CHAPTER 1

SHIFTING GROUND BENEATH THE CALM: STABILITY CHALLENGES AMID CHANGES IN FINANCIAL MARKETS

Chapter 1 at a Glance

- Recent months have seen continued appreciation in risk asset prices and a depreciation of the US dollar. Meanwhile, government debt has continued to rise, and nonbank financial intermediaries (NBFIs) and stablecoins have continued to grow.
- Markets appear complacent as the ground shifts. Despite trade tensions, geopolitical uncertainties, and rising concerns about sovereign indebtedness, asset prices have returned to stretched valuations and financial conditions have broadly eased.
- Although these shifts have been under way in recent years, new evidence points to increasing vulnerabilities in the financial system:
  - Valuation models indicate that risk asset prices are well above fundamentals, increasing the probability of disorderly corrections when adverse shocks occur.
  - Analysis of sovereign bond markets highlights growing pressure from widening fiscal deficits on the functioning of markets.
  - Stress tests for banks and NBFIs reveal increasing interconnectedness and persistent maturity mismatches that could amplify shocks.
- These vulnerabilities reinforce each other, keeping global financial stability risks elevated. For example,
  - An abrupt yield increase—triggered, for instance, by debt sustainability concerns—could strain banks' balance sheets and pressure open-ended funds.
  - Heightened interconnectedness between banks and NBFIs would exacerbate adverse shocks.
- This chapter urges policymakers to
  - Remain attentive to potential risks to inflation, especially where inflation is still above target, and preserve central bank operational independence;
  - Curb government deficits;
  - Implement internationally agreed-upon prudential standards;
  - Strengthen financial sector safety nets and NBFI oversight, and
  - Promote effective regulation and supervision of stablecoins.

Introduction

The world economy faces persistent trade and geopolitical uncertainties, while structural challenges continue to weigh on medium-term growth. Yet, after a brief jolt from the United States' April 2 tariff announcements, global financial markets have largely brushed off subsequent shocks and uncertainties. Asset prices have rebounded strongly since the April 2025 *Global Financial Stability Report*, and, after an abrupt tightening in early April, financial conditions across regions have eased back to accommodative levels.

The apparent calm masks a degree of complacency. Markets seem to have downplayed the potential effects of tariffs on growth and inflation (see the October 2025 *World Economic Outlook*) as well as other potential adverse developments. This chapter shows that beneath the calm surface, the ground is shifting in several parts of the financial system, giving rise to vulnerabilities. Global financial stability risks remain elevated, according to the IMF's growth-at-risk metrics, having receded only modestly since the April 2025 *Global Financial Stability Report*.

The first sign that the ground is shifting appears in asset price movements, covered in the next section, "Financial Market Developments and Asset Valuations." The US dollar has depreciated by 10 percent to date

this year, despite April's sell-off in risk assets and better-than-expected US economic data in the several months that followed. This reflects a reassessment of the dollar's decade-long bull run and increased hedging by non-US investors against further weakening. Meanwhile, IMF staff models ascertain that valuations of risk assets have again become stretched. An abrupt correction of asset prices could be exacerbated by these unusual asset correlations and lead to an unwinding of leverage and straining financial markets. This strain could include foreign exchange markets, which have undergone structural shifts yet have not experienced significant dollar weakness (see Chapter 2).

The second sign of shifting ground is that debt continues to move toward the government sector. As detailed in the "Sovereign Bond Markets" section, expanding fiscal deficits continue to propel sovereign bond issuance. In advanced economies, sovereign bond markets are increasingly dependent on price-sensitive investors to buy new issuances. While bond market functioning has been stable to date, scenario analyses show that abrupt yield increases would strain bank balance sheets and add liquidity pressures at open-ended funds. Stress in core bond markets, although a tail risk, could have broad and disruptive ramifications for financial markets, given bonds' role as key benchmarks and collateral. In emerging markets, governments have turned more to domestic investors for financing in recent years. Although this reduces reliance on foreign currency debt, it may also create fragilities such as a stronger bank-sovereign nexus (see Chapter 3).

Nonbank financial intermediaries (NBFIs) continue to grow and deepen their ties with banks. The section "Financial Intermediaries" documents the expanding role of NBFIs in core sovereign bond markets and corporate debt markets, including private credit. Although the IMF's Global Stress Test (GST) shows that the weak tail of global banks has diminished compared with two years ago, a sizable group of weak banks remains, and banks have also become more exposed to NBFIs—heightening interconnections and the fragilities across both sectors. In addition, the global growth of stablecoins could offer investors alternatives to traditional safe assets and bank deposits and could influence cross-border capital flows. These trends raise the specter of excessive risk taking, rising leverage, and maturity mismatch vulnerabilities in the financial system.

While not an imminent financial stability risk, weaker firms, as documented in the section "Corporate Credit Risk," appear to be struggling in an environment of higher tariffs and refinancing rates, and borrower downgrades and restructurings have risen. Nonetheless, retail investors are increasingly interested in private credit markets and high-yield bond funds, which could amplify credit downturns.

Financial Market Developments and Asset Valuations

Asset Prices Rebound and Volatility Subsides amid Elevated Uncertainty

Since the April 2025 *Global Financial Stability Report*, financial markets have largely rebounded from the broad-based sell-off that followed the April 2 tariff announcement. In part this was because the 90-day pause was announced a week later, sequential trade agreements then resolved some uncertainty, and global economic data remained solid. Despite the intermittent market gyrations since April from tariff-related news, buyers have been ready to step in based on the belief that any adverse tariff impacts would be temporary and eventually reversed. As a result, market volatility across asset classes has declined, on net, in contrast with the still-elevated economic, trade, and geopolitical uncertainty (Figure 1.1, panel 1). This decline in volatility has been supported by expectations of further easing of monetary policy across most major advanced economies and emerging markets (Figure 1.1, panel 2).[1]

At present, the global economy has shown tenuous resilience[2] (see the October 2025 *World Economic Outlook*).[3] Nonetheless, with tariffs settling at their highest levels in almost a century, a slowdown in the global economy is beginning to emerge as front-loaded consumption and investments fade. In addition, market expectations for near-term US inflation remain elevated amid high trade policy uncertainty, whereas

[1]Still, the lasting impact of tariffs on the global economy, particularly in the United States, remains a significant unknown, prompting caution in central bank communications.

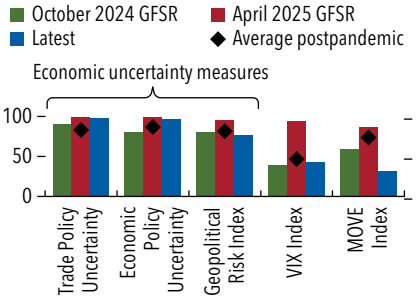
[2]Specifically, global growth in the first half of the year was larger than predicted in the April 2025 *World Economic Outlook*, but higher-frequency indicators for July and August point to drags on global economic activity. In addition, expectations for inflation have been revised upward in the United States but downward in many other jurisdictions, consistent with the expectation of a supply shock in the tariffing country and demand shocks in tariffed countries.

[3]Temporary factors include front-loading of consumption and investment, inventory management strategies, implementation delay of tariffs, and strong profit margins.

Figure 1.1. Asset Prices amid Still-Elevated Uncertainty

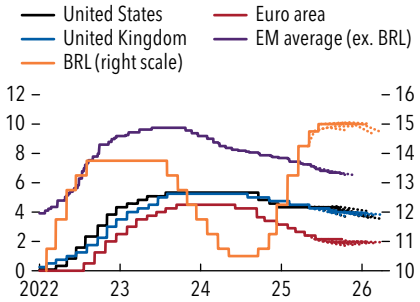
Financial market volatility has declined since April, but measures of economic uncertainty remain elevated.

1. Economic Uncertainty and Financial Volatility
(Percentile)



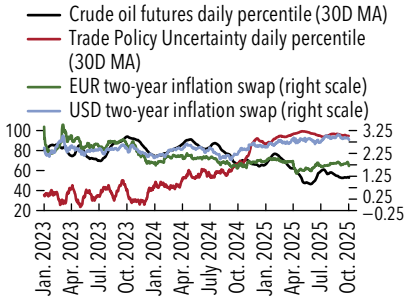
Monetary policy easing is expected to continue, although with divergence across countries.

2. Advanced Economy and Emerging Market Interest Rate Paths
(Percent)



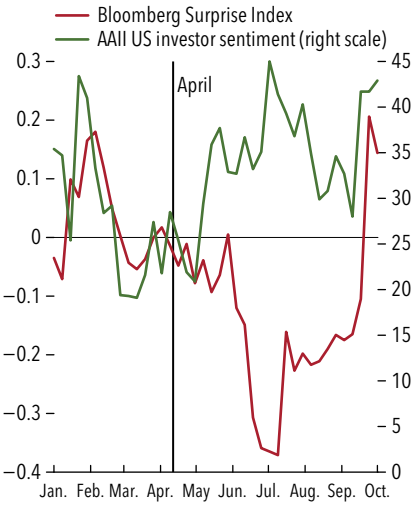
Market expectations of inflation depend on oil prices and trade policy uncertainty.

3. Market-Based Inflation Expectations versus Oil Price and Trade Policy Uncertainty
(Percentile, left scale; percent, right scale)



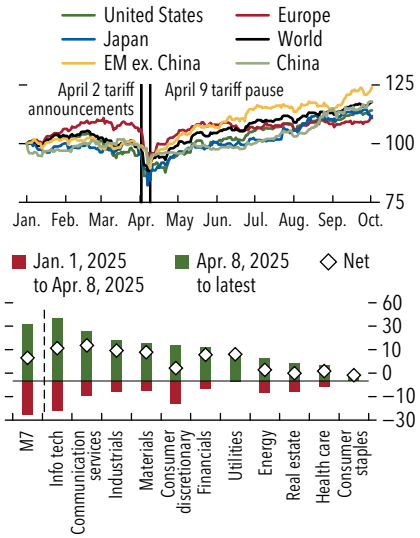
Despite economic surprises trending negative for several months following the April sell-off, investor sentiment has continued to improve ...

4. Economic Surprise and Investment Sentiment Indices in the United States, 2025
(Z-score, left scale; percent, right scale)



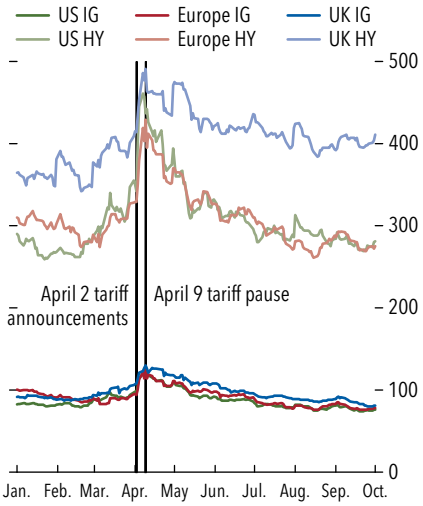
... equity prices globally have risen, largely on the back of outperformance in AI-related sectors, particularly the M7.

5. Performance of Global Equities, by Selected Economies and Sector, 2025
(Normalized, January 1, 2025 = 100; percentage points)



Corporate spreads have narrowed.

6. Investment-Grade and High-Yield Corporate Bond Spreads, 2025
(Basis points)



Sources: American Association of Individual Investors; Bloomberg Finance L.P.; IBES DataStream; Baker, Bloom, and Davis 2016; Caldara and others 2020; Caldara and Iacoviello 2022; and IMF staff calculations.

Note: In panel 1, percentiles are derived from monthly data starting January 1997. "Average postpandemic" is the average percentile since January 2022. "Economic Policy Uncertainty" and "Trade Policy Uncertainty" are the indices of Baker, Bloom, and Davis (2016); the Geopolitical Risk Index is from Caldara and Iacoviello (2022). Economic Uncertainty Measures are text-based. The latest level for economic uncertainty measures is the latest available for each corresponding monthly series. The latest levels for the VIX and the MOVE indices are as of October 2, 2025. Solid lines in panel 2 are actual central bank policy rates. Dotted lines are forecast future policy rates derived from swap curves. The average emerging market central bank (excluding Brazil) includes India, Hungary, Mexico, and South Africa. In panel 3, Trade Policy Uncertainty (30D MA) is the 30-day moving average of percentiles calculated from the entire daily series in Caldara and others (2020). Crude oil futures (30D MA) correspond to the 30-day moving average of percentiles calculated from the third generic crude oil futures contracts for West Texas Intermediate, due to expire in around three months from the date of this publication. In panel 4, the Bloomberg Surprise Index is the Bloomberg ECO Surprise Index for the United States. The values are *z*-scores, representing the number of standard deviations that analysts' expectations, as surveyed by Bloomberg, are above or below normal surprise levels. The AAII index is compiled from the AAII weekly; data indicate how bullish the surveyed members feel about equity markets in the next six months. Panel 5 uses the S&P 500 Index for the United States, Euro Stoxx 600 for Europe, Topix Index for Japan, MSCI All Country World Index for World, MSCI Emerging Market excluding China for emerging markets excluding China, and Shanghai Shenzhen CSI 300 Index for China. Global Industry Classification Standard level 1 sectors are used for the MSCI All Country World Index. Panel 6 uses option-adjusted spreads. Data labels in the figure use International Organization for Standardization (ISO) country codes. AAII = American Association of Individual Investors; AI = artificial intelligence; EM = emerging market; ex. = excluding; GFSR = *Global Financial Stability Report*; HY = high yield; IG = investment grade; M7 = Magnificent 7; MOVE = Merrill Lynch Option Volatility Estimate; VIX = Chicago Board Options Exchange Volatility Index.

euro area inflation expectations have anchored as oil prices have declined (Figure 1.1, panel 3). Although inflation effects from trade policy are expected to be largely temporary, as indicated by inflation swaps pricing, it is now more likely that tariffs may be settling at high levels for an extended period.[4] As a result, exporters around the world who are most affected by tariffs could gradually be shifting some tariff-related costs onto consumers to mitigate pressures on their profit margins (see the section "The Corporate Sector Is Resilient to Tariffs So Far").[5]

Despite recent economic data surprises trending negative until more recently, equity market sentiments have continued to remain high (Figure 1.1, panel 4), buoyed by optimism about mega-cap stocks related to information technology (IT) and artificial intelligence (AI) (Figure 1.1, panel 5), which are perceived to be less negatively affected by tariffs. Corporate credit spreads have tightened since April (Figure 1.1, panel 6). Given these developments, equity and corporate credit valuations have returned to being fairly stretched, and concentration of valuations at a handful of firms—especially the Magnificent 7 and AI-related stocks in the broad benchmark equity index—is at historical highs (see the section "Equity Markets Exhibit High Valuations and Concentration Risks").[6]

The Dollar, Bonds, and Risk Assets Diverge

Since the April 2025 *Global Financial Stability Report*, longer-term sovereign bond yields in most advanced economies have risen, even as investors expect monetary policy to continue to ease. Term premiums have been driven up by a rising bond supply, and there has been ongoing quantitative tightening by central banks as well as a slowdown in duration demand, including by liability-driven investors (Figure 1.2, panel 1; see also the section "Expanding Fiscal Deficits Exert Pressure on Bond Market Stability").

One noteworthy development has been the weakness in the US dollar against a basket of both G10 and emerging market currencies. This has persisted for several months after the April tariff announcement despite a strong rally in risk assets as well as rising gold prices, even with a wide differential between US and G10 interest rates that had supported the dollar in recent years (Figure 1.2, panel 2). Overall, the dollar has depreciated by about 10 percent so far this year against major currencies. Analysts have put forth a number of possible drivers for dollar weakness, from a revaluation of dollar strength amid concerns over the US fiscal position to a shift in allocation away from US-dollar-denominated assets driven by concerns about US policy uncertainty. Although cross-border data do not support notions of a broad pullback in non-US investor holdings,[7] increased currency hedging activity to mitigate losses on unhedged dollar exposure appears to have emerged as a contributor to recent dollar weakness.

By way of context, non-US investors' holdings of US dollar assets have risen steadily over time, with a large portion not matched by commensurate dollar liabilities. For example, total non-US investor holdings of US securities increased from $16 trillion to $31 trillion from 2015 to 2024. These holdings are characterized by incomplete hedging, given the foreign exchange mismatches they present, and could be subject to sudden, large-scale sell-offs (and therefore can be deemed "need to be hedged"). This rise in exposure has been driven by macroeconomic factors, such as current account surpluses, savings gluts, relatively limited investment opportunities in non-US markets, and yield-seeking behavior. The mutually reinforcing dynamics between trade and finance are facilitated by the unparalleled depth and liquidity of US financial markets (see Chapter 2 of the July 2025 *External Sector Report*).

Although currency hedging can mitigate risks associated with incomplete hedging, the modest depth of foreign exchange markets in many jurisdictions relative to large dollar asset exposures and the dollar's strength over the past decade have made hedging

[4]Pricing for two-year, three-year, and five-year inflation swaps for the United States, along with the five-year inflation swap measure, suggests that medium and longer-term inflation expectations, while more elevated since April, have not become unanchored so far.

[5]As noted in the October 2025 *World Economic Outlook*, tariffs theoretically lead to currency appreciation for the tariff-imposing country, mitigating the impact of tariffs on prices. However, US dollar appreciation has not happened to date. Instead, dollar depreciation may mean that exporters have less room to absorb tariffs without a deterioration in their profits, thus leading to pass-through to importing firms and consumers.

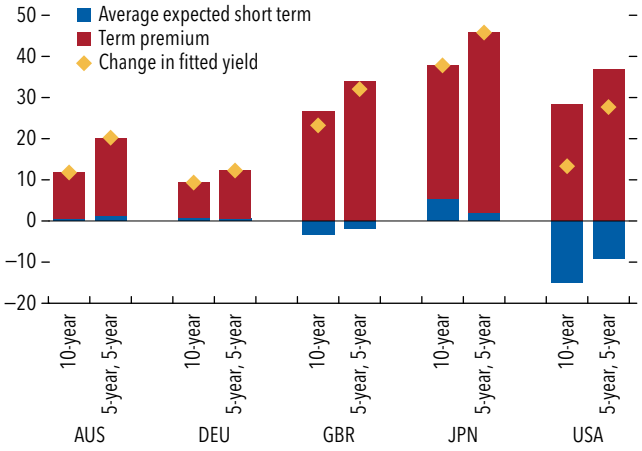
[6]The Magnificent 7 companies are Alphabet, Amazon, Apple, Meta, Microsoft, Nvidia, and Tesla.

[7]After a brief period of outflows in April, Treasury securities experienced net inflows of about $105.5 billion. US equity net inflows were $95.4 billion over April and May, according to Treasury International Capital System data.

Figure 1.2. Some Developing Divergences

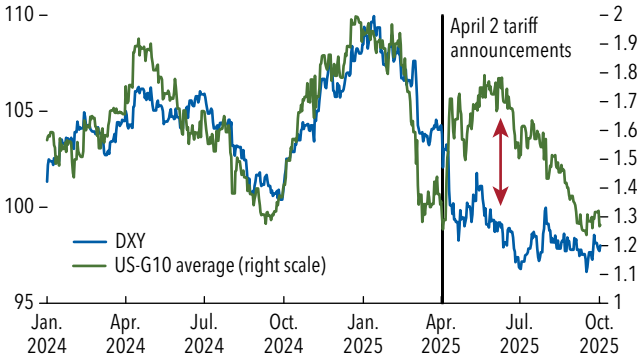
Longer-term bond yields have seen upward pressure from higher term premiums.

1. Decomposition of Changes in Longer-Term Bond Yields since Early April 2025 in Selected Advanced Economies
(Basis points)



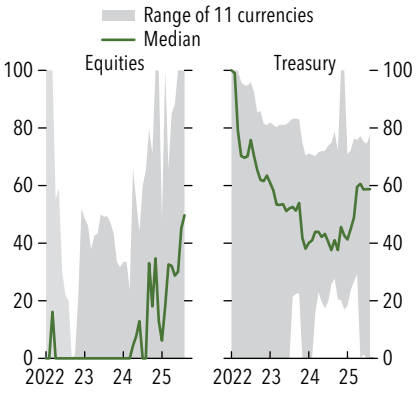
The US dollar has weakened, while also having decoupled relative to interest rate differentials for several months after the April tariff announcement.

2. Dollar versus Interest Rate Differentials
(Index, left scale; percent, right scale)



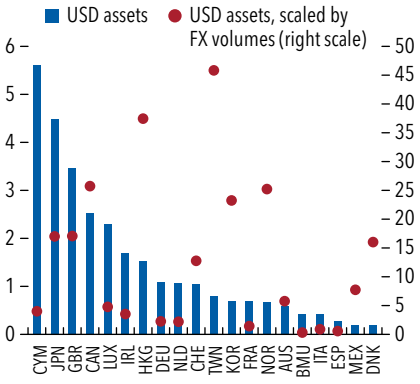
The optimal currency hedging ratio has increased recently, an indication that non-US investors ought to increase their hedging against further dollar depreciation.

3. Optimal Volatility-Minimizing FX Hedge Ratio for Non-US Investors, by Asset Class
(Percent)



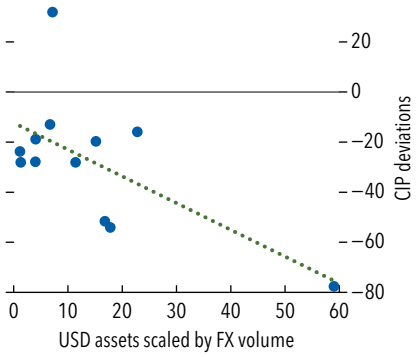
US dollar asset holdings are large across jurisdictions in absolute terms as well as relative to FX market depth.

4. US Dollar Exposures and Ratio Relative to the Size of Local FX Markets
(Trillions of dollars, left scale; ratio, scaled by local FX market monthly transaction volume, right scale)



Jurisdictions with large dollar asset exposures relative to the size of FX markets have wider CIP deviations, resulting in tighter dollar funding conditions.

