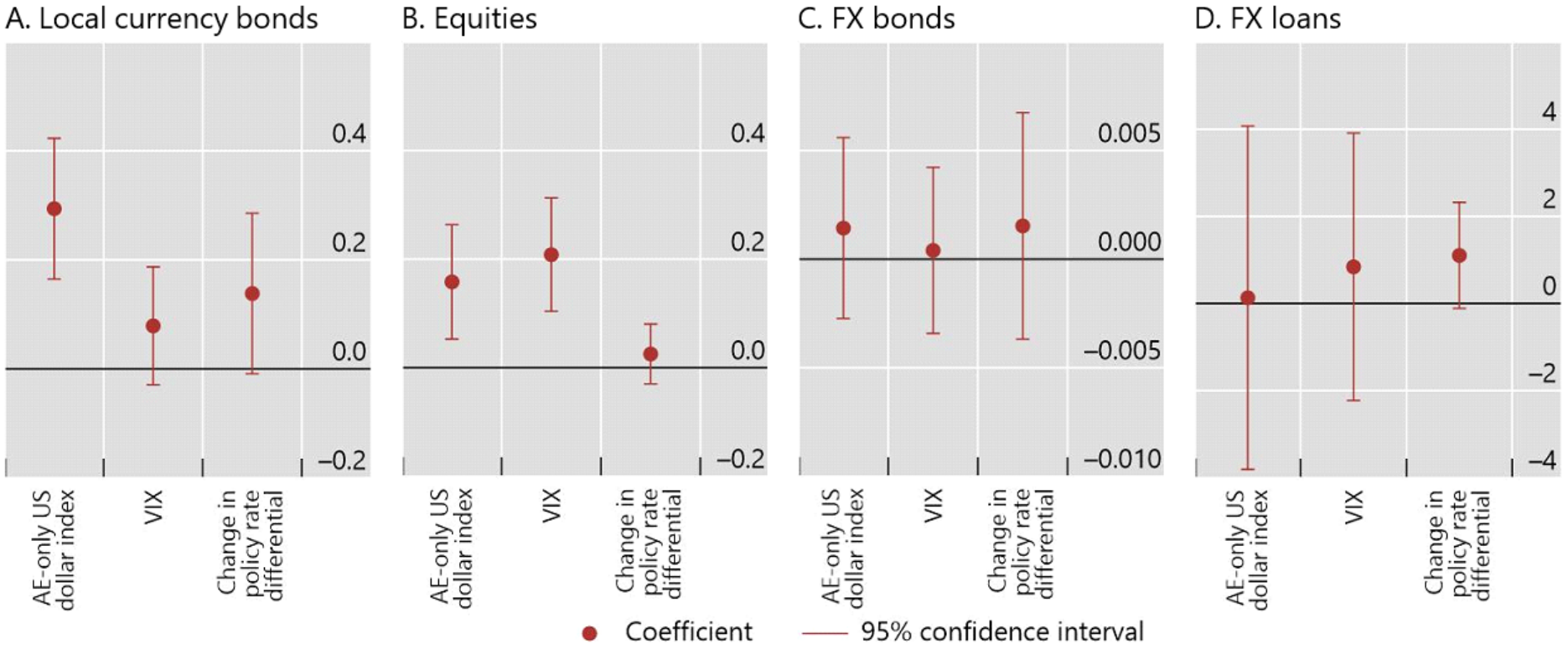
Each dot shows the change in the ratio of capital flows to total foreign holdings in percentage points in response to a 1 standard deviation depreciation of the US dollar against other currencies, a 1 standard deviation decrease in the VIX, or a 1 standard deviation increase in the change in the policy rate differential. The contemporaneous value of the first two variables and the one-period lagged value of the third variable are included jointly in regressions, together with one-period lagged dependent variable and controls (US CPI, EME CPI, US IP, EME IP, brent oil price).

Sources: FRED; Bloomberg; IIF; BIS international debt securities statistics; BIS Global Liquidity Indicators; authors' calculations.

Source: Gelos, Patelli and Shim (2024)

Standardised impact of global factors and policy rate differential on capital inflows

Coefficients from monthly joint regressions of portfolio flows and quarterly joint regressions of bank flows