5. US Dollar Asset Exposures Scaled by FX Transaction Volume and CIP Deviations across Regions
(Basis points, y-axis; ratio, x-axis)



Sources: Bloomberg Finance L.P., BNP Paribas; Bank for International Settlements; US Department of the Treasury; and IMF staff calculations.

Note: The 10-year yield can be split into different time horizons, as different factors may be at work over the near and medium versus the longer term. In panel 1, the 5-year-5-year forward conveys information contained within the latter half of a 10-year bond's maturity–that is, spanning years 6 to 10–thus parsing out the influence of cyclical factors that may be predominant drivers at shorter-term horizons. Term premium estimates follow Adrian, Crump, and Moench (2013). Early April refers specifically to April 3. In panel 2, the US–G10 average is the nominal 10-year interest rate differential between the United States and the average of the G10 countries. In panel 3, minimum return volatility hedge ratios by asset classes are estimated based on Wilcock and others (2025), with two-year rolling volatility and correlation of each local currency exchange rate against the US dollar and S&P 500 index (equities) or J.P.Morgan Global Bond Index local currency US country index (Treasury). The shaded areas indicate the range of the estimated hedge ratio for 11 currencies: British pound sterling, Japanese yen, Canadian dollar, euro, Chinese yuan, Hong Kong dollar, Swiss franc, new Taiwan dollar, Australian dollar, Norwegian krone, and Republic of Korean won. In panel 4, US dollar exposures are estimated by focusing on cross-border portfolio investments, loans, and deposits, using multiple databases, as of 2023 (see Online Annex 1.6 for details). Panel 5 plots the average CIP deviations versus US dollar exposures scaled by the monthly FX transaction volume for 12 currencies, including advanced economies and emerging market economies. CIP deviations are computed as the 12-year average of the difference between the three-month US interest rate and the foreign country's interest rate, adjusted by the annualized forward premium. Data labels in the figure use International Organization for Standardization (ISO) country codes. CIP = covered interest parity; DXY = US dollar index; FX = foreign exchange; USD = US dollar.

expensive. Globally, hedge ratios for insurance companies, pension funds, and mutual funds—which invest in dollar assets and have mostly local-currency-denominated liabilities—are found to be considerably less than 100 percent, as evidenced in, for instance, Du and Huber (2024) and Shin, Wooldridge, and Xia (2025).[8]

More recently, the case to increase hedge ratios has strengthened. A measure of optimal hedge ratio from a non-US investor's perspective—based on the minimization of asset return volatility—has significantly increased recently for portfolios of both US equities and Treasuries across currencies (Figure 1.2, panel 3).[9] Many investors appear underhedged compared with this optimal ratio (Shin, Wooldridge, and Xia 2025). Amid dollar weakening, non-US investors with significant unhedged dollar exposures could be prompted to increase currency hedging to mitigate further losses on these exposures. Such hedging after dollar weakness would involve selling US dollars forward or repatriating dollar deposits, so amplifying dollar weakening in a self-fulfilling manner. Consequently, "rush to currency hedge" behavior reportedly increased in the months after the April 2 tariff announcements (Parsons and Davis 2025).

According to IMF staff analysis, these hedging assets include security portfolios, loans, and deposits, and they are especially large in international financial centers and jurisdictions with large NBFIs. In some economies, dollar exposures are disproportionately large relative to the depth of the local foreign exchange market (Figure 1.2, panel 4; see also Online Annex 1.6).

The financial stability risk of a "rush to hedge" is that selling the US dollar forward could increase dollar funding pressures, especially in shallower foreign exchange markets with limited hedging instruments and where absorption capacity for hedging flows is lower. With many foreign investors selling US dollars forward, the relative price of the US dollar forward versus spot would decline, resulting in larger deviations from covered interest parity (CIP), an indicator for dollar funding pressures. Indeed, jurisdictions with larger US dollar asset exposure relative to foreign exchange market depth currently have wider CIP deviations (Figure 1.2, panel 5).[10,11]

Equity Markets Exhibit High Valuations and Concentration Risks

The rebound in global equity prices since April has outpaced expected future earnings, reflecting buoyant investor sentiment (see the section "Asset Prices Rebound and Volatility Subsides amid Elevated Uncertainty"). In particular, the S&P 500 12-month forward price-to-earnings (P/E) ratio has climbed back to about the 96th percentile since 1990 while continuing to trade at a premium compared with other advanced and emerging markets (Figure 1.3, panel 1).

[8]Based on evidence provided in Du and Huber (2024), hedge ratios for insurers, pension funds, and mutual funds stood at around 44 percent, 35 percent, and 21 percent, respectively, as of June 2020, suggesting incomplete currency hedging. More recent estimates of hedge ratios reveal that these could, in comparison, be even more conservative, as evidenced in Shin, Wooldridge, and Xia (2025). Hedging practices also vary substantially across investor types and countries depending on investment objectives and risk tolerance. Japanese life insurers, for instance, own a sizable amount of US dollar assets against yen-denominated liabilities, which in principle needs to be hedged to minimize currency mismatches. In practice, they typically hedge 50 percent to 70 percent of their bond portfolios (see McGuire and others 2021), as a 100 percent currency hedge may not necessarily be optimal from a risk-management perspective. Other long-term investors, and more specifically pension funds, may decide to not actively currency hedge their dollar exposure, but may instead change allocation to dollar assets through multiyear strategy asset allocation reviews, depending on cross-asset correlations, liquidity conditions, and hedging costs; as well as discretionary views about the market, particularly, the trajectory of the dollar. Some dollar exposures are not necessarily actively managed and thus remain relatively insensitive to market developments. For instance, dollar exposures associated with a non-US firm's direct investment in the United States, where the firm has its operations, may not be currency hedged. Another example is foreign reserve buffers held by monetary authorities, which are not held for investment returns, but rather serve as a first line of defense against excessive exchange volatility and funding pressures. In a longer time horizon, a decline in direct investment in the United States or a decrease in the dollar's share of foreign exchange reserves could contribute to the trend of dollar weakening. In fact, the US dollar share of international reserves has declined since the turn of the century, reflecting portfolio diversification by central bank reserve managers, potentially exerting downward pressure on the dollar over time (Arslanalp, Eichengreen, and Simpson-Bell 2022). US dollar exposures in Figure 1.2, panels 1 and 4, are not aimed to include direct investments and foreign exchange reserves.

[9]From 2021 to 2023, when the dollar strengthened and the correlation between local currencies and dollar assets was higher, the hedge ratio needed to minimize asset returns from a non-US investor perspective was low relative to the current level.

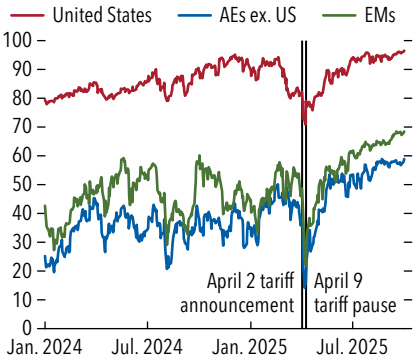
[10]Two related investigations in the literature are those conducted by Du and Huber (2024) and Dao and Gourinchas (2025). Du and Huber (2024) document the strong correlation between hedging activity and cross-currency covered interest parity (CIP) deviations. Dao and Gourinchas (2025) also uncover the relationship between the difference between external dollar assets and liabilities and CIP deviations.

[11]In some cases (for example, the Taiwan dollar), offshore forward transactions are nondeliverable and so are not used for dollar funding.

Figure 1.3. Equity Valuation Pressures

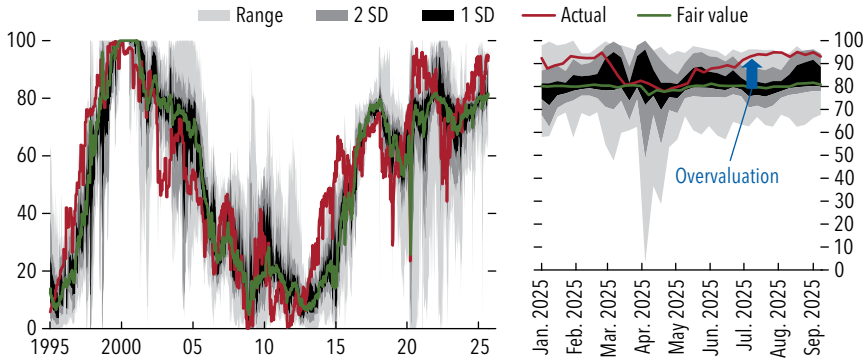
Global equity valuations rebounded with the tariff pause.

1. Twelve-Month-Forward P/E Ratios
(Percentile since 1990)



US equity valuations appear stretched relative to fundamentals, on the basis of staff estimates, but ...

2. Twelve-Month-Forward P/E Ratios versus Model-Implied Estimates
(Percentiles since 1990)

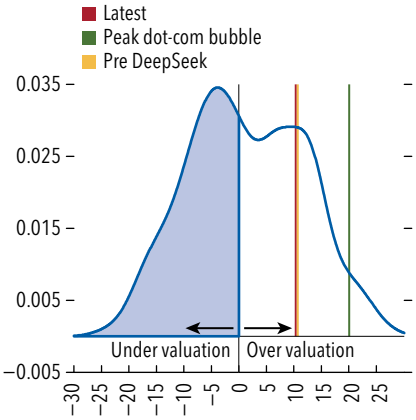


... current overvaluation is still below historical peaks, for example, during the dot-com bubble.

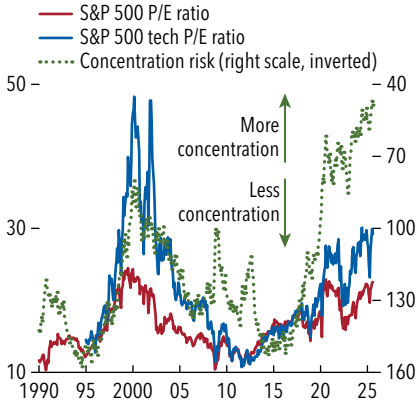
Concentration risk, however, has risen to historically high levels, with a narrow group of IT- and AI-related stocks predominantly driving the S&P 500.

Concentration risk is far less pronounced in other major global indices.

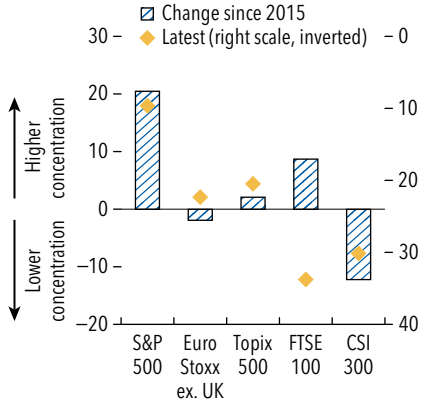
3. Kernal Density of Historical Over- (Under-) Valuations since 1995
(Density, y-axis; percentile points, x-axis)



4. Concentration Risk in the S&P 500
(12-month-forward P/E ratio, percent, left scale; inverse Herfindahl-Hirschman index [concentration risk], right scale)



5. Comparing Normalized Concentration Risk across Selected Indices
(Percentage point change since 2015, left scale; current level, right scale)



Sources: Bloomberg Finance L.P.; LSEG DataStream; and IMF staff calculations.

Note: Panel 1 shows the percentiles of 12-month-forward (P/E) ratios since 1990 or the start of the data series. AEs (excluding the United States) and EMs are MSCI series, while the United States is the S&P 500. Panel 2 compares the US P/E series from panel 1 with the central tendency of distribution of model-implied, fair-value estimates. Estimates are based on weekly data. The model used here is based on an extended equity market asset valuation model discussed in Online Annex 1.1 of the October 2019 *Global Financial Stability Report*, which relates equity index on various proxies for earnings growth, equity risk premium, and term premium. For the analysis discussed here, conditioning variables (proxies) are shuffled over multiple configurations used for parameter estimation through a bootstrapping methodology. The methodology delivers a distribution of 3,600 fair-value estimates at each point in time, based on randomized sampling within the preceding five years of weekly data. The light gray shaded region shows the range of estimates, and the dark gray shaded region shows estimates within two standard deviations around the mode. The black shaded region shows estimates within one standard deviation around the mode. The fair-value series (green line) is the R^2 weighted value of all estimates at each point in time. The distribution's mode generally closely tracks the estimated fair value. Panel 3 shows the model estimation errors, calculated as the percent difference between actual and fair-value estimates, for the entire time series. Positive (negative) error (or deviation) indicates overvaluation (undervaluation). The vertical lines flag this error at each corresponding point. In panel 4, the green dotted line (concentration risk) is the inverse of the Herfindahl-Hirschman Index (with the *y*-axis in reverse order) and measures the effective number of equal weighted stocks driving the index. Normalized concentration risk in panel 5 is the inverse of the Herfindahl-Hirschman Index divided by the total number of constituents within the corresponding index. AEs = advanced economies; AI = artificial intelligence; CSI = China Securities Index; EMs = emerging markets; ex. = excluding; FTSE = Financial Times Stock Exchange; IT = information technology; P/E = price/earnings.

In view of the structure of the economy and equity markets having evolved significantly over the past few decades, a simple historical comparison of the forward P/E ratios may not provide the most adequate assessment of valuations. IMF staff therefore estimate a large set of equity valuation models to ascertain a possible range of fundamentals-based valuation for the S&P 500.

Model estimates suggest that the fair-value forward P/E ratio should be about the 81st historical percentile (Figure 1.3, panel 2, green line). Comparing this model-implied fair value with actual observed forward P/E suggests that the equity valuation is currently stretched, with an estimated overvaluation of about 10 percentage points. However, in several past episodes the overvaluation was even higher; for instance, during the dot-com bubble in the early 2000s (Figure 1.3, panel 3).

Of greater concern, concentration risk within the S&P 500 is at a historic high, with a narrow group of stocks spanning mega-cap IT and AI-related firms driving the broader index. The IT sector accounts for a weight of 35 percent of the total S&P 500, similar to during the dot-com bubble, but with the Magnificent 7 alone accounting for 33 percent of the index. Consequently, a measure of concentration risk based on the Herfindahl-Hirschman Index is now substantially higher than during the dot-com bubble (Figure 1.3, panel 4, green line). Furthermore, while concentration risk for the S&P 500 index has witnessed an increase by about 20 percentage points over the past decade (when normalized by number index constituents) comparable benchmark indices in different jurisdictions have been characterized by far less of an increase over the same period (Figure 1.3, panel 5).[12] Against substantial AI-related investments (for example, information-processing equipment, data centers)[13] the possibility of mega-cap stocks failing to generate expected returns to justify current lofty equity valuations could trigger deterioration in investor sentiment and make the stocks susceptible to sudden, sharp correction.[14] Valuations would collapse as a result, making the broader benchmark index vulnerable to downturns.[15]

Expected returns and valuations depend on expectations for corporate profitability. Investors typically regard higher expected profit margins as a positive signal about the quality and sustainability of earnings, which tends to drive up equity prices. In general, tariffs on imports should increase the cost of goods sold, leading firms to either absorb the costs, thereby directly impacting profit margins, or pass them on to consumers as higher prices.

Over this year, stock analysts have meaningfully revised down expected profit margins for most firms. By contrast, margins for the Magnificent 7 have been revised up (Figure 1.4, panel 1), suggesting that tariffs are not perceived to impact these companies as much as they may hurt other firms. A forward-looking risk is for the effects of tariffs to eventually lead to margin compression across most S&P 500 sectors, including the Magnificent 7.

Looking across regions, some analysts have revised down year-end profit margins on the assumption that the full impact of tariffs has yet to percolate through the global economy. Although current profit margins are high compared with median levels over the past decade (Figure 1.4, panel 2), expectations of lower profit

[12]Concentration risk is measured as the inverse of the Herfindahl-Hirschman Index.

[13]Private fixed investment in information-processing equipment, which can be used a proxy for AI investments in data centers, has contributed around 57 percent of US real GDP growth since the fourth quarter of 2024 (evidence based on data sourced from Federal Reserve Economic Data and US Bureau of Economic Analysis; see also Paul Krugman, "About That Stock Market," August 6, 2025, and "What Happens if AI Hits an Energy Wall?," August 19, 2025, https://paulkrugman.substack.com/.).

[14]As discussed in the April 2025 *Global Financial Stability Report*, in an environment of stretched valuations, materialization of an adverse shock could sour investor sentiment, triggering a sudden stock market correction that reflects a sharp repricing of risk. This repricing may be amplified by abrupt deleveraging of balance sheets, involving asset fire sales to meet margin calls or satisfy risk limits amid a spike in market volatility (see Adrian, Malik, and Wu [2024] for a recent example of such a mechanism playing out). As equity valuations collapse, adverse spillovers to the wider market could also occur because of price correlations across different asset classes. In this context, as the net worth of borrowers falls at an accelerated rate and the risk management constraints of lenders become increasingly binding, credit provision to the wider economy can be significantly impaired, eventually weighing on output. Overall, a market sell-off can be exacerbated by a negative feedback loop playing out between pricing of risk and deleveraging, resulting in tightening financial conditions, with sharp, possibly nonlinear, declines in economic activity (Kiyotaki and Moore 1997; Bernanke, Gertler, and Gilchrist 1999; Brunnermeier, Eisenbach, and Sannikov 2013).

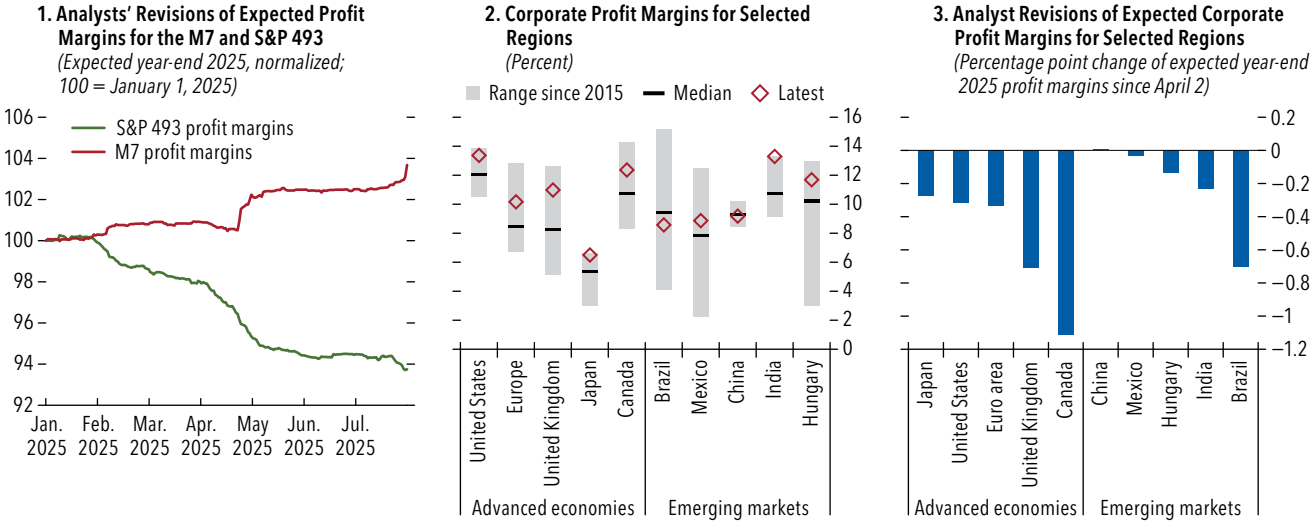
[15]This high concentration comes alongside historically elevated US household exposure to equities (as a share of total household assets), currently about 30 percent and on an upward trajectory since the global financial crisis (see the April 2025 *Global Financial Stability Report* for a discussion). A major portion of rising household exposure is to benchmark indices, in particular the S&P 500 (largely in 401k retirement accounts and through passive investment vehicles and exchange-traded funds). This exposure makes household balance sheets vulnerable to sharp corrections and prolonged declines in the index, potentially more so currently, given high concentration.

Figure 1.4. Expected Profit Margins Have Been Revised Down in Most Cases

Analysts have divergent profit margin expectations for the M7 and the rest of the S&P 500.

Looking across regions, margins are now higher than in the past decade ...

... but declines in expected profit margins after the April 2 tariff announcement may weigh on prices and valuations.



Sources: Bloomberg Finance L.P.; LSEG DataStream; and IMF staff calculations.

Note: Panel 1 shows the year-end 2025 earnings and profit margin estimates for M7 and for S&P 500 companies excluding the M7 (the S&P 493). The M7 is Alphabet, Amazon, Apple, Meta, Microsoft, Nvidia, and Tesla. Expected earnings are calculated as the sum of expected year-end 2025 net income for all companies in the M7 and S&P 493, respectively. Profit margins are calculated as the sum of expected year-end 2025 revenue divided by net income. The series are normalized to equal 100 on January 1, 2025. Panel 2 shows the range of quarterly 12-month trailing profit margins since 2015. Panel 3 bars depict the percentage point change in analysts' estimates for year-end 2025 profit margins since April 2. M7 = Magnificent 7.

margins may weigh on equity prices and valuations for these regions over the near term (Figure 1.4, panel 3).[16]

[16]While tariffs on internationally sourced inputs can lead to higher costs for product-based companies, it is argued that service-based companies—for example, related to AI or encompassed within the Magnificent 7—can also be adversely affected by tariffs weighing on their margins. A tariff-related increase in direct costs necessary for service delivery could lead to higher cost of goods sold (that is, covering products and services), possibly including any raw materials, labor, outsourced services, equipment, and technology, among others. In addition, investments in capital expenditure may be exposed to rising costs if any of the inputs are subject to tariffs. Specifically, tariffs impacting major investment in AI-related infrastructure, including semiconductors and data centers, could compress margins for AI service providers. More specifically, data center inputs include hardware such as server and storage arrays (chips), networking equipment (switches, routers, fiber optics), and power systems (uninterruptible power supplies, generators, transformers); and infrastructure such as real estate, cooling systems, software, racks, and cabling (as well as utilities and labor). To date, tariffs have been initiated on semiconductors (100 percent), steel and aluminum (50 percent), and copper (50 percent), all key inputs of data center infrastructure. Firms providing the infrastructure will likely raise costs to firms providing AI services or purchasing the infrastructure. Sector-specific restrictions, such as the Digital Service Tax in the European Union, can decrease revenues for firms providing services. Last, the latest earnings reports from some AI-related firms have highlighted that tariffs and new export controls have raised costs throughout their supply chains, further indicating that these could undermine financial performance (see, for example, Nvidia Corporation's 10-Q filing for the period ending July 27, 2025).

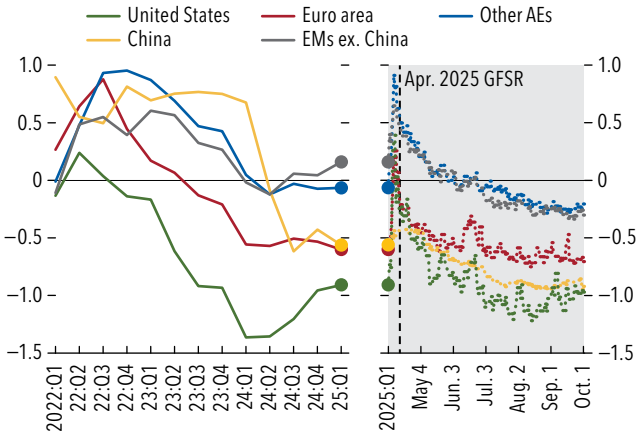
Financial Conditions Ease, but the Growth-at-Risk Metric Remains Elevated

The rebound of asset prices globally since the April 2025 *Global Financial Stability Report*, alongside a weaker dollar, have eased financial conditions around the world (Figure 1.5, panel 1). The abrupt tightening in financial conditions after the April 2 tariff announcement proved short-lived, as financial conditions in the euro area and the United States have returned to levels immediately before the event. Conditions in other advanced economies and emerging markets (including China) have become more accommodative. For the United States, although the softening of real estate prices has continued (Box 1.1, an improvement in corporate valuations (equity prices, corporate bond spreads) amid falling volatility drove financial conditions back into easy territory by historical standards (Figure 1.5, panel 2). In emerging markets (including China), external financing risks have lowered amid a weaker dollar, which has eased their financial conditions. That said, the Financial Conditions Index for China does not capture the recent slowdown in bank lending (Box 1.2).

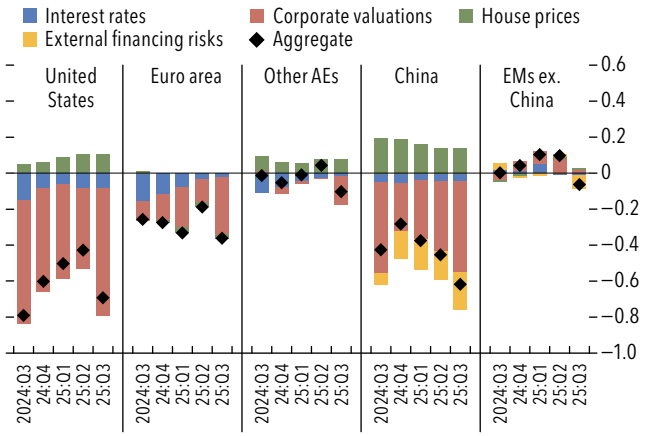
The IMF's updated growth-at-risk (GaR) assessment reveals that near-term downside risks to financial

Figure 1.5. Financial Conditions Index

Financial conditions have eased significantly since early April...



... amid rising corporate valuations and falling volatility.



Sources: Bloomberg Finance L.P.; Dealogic; EUROPACE AG/Haver Analytics; national data sources; and IMF staff calculations.

Note: The IMF FCI is designed to capture the pricing of risk. It incorporates various pricing indicators, including real house prices. Balance sheet or credit growth metrics are not included. A lower FCI implies easier financial conditions and vice versa. For details, see Online Annex 1.1 in the October 2018 *Global Financial Stability Report*. In panel 1, the shaded area on the right side shows the daily FCIs starting April 1, 2025. These daily FCIs are approximate values that are estimated using available high-frequency market data, whereas the long-term standard deviations and averages are calculated over Q1 1990 and Q3 2025. In panel 2, the key drivers of the FCI show the contributions of underlying components, which are the weighted average of the *z*-scores of these components. The series "aggregate" represents the sum of these contributions and is similar to the FCI values shown in panel 1. The series "Since April GFSR" shows a simple average of aggregated *z*-scores and their drivers between April 12 and September 11, 2025. AEs = advanced economies; EMs = emerging markets; ex. = excluding; FCI = Financial Conditions Index; GFSR = *Global Financial Stability Report*.

stability have declined since the April 2025 *Global Financial Stability Report*, albeit slightly. Easier global financial conditions were partially offset by a slight slowdown in already sluggish private sector credit growth, which has shifted just below the 10th percentile of its historical distribution. The current GaR metric suggests that one-year-ahead global growth is forecast to fall below 0.5 percent, with a 5 percent chance (Figure 1.6, panel 1, blue dot). Although this reflects a 0.1 percentage point improvement in the GaR metric compared with April (red dot), it is still around the 30th historical percentile, suggesting that risks are still above historical standards (Figure 1.6, panel 2). Overall, the balance of risks to global growth over the next year continues to be tilted to the downside, with the probability of growth falling below 2 percent remaining broadly unchanged compared with April.

Emerging and Frontier Markets

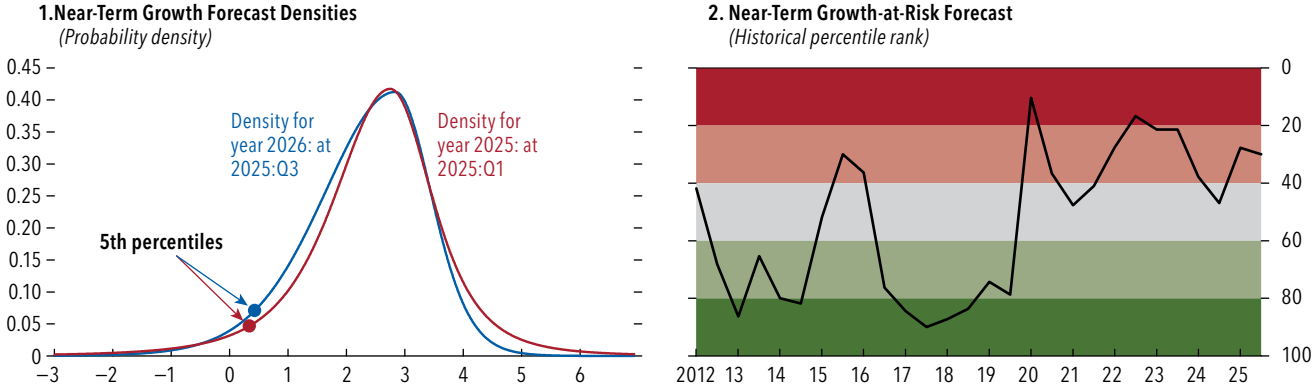
Pressures on Major Emerging Markets Ease, but Investors Remain Cautious

As the dollar weakened and trade deals started to be reached, pressures on emerging market financial markets eased. Although dollar depreciation may reduce the value of emerging market residents' holdings of dollar assets, it has also alleviated pressures on emerging markets' asset and funding markets (Figure 1.7, panel 1). Subdued energy prices have provided some relief by containing import costs and reducing external vulnerabilities, particularly for energy importers. In addition, steady progress on disinflation has allowed several emerging market central banks to ease policy rates and so further support domestic financial conditions. Nonetheless, several emerging market central banks have been cautious in easing policy rates, with rate cuts proceeding gradually as banks focus not only on current headline inflation, but also on the trajectory of inflation and the stickiness of core inflation. Although recent market developments are benign, the large debt burden alongside high real interest costs (r) relative to long-term growth prospects (g) for some emerging markets remains a lingering concern, posing ongoing challenges to fiscal sustainability.

The more favorable external environment has helped narrow hard currency bond spreads, although implied foreign exchange volatility has declined for most markets. Domestic equity markets have rebounded but corporate bond spreads declined. This more conducive environment has catalyzed a rebound in capital flows,

Figure 1.6. Global Growth-at-Risk

Global financial stability risks expected over the near term have declined only slightly since April and remain somewhat elevated by historical norms, with the balance of risks to global growth still tilted to the downside.



Sources: Bank for International Settlements; Bloomberg Finance L.P.; EUROPACE AG/Haver Analytics; IMF, International Finance Statistics database; and IMF staff calculations.

Note: In panel 1, the mode (that is, the most likely outcome) of the latest estimate of growth forecast density accords with the IMF's October 2025 World Economic Outlook database forecast for 2026. Near-term corresponds to growth expected one year ahead. The global conditional forecast density model employed here augments information on current quarter growth and financial conditions (see the April 2018 *Global Financial Stability Report*) with a proxy for global credit growth (Adrian and others 2022). This credit growth variable is constructed as a PPP-GDP weighted aggregate of country-specific quarterly growth rates in total credit to the private nonfinancial sector provided by domestic banks and all other sectors of the economy. Credit data are sourced from the Bank for International Settlements. The sample of countries accounts for 90 percent of total GDP of all systemically important jurisdictions, covering all major advanced and emerging market economies. Given lags in availability of the Bank for International 'Settlements' credit data, credit growth for the current quarter conservatively reflects the latest available reading, available as of 2025:Q1. In panel 2, the black line traces the evolution of the fifth percentile threshold (the growth-at-risk metric) of the near-term forecast densities, where the lower percentiles represent higher downside risk. The intensity of shading depicts the percentile rank for the growth-at-risk metric. The quintiles with the lowest percentile ranks are shaded the brightest red and the highest are shaded brightest green. PPP = purchasing power parity; Q = quarter.

with inflows primarily benefiting funds dedicated to local currency bonds (Figure 1.7, panel 2). The contrast with lackluster flows into hard currency funds suggests that global investors have renewed interest in diversifying their asset holdings into emerging market bonds to avoid being overly exposed to the dollar. Relatively tight spreads on hard currency issuances may also have limited their appeal to global investors, contributing to the subdued fund flows.

Stretched valuations in some emerging market assets could increase the vulnerability of these assets to adverse trade and geopolitical shocks. Hard currency emerging market sovereign spreads have compressed despite persistent macroeconomic uncertainty (Figure 1.7, panel 3).[17] After rising sharply in April 2025, investment-grade emerging market spreads have since narrowed to levels last seen in 2007, while high-yield spreads have fallen to post-pandemic lows, which raises concerns about whether valuations reflect the underlying fragilities and potential external shocks.

Developments in emerging market currency option markets indicate that investors are cautious about emerging market currencies, especially lower-rated ones. The ratio of the implied volatilities of three-month 10-delta butterfly options to three-month at-the-money options—a proxy for the expensiveness of protection against large currency moves—is currently much higher than historical average for sub-investment-grade emerging market currencies (Figure 1.7, panel 4, yellow line), while lower than historical average for investment-grade emerging market currencies. This signals that some investors anticipate sharp currency moves in weaker emerging markets.

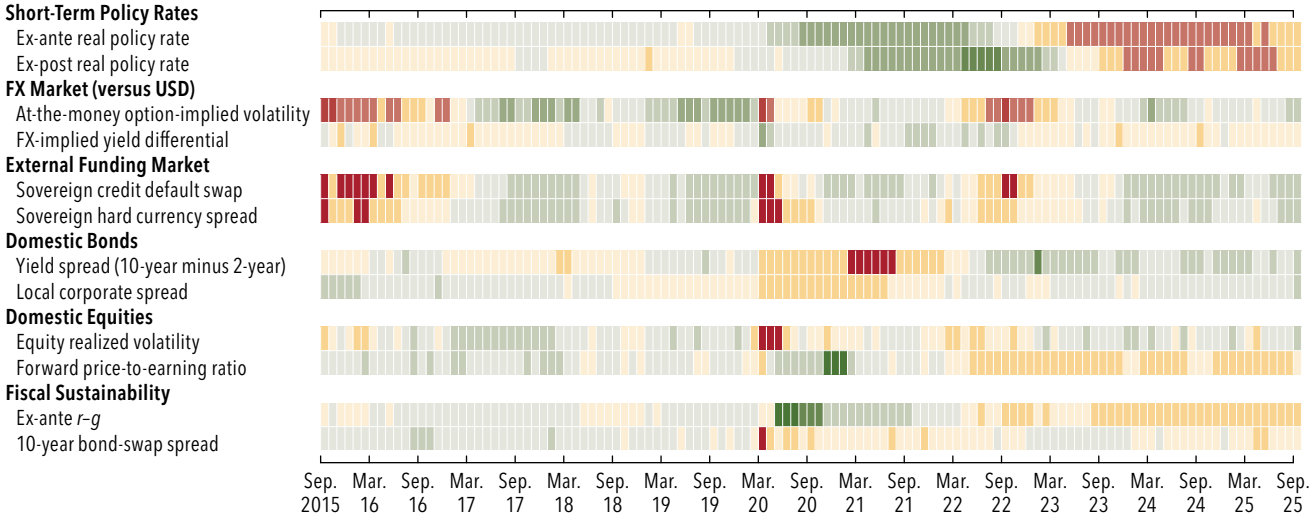
Part of this cautious positioning may stem from concerns about domestic fiscal dynamics. In several emerging markets, elevated debt burdens, high interest costs, and softening growth momentum are raising questions about future fiscal trajectories. Emerging markets with weaker credit ratings also tend to have projected long-term real interest rates higher than their long-term real growth prospects (Figure 1.7, panel 5), which could undermine long-term debt sustainability. This loop of high real interest costs and mounting debt burdens could exacerbate borrowing costs and fiscal pressures, making fiscal consolidation especially challenging for these sovereigns. Moreover, should global financial conditions tighten again or growth underperform, pressure on sovereign creditworthiness could swiftly resurface.

[17]Benchmark spreads are from JPMorgan indices.

Figure 1.7. Pressures on Major Emerging Markets Have Eased, but Uncertainties Linger

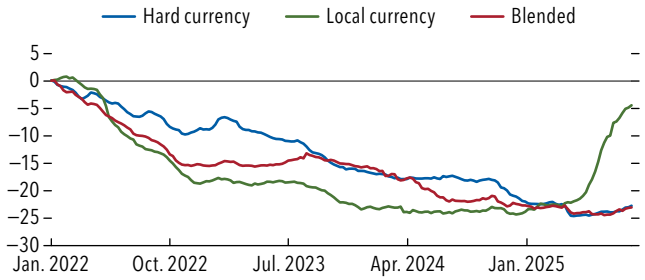
EM stress has declined since the April 2025 *Global Financial Stability Report*, but tight risk pricing masks ongoing uncertainties.

1. EMs' Financial Market Stress Heatmap, September 2015 to September 2025



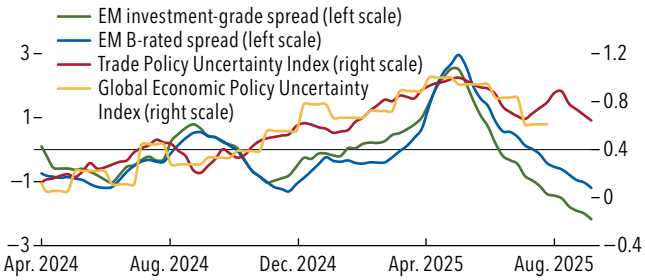
Fund flows have mostly benefited local currency funds, whereas hard currency and blended funds have not had similar inflows.

2. Exchange-Traded Fund and Mutual Fund Cumulative Flows
(Percentage of assets under management, cumulative since the end of 2021)



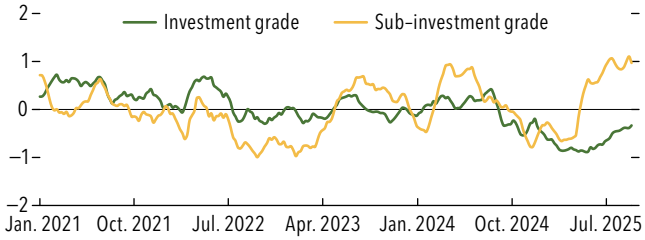
Tight emerging market hard currency sovereign spreads could heighten repricing risk should adverse events materialize.

3. EM Sovereign Spread, Uncertainty Index
(Z-score, left scale; percentile, right scale)



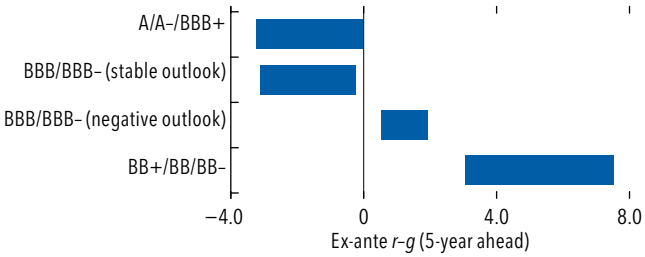
Foreign exchange forward markets for lower-rated emerging markets are weary over potential two-way tail risks.

4. 10 Delta Three-Month Butterfly over Three-Month At-The-Money Option-Implied Volatility
(Z-score)



Lower-rated emerging markets also have a larger interest burden, further complicating fiscal consolidation efforts.

5. Estimated *r–g* (Five-Year Ahead), by Average Credit Rating Band
(Percent)



Sources: Bloomberg Finance L.P.; Consensus Economics; EPFR; EUROPACE AG/Haver Analytics; IMF, World Economic Outlook database forecasts; and IMF staff calculations.

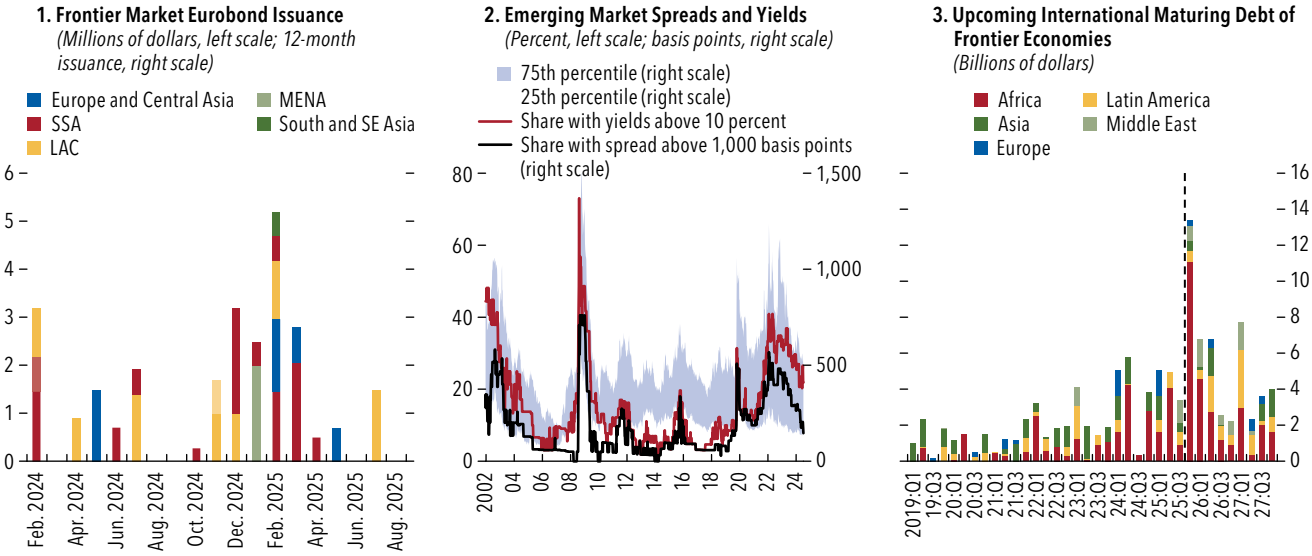
Note: In panel 3, spreads are normalized using a z-score on weekly data points (average from daily observations) from January 2024 to September 2025. Percentiles for the uncertainty indices are derived from weekly and monthly data points starting January 2024. Data for the Global Economic Policy Uncertainty Index are presented as a monthly series, incorporating the most recent available month. In panel 4, the ratio of butterfly to at-the-money option-implied volatility is normalized using a z-score on weekly data points (average from daily observations) from January 2021 to September 2025. In panel 5, the *r–g* estimates are computed from current 5-year, 10-year, and implied 5-year forward yields, considering differences in the term premium. Inflation and growth estimates are from Consensus Economics or, when unavailable, from World Economic Outlook database forecasts. Data include 14 major emerging markets: Brazil, Chile, Colombia, Hungary, India, Indonesia, Malaysia, Mexico, Peru, the Philippines, Poland, Romania, South Africa, and Thailand. EM = emerging market; FX = foreign exchange; *r* = long-term real interest rates; *g* = long-term-growth rates; USD = US dollar.

Figure 1.8. Eurobond Issuance Has Remained Robust, but High Yields and the Upcoming Maturity Wall Have Prompted Frontier Economies to Explore Alternative Funding Strategies

International hard currency bond issuance has remained robust in 2025, but market access has been uneven.

Sovereign spreads have tightened for frontiers, but yields remain high ...

... while maturing debt is accelerating.



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

Note: Frontier economies are defined here as countries included in J.P.Morgan's NEXGEM index. LAC = Latin America and the Caribbean; MENA = Middle East and North Africa; SSA = sub-Saharan Africa.

Frontier Economies Explore Alternative Funding Strategies

Primary market bond issuance by frontier economy borrowers reached just over $13 billion by the end of August 2025 (Figure 1.8, panel 1) but market access remained uneven. As highlighted in previous issues of the *Global Financial Stability Report*, frontier borrowers have increasingly resorted to shorter tenors and smaller deal sizes to cater to cautious investors amid still-high global yields. Despite the easing of global financial conditions and the weakening of the dollar, the median sovereign eurobond yield among emerging market issuers now exceeds 6.5 percent, and with several frontier economy bonds trading above 10 percent, this raises concerns about refinancing costs (Figure 1.8, panel 2). Rollover risks are amplified because large amounts of bonds need to be repaid in late 2025 and early 2026 (Figure 1.8, panel 3), especially for sub-Saharan issuers.