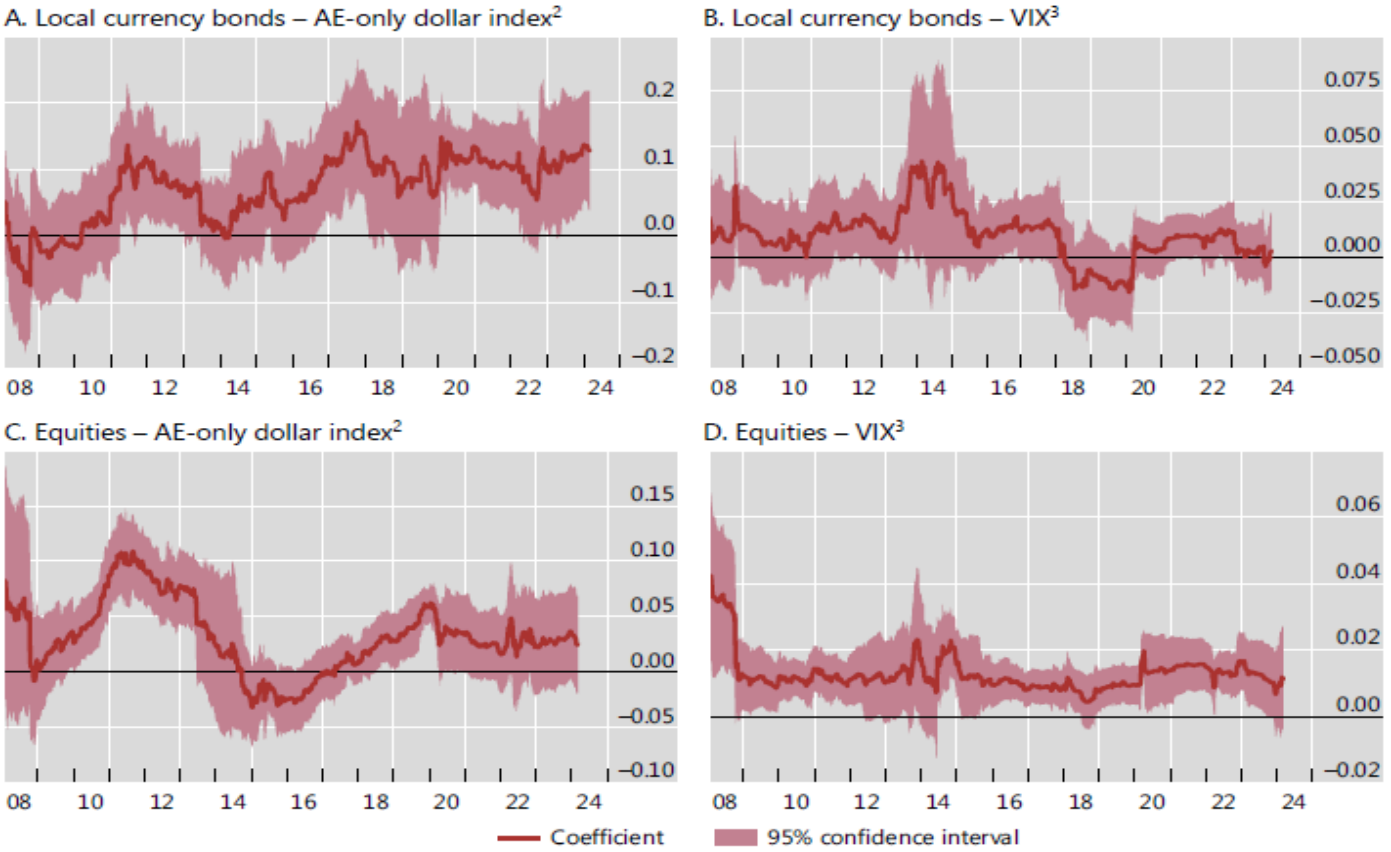
Each dot shows the change in the ratio of capital flows to total foreign holdings in percentage points in response to a 1 standard deviation depreciation of the US dollar against advanced economy currencies, a 1 standard deviation decrease in the VIX, or a 1 standard deviation increase in the change in the policy rate differential. The contemporaneous value of the first two variables and the one-period lagged value of the third variable are included jointly in regressions, together with one-period lagged dependent variable and controls (US CPI, EME CPI, US IP, EME IP, brent oil price).

Sources: FRED; Bloomberg; IIF; BIS international debt securities statistics; BIS Global Liquidity Indicators; authors' calculations.

Source: Gelos, Patelli and Shim (2024)

Changing impact of global factors on portfolio inflows to EMEs[1]

Coefficient — Graph 4



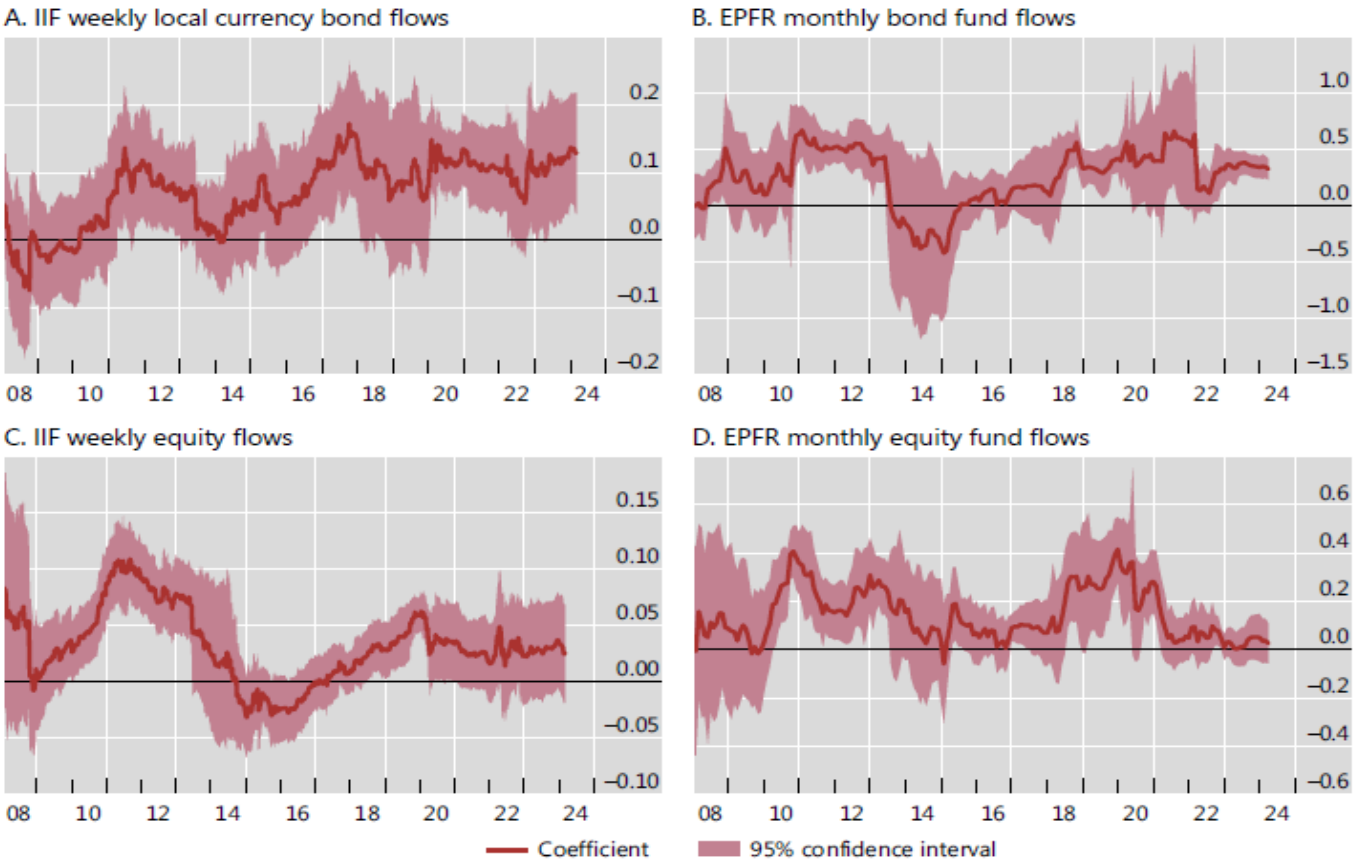
[1] The red line shows the change in the ratio of capital flows to total foreign holdings in percentage points in response to a 1% depreciation of the US dollar against AE currencies or a one-unit decrease in the VIX. The regressions use two-year moving windows with weekly data. The contemporaneous value of these two variables and the one-period lagged value of the change in the policy rate differential are included jointly in regressions, together with the one-period lagged dependent variable and one-period lagged controls (US CPI, EME CPI, US industrial production (IP), EME IP, Brent oil price; for equities, EME and US equity market returns are also included). The shaded area shows the 95% confidence interval. [2] A positive coefficient means that a 1% depreciation of the US dollar against other AE currencies increases capital flows. [3] A positive coefficient means that a one-unit decrease in the VIX index increases capital flows.