Under challenging conditions in bond markets, some frontier economies are exploring alternative funding strategies, including private placements, bilateral loans, and other financing instruments. For example, in early 2025, Panama secured a €1.2 billion bilateral loan from a subsidiary of Bank of America with a two-year maturity, according to Panama's Economy Ministry. Egypt issued a $1 billion sovereign sukuk through a private placement as part of its strategy to diversify funding sources. The issuance was fully subscribed by Kuwait Finance House. Angola entered into a $1 billion structured financing arrangement linked to its own sovereign bonds.[18] Although cost-effective relative to market rates, the deal included contingent liabilities that triggered additional payments amid market volatility earlier this year. Even as there may be advantages to some of these alternative funding arrangements, such as when they allow the issuer to pay maturing debt without causing much market pressure, a broader shift toward private funding raises transparency and debt sustainability concerns. This is especially so when these obligations are not subject to the same market discipline or reporting standards as publicly traded bonds. These developments underscore a growing divergence in financing conditions across frontier economies between those able to issue in public markets at reasonable cost and those reliant on less-conventional and potentially more fragile forms of borrowing.

[18]See statements from respective authorities (Egypt Ministry of Finance 2025; Panama Ministry of Economy and Finance 2025).

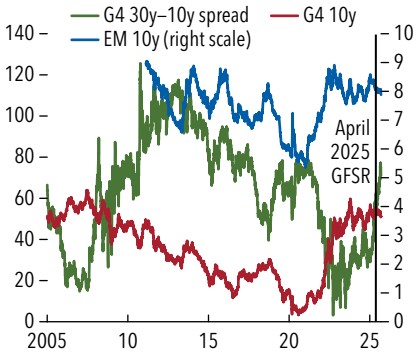
Figure 1.9. Rising Bond Supply across Major Advanced Economies Has Steepened Yield Curves

Longer-term bonds are under increased pressure amid greater supply.

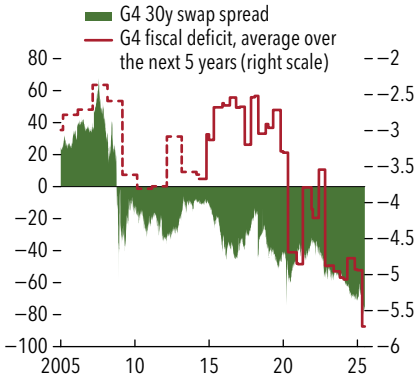
Investor concerns about larger fiscal deficits are increasingly reflected in widening swap spreads ...

... with price-sensitive investors expected to demand higher term premiums as compensation for absorbing rising bond supply, exerting upward pressure on yields.

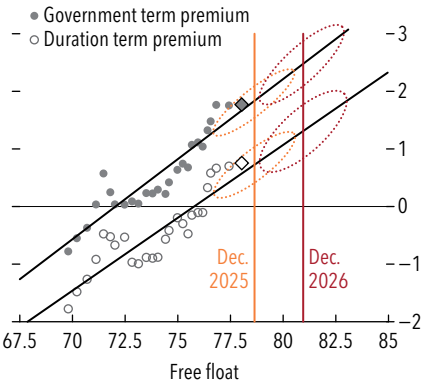
1. G4 and Emerging Market 10-Year Aggregate Yields, G4 30-Year and 10-Year Yield Spreads
(Basis points, left scale; percent, right scale)



2. G4 GDP-Weighted 30-Year Swap Spreads versus Fiscal Deficits
(Basis points, left scale; percent, right scale)



3. G4 30-Year Government and Duration Term Premium Conditional on Projected Free Float
(Percent)



Sources: Bank of England; Bank of Japan; Bloomberg Finance L.P.; European Central Bank; Federal Reserve Bank; JPMorgan; London Stock Exchange Group; US Congressional Budget Office; and IMF staff calculations.

Note: In panel 1, the G4 composite reflects GDP-weighted average yields across the euro area, Japan, the United Kingdom, and the United States. The emerging market composite reflects the GDP-weighted average across Brazil, Chile, Colombia, Hungary, India, Indonesia, Malaysia, Mexico, Peru, the Philippines, Poland, Romania, South Africa, and Thailand. In panel 2, G4 fiscal balances are gauged by the GDP-weighted average net lending estimate over the next five years, as seen in the *World Economic Outlook*, at a given point in time. The dashed line extends the historical series by splicing earlier net lending estimates with a linear projection of G4 net lending inferred from Congressional Budget Office deficit data. Swap spreads are computed as the difference between overnight swap rates and sovereign yields of the same maturity. Overnight rates are extended historically using interbank rates. In panel 3, the free float is the share of government bonds outstanding held by private investors, excluding central bank holdings. The term premium is defined as compensation that investors require for bearing the risk that interest rates may change over the life of the bond. These are estimated using Adrian, Crump, and Moench (2013) for rates for US treasuries, bunds, gilts, and Japanese government bonds, then aggregated using G4 GDP weights. Duration term premiums are calculated based on market pricing of fully collateralized and centrally cleared interest rate swaps, which are a key intermediation instrument to strip out pure interest rate risk and isolate credit and spread risk. They reflect compensation for taking on duration risk, which is exclusively driven by conjunctural factors, rather than shifts in perceived creditworthiness. (See Online Annex 1.7 for the definition and methodology of term premium and duration term premium calculations). A diamond indicates the latest observation and a line shows linear fit over the current yield regime. Vertical lines mark projected free-float levels, based on World Economic Outlook database projections and central bank surveys. Ellipsoids show 95 percent confidence bands, obtained through bootstrapped regressions in conjunction with sampling from central bank survey distributions. EM = emerging market; G4 = Group of Four; GFSR = *Global Financial Stability Report*.

Sovereign Bond Markets

Bond market stability is fundamental to financial stability because key sovereign bonds serve as benchmarks for asset prices and collateral in lending and derivative transactions. Although bond markets have stabilized since the abrupt sell-off after the April 2 tariff announcement, steepening yield curves, more negative swap spreads, and the persistent erosion of convenience yields point to bond markets being on shakier footing than they seem.

Expanding Fiscal Deficits Exert Pressure on Bond Market Stability

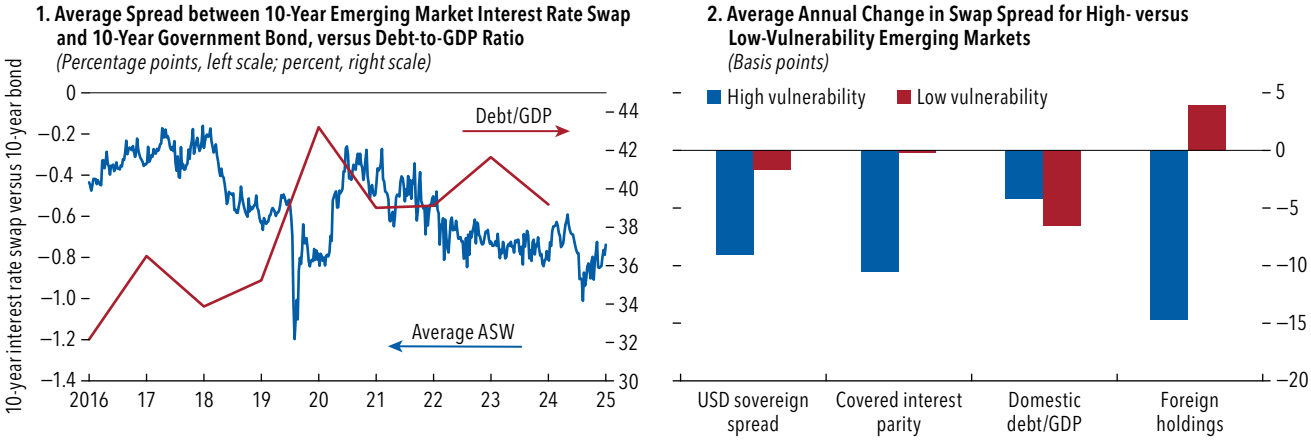
Investor concerns about large fiscal deficits appear to have added more pressure on long-term bond yields. Across major advanced economies, the pressure is evidenced by a notable steepening of yield curves among the G4—US Treasuries, European government bonds, UK gilts, and Japanese government bonds (Figure 1.9, panel 1)[19]—alongside a widening in swap spreads (that is, spreads becoming more negative). The widening of swap spreads, broadly capturing rising credit risk and

[19]Across the G4, the fiscal challenge involves not only the size of the deficit but also the level and the trajectory of public debt (high and rising), weak growth prospects, and high debt-service burdens. For example, in the United States, the One Big Beautiful Bill Act (Public Law 119–21; enacted July 4, 2025) is projected by the Congressional Budget Office/Joint Committee on Taxation to raise US federal deficits by about $3 to $3.5 trillion over the next decade. While the act itself does not include a universal tariff, revenue prospects were linked to later "reciprocal" tariffs enacted under emergency authority through the International Emergency Economic Powers Act. However, these were invalidated by federal courts (with temporary stays in place), rendering any tariff-based fiscal offset legally tenuous and excluded from credible deficit scoring.

Figure 1.10. Widening Emerging Market Swap Spreads Are Increasing the Cost of Financing

The swap spread for median emerging markets has widened (become more negative) as the debt-to-GDP ratio has climbed.

Higher sovereign spreads and covered interest parity deviations are also associated with wider swap spreads.



Sources: Bloomberg Finance L.P.; Citi; EUROPACE AG/Haver Analytics; J.P.Morgan; and IMF staff calculations.

Note: The sample of countries includes Brazil, Chile, Colombia, Hungary, India, Indonesia, Malaysia, Mexico, Poland, and South Africa. In panel 1, the swap spread is labeled as ASW. In panel 2, countries are divided into two groups for each variable: those with the largest increase/smallest decline for that variable in a given year and those with the smallest increase/largest decline. The bars show the annual change in swap spreads in each grouping, average over 2016 to 2025. USD = US dollar.

funding pressures in the financial system, has been increasingly driven by fiscal considerations, exhibiting strong co-movement with the projected average budget balance over the next five years (Figure 1.9, panel 2; see also the October 2025 *World Economic Outlook*).[20] In parallel, the continuation of quantitative tightening by major central banks has increased the amount of free-floating bonds in the market to be absorbed by price-sensitive investors, exerting upward pressure on term premiums, all else equal, and keeping yields elevated (Figure 1.9, panel 3; and Figure 1.2, panel 1). Meanwhile, regulatory requirements limiting dealer balance sheets and falling demand from liability-driven investors have likely exacerbated the widening of spreads.

Outside G4 bond markets, emerging markets have also seen their domestic swap spreads widen. In a panel of major emerging markets, the spread between 10-year interest rate swaps and 10-year local currency bonds has turned more negative over the past decade, declining by almost 50 basis points, mirroring the rise in domestic debt as a percentage of GDP (Figure 1.10, panel 1). Some countries (for example, Colombia, Mexico, and South Africa) have experienced a decline in the swap spread by more than 100 basis points. The relative underperformance of bonds can add to fiscal strains, as rising debt is compounded by a higher cost of interest. Assuming an average stock of domestic debt at 40 percent of GDP, a −50 basis point swap spread equates to an increased annual fiscal cost of 0.2 percent of GDP. In addition, the negative swap spread is likely to drive up interest rates of private sector debt or lead to some crowding out of private sector debt. A growing disconnect between bond yields and domestic interest rate swaps could also lead to a lower pass-through of monetary policy on the real economy, given the swap market's close link to policy rates.

Widening emerging market swap spreads reflect a premium that investors require to absorb large sovereign bond issuances, even though increased buying by large domestic investors such as pension funds and insurance companies has kept sovereign bond markets resilient (see Chapter 3). Swap spreads tend to turn more negative for emerging markets whose US dollar sovereign spreads or CIP deviations rose the most during the average year or have experienced the largest increase in the holdings of domestic debt by foreigners during the average year (Figure 1.10, panel 2). Increased foreign buying could be because higher bond

[20]More precisely, swap spreads capture the difference between same-tenor swap rates and government bond yields. The spreads capture the funding advantage of sovereign bond issuers compared with maturity-matched swap rates. A positive value shows that sovereign bond yields are lower than interest rate swap rates.

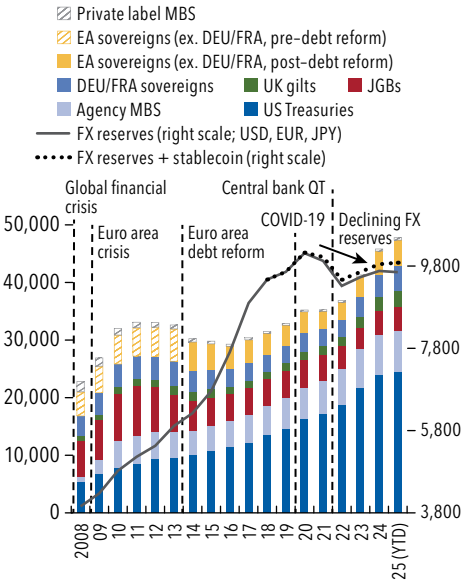
Figure 1.11. Convenience Yields amid Rising Safe-Asset Supply

Safe-asset supply has risen amid fiscal expansion across jurisdictions, putting upward pressure on bond yields.

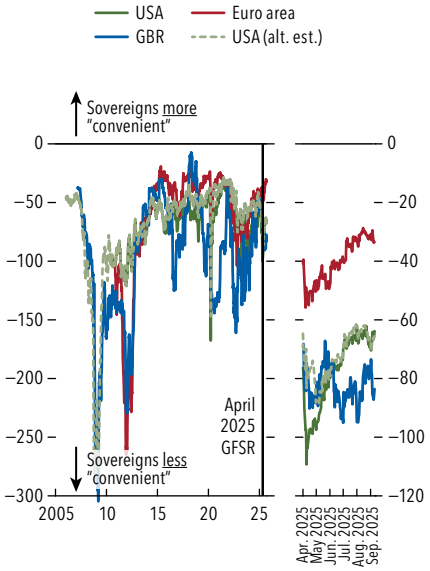
Domestic convenience yields have been mostly stable, although they have seen periods of transitory erosion, particularly in US Treasuries.

The cross-border convenience yield for US Treasuries has seen more structural erosion over the past decade but has remained broadly stable since April.

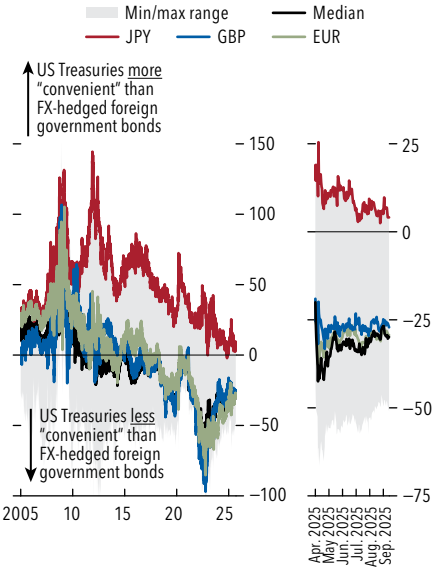
1. Safe-Asset Supply (Excluding Central Bank Holdings) in Primary Reserve Currencies
(Billions of dollars)



2. Domestic Convenience Yields for Five-Year Bonds
(Basis points)



3. Cross-Border Convenience Yields for Five-Year Bonds
(Basis points)



Sources: AG/Haver Analytics; Bloomberg Finance L.P.; Currency Composition of Official Foreign Exchange Reserves; Du, Im, and Schreger 2020; EUROPACE; London Stock Exchange Group; national authorities; and IMF staff calculations.

Note: In panel 1, yearly data are the quarterly averages of free-floating securities, that is, securities not held by central banks for monetary policy purposes. Euro area sovereigns include securities that fall under the definition of Maastricht debt, as defined by the European Union, and so include local government debt (for example, German Länder debt). Agency MBS are MBS issued or guaranteed by the US mortgage agencies: Fannie Mae, Freddie Mac, and Ginnie Mae. Private-label MBS are nonagency MBS. In panel 2, following Krishnamurthy and Vissing-Jorgensen (2012), the domestic convenience yield is measured as the yield spread between five-year AAA-rated corporate bonds and government bonds, adjusted for differences in credit risk. As a robustness check, the dotted line shows an alternative estimate for the United States that obtains as the median over a broad range of five-year domestic convenience yield estimates following Krishnamurthy and Vissing-Jorgensen (2012), Mota (2023), and Acharya and Laarits (2023). In panel 3, following Du, Im, and Schreger (2020), the cross-border convenience yield captures the five-year yield gap between foreign-exchange-hedged foreign government bonds and US Treasuries, bunds, gilts, or Japanese government bonds, whereby the currency and interest rate risk of the former is hedged back into dollars using maturity-matched cross-currency swaps. alt. est. = alternative estimate; DEU = Germany; EUR = euro; ex. = excluding; FRA = France; FX = foreign exchange; GBP = Great Britain pound; GFSR = *Global Financial Stability Report*; JPY = Japanese yen; MBS = mortgage-backed securities; QT = quantitative tightening; YTD = year to date.

yields relative to domestic funding rates are attractive. Foreign investors who prefer interest rate swaps to bonds because of the smaller balance sheet impact or ease of access amid capital controls may have helped compress swap spreads.

Convenience Yields for Longer-Duration Bonds Are Somewhat Stable

Government bonds form the main component of what are known as safe assets—highly liquid instruments with minimal credit risk that are expected to preserve their value even in market stress—and these play a critical role in the global financial system. Fiscal expansion by major economies has ramped up safe-asset supply (Figure 1.11, panel 1), whereas demand for long-duration safe assets has declined, amid a reduction in foreign exchange reserves denominated in the largest reserve currencies.[21] Life insurers and pension funds have also become more cautious buyers amid expectations of elevated interest rate

[21]The largest reserve-currency issuers defined here include those sovereign issuers with the largest share of global reserves, including the United States, issuers in the euro area (particularly Germany and France), Japan, and the United Kingdom.

volatility.[22] Meanwhile, other investors, such as buyers of money market funds (including tokenized ones) and stablecoins, have increased demand primarily toward short-dated safe assets like sovereign bills (see the section "Stablecoins' Growth Could Affect Financial Stability").[23] These trends may have increased the demand and supply imbalance for safe assets with longer duration.

Convenience yields measure the premium investors are willing to pay to hold safe assets. Of particular interest are convenience yields for bonds with longer duration, given the glut of supply. An erosion in convenience yields can both signal and amplify funding market strains, raising concerns about the safe assets' utility as high-quality collateral, especially during stress periods. Lenders in short-term funding and repurchase (repo) markets could demand higher haircuts on safe assets pledged as collateral when convenience yields erode, in turn pushing up funding costs. Banks and investors could diversify toward substitute assets, which will likely encapsulate far fewer safe-asset properties and have shallower market depth, again leading to upward pressure on funding spreads.[24]

Convenience yields can be measured along domestic and cross-border dimensions. The domestic convenience yield (DCY) reflects the premium (or spread) domestic investors forego over high-grade corporate bonds, after credit and liquidity adjustments. The cross-border convenience yield (CCY) refers to the yield discount investors are willing to accept to hold US Treasuries, for example, relative to a foreign-currency-hedged equivalent security issued by another sovereign. From a cross-border investor's perspective, higher currency-hedged yields for other G4 bonds relative to Treasury yields imply that Treasuries are the preferred safe asset.

DCYs for European government bonds, gilts, and US Treasuries have not had clear directional trends over the past few years, although they have seen bouts of volatility. On the other hand, the CCY for Treasuries has seen a secular erosion against other G4 government bonds over the past decade (Figure 1.11, panels 2 and 3, respectively). This suggests that Treasuries' status as the preeminent safe asset may have been reduced and aligns with market commentary that global investors may become more cautious about investing in US assets. The market volatility in April provides some insight into the behavior of the two convenience yield measures during stress. DCYs first declined sharply for European government bonds and US Treasuries, indicating that investors' preference for these government bonds over high-quality corporate bonds strengthened, before gradually returning to their prior levels. CCYs have remained stable, indicating that Treasuries' safe-asset status compared with other G4 government bonds has been broadly maintained.

From a financial stability perspective, the relative stability of convenience yields likely helped keep funding markets orderly during the April episode. The lack of any substantive erosion in convenience yields across the G4 since April may suggest, for now, that substitutes for safe assets—particularly for US Treasuries, the largest contingent of safe-asset supply—are limited among both domestic and cross-border investors. The more secular decline of CCYs, however, indicates that cross-border diversification in safe-asset holdings could be under way.[25]

[22]The reduced structural participation of long-term investors, such as life insurers and pension funds, reflects a combination of factors. These include changes in regulatory capital requirements (for example, Solvency II) and the structural shift from defined-benefit to defined-contribution plans that has curtailed risk tolerance for rising interest rate volatility, particularly affecting long-term bonds.

[23]Results of changes in composition of the demand side of the sovereign bond market structure and the increase in free-float supply is to pressure yields higher. Indeed, swaptions-implied odds imply higher longer-term yields one year ahead, despite ongoing monetary easing in three of the G4. This corresponds with the observation that long-term yields across advanced economies have become more correlated across jurisdictions, increasing the potential for a rapid transmission of shocks across borders (see the October 2024 *Fiscal Monitor*).

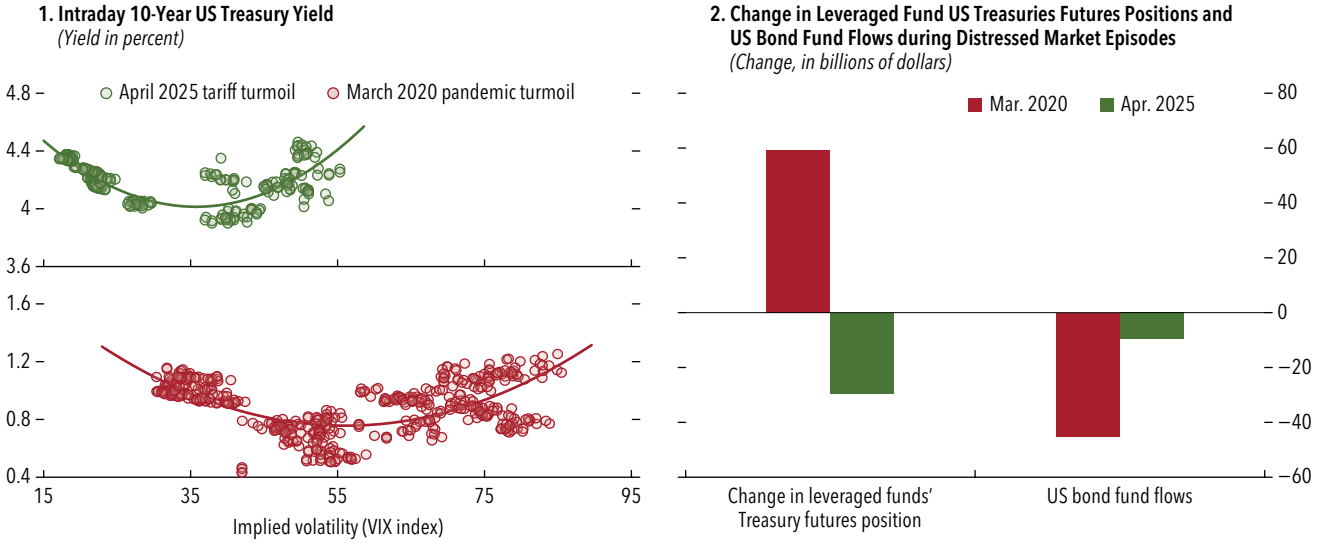
[24]The erosion of convenience yields could trigger a cascade of collateral preference shifts, leading to amplification of funding market stress. If investors lose confidence in US Treasury's safe-asset status, for instance, then repo market haircuts could widen dramatically. Or, in extreme cases, collateral that once traded at zero or near-zero haircuts (as in packaged bond/futures transactions) could suddenly require significant buffers and so offer little protection against forced liquidation spirals. Stress could get magnified through a breakdown of collateral chains. More specifically, the same Treasury bond normally circulates through multiple financing operations, effectively multiplying the system's liquidity. When confidence erodes, institutions become reluctant to pledge these assets along these rehypothecation chains, causing the chains to snap. Consequently, the pool of effective collateral in circulation would shrink, reducing market liquidity and widening funding spreads.

[25]This type of risk could run both ways: disorder in funding markets—whether domestic or cross-border—could quickly spill into bond markets, driving abrupt term premium shifts and spikes in interest rate volatility. Evidence from the euro area sovereign crisis shows that a disorderly repricing of sovereign risk can contaminate swap-based signals. Credit stress may spill over into pricing of high-grade-rated corporate and financial issuers when broader doubts about sovereign repayment capacity trigger extensive degrees of market fragmentation (as explained in Société Générale 2012).

Figure 1.12. Anatomy of Two Stress Episodes from a Treasury Market Perspective, March 2020 and April 2025

During both the March 2020 and the April 2025 market turmoil episodes, US Treasuries started to sell off beyond a certain VIX level ...

... but basis trades did not unwind in April 2025, and bond fund outflows were much more limited.



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

Note: Panel 1 is based on intraday US Treasury yield data between March 26 and April 9, 2025, for the tariff turmoil, and between March 2 and March 20, 2020, for the COVID-19 pandemic market turmoil. Panel 2 shows the change in leveraged fund Treasury futures positions for all maturities between March 25 and April 8, 2025, for the tariff turmoil, and between March 3 and March 17, 2020, for the pandemic market turmoil. US bond fund flows reflect EPFR Fund Flow statistics for March 12 to March 18, 2020, and April 3 to April 9, 2025. Matching dates are not available because of data constraints. VIX = Chicago Board Options Exchange's Volatility Index.

Sovereign Bond Market Functioning Depends on Nonbank Financial Intermediaries

US Treasury markets weathered the April 2025 tariff turmoil, stopping short of the severe dislocations witnessed during the March 2020 "dash for cash" episode. This relative stability raises an important question: does the market's resilience reflect structural improvements, or was the April shock merely less severe or different in nature? Although some structural improvements occurred in the resilience of funding markets, the short-lived nature of the shock limited the unwinding of leveraged hedge fund positions in Treasury securities and outflow pressures from open-ended funds. These NBFIs nonetheless remain vulnerable to large and persistent bond market shocks.

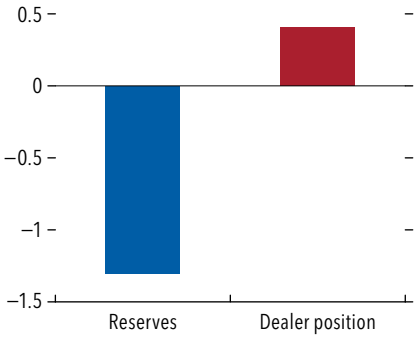
Similar to the pandemic market turmoil of March 2020, in April 2025, Treasury yields initially declined as the Chicago Board Options Exchange's Volatility Index (VIX) increased, reflecting "flight to safety" dynamics (Figure 1.12, panel 1). However, during both episodes, Treasury yields reached a tipping point as market stress continued to increase, with Treasury yields rising beyond a certain VIX level. As market stress increases, redemptions by mutual fund investors can contribute to such a reversal, as funds may be forced to sell more liquid assets, including US Treasuries. But despite fund outflows being relatively limited in April 2025 (Figure 1.12, panel 2), this tipping point was reached earlier (Figure 1.12, panel 1). This could mean that investors had begun to question the liquidity value of US Treasuries, or it could reflect concerns about US fiscal policy (see the section "Expanding Fiscal Deficits Exert Pressure on Bond Market Stability").

NBFIs' amplification of market stress from the side of leveraged funds was limited in April 2025 compared with the March 2020 episode. Cash-futures basis trades—a popular hedge fund arbitrage strategy exploiting price differences between Treasury bonds and futures—did not unwind as they did in March 2020 (Figure 1.12, panel 2). Instead, a different leveraged fund strategy that involves taking a long (or short) government bond position while taking the opposite position in a long-term interest rate swap—the "swap spread" trade—did reportedly unwind and contribute to Treasury market volatility. Nonetheless, the absence of significant unwinding of the much-larger cash-futures basis trades seems to have been crucial to preventing a 2020-like crisis. Risks to financial

Figure 1.13. Structural Resilience in Repo Markets

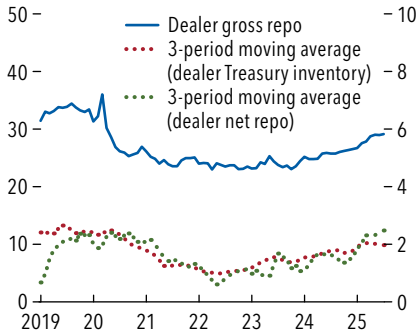
Repo spreads were kept low by abundant reserves in 2025, with dealer balance sheets exerting mild upward pressure ...

1. Sensitivity of Repo Spreads to Changes in Bank Reserves and Dealer Balance Sheets
(Beta coefficients in basis points)



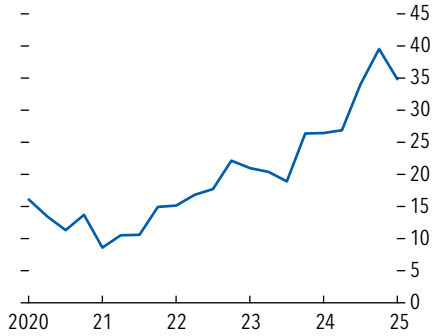
... even though dealers' balance sheets in repos and Treasuries became heavier.

2. Treasury Inventory and Repo (Gross and Net) Positions by US Primary Dealers, 2019–25
(Percent of total marketable debt)



The increase in centrally cleared hedge fund repo (through sponsoring) likely moderated market functioning pressures.

3. Sponsored Repo Share of Hedge Fund Repo Positions, 2020–25
(Percent)



Sources: Bloomberg Finance L.P.; Federal Reserve; Office of Financial Research; and IMF staff calculations.

Note: Panel 1 presents the average beta coefficients for 2025 from regressing repo spreads on changes in reserves and dealer balance sheets in a rolling window of one year. See Online Annex 1.8 for further information. In panel 2, marketable debt excludes Federal Reserve holdings. Panel 3 shows repo volume sponsored by the FICC divided by the total repo exposure of hedge funds that qualify to report under the Securities and Exchange Commission's Private Fund form. As noted by the Office of Financial Research, hedge fund borrowing cash makes up most FICC-sponsored repo volumes. FICC = Fixed Income Clearing Corporation.

stability remain high as large hedge funds still hold near-record net interest rate derivatives and leveraged repo positions, indicating that they still have substantial amounts of basis and swap spread trades. Whereas investors have focused mostly on US Treasury market basis trades, record levels are noted in the United Kingdom (Bank of England 2025) and rising trends are evident in Canada (IMF 2025a) and expected in Europe (ECB 2024).

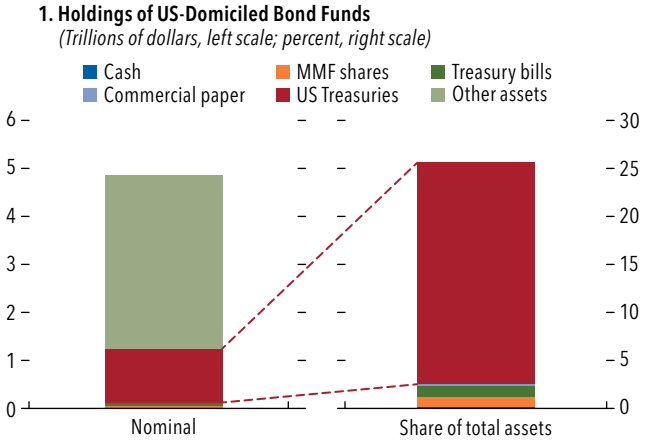
Both circumstantial and structural factors helped support the functioning of the US Treasuries market in April 2025. On the circumstantial side, the April 2 tariff announcement was followed by a policy reversal within a week, limiting the duration and severity of market stress. On the structural side, repo markets—critical for funding basis trade strategies—remained relatively stable during the episode. Regression analysis indicates that repo spreads remained contained overall in 2025 in part because of increased banking sector reserves, likely aided by slower quantitative tightening and supportive standing facilities (Figure 1.13, panel 1), and in part because dealer balance sheet usage exerted only limited upward pressure on rates. Although dealers expanded their Treasury and repo positions (Figure 1.13, panel 2), increased volumes of repo central clearing (through "sponsored clearing") helped preserve dealer balance sheet capacity (Figure 1.13, panel 3). Moreover, higher haircuts involved in central clearing likely curbed repo leverage and enhanced market stability.

Outflows from open-ended bond funds were moderate in April 2025 and did not appear to induce significant forced selling. US-domiciled bond mutual funds manage about $5 trillion in assets, with almost one-quarter allocated to US Treasuries (Figure 1.14, panel 1), making them a major player in this market. Large redemptions can force funds to liquidate Treasury holdings once their liquidity buffers are depleted, putting upward pressure on yields. The magnitude of outflows in the April 2025 scenario is much smaller than in the March 2020 scenario (Figure 1.14, panel 2). Bond funds are highly heterogeneous: Some may have ample liquidity buffers or even experience inflows. Others may face outflows or thin cash buffers. Margin calls on derivative contracts can compound to liquidity pressures, but an analysis of funds' interest rate exposures through swaps and Treasury futures suggests their impact is likely smaller. Under the scenario of a 100 basis point curve shift, variation margin calls would amount to about $20 billion (Figure 1.14, panel 3). Although some funds face margin calls, others receive variation margin credit, underpinning the heterogeneity across funds.

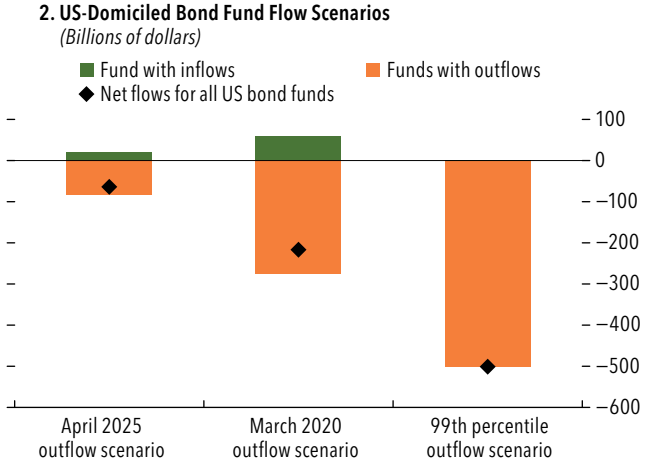
Bond mutual funds and the Treasury market vulnerabilities are intertwined. Combining the outflow

Figure 1.14. Bond Mutual Fund Flows, Treasury Holdings, and Forced Liquidations under Stress

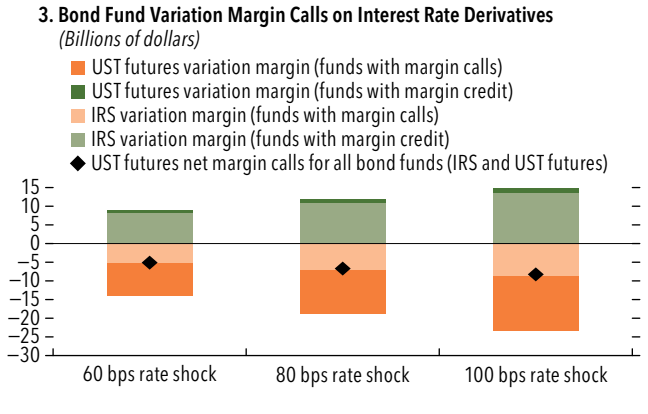
US-domiciled bond mutual funds hold almost $5 trillion in total assets, of which one quarter is in US Treasuries.



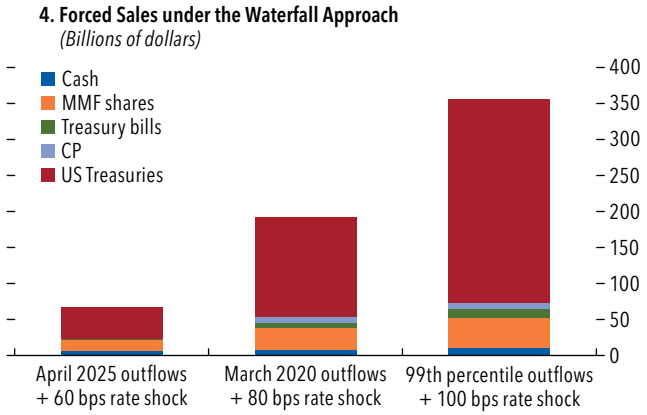
Liquidity pressures stemming from fund outflows can be large.



The liquidity pressures from variation margin calls on interest rate derivatives is less significant, with heterogeneity across funds.



Under a "waterfall" liquidation approach, larger shocks lead to larger Treasury sales by magnitude and by share of liquidated assets.



Sources: Lipper; Securities and Exchange Commission N-PORT; and IMF staff calculations. N-PORT data are taken from the second quarter of the 2025 batch, retaining only submissions for the first quarter of 2025.

Note: See Online Annex 1.4. Scenarios project flow percentages observed during historical episodes to current holdings. If individual fund flow data are missing, the relevant (for example, March 2020) flow percentage assigned is based on the median of its peer group by US mutual fund classification category. Margin calls from derivatives contracts only include Treasury futures contracts and interest rate swaps and are based on a linearized pricing model (estimated contract duration). The 99th percentile outflow scenario considers historical fund flow data for each individual fund, taking its 99th percentile of outflows, that is, its first percentile of flows. All flow data are based on monthly flows. Higher-frequency flow patterns can deviate, and monthly flow data may not be representative of shorter-term inflow and outflow patterns. bps = basis points; CP = commercial paper; IRS = interest rate swap; MMF = money market mutual fund; pct = percentile; UST = US Treasury bonds and notes. Treasury bills have a maturity of one year or less. Treasury bonds and notes have longer maturities.

scenarios and interest rate shocks, forced sales of Treasuries by US bond funds can be estimated using a "waterfall" approach, whereby Treasuries are sold after cash and other liquid assets are depleted. Assuming the outflow patterns seen in April 2025, in conjunction with a 60 basis point increase in interest rates, bond funds' forced sales are estimated at $66 billion, with over half the liquidation being Treasury securities (Figure 1.14, panel 4, left bar). Larger shocks increase the total volume of forced sales and raise the proportion of Treasury holdings liquidated.

Forced sales by bond mutual funds played a pivotal role in making the March 2020 market turmoil disorderly. These risks remain and may have grown as the sector has expanded. By contrast, the absence of large outflows in April 2025 may help explain why conditions remained relatively orderly. Large, rapid forced sales of Treasuries are more likely to overwhelm

dealer intermediation capacity. In a severely adverse scenario in which bond fund outflows reach their 99th historical percentile and interest rates rise by 100 basis points, forced Treasury sales would exceed current dealer Treasury inventories (Figure 1.14, panel 4, right bar), potentially overwhelming dealer intermediation capacity and likely causing disorderly conditions in Treasury markets.

Financial Intermediaries

Higher Capital Ratios Strengthen Global Banks, but the Weak Tail of Banks Remains Substantial

The GST shows the global banking system remaining broadly resilient under the July 2025 *World Economic Outlook* reference scenario.[26] However, under a severe stagflationary scenario, banks representing about 18 percent of global bank assets can be considered weak, as their Common Equity Tier 1 capital (CET1) ratio falls below 7 percent. The share of weak banks has materially improved since the October 2023 *Global Financial Stability Report*, which considered a similarly severe shock to the global economy and found almost one-third of bank assets to be weak.[27] This improvement is mostly a result of improved capitalization across most regions, particularly in the United States and large Chinese banks, which increased the global average CET1 ratio from about 12.5 percent in 2022 to 13 percent in 2024. The steepening yield curve assumed in the adverse scenario also contributed to the results by increasing banks' net interest margins, which overcompensated for rising loan and bond valuation losses.[28]

The GST adverse scenario assumes stagflation with tight financial conditions arising from intense geopolitical turmoil and supply chain disruptions in commodities and goods markets. As documented in Online Annex 1.1, the scenario assumes an across-the-board 10 percent increase in tariffs over the baseline for advanced economies and some emerging markets, higher inflation from supply chain rechanneling in goods and commodities, and a corresponding 1 percentage point increase in policy rates globally in the first year. Higher government debt, including from additional fiscal and demand support, causes investors to panic, raising term premia by 300 basis points to 500 basis points across advanced economies and emerging markets, depending on the scale of government debt.[29] The term spread rises in the first year before quickly reversing as recession sets in. Corporate bond spreads also rise sharply as investors sell bonds, whereas weak consumer confidence and recession lead to reduced sales and higher corporate losses.

Under this adverse scenario, the aggregate global CET1 ratio declines by a modest 70 basis points, from 13 percent in 2024 to 12.3 percent at the end of the stress horizon (Figure 1.15, panel 1). This result is driven primarily by larger loan losses and operating expenses, partially offset by improved net interest income from a steeper yield curve (Figure 1.15, panel 2). However, these results vary across regions. Capital depletion is larger for banks in the euro area and other non-US advanced economies than in other regions because of greater sensitivity to macrofinancial shocks (output, unemployment, and higher long-term interest rates) that translate into larger loan losses. There are also significant differences within emerging markets, as emerging market banks outside China benefit from higher net interest margins (Box 1.3).[30]

Although most banks remain resilient, the CET1 capital ratios of 82 of 669 banks globally are projected to fall below 7 percent (the CET1 plus capital conservation buffer plus relevant global systemically important bank buffers) in the adverse scenario. Under stricter criteria—either a CET1 ratio falling

[26]The Global Stress Test (GST) examined 669 banks from 29 countries, accounting for 74 percent of global sector assets. The 29 countries in the sample are Australia, Austria, Belgium, Brazil, Canada, China, Denmark, Finland, France, Germany, Greece, India, Indonesia, Ireland, Italy, Japan, Korea, Mexico, The Netherlands, Norway, Portugal, Saudi Arabia, South Africa, Spain, Sweden, Switzerland, Türkiye, the United Kingdom, and the United States. The July 2025 baseline scenario assumes stable unemployment, a slight decline in global GDP growth before recovering to about 3 percent in 2027, and falling short-term interest rates to support GDP recovery and growth that contribute to improvement in the global CET1 ratio of 6 basis points.

[27]The severity was similar, but the shock is more protracted than in the 2023 stress test (see the October 2023 *Global Financial Stability Report*).

[28]See IMF (2025a; 2025b) for more detailed stress testing results of banks and nonbank financial intermediaries using country specific scenarios and supervisory data.

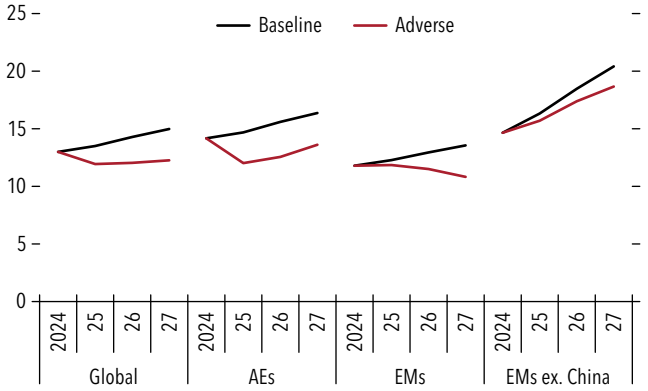
[29]Central banks react based on Taylor-type rules (see Vitek 2018), while fiscal authorities provide demand support in large jurisdictions, except in high-debt countries.