Sources: Federal Reserve Bank of St Louis; Institute of International Finance; Bloomberg; authors' calculations.

Source: Gelos, Patelli and Shim (2024)

Changing impact of the dollar on BOP portfolio inflows and mutual fund flows[1, 2]

Coefficient — Graph A2



[1] The red line shows the change in the ratio of capital flows to total foreign holdings (or total fund holdings) in percentage points in response to a 1% depreciation of the US dollar against AE currencies. The regressions for local currency BOP bond and equity flows use two-year moving windows with weekly data, while the regressions for EPFR bond and equity fund flows use two-year moving windows with monthly data. The contemporaneous value of the percentage change in the AE-only dollar index and the VIX change and the one-period lagged value of the change in the policy rate differential are included jointly in regressions, together with the one-period lagged dependent variable and one-period lagged controls (US CPI, EME CPI, US industrial production (IP), EME IP and Brent oil price; for equities, EME and US equity market returns are also included). The shaded area shows the 95% confidence interval. [2] A positive coefficient means that a 1% depreciation of the US dollar against other AE currencies increases capital flows.

Sources: Federal Reserve Bank of St Louis; Institute of International Finance (IIF); Bloomberg; EPFR; authors' calculations.

Source: Gelos, Patelli and Shim (2024)

Country	No of bonds	Total no of obs	Average no of obs per bond
Brazil	70	34,910	499
Chile	48	40,144	836
China	338	206,640	611
Colombia	37	21,882	591
Czech Republic	158	79,659	504
Hungary	37	18,390	497
India	877	494,641	564
Indonesia	34	28,472	837
Israel	32	21,474	671
Korea	291	271,786	934
Malaysia	87	67,670	778
Mexico	120	63,686	531
Peru	23	18,856	820
Philippines	97	110,239	1,136
Poland	27	21,159	784
Russia	53	33,408	630
Singapore	52	43,597	838
South Africa	49	59,111	1,206
Thailand	98	67,896	693
Turkey	119	45,117	379
Total	2,647	1,748,737	661

Table 2. **Overview of the security-level EME bond yield dataset.**

Source: Hofmann, Shim and Shin (2025)