[30]The assumption of a constant net interest margin—and of net interest margins being maintained in an adverse scenario—is based on econometric results that do not show economically meaningful pass-through coefficients from short-term interest rates to deposit and lending rates.

Figure 1.15. Global Bank Stress Tests Results

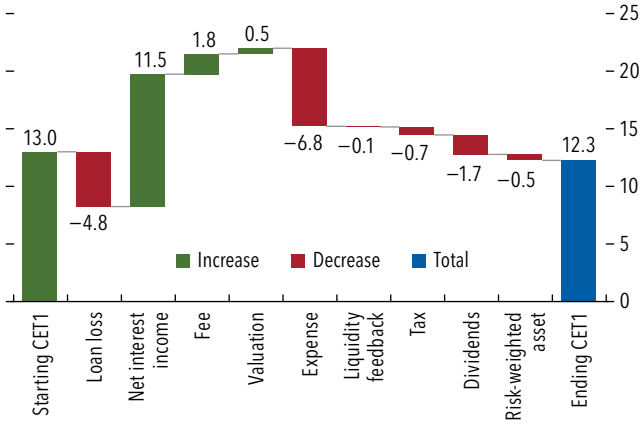
In aggregate, global banks are resilient to the adverse macro scenario, in part because of high starting capital ratios.

1. CET1 Ratio by Region, 2024–27
(Percent)



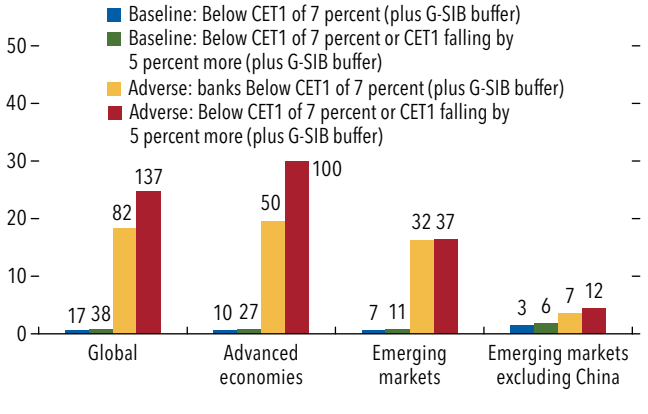
Rising loan losses and expenses are the main force behind capital depletion under the adverse scenario.

2. Global Contribution to CET1 Ratio Change
(Percentage points)



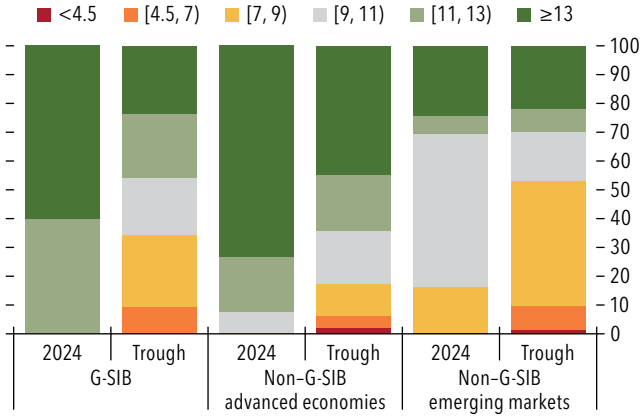
The weak banks with CET1 ratio below 7 percent account for 18 percent of banking sector assets.

3. Share of Total Assets in Weak Banks, by Region
(Percent; number of banks)



A few banks would fall below the minimum 4.5 percent CET1 ratio threshold.

4. Distribution of Banks in Adverse Scenario, by CET1 Ratio
(Percentage of total assets)



Sources: Fitch Connect; Fitch Solutions; and IMF staff calculations.

Note: In panel 2, "loan loss" refers to loan loss provisions and "valuation" to valuation losses. "Expense" refers to operating costs, assumed to be constant over time and across scenarios as a share of risk-weighted assets. Liquidity feedback is based on the extra funding cost of pledging securities at stressed prices and the extra cost of accessing central bank facilities. In panel 3, "global" refers to all banks in the sample. Recent FSAPs to two systemically important jurisdictions have found similar results for the largest banks, using supervisory data provided for the stress tests performed by IMF staff. CET1 = Common Equity Tier 1 capital; G-SIB = global systemically important bank.

below 7 percent or a decline of 5 percentage points or more—the number of weak banks increases to 137 globally, accounting for 25 percent of global bank assets (Figure 1.15, panel 3). These weak banks have persistent vulnerabilities: most were already considered weak in the April and October 2023 issues of the *Global Financial Stability Report*. Rising bank exposures to NBFIs could further increase capital depletion (see the section "Stronger Bank-Nonbank Nexus Increases Contagion and Liquidity Risks").

Although no country's banking system would fail to meet the minimum 4.5 percent CET1 ratio under the adverse scenario, a few institutions would not meet the requirement under the adverse scenario. These distressed cases account for about 1 percent of global assets and would require a $25 billion recapitalization to bring the CET1 ratio back to 4.5 percent. None of the banks that would fall below the minimum 4.5 percent threshold are global systemically important banks (Figure 1.15, panel 4).

In the United States and the euro area, about 10 percent of total loans go to the manufacturing, retail, and wholesale trade sectors, which are vulnerable to trade tensions. Persistent geoeconomic tensions could lead to turmoil in financial markets. This is what happened in the first quarter of 2025, when expected default frequencies, an indicator of the probability of default, increased by 100 basis points for trade sectors in the United States before subsiding by July. However, even if such a rise in expected default frequencies were to continue for a year, the additional effects on banks would be small: the average additional CET1 ratio would decline by 10 basis points in the United State and by 20 basis points in the euro area. The most affected banks also have higher capital ratios.

Stronger Bank-Nonbank Nexus Increases Contagion and Liquidity Risks

As NBFIs increase their share and importance in the global financial system, they are becoming increasingly reliant on banks for funding.[31] Banks lend to a variety of NBFIs, including mortgage companies, investment funds, broker-dealers, and securitization vehicles. In turn, these NBFIs lend directly to businesses and consumers, and conduct activities in government bond and other capital markets (see Box 1.3 and section "Sovereign Bond Market Functioning Depends on Nonbank Financial Intermediaries"). Banks' exposure to NBFIs is large: in Europe and the United States, NBFI loans represent, on average, 9 percent of banks' loan portfolio, with exposures amounting to about $4.5 trillion, of which $2.6 trillion corresponds to loans and the rest to undrawn commitments.[32]

The growing exposure to NBFIs is generating concentration risk among some banks in the United States and Europe (Figure 1.16, panel 1). In the United States, banks representing almost 50 percent of the sample assets have exposures to NBFIs exceeding their Tier 1 capital. While large banks serve as the primary lenders to NBFIs—accounting for 90 percent of all lending to these intermediaries—exposure concentration is more severe among large regional banks and those with assets under $100 billion. In Europe, some large banks also have concentrated exposures. Exposure to private equity and credit funds alone is substantial ($497 billion) and growing rapidly, up 59 percent between the fourth quarter of 2024 and the second quarter of 2025 (Figure 1.16, panel 2).[33] Banks are increasingly lending to private credit funds because these loans often deliver higher returns on equity than traditional commercial and industrial lending, thanks to the lower capital requirements allowed by their collateral structure. Concentration among private equity and private credit borrowers is also increasing: five large fund managers account for about one-third of the aggregate loan commitments of the entire private credit and equity industry (Levin and Malfroy-Camine 2025; Pandolfo 2025). US banks with high NBFI exposure, defined as exposure greater than 100 percent of Tier 1 capital, also have a more fragile funding structure than their low-exposure peers, relying more on noncore and wholesale funding (Figure 1.16, panel 3).

Banks' growing exposures to NBFIs mean that adverse developments at these institutions—such as downgrades or falling collateral values—could significantly affect banks' capital ratios. IMF staff assessed the potential impact on euro area and US banks under a scenario in which the average risk weight for NBFI exposures rises from 20 percent to 50 percent and borrowers draw down 100 percent of credit lines and undrawn commitments. The results suggest that the impact on banks' solvency ratios could be substantial. CET1 ratios would decline by more than 100 basis points in about 10 percent of US banks and 30 percent of European banks (Figure 1.16, panel 4). Furthermore, the IMF GST adverse scenario, combined with an additional NBFI shock for euro area and US banks, projects an increase in the share of weak banks—mostly in Europe, as the most affected US banks are already classified as weak (Figure 1.16, panel 5). The average additional CET1 ratio impact is 120 basis points for euro area banks and 65 basis

[31]The growth of the global NBFI sector outpaced banking sector growth, with its share of total global financial assets at 49.1 percent (or $239 trillion) in 2023 (FSB 2024).

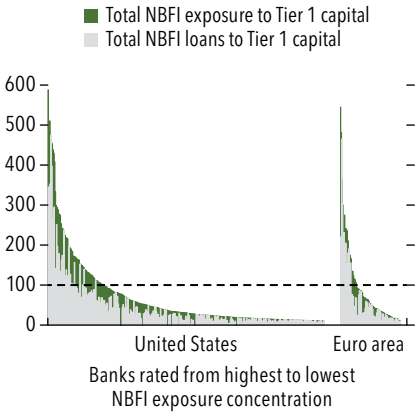
[32]NBFI loan amounts are based on aggregate data for European banks for the fourth quarter of 2024 and bank-level data for US banks for the second quarter of 2025, as reported by the European Banking Authority and the Federal Financial Institutions Examination Council's Consolidated Reports of Condition and Income.

[33]NBFI exposure is defined as the sum of NBFI loans and NBFI unused commitments. US banks report NBFI loans and unused commitments by type of intermediary (mortgage, business, consumer, private equity funds, and other). Private equity funds include capital call commitments and other subscription-based facilities to private equity and venture capital funds, or any other partnership funds that raise capital through limited partnership arrangements. Loans in this category include capital call subscription facilities, which are loans to private equity and private credit funds secured by their limited partners' undrawn capital commitments to the fund, and net asset value loans that are secured by one or more of the fund's existing equity or debt assets. Amounts are based on 134 banks reporting this level of public disclosure in the second quarter of 2025.

Figure 1.16. Bank Exposure to Nonbank Financial Intermediaries

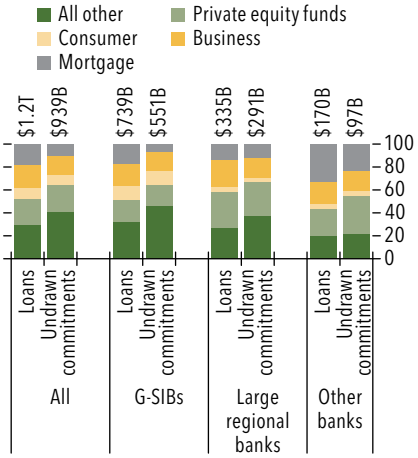
Several banks in the US and the euro area have exposures to NBFIs exceeding their capital.

1. Banks' NBFI Exposure to Tier 1 Capital
(Percent)



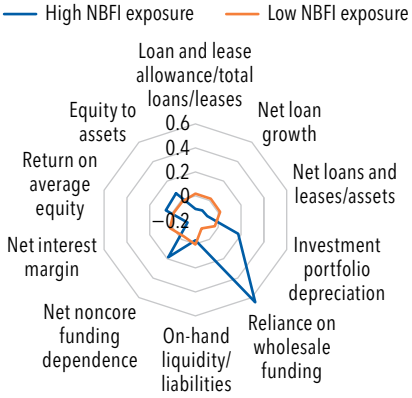
US banks have substantial undrawn commitments with private credit and equity funds.

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



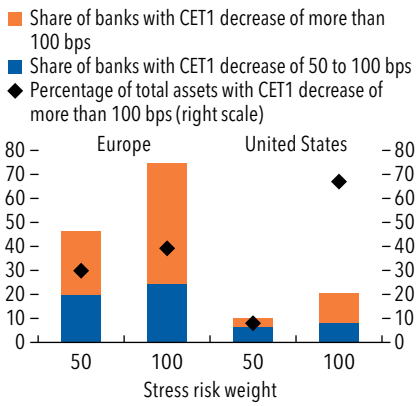
US banks with high NBFI exposure concentration tend to rely more on wholesale funding.

3. Characteristics of Banks with High versus Low NBFI Exposure Concentration
(Based on standardized z-scores for each financial metric)



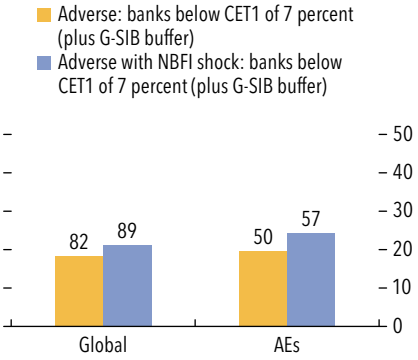
A deterioration in NBFI credit risk, combined with the withdrawal of all unused commitments, could materially affect banks' capital ratios.

4. Decline in CET1 Ratio and Share of Banks' Total Assets
(Share of banks in sample, left scale; percentage of total assets, right scale)



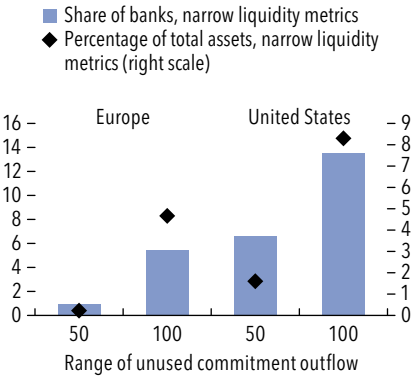
Adding NBFI stress to the Global Stress Test adverse scenario for EU and US banks would increase the share of weak banks.

5. Share of Total Assets of Weak Banks, by Region
(Percentage of assets, vertical axis; number of banks, bars)



A few banks could face liquidity pressures to cover potential outflows from NBFI credit and liquidity lines.

6. Number of Banks with Negative Net Available Liquidity
(Share of banks in sample, left scale; percent of total assets, right scale)



Sources: Consolidated Reports of Condition and Income; European Banking Authority; Fitch Connect; Fitch Solutions; S&P Capital IQ Pro; and IMF staff calculations.

Note: Panel 1 shows total NBFI exposure, which includes loans and undrawn commitments for the United States as of June 2025, and exposures for the euro area as of June 2024 that include an estimate of unused commitments among banks. Concentration is measured by the ratio of NBFI exposure to Tier 1 capital; each bar represents a bank; and the sample includes banks reporting NBFI exposures of at least 10 percent of Tier 1 capital. Panel 2 shows the breakdown of NBFI loans and undrawn commitments by NBFI loan type (business, consumer, and mortgage intermediaries, private equity funds, and all other NBFIs) for banks whose regulatory reports show total assets exceeding $10 billion. The "All other" category includes exposures to insurance companies, hedge funds, investment funds, and pension funds. "Private equity funds" includes private credit. "Large regional" banks refers to non–G-SIBs with total assets of at least $100 billion; and "Other banks" refers to banks with total assets of less than $100 billion. Panel 3 shows standardized *z*-scores for each financial metric for banks with high and low NBFI exposure concentration in the United States (see Online Annex 1.2 for definitions of each financial metric). Panel 4 is based on 2024 second quarter data for 109 banks in the euro area and 2025 second-quarter data for 362 banks in the United States. The shock assumes that the risk weights for NBFI exposures increase from 20 percent to 50 percent and 100 percent and that NBFIs draw all unused commitments available. Panel 5 shows the number of banks falling below the 7 percent CET1 plus G-SIB buffer under the IMF GST adverse scenario, with an additional NBFI shock for euro area and US banks. See the section "Higher Capital Ratios Strengthen Global Banks, but the Weak Tail of Banks Remains Substantial" for a description of the IMF GST severe scenario. The NBFI stress assumes that risk weights increase from 20 percent to 50 percent and that all available commitments are drawn. Panel 6 shows the number of banks where the net available liquidity becomes negative. The assessment considers a narrow liquidity metric that includes cash and balances at banks. AEs = advanced economies; bps = basis points; CET1 = Common Equity Tier 1 capital; G-SIB = global systemically important bank; GST = Global Stress Test; NBFI = nonbank financial intermediaries.

points for US banks, with the larger effect in Europe reflecting higher NBFI exposure relative to risk-weighted assets.[34] In a more conservative scenario in which commitments are fully drawn down and risk weights reach 100 percent, CET1 ratios fall by 100 basis points or more in 50 percent of banks (representing 39 percent of total assets) in Europe and 12 percent of banks (representing 67 percent of total assets) in the United States (Figure 1.16, panel 4).[35]

Furthermore, although most euro area and US banks have sufficient liquidity buffers to honor their NBFI commitments, a few could face liquidity pressures and may need to use less-liquid assets to cover potential outflows from NBFI credit and liquidity lines. Sensitivity analysis shows that if NBFI borrowers were to fully draw these lines, 4 percent of US banks (representing less than 1 percent of total assets) would lack enough liquid assets to meet the outflows, turning their net available liquidity negative. The number of banks under severe liquidity stress would rise to 5 percent of banks (representing 5 percent of sample assets) in the euro area and 14 percent of banks (representing 8 percent of sample assets) in the United States if a stricter definition of liquid assets is applied, including only cash and deposits at other banks (Figure 1.16, panel 6). The impact of these outflows is concentrated among smaller US banks and large euro area banks that provide large liquidity and credit facilities relative to their size. These banks also have lower liquidity ratios, higher asset encumbrance in the euro area, and, in the United States, a higher share of noncore deposits and a lower initial CET1 ratio compared with peers. There could be additional impact of liquidity stress on the solvency of these banks, which is not considered.

Banking Sector Stability Depends on Navigating Interest Rate Challenges

The ability of banks to maintain stable interest margins and keep bond portfolio losses at bay is crucial for financial stability, particularly in an environment marked by fluctuating interest rates. Despite significant monetary policy easing across major economies, banks' interest margins have shown remarkable resilience (Figure 1.17, panel 1).[36] Banks seem to be positioning themselves for additional interest rate declines. European and North American banks have reduced the sensitivity of their net interest income to downward interest shocks (Figure 1.17, panel 2).

By contrast, banks may be more vulnerable to abrupt increases in bond yields and interest rates. Two years after heavy bond portfolio losses led to the demise of Silicon Valley Bank, stress test results show that global banks could incur valuation losses of about 1 percentage point of the CET1 ratio in an adverse scenario in which longer-term government bond risk premiums surge by 300 basis points to 500 basis points across advanced and emerging market economies—perhaps driven by fiscal risks or eroding convenience yields. However, losses are much more meaningful for North American and European banks, reaching 2.5 percentage points and 1.5 percentage points of their respective CET1 ratios (Figure 1.18, panel 1). In addition, in Europe, the sensitivity of banks' economic value of equity to upward shifts in interest rates has increased, making them more vulnerable to a rise in long-term bond yields as a result of more bond supply or quantitative tightening (Figure 1.18, panel 2). European banks may therefore be sensitive to a steepening of the yield curve, with net interest income also under pressure if policy rates are cut.

Stablecoins' Growth Could Affect Financial Stability

Stablecoins—crypto assets issued by private institutions that promise a stable nominal value in a given currency—have become a key component of the digital asset ecosystem. The market grew rapidly from about $3 billion in 2019 to almost $300 billion at the end of September 2025 driven mainly by USDT (Tether), USDC (Circle), and other fiat-backed stablecoins pegged to the US dollar (Figure 1.19, panel 1). The rise of stablecoins could have three main financial stability implications: (1) weaker economies may face currency substitution and reduced effectiveness of policy tools, (2) the bond market structure could change with potential implications on credit

[34]The methodology for the NBFI shock assumes that risk weights for NBFI loans increase from 20 percent to 50 percent and that unused commitments are fully withdrawn. The capital and liquidity impacts do not incorporate credit valuation adjustments related to banks' derivative links with NBFIs, which could affect banks' risk-weighted assets and liquid asset needs.

[35]Liquidity shocks are based on second-quarter 2024 data for 109 euro area banks and second-quarter 2025 data for 362 US banks. This sample is also used for the sensitivity analysis in Figure 1.16 (panel 4), and it differs from the one used for the GST, which includes a smaller set of banks with more complete data on a wider set of variables.

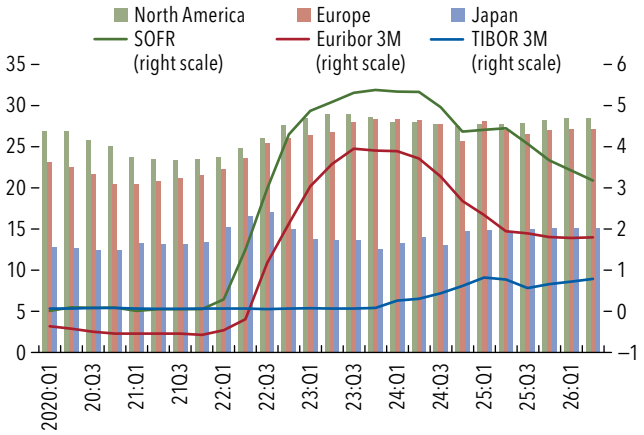
[36]See Box 1.2 for a discussion about banks in China.

Figure 1.17. Banks' Interest Margins Remain Resilient amid Concerns about Potential Valuation Losses

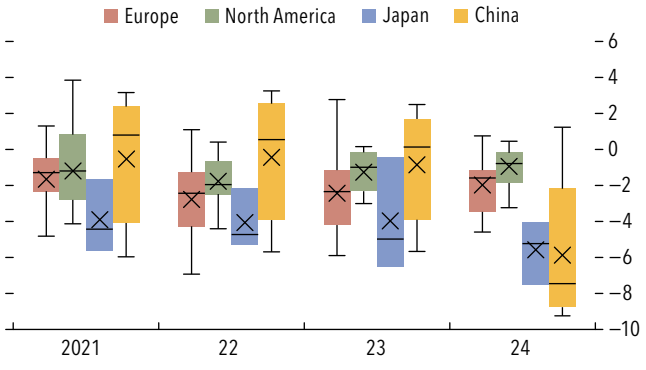
Banks' interest margins have demonstrated remarkable resilience.

European and North American banks have improved their sensitivity to downward interest shocks.

1. Interest Rates and Banks' Net Interest Income
(Percent of Tier 1 capital, left scale; percent, right scale)



2. Net Interest Income Sensitivity to Parallel Shock down to Interest Rates
(Percentage of Tier 1 capital)



Sources: Bloomberg Finance L.P.; Capital IQ; Visual Alpha; and banks' Pillar III disclosures, including regulatory filings.

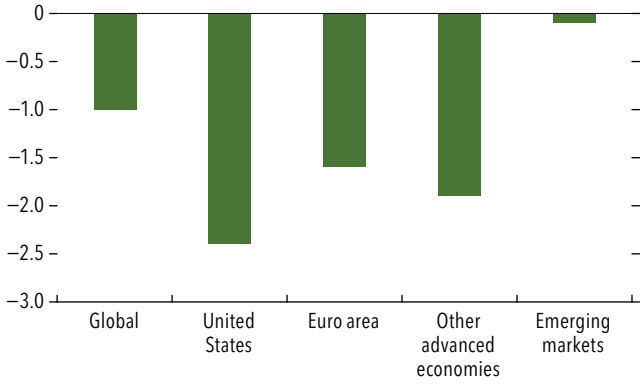
Note: Panel 1 shows banks with shares quoted on stock exchanges. Panel 2 illustrates banks' net interest income sensitivity over the next 12 months to a parallel interest rate shock across maturities as defined by the Basel Committee standard on the interest rate in the banking book (for example, generally −200 basis points for major currencies). The sample of banks encompasses global systemically important banks and the largest regional banks in the United States (10 banks) and Europe (20 banks). 3M = three-month; Q = quarter; SOFR = secured overnight financing rate; TIBOR = Tokyo Interbank Offered Rate.

Figure 1.18. Potential Valuation Losses Remain a Concern

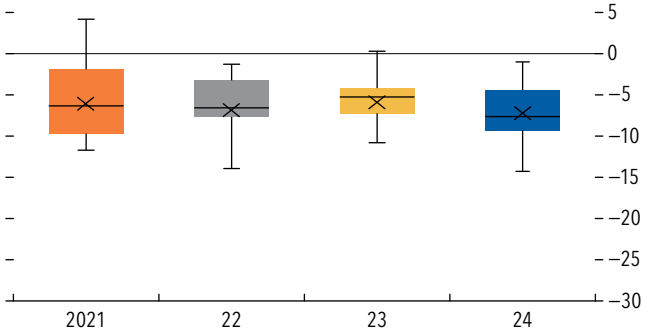
The IMF's Global Stress Test identifies significant risks to valuations in case of a substantial increase in rates.

European banks are marginally more exposed to an upward shift of rates curve.

1. Valuation Losses in the First Year of the IMF Global Stress Test under the Adverse Scenario
(Percentage points of the CET1 ratio)



2. Sensitivity of Selected European Banks' Economic Value of Equity to Upward Parallel Shock of Interest Rates
(Percentage of Tier 1 capital)

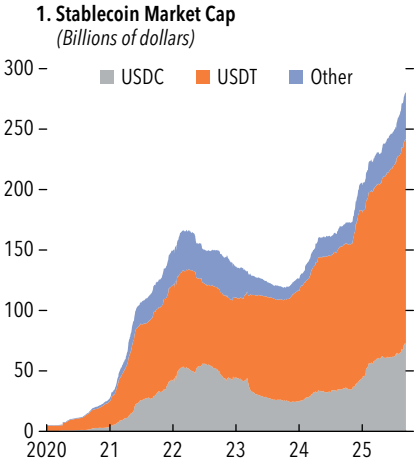


Sources: Banks' Pillar III disclosures; and the IMF's GST.

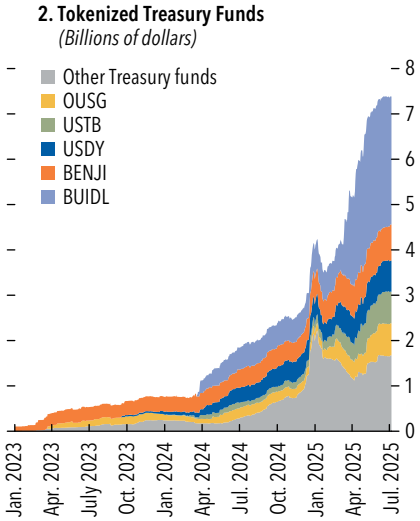
Note: Panel 1 includes a sample of banks in the IMF's GST. Bars show valuation losses in an adverse scenario in which government bond term premiums surges by 300 to 500 basis points, according to the GST scenario. Panel 2 includes a sample of European global systemically important banks and the largest 20 European banks. EVE is defined as the present value of assets less the present value of liabilities of the banking book (under a static balance sheet perspective), excluding own equity and other instruments that do not generate interest. When assets or liabilities do not have a specific contractual maturity or embed implicit optionality, as is typically the case of demand deposits, banks are allowed to make behavioral assumptions on the expected duration of those assets or liabilities. EVE sensitivity is calculated as the EVE change after six interest rate shock scenarios as defined for currencies in the Basel interest rate in the banking book standard; the most impactful scenario is largely the parallel upward shock presented here (that is, an interest rate shock of generally +200 basis points for major currencies). CET1 = Core Equity Tier 1 capital; EVE = economic value of equity; GST = Global Stress Test.

Figure 1.19. Stablecoins Are Growing alongside Tokenized Assets, with Notable Cross-Border Flows

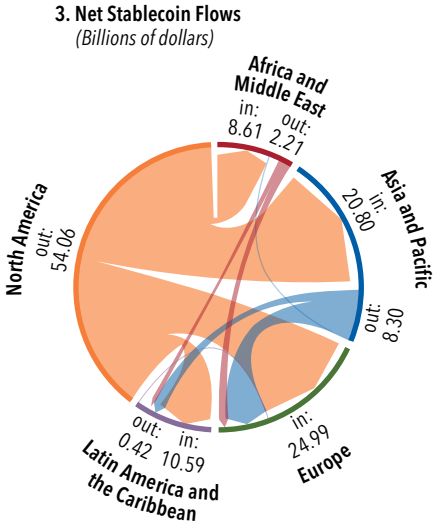
The stablecoin market has risen rapidly and now stands at record heights.



The tokenization of Treasury funds is also growing fast.



Cross-border flows of stablecoins reflect strong dollar demand outside the United States.



Sources: Bloomberg Finance L.P.; Reuter 2025; RWA.xyz; and IMF staff calculations.

Note: Panel 1 appears in Reuter (2025). Panel 3 shows estimates by Reuter (2025) of bilateral net outflows of stablecoins in 2024 across regions. Orange areas represent net flows from North America, blue arrows represent flows from Asia and the Pacific, red arrows represent flows from Africa and the Middle East, and purple areas represent flows from Latin America and the Caribbean. BENJI = Franklin OnChain US Government Money Fund; BUIDL = BlackRock USD Institutional Digital Liquidity Fund; OUSG = Ondo Short-Term US Government Bond Fund; USDC = US Dollar Coin, issued by Circle Internet Group Inc.; USDT = US Dollar Tether, issued by Tether Limited; USTB = Superstate Short-Duration US Government Securities Fund.

disintermediation, and (3) runs faced by stablecoins may generate forced selling of reserve assets. Potential systemic effects would be conditional on stablecoins' continued growth.

Recent global legal and regulatory initiatives could foster the issuance and integration of stablecoins into the financial system by providing clarity on issuance and oversight parameters (IMF, forthcoming).[37] Major US banks are preparing for a shift from cautious observation to active participation and adoption amid a flurry of new fiat-backed stablecoins emerging in 2025.[38]

Nevertheless, the speed and volume of the adoption of stablecoin remains unclear. Projections by the US Treasury Borrowing Advisory Committee of an eightfold increase in stablecoin market capitalization to about $2 trillion by 2028—roughly $500 billion annually—are driven primarily by expectations of broader use in payments and cash management. However, increased adoption faces significant challenges: different stablecoins often operate on separate blockchains, increasing transaction costs and fragmentation in payments; they typically do not offer yields, making them less attractive than money market funds (Nikolaou 2025); and ongoing improvements in traditional payment systems could reduce the need for blockchain-based alternatives.[39]

[37]The Guiding and Establishing National Innovation for US Stablecoins Act, signed into law in July 2025, establishes a framework for stablecoins intended to be used for payments. Aiming to reduce legal uncertainty and support broader crypto adoption, the law establishes an oversight framework for stablecoins, reserve assets requirements, and compliance with anti-money laundering/combating the financing of terrorism (AML/CFT) legislation. The Digital Asset Market Clarity Act complements these efforts by providing legal and regulatory clarity for digital assets and reinforcing the legitimacy of private sector innovations that accept stablecoins as payment on blockchain platforms. These US initiatives are in step with global trends: The European Union's Markets in Crypto-Assets Regulation enforces a framework for crypto assets, including licensing and transparency standards and anti-money laundering/combating the financing of terrorism requirements for stablecoin issuers and providers of crypto services across Europe. Hong Kong SAR's new regime positions stablecoins and tokenized assets at the heart of its fintech strategy.

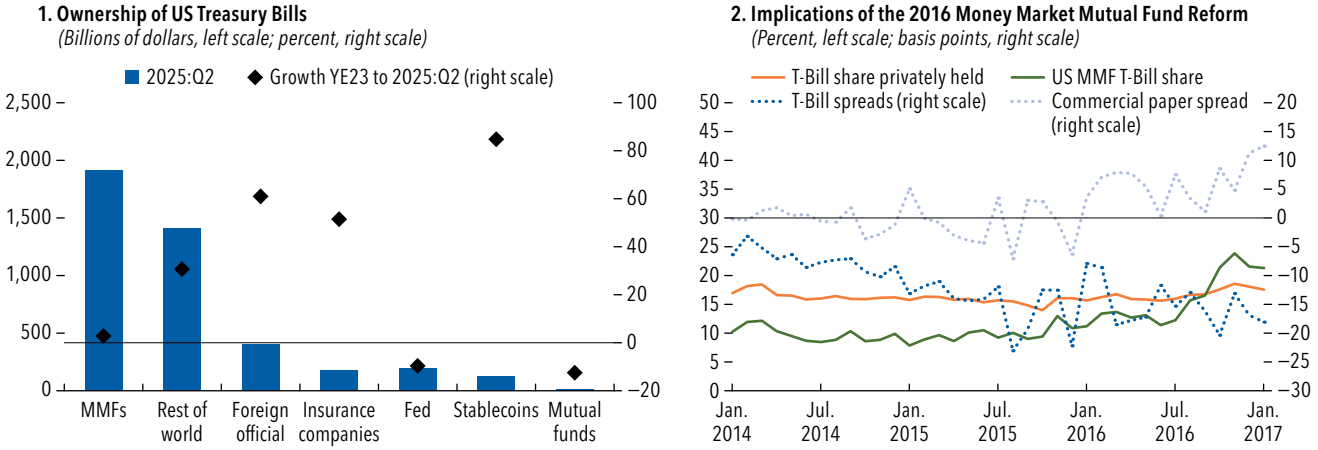
[38]JPMorgan has partnered with Coinbase to expand stablecoin access among clients starting in Fall 2025. Bank of America is developing its own stablecoin, with Citigroup and JPMorgan also evaluating issuance of their own stablecoins. Meanwhile, new US dollar–backed stablecoins have emerged (for example, USDS), while mainstream payment and e-commerce platforms have integrated stablecoins (PayPal with PYUSD).

[39]Stablecoin transactions exhibit fragmentation, although, in practice, major stablecoins partner with exchanges, which offer yield to incentivize users to hold the stablecoin.

Figure 1.20. The Rise of Stablecoins Comes with Potential Concerns over Financial Stability

Dollar-backed stablecoins are buying more Treasury bills.

The 2016 money market mutual fund reform spurred a large increase in demand for Treasury bills, affecting the relative prices of other assets.



Sources: Bloomberg Finance L.P.; Crane data; US Z.1. Statistics; and IMF staff calculations.

Note: The Treasury bill growth rate is calculated on the basis of outstanding total US Treasury debt, after excluding Federal Reserve Treasury holdings. The Treasury bill spread is calculated as the difference between the three-month Treasury bill rate and the three-month overnight index swap rate. The spread for commercial paper is the difference between 90-day nonfinancial commercial paper and the three-month overnight index swap rate. Fed = US Federal Reserve; MMF = money market fund; Q = quarter; YE = year end.

At the same time, traditional financial instruments such as deposits and money market mutual fund shares have turned to tokenization, creating representations of them as digital tokens on a blockchain (Box 1.2 in the October 2024 *Global Financial Stability Report*). The tokenized market has grown substantially (Figure 1.19, panel 2), although it remains small compared with stablecoins, which dominate blockchain-based payments and settlements. Tokenization may allow these instruments to compete with stablecoins, though both could grow in parallel.

To date, net stablecoin flows are largely flowing outward from North America to the rest of the world, reflecting dollar demand in those regions (Figure 1.19, panel 3; see also Reuter 2025). Easy access to dollar-denominated stablecoins raises concerns about currency substitution and reduced monetary policy transmission, particularly in jurisdictions with weak macroeconomic fundamentals. In addition, a shift from physical currency to stablecoins could reduce seigniorage, affecting central bank income and dividend distribution. Stablecoins also pose risks to capital flow management, notably for emerging market economies, as they allow US dollar liquidity to move outside regulated channels, potentially weakening the effectiveness of capital flow and foreign exchange measures and increasing risks for illicit uses of stablecoins (Cardozo and others 2024).

Stablecoins are typically legally required to be backed by high-quality liquid assets such as short-term government bonds, demand deposits, and government money market funds. The mainstreaming and continued growth of stablecoins could have substantial implications for these assets. Stablecoin issuers already hold significant volumes of short-term government debt and are among the largest buyers (Figure 1.20, panel 1), already putting downward pressure on US Treasury bill yields (Ahmed and Aldasoro 2025).

The 2016 US Securities and Exchange Commission money market mutual fund reform illustrates how regulatory or structural shifts can abruptly reshape demand across asset classes and affect market pricing. The reform triggered a large reallocation from prime money market mutual funds to government money market mutual funds, doubling demand for Treasury bills by nearly $500 billion during a period when supply remained broadly stable, along with reducing demand for commercial paper and other short-term private sector debt. This shift modestly lowered Treasury bill yields and raised commercial paper yields (Figure 1.20, panel 2).

The expansion of stablecoins could have similar effects, depending on whether it creates new demand for short-term sovereign bonds, as in the money market mutual fund reform case, or simply reallocates demand. If stablecoins grow at the expense of money

market mutual funds, yield effects may be muted, as demand will be reallocated from the funds. However, if stablecoins displace bank deposits, which fund longer-term bonds and loans, demand could shift toward Treasury bills. Such a shift may steepen yield curves and raise concerns about credit disintermediation as banks could face reduced funding capacity for lending to households and businesses. Altering yield curve dynamics can also complicate interest rate control by central banks. These concerns would be amplified were stablecoins denominated in foreign currencies to be widely adopted. The impact would depend on the geographic adoption patterns, asset allocation strategies, and supply of short-term government bills: an increase in bill issuance can mitigate price pressures, though at the cost of higher exposures to short-term interest rate risk for the government.

Implications of a wider stablecoin adoption can stretch beyond their impact on the yield curve. Because stablecoins may be subject to run risk, fire sales of stablecoins' reserve assets—such as bank cash deposits and government securities—could spill over into bank deposits and government bond and repo markets. This could increase volatility and require central bank intervention. Moreover, in a scenario of broader adoption, any loss of parity with the reference currency would also impose direct losses and heightened uncertainty on a large user base. Financial fragmentation in payment systems resulting from limited interoperability among stablecoins, and between stablecoins and existing financial market infrastructure, may further accentuate these risks.

Corporate Credit Risk

The Corporate Sector Is Resilient to Tariffs So Far

Even though corporate profit margins have been revised downward since the April 2025 *Global Financial Stability Report*, corporate balance sheets in many countries are still healthy in aggregate, keeping corporate credit risks at bay, although vulnerabilities remain unresolved. In the United States, interest income on assets has increased more than liabilities during high-interest-rate years, lowering firms' net interest payments (Figure 1.21, panel 1) and propping up their cash buffers. Net interest payments have recently started to increase, as maturing corporate debts need to be refinanced at higher fixed rates (see the October 2023 *Global Financial Stability Report*).

One factor contributing to stretched valuations is that instead of using cash flow for investments (Figure 1.21, panel 2), firms have engaged in financial engineering to support valuations. Share buybacks have kept on growing—for example, so far this year, US financial, technology, and communications services firms have bought back near $1 trillion of stocks on an annualized basis (Figure 1.21, panel 3). In Japan, the ratio of share buybacks to market capitalization is on pace to reach around 2.4 percent in 2025, in contrast to 1.1 percent in 2024. The elevated valuations are, however, facilitated at the cost of investments in future growth opportunities.

High valuations in stock markets and buoyant risk sentiment also may have helped lower corporate funding costs. In reality, default rates, especially for leveraged loans, have been climbing, even though some of the defaults are voluntary liability management exercises, including debt exchanges (Khoda and others 2025; Figure 1.21, panel 4). This suggests that some weaker firms are struggling in the current environment. Indeed, funding liquidity is strained among vulnerable borrowers (see the section "Some Private Credit Direct Lending Borrowers Remain Vulnerable").

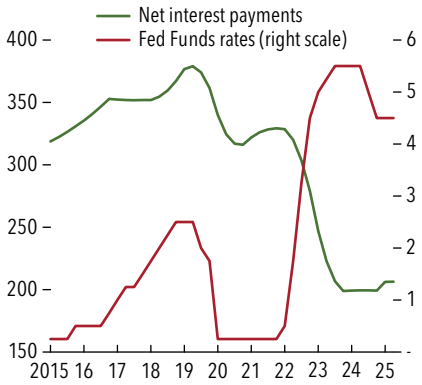
Looking ahead, stretched valuations in stocks and corporate bonds are vulnerable to correction, owing to the likelihood that tariffs will dampen corporate profitability (see the section "Equity Markets Exhibit High Valuations and Concentration Risks"). Tariffs could also have larger-than-expected effects on inflation and growth as a result of firms passing rising input costs to consumers, potentially leading to higher inflation with stagnant demand. Empirical evidence shows that inflation and growth shocks cause corporate spreads to widen and stock prices to decline (Figure 1.21, panel 5). Lower stock prices worsen the effect of tariffs on credit fundamentals, while higher term premiums may put additional pressure on corporate debt issuers (see the section "Expanding Fiscal Deficits Exert Pressure on Bond Market Stability").

IMF staff have developed a more comprehensive assessment of the cross-country costs for firms resulting from higher effective tariff rates on their US exports. Tariff-related costs also depend on the share of exports to the United States in a country's total exports, the proportion of exporting firms in the country, and country corporate-level factors (see Online Annex 1.5 for more details). For the average country, additional tariffs would reduce firms' profit margin by 1 percentage point (Figure 1.22, panel 1,

Figure 1.21. Corporate Fundamentals and Risks

In the United States, ample interest income on financial assets had largely offset interest payments until recently.

1. US Nonfinancial Firms' Net Interest Payments
(Billions of dollars, left scale; percent, right scale)

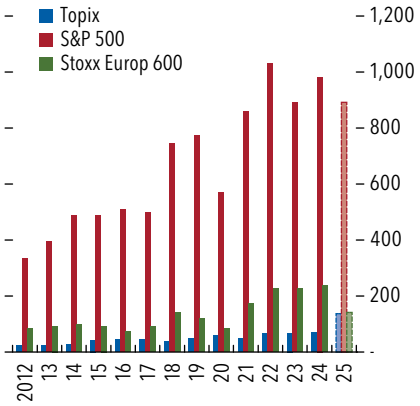


Saving surpluses (cash flow as a percentage of GDP) have reflected steady earnings amid a lack of attractive investment opportunities ...

2. Global Nonfinancial Corporate Capital Expenditure and Cash Flow
(Percent of GDP)

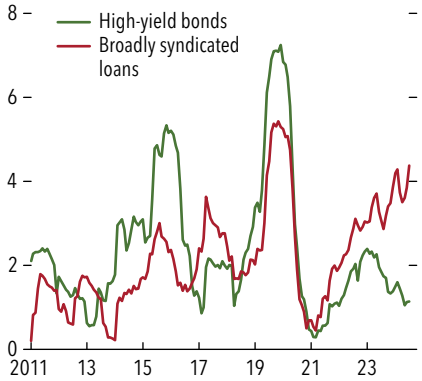
... enabling firms in many cases to engage in financial engineering to support equity valuations.

3. Share Buybacks
(Billions of dollars; 2025 bars are year-to-date annualized)



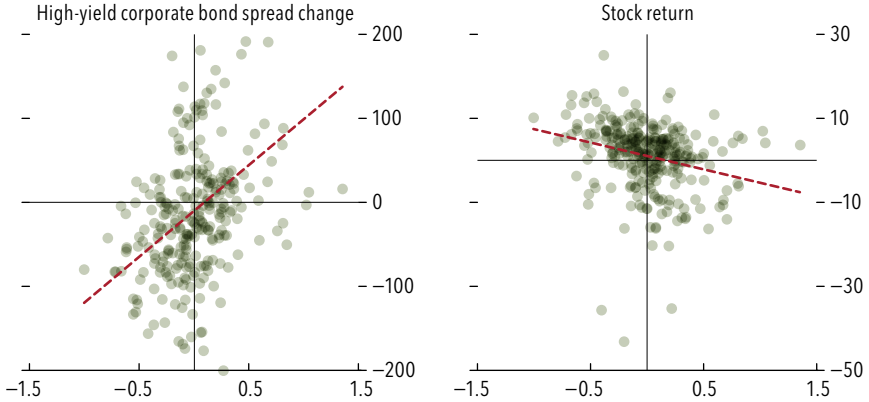
Elevated corporate valuations have enabled firms to restructure loans, leading to higher loan default rates than for bonds.