LC spreads

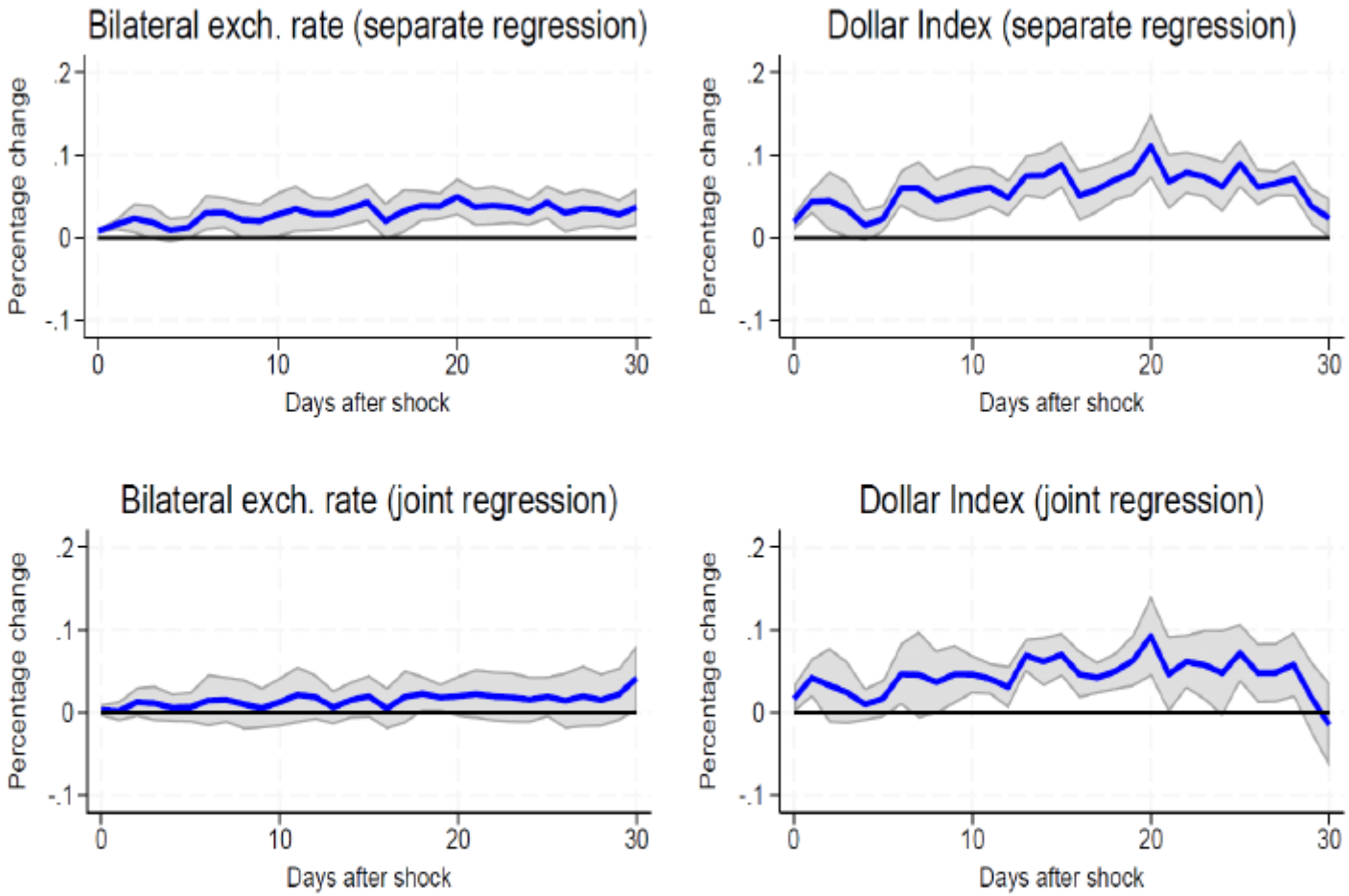


Figure 4. **Impact of US dollar appreciation shocks on EME local currency bond spreads for all EMEs.** The figure shows the impact of a 1 percent appreciation shock (log exchange rate changes on days of euro area and Japanese monetary policy news) to the bilateral exchange rate against the US dollar and to the broad dollar index. The 90% confidence bands are based on heteroskedasticity and autocorrelation robust standard errors. Sources: Bloomberg; JPMorgan Chase; authors' calculations.

Source: Hofmann, Shim and Shin (2025)

DS spreads

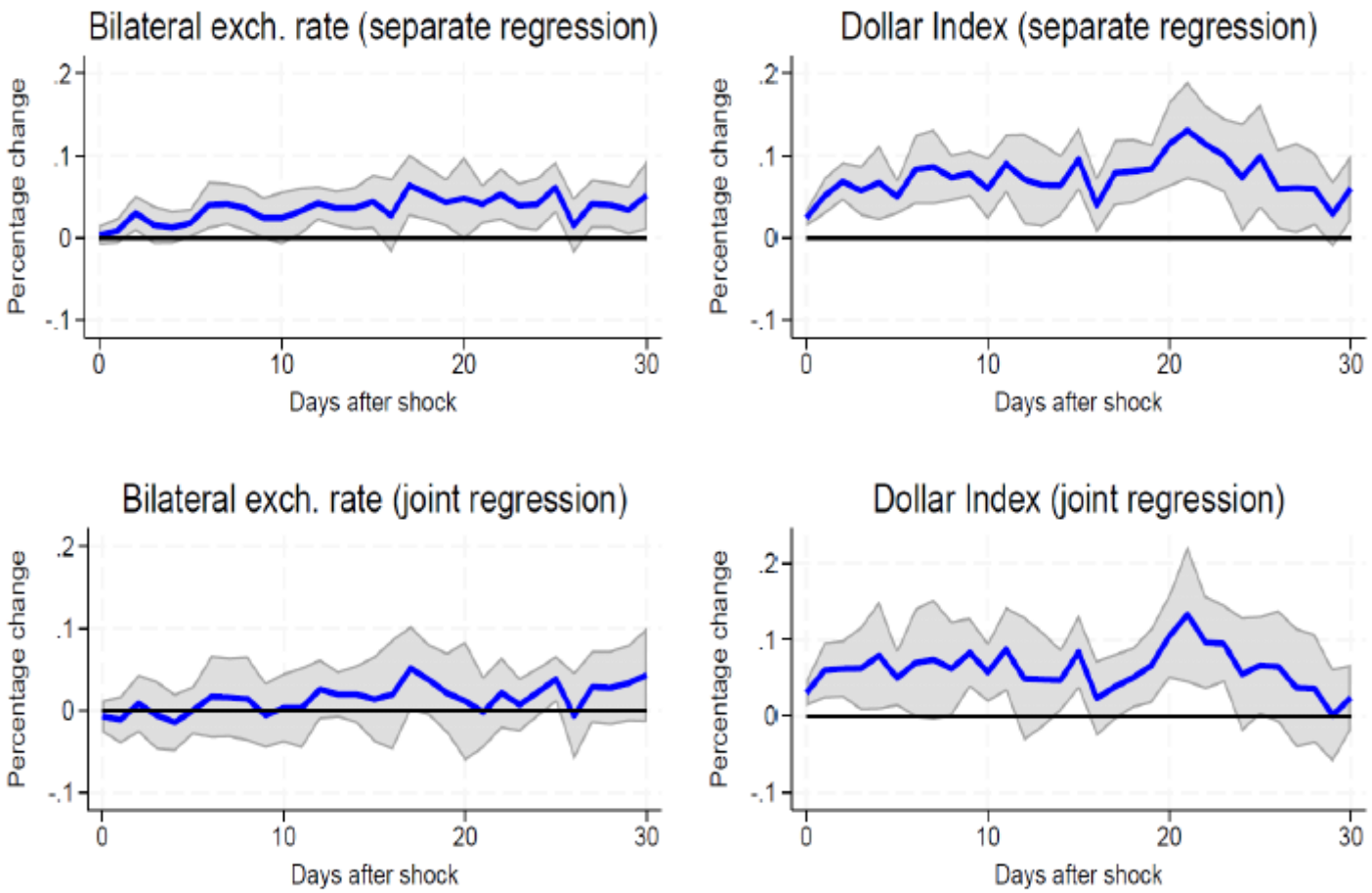


Figure 5. **Impact of US dollar appreciation shocks on EME local currency credit risk spreads for all EMEs.** The figure shows the impact of a 1 percent appreciation shock (log exchange rate changes on days of euro area and Japanese monetary policy news) to the bilateral exchange rate against the US dollar and to the broad dollar index. Credit risk spreads are measured following Du and Schreger (2016). The 90% confidence bands are based on heteroskedasticity and autocorrelation robust standard errors. Sources: Bloomberg; JPMorgan Chase; authors' calculations.

Source: Hofmann, Shim and Shin (2025)

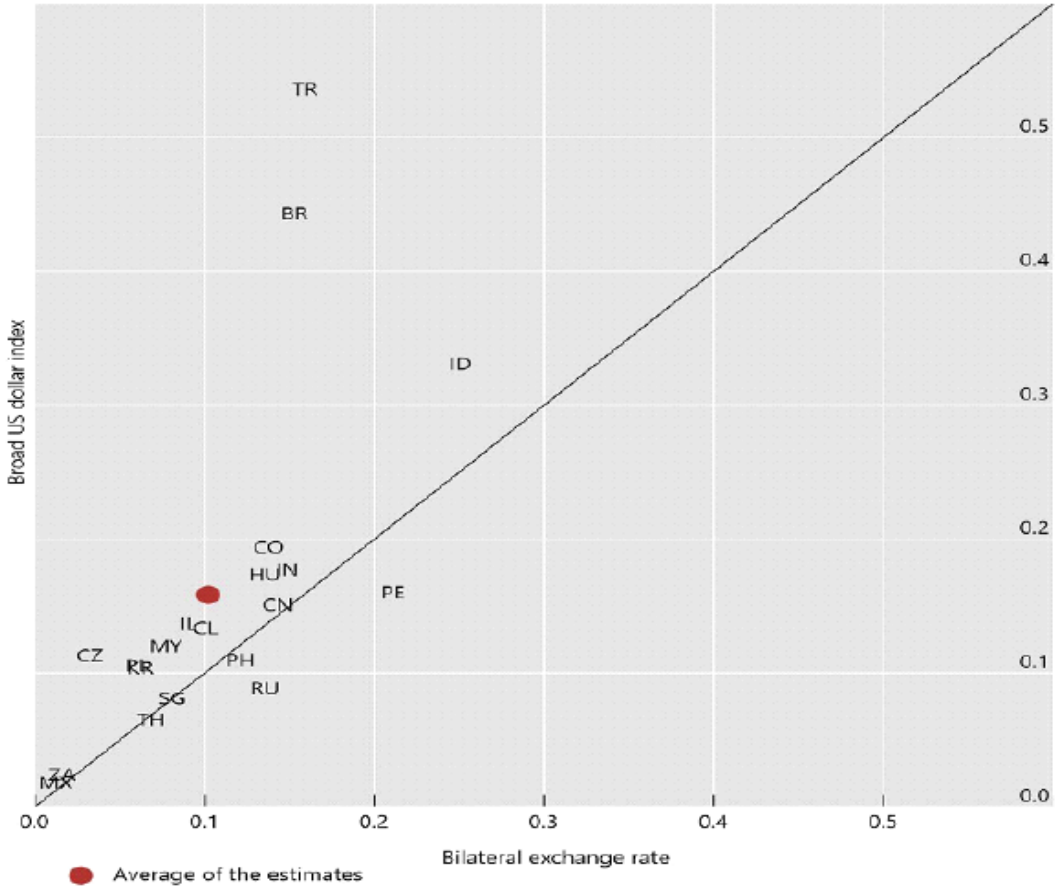


Figure 6. **Peak impact of exchange rate shocks on EME local currency bond spread for individual EMEs.** The coefficient values on the vertical/horizontal axis show the peak impact of a 1 percent broad US dollar appreciation shock/bilateral US dollar exchange rate shock (defined as the change in the broad US dollar index/bilateral exchange rate on days of the ECB's or the Bank of Japan's monetary policy announcements) over the 30-day horizon. An increase in the bilateral exchange rate is an appreciation of the US dollar and thus a depreciation of the EME currency. An increase in the US dollar index is an appreciation of the US dollar broadly. Therefore, a positive coefficient means that when the dollar appreciates, an EME's local currency bond spread increases. Each country code shows a pair of the coefficients. The coefficients are from daily mean group separate regressions for 20 EMEs from January 2011 to December 2022 with country-specific coefficients on the exchange rate shocks, the lagged dependent variable and control variables explained in Section 5. Sources: Bloomberg; Refinitive; authors' calculations.