4. US Corporate Debt Default Rates
(Percent)



That said, valuations are vulnerable to "stagflation"—high-inflation and low-growth surprises.

5. Sensitivity of Global Risk Assets to the Stagflation Surprise Index
(Basis points, percent, y-axis; points, x-axis)



Sources: Bank of America; Bloomberg Finance L.P.; Bureau of Economic Analysis; European Central Bank; EUROPACE AG/Haver Analytics; Federal Reserve Bank of St. Louis; IMF, World Economic Outlook database; Japanese Ministry of Finance; Refinitiv DataStream; US Department of the Treasury; and IMF staff calculations.

Note: Panel 2 shows the GDP-weighted average of the euro area, Japan, and the United States. In panel 5, the Stagflation Surprise Index is defined as the GDP-weighted average of the spread of the Inflation Surprise Index and the Growth Surprise Index between the United States, the euro area, the United Kingdom, and Japan. A higher index value means a larger stagflation surprise, indicating higher inflation, lower growth, or combined surprise relative to market expectations. High-yield corporate bond spread changes are based on the Bloomberg Global High-Yield Corporate Bond Index, and stock returns are based on the MSCI All Country World Index.

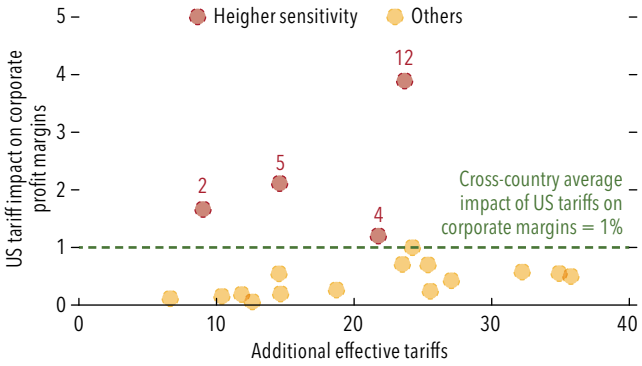
green line). Some countries have firms with much higher sensitivity to additional tariffs (Figure 1.22, panel 1, red bubbles) and could experience a steeper erosion of margins.

These estimated tariff costs can be translated into effects on corporate earnings and debt servicing capabilities (Figure 1.22, panel 2). Two extreme scenarios can provide an estimated range of deterioration in earnings. First, a 100 percent cost pass-through from a country's exporters to US consumers and second, a 0 percent pass-through with an equal distribution of tariff-related costs between import-

Figure 1.22. Corporate Debt Sensitivity Analysis

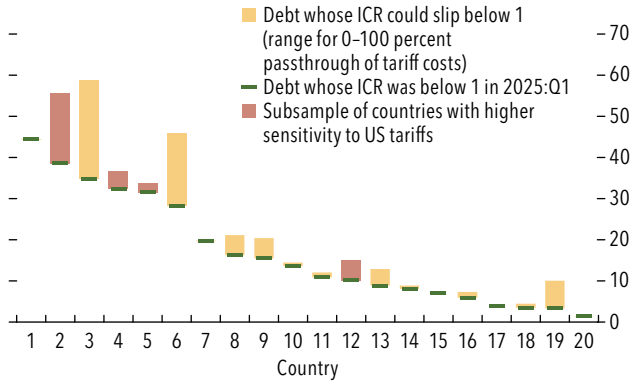
Tariff costs faced by firms are more pronounced for some countries, eroding their profit margin by 1 percent on average ...

1. Effective Tariff Rates versus Impact of US Tariffs on Corporate Profitability across Countries
(Percentage of revenue)



... resulting in large shares of firms with an interest coverage ratio below 1 for a broad set of countries, while also accounting for higher debt refinancing costs.

2. Sensitivity of Debt-at-Risk to Tariffs and Refinancing Costs
(Percent of total corporate debt)



Sources: Dealogic; IMF, World Economic Outlook database; S&P Capital IQ; US Tariff Tracker, Center for Global Development; and IMF staff calculations.

Note: The sample includes Bangladesh, Brazil, Canada, Chile, China, Colombia, France, Germany, India, Japan, Korea, Malaysia, Mexico, the Philippines, South Africa, Spain, Türkiye, the United Kingdom, the United States, and Vietnam. Countries are assigned numbers for both the panels. The additional tariffs are calculated relative to January 20, 2025, and as of July 12, 2025. For panel 1, the impact of US tariffs on corporate profitability for a country is estimated by the interaction of the additional tariffs, the share of export revenue exposed to US firms engaged in exports, and the proportion of exporting firms in total, which is proxied by goods exports as a percentage of GDP in 2024 (see Online Annex 1.5 for details). Countries whose companies face a larger-than-average increase in implied tariff costs (that is, greater than 1 percent of revenue) are identified as having higher sensitivity (red bubbles). The corresponding labels for the red bubbles show the assigned country number. The horizontal dashed green line is the simple average across countries in the sample, excluding the United States. Panel 2 shows the possible range of increases in debt-at-risk under varying degrees of cost pass-through scenarios for each country in the sample and higher refinancing costs. Debt-at-risk is defined as the share of debt with an interest coverage ratio below 1 in total. The countries are sorted by the size of debt-at-risk as of the first quarter of 2025 (see Online Annex 1.5 for details on scenario construction and calculations). ICR = interest coverage ratio.

ing and exporting firms. A sensitivity analysis of both scenarios shows that since debt refinancing costs are rising in coming years as large volumes of debt mature (see the October 2024 *Global Financial Stability Report* and the April 2025 *Global Financial Stability Report*), a sizable share of firms could end up with an interest coverage ratio (the ratio of earnings over interest expenses) below 1, especially in countries where tariff costs are high (Figure 1.22, panel 2, red bars). Some countries already operating with a low percentage of risky corporate debt (debt with an interest coverage ratio below 1) could experience a large increase in their share, and this would heighten credit risk. In addition to corporate debt serviceability, higher tariff costs would be a drag on macroeconomic fundamentals. Firms sensitive to tariffs would have limited scope to absorb the additional tariff costs through improvement in operational efficiency. At the same time these firms would be reeling under higher refinancing costs. Hence, they would be cornered into passing the additional costs to consumers to manage their profit margins and ensure sustainable operations, potentially raising inflation.

Some Private Credit Direct Lending Borrowers Remain Vulnerable

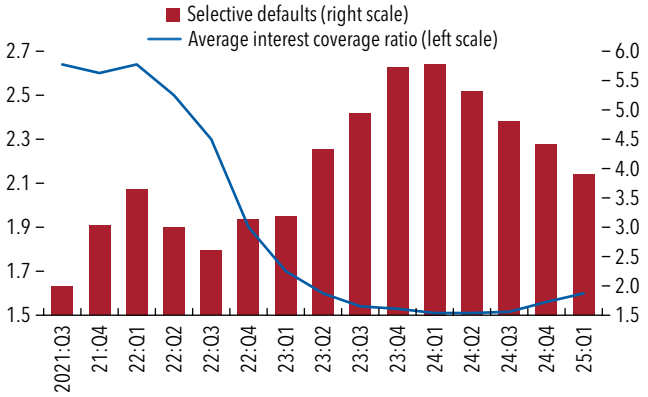
Elevated policy rates and uncertainty continue to exert pressure on direct lending borrowers, although the industry has demonstrated flexibility in managing short-term pressures. Continued earnings growth, declining policy rates, the use of payment-in-kind features of payment-in-kind features—that is, paying interest with additional debt—and recent restructurings (Figure 1.23 panel 1, red bars) have helped lift some cash-flow pressure from borrowers. As a result, although the overall interest coverage ratio remains low (Figure 1.23, panel 1, blue line), the share of borrowers with a cash-only interest coverage ratio below 1 has declined considerably, returning to levels observed before the interest rate hiking cycle (Figure 1.23, panel 2).

Despite the wave of restructurings, liquidity remains strained among the more vulnerable borrowers,

Figure 1.23. Credit Risk and Fundamentals of Direct Lending

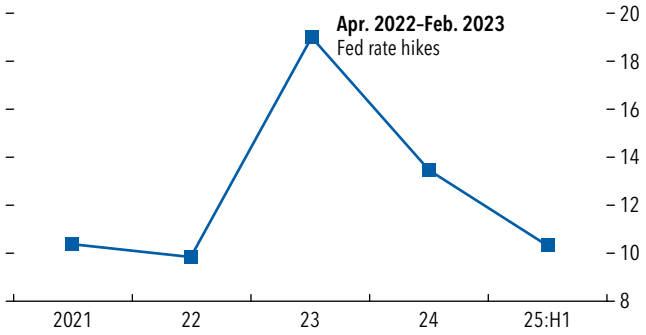
Elevated policy rates keep the interest coverage ratio low, and selective defaults, or restructurings, have declined.

1. Average Interest Coverage Ratio for Direct Lending Borrowers and the Debt Restructuring (Selective-Default) Rate
(Ratio, left scale; percent, right scale)



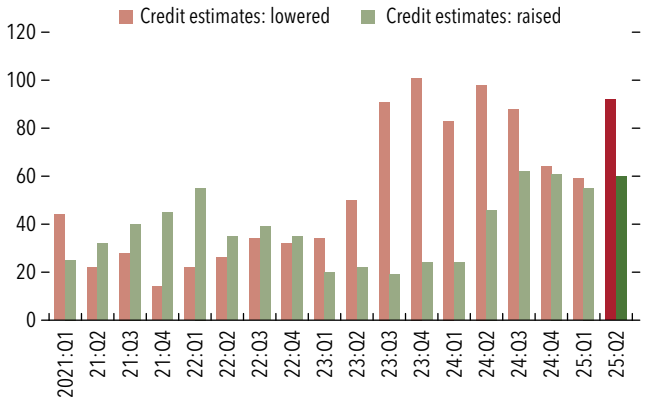
The series of adjustments helped better position direct lending borrowers to service their debt in the short term.

2. Credit Rating Assessments with Cash Interest Coverage below 1
(Percent of total number of S&P Global credit estimates)



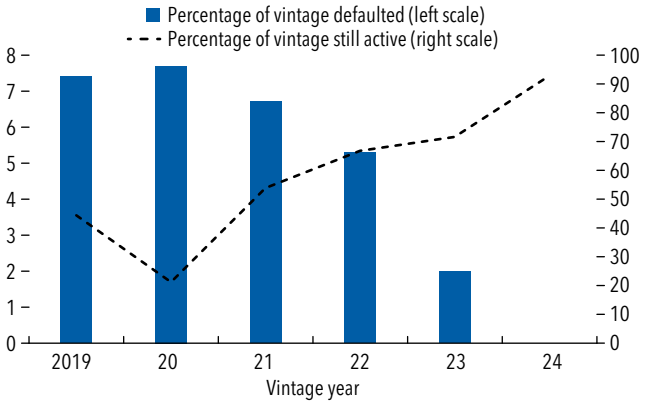
A vulnerable tail of direct lending borrowers is under pressure from weak liquidity ...

3. Number of Ratings Upgrades and Downgrades of Direct Lending Borrowers
(Number of actions in S&P Global Credit estimates)



... with vintages before rate hikes having a higher share of weaker direct lending borrowers.

4. Default Rates of Direct Lending Borrowers across Vintages
(Percent in Morningstar DBRS sample)



Sources: Morningstar DBRS 2025; and S&P Global Ratings 2025.
Note: In all four panels, data are based on the sets of direct lending borrowers reviewed by Morningstar DBRS and S&P Global (Morningstar DBRS 2025; S&P Global Ratings 2025). In panel 1, selective defaults are defined in S&P Global Ratings (2025) and include amend-and-extend transactions and payment-in-kind switches allowing borrowers to choose to pay interest expenses by issuing more debt. In panel 2, the interest coverage ratio is based on the cash-only portion of interest expense, excluding the accrued payment-in-kind portion of the coupon's interest rate. The interest coverage ratio is defined as earnings before interest, taxes, depreciation, and amortization divided by interest expense.Fed = US Federal Reserve.

contributing to a rise in borrower downgrades (Figure 1.23, panel 3). Overall, defaults remain more common among firms that borrowed from private credit before monetary policy began to tighten in 2022 (Figure 1.23, panel 4). These older vintages of borrowers also include more firms constrained by liquidity (Morningstar DBRS 2024). Because direct lending involves high leverage and is structured with variable rates, borrowers depend on economic growth continuing, and on the pace at which policy rates normalize.

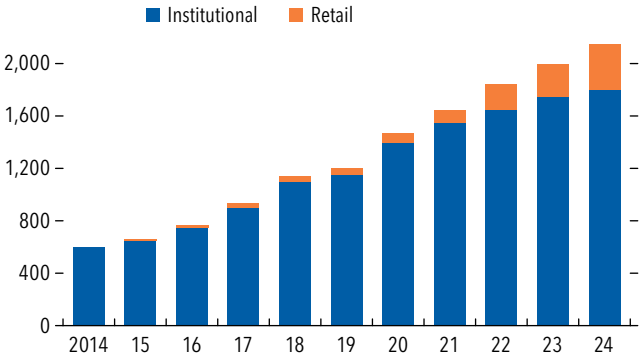
Broader Retail Participation in Private Credit Can Generate New Risks

Retail investors have become—and are expected to remain—major contributors of new funds for the expansion of private credit (Figure 1.24, panel 1).

Figure 1.24. Cyclicality and Liquidity Risk for Increasing Retail Participation in Private Credit

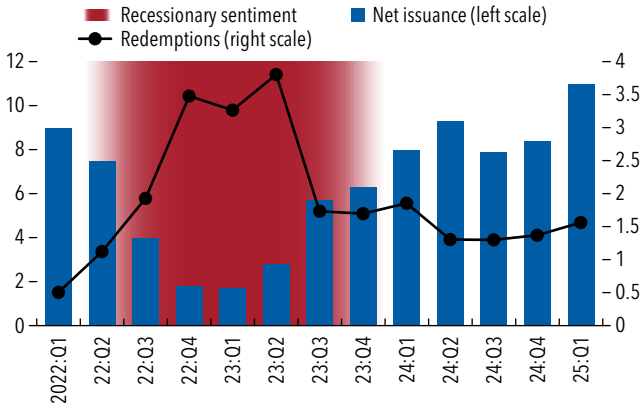
Retail funds have become a major part of private credit assets under management.

1. Assets under Management for Private Credit Funds
(Billions of dollars)



Perpetual nontraded business development companies' funds closely followed market sentiment in 2022–23

2. Perpetual Nontraded Business Development Companies' Quarterly New Issuance and Redemptions
(Billions of dollars, left scale; percent, right scale)



Sources: Capital IQ; and PitchBook.

Note: In panel 2, the recessionary sentiment is Bloomberg's consensus forecast of the recession probability in the United States within one year.

Private credit asset managers are developing new products to attract retail investors, including retirement savings accounts, countering the slowdown in institutional fundraising. The increasing share of retail investors in private credit can change the industry in two important ways: by introducing higher liquidity risks and by making investments more procyclical.

Most private credit funds currently pose little maturity transformation risk because traditional structures like private credit collateralized loan obligations and closed-end funds do not typically allow redemptions during the fund's lifespan. The expansion to retail investors is associated with the growth of semiliquid investment vehicles that offer periodic windows of liquidity, ranging from quarterly redemptions (regular or discretionary) to exchange-traded funds with daily liquidity.

Broader retail participation in private credit may also add procyclicality to fund inflows and outflows. Some evidence suggests that private credit lending could be more stable than similar leveraged loans and less responsive to shocks than high-yield bond markets (see Chapter 2 of the April 2024 *Global Financial Stability Report*). However, products with stronger retail participation, such as perpetual nontraded business development. companies (BDCs), seem to track the cyclicality of market sentiment more closely (Figure 1.24, panel 2).

These vulnerabilities underscore the need for robust asset-liability management and sufficient sources of liquidity to cover crowded redemptions during a shock. Perpetual nontraded BDCs—vehicles that allow periodic redemption windows—usually maintain leverage meaningfully below the regulatory maximum. This gives them room for additional borrowing if unexpected redemptions occur. However, a key risk to this liquidity management strategy is asset devaluation during an economic shock, which would mechanically increase the actual leverage, lower collateral value, and potentially reduce borrowing capacity.

Another liquidity management tool used by perpetual nontraded BDCs is holding larger portfolios of marketable assets (mostly traded leveraged loans). These portfolios amount to 10 percent to 40 percent of total assets, compared with the 1 percent to 3 percent range typically observed in publicly traded BDCs that do not permit redemptions. While part of this marketable portfolio may temporarily hold newly raised funds before deployment into private credit loans, it can also serve as a liquidity cushion against idiosyncratic redemption shocks and, to a lesser extent, against economywide downturns. That said, the effectiveness of marketable securities as a buffer has its limits, considering that liquidity in semiliquid assets may evaporate during times of stress.

Investment Funds Dominate the High-Yield Bond Market

Open-ended investment funds and exchange-traded funds own a large share of high-yield bonds outstanding. Since 2015, these funds' share of the US high-yield bond market has risen from 37 percent to 45 percent. By comparison, their shares in other fixed-income markets, such as investment-grade products and US Treasuries, have also risen but are significantly smaller (Figure 1.25, panel 1).

This increased presence makes high-yield bonds more vulnerable to the behavior of open-ended funds and exchange-traded funds, particularly because these funds might face sudden runs. Monthly flow data for high-yield bond funds and exchange-traded funds over the past decade show that in eight episodes globally, outflows exceeded 2 percent of assets under management (over $10 billion of outflows). This is much worse than other fixed-income sectors, which have suffered outflows over 2 percent of assets in only one or, at most, two instances during the same period (Figure 1.25, panel 2). Furthermore, considering the high-yield market is relatively illiquid, the impact of these outflows on bond yields can be substantial. In the United States, which makes up about 60 percent of the global high-yield bond market, average monthly trading volume is about $200 billion.[40] This implies a high outflow-to-trading-volume ratio compared with other fixed-income markets (Figure 1.25, panel 3). The liquidity mismatch means that funds may face more significant and faster losses during market stress, as they are compelled to sell assets to meet redemption requests. A clear example occurred in March 2020, when US high-yield bonds experienced a mark-to-market loss of 12 percent, considerably larger than the 7 percent loss in US investment-grade bonds.[41]

Increasing ownership of high-yield bonds by funds and exchange-traded funds can also heighten the concentration risks of bond issuers. Bond funds and exchange-traded funds that are not dedicated to the high-yield asset class or indexed to high-yield bond benchmarks have increased their holdings (Figure 1.25, panel 4). Funds that are not indexed to benchmarks can overinvest in certain issuers. For example, a single investment fund can hold a substantial portion of the bonds issued by certain borrowers, particularly those rated CCC or lower (Figure 1.25, panel 5). Although this concentration may be less concerning for the funds themselves, because they typically manage large volumes of relatively diverse assets, it is a risk for issuers, for whom prices could fall were a dominant debt holder to exit the market. This situation could become especially problematic were it to coincide with a period when the company needed to refinance debt.

Exchange-traded funds have also grown their share of the US high-yield bond market to 7 percent in 2024, from 3 percent in 2015. The sensitivity of high-yield bond exchange-traded funds to S&P 500 returns is higher than the sensitivity of their underlying index to S&P 500 returns (Figure 1.25, panel 6). This suggests that the rise in exchange-traded funds may increase contagion risk and possibly amplify price moves across asset markets during periods of stress.[42]

Policy Recommendations

The ground is shifting in the financial system. Some shifts have already been under way, but their growing intensity requires policymakers to remain vigilant and respond promptly to changing circumstances as they unfold.

To ensure macroeconomic stability, central banks should stay attentive to the risks to inflation associated with tariffs. So far, central banks that have started easing cycles have cut interest rates gradually, in part as insurance against the possible impact of tariffs on the economy, including potentially weaker demand in tariffed jurisdictions, has yet to fully materialize. In jurisdictions where inflation is still well above target and where tariffs might constitute a supply shock, central banks need to proceed carefully with any easing and maintain their commitment to price stability mandates. This cautious approach should also help temper further valuation pressures in risk assets. Central bank operational independence remains critical for anchoring inflation expectations and enabling central banks to achieve their mandates (see Chapter 1 of the October 2025 *World Economic Outlook* for key institutional features that can help preserve this independence).

[40]Average monthly trading volume on the high-yield bond market is according to Tradeweb TRACE data.

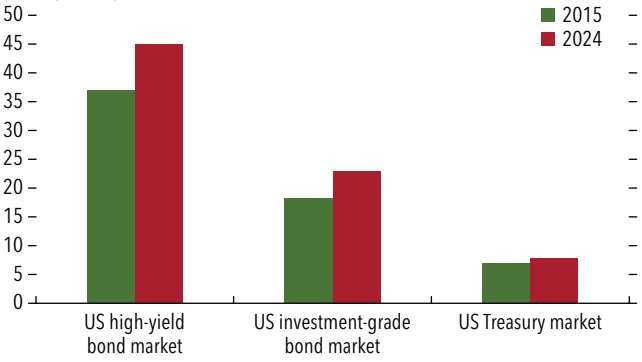
[41]Total return percentages in March 2020 are from the ICE Bank of America US High-Yield and US Corporate Bond Indices.

[42]Greater investment in passive investment strategies, such as exchange-traded funds, may be related to the rise in cross-asset correlations during periods of stress, which is one of the main attributes of contagion. Benchmark-focused investors are more likely to be driven by common shocks than by idiosyncratic fundamentals of the assets they invest in (see Chapter 1 of the April 2018 *Global Financial Stability Report*).

Figure 1.25. Vulnerabilities Posed by the Rising Ownership of the High-Yield Bond Market, by Investment Funds and Exchange-Traded