Source: Hofmann, Shim and Shin (2025)

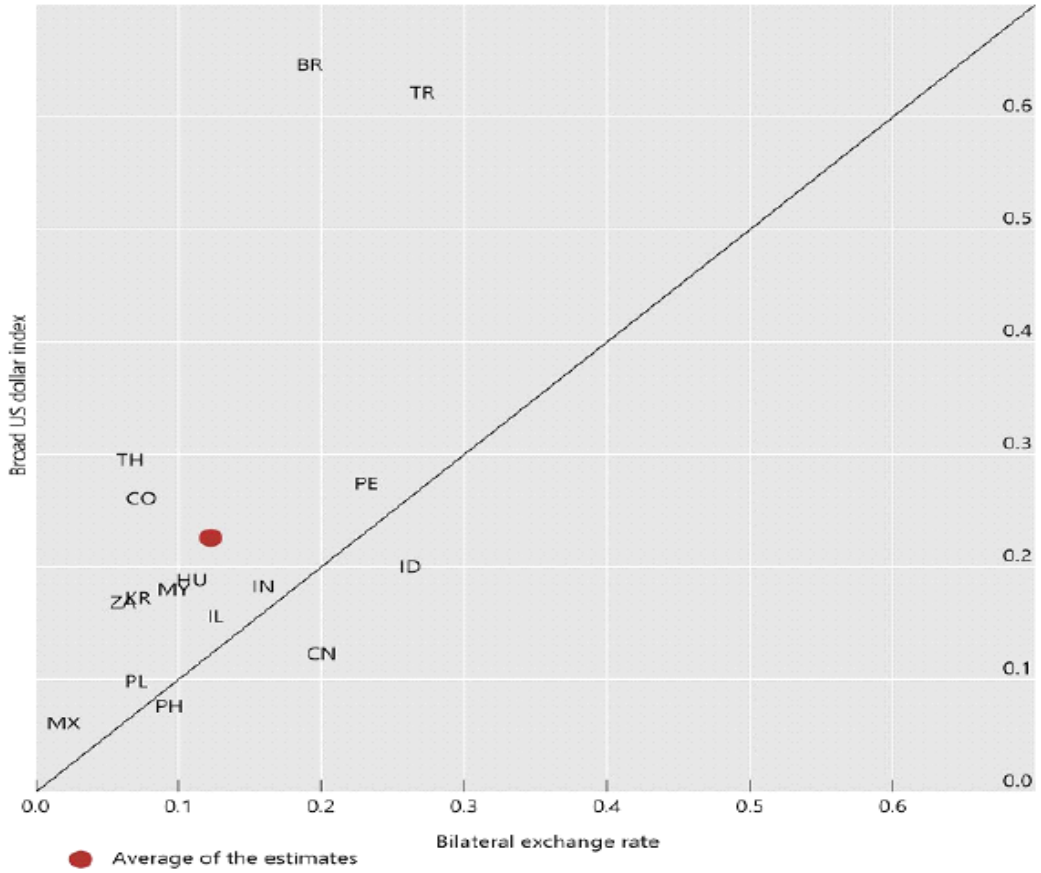
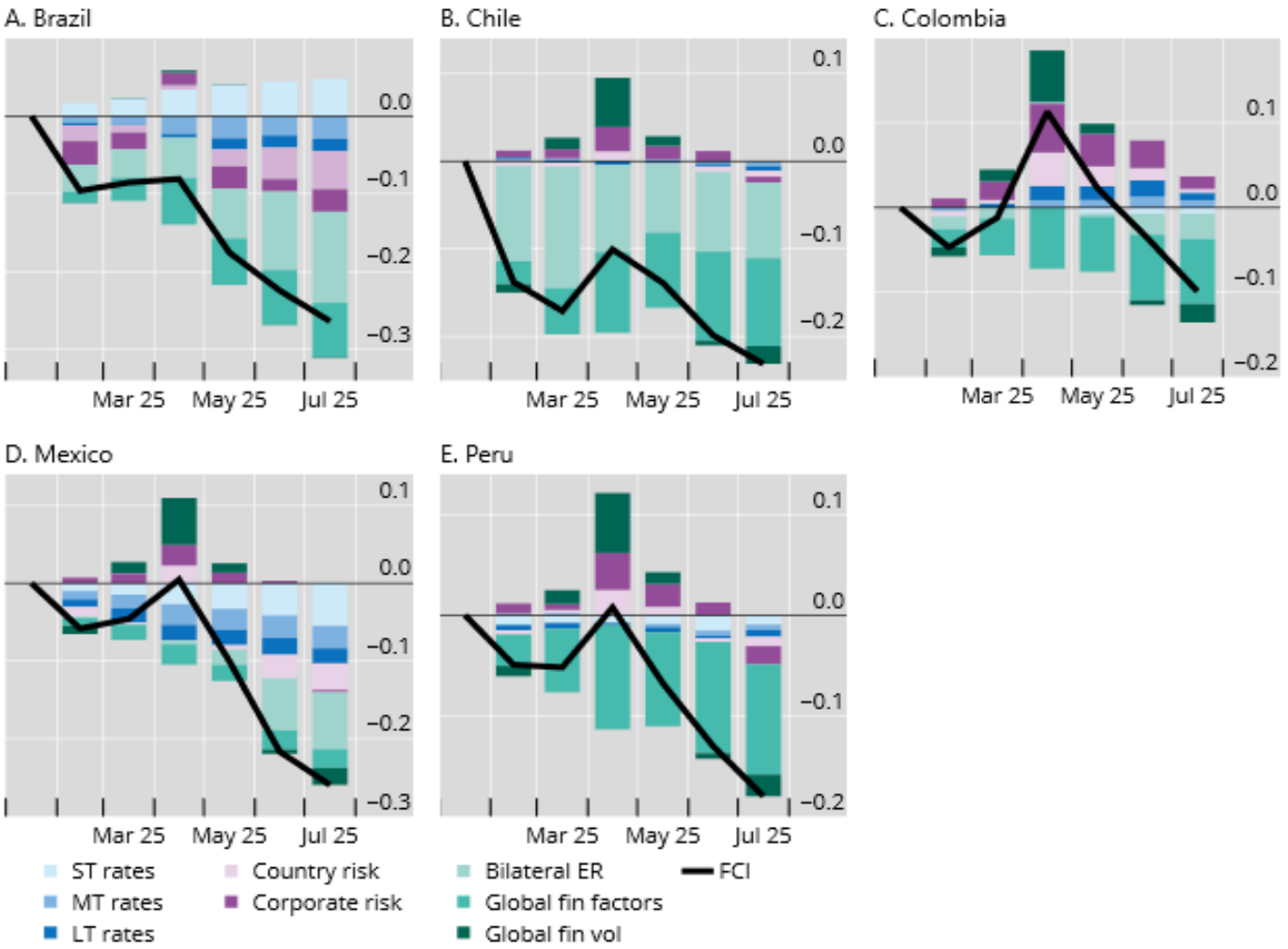


Figure 7. **Peak impact of exchange rate shocks on EME local currency credit risk spread for individual EMEs.** The coefficient values on the vertical/horizontal axis show the peak impact of a 1 percent broad US dollar appreciation shock/bilateral US dollar exchange rate shock (defined as the change in the broad US dollar index/bilateral exchange rate on days of the ECB's or the Bank of Japan's monetary policy announcements) over the 30-day horizon. An increase in the bilateral exchange rate means an appreciation of the US dollar and thus a depreciation of the EME currency. An increase in the US dollar index means the appreciation of the US dollar broadly. Therefore, a positive coefficient means that when the dollar appreciates, an EME's local currency credit spread increases. Each country code shows a pair of the coefficients. The coefficients are from daily mean group separate regressions for 16 EMEs from January 2011 to December 2022 with country-specific coefficients on the exchange rate shocks, the lagged dependent variable and control variables explained in Section 5. Sources: Bloomberg; Refinitiv; authors' calculations.

Source: Hofmann, Shim and Shin (2025)

Foreign and global factors have significantly eased FCIs in Latin America in 2025[1]

Index, January 2025 = 0 Graph 2



[1] ER = exchange rate; LT = long-term; MT = medium-term; ST = short-term. Global financial factors include the nominal broad US dollar index and long-term US Treasury yields, while global financial volatility is measured by the Merrill Option Volatility Estimate (MOVE) Index.

Source: Authors' calculations.

Source: Amaral, Guerra, Shim and Tombini (2025)

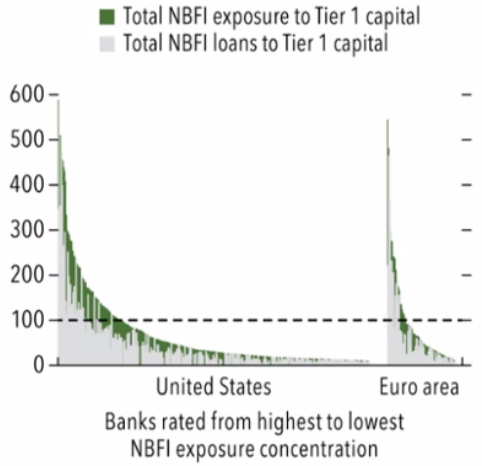
Bank-NBFI nexus

- Channels of linkages between banks and NBFIs in the domestic context
  - Banks lend to NBFIs: either multiple NBFIs rely on one bank or multiple banks lend to one NBFI
  - Banks help NBFIs (eg MMFs) place spare cash and provide credit lines
  - Banks provide clearing services to NBFIs in centrally cleared markets and thus are subject to risks when NBFIs fail to meet margin calls.
  - Banks operate as market-makers, facilitating market trading by NBFIs.
  - Banks provide guarantees and other forms of security to NBFIs.
  - Some NBFIs are owned by banks, so can create risks when NBFIs fail.
- Bank-NBFI nexus in the cross-border context
  - Large international banks' cross-border claims on and cross-border liabilities to NBFIs have increased substantially over the past years, especially when it comes to claims in US dollars
    - This bank-NBFI nexus can even have impacts on the real sector.
    - For example, in early 2020 due to Covid, dollar funding from NBFIs to banks dried up, which squeezed bank lending to the real economy.
  - Important to note that stress in NBFIs affect large global banks, which are also the major providers of FX loans to EMEs.

Bank exposure to NBFIs

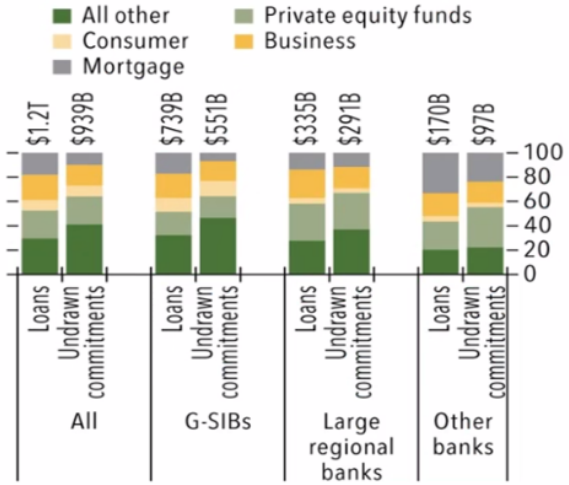
Several banks in the US and the Euro area have exposures to NBFIs exceeding their capital…

Banks' NBFI Exposure to Tier 1 Capital
(Percent)



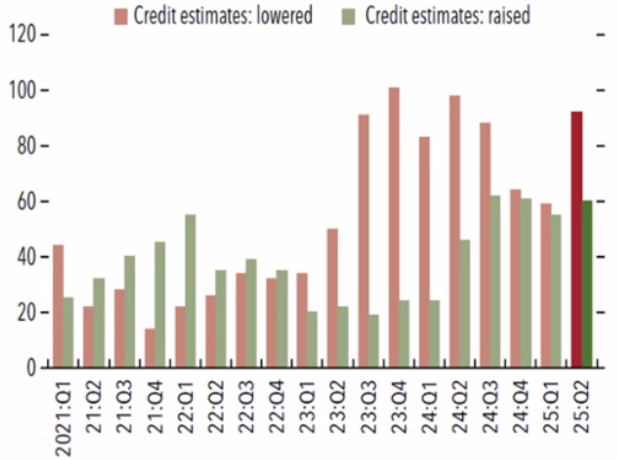
..with US banks having substantial undrawn commitments to private credit and equity funds..

NBFI Exposure, by Type
(Percent of total exposure by bank group)



…at a time when asset quality in private credit starts being tested …

Ratings upgrades and downgrades of direct lending borrowers
(Number of actions)



Sources: Consolidated Reports of Condition and Income; EBA; Fitch; S&P Capital IQ Pro; and IMF staff calculations. Chart on the left shows total NBFI exposures (loans and undrawn commitments) for US banks as of June 2025 and for Euro area as of June 2024. Concentration is the ratio of NBFI exposure to Tier 1 capital. The sample includes banks reporting large exposures to NBFI (more than 10% of Tier 1 capital). The chart in the middle shows the breakdown of exposures by NBFI type (business, consumer, mortgage intermediaries, private equity funds, and all other NBFIs) for banks with more than $10bn total assets. The "All other" category includes exposures to insurance companies, hedge funds, investment funds, and pension funds. "Large regional" banks are non–G-SIBs with total assets of at least $100bn; "Other banks" have less than $100bn total assets.

Source: S&P Global Ratings; IMF staff calculations.

11

Source: IMF (2025)

Recent discussions on macroprudential policy on NBFIs

- Recent considerations for macroprudential policies on NBFIs
  - EU: EC consultation paper on "Assessing the adequacy of macroprudential policies for non-bank fin intermediation", May 2024
  - UK: BOE "Contingent NBFI Repo Facility", Market Notice Jan 2025
    - gilt market focus; pricing; scope (insur cos, pension funds, LDIs); collateral (gilts); haircuts
  - IE: Central Bank of Ireland (CBI) Discussion Paper "An approach to macroprudential policy for investment funds", July 2024
    - CBI adopted a leverage limit for Irish property funds in 2022
    - CBI and CSSF (LU market authority) adopted a yield buffer to mitigate leverage of GBP-denominated LDI funds
  - Canada: Bank of Canada's "Contingent Term Repo Facility" to respond to extraordinary/severe market-wide liquidity stress; first activated in 2020
- What areas need more attention? Framework, data and cross-border aspects
  - What should be the overarching macroprudential framework for NBFIs?
  - Which types of NBFI are critical in each systemic market segment?
  - What is the extent of common holdings by NBFIs in an asset class?
  - How different NBFIs affect global capital flows & cross-border spillovers?
  - How to design policy, considering NBFIs' reaction to global/local factors?

Policy implications for NBFIs' role in capital flows to EMEs

- Overall shift in external financing by EMEs toward local currency flows
- The overall strength of USD is more important for local currency flows
- Need to consider local currency financing share in designing policy mix
- Among NBFIs, mutual funds are more sensitive to USD than other NBFIs.
- During the taper tantrum, insurance companies and pension funds played a stabilizing role in EME bond markets, while MFs engaged in fire sales.
- The share of mutual funds in NBFIs investing in EME local currency bonds and equities has generally increased across EMEs over the past decade.
- How can EMEs deal with capital flows and achieve more stable aggregate external financing in the context of macro-financial stability framework?
  - Conduct FX intervention on both directions, and conduct (temporary) domestic asset market intervention in stress times
    - Mitigate amplifications between FX, asset prices and capital flows
    - May have ex ante insurance value & influence market expectations.
  - Develop domestic financial (especially FX and FX derivatives) markets and implement FX-related prudential policy on NBFIs and banks during normal times to reduce sensitivity to capital flows.

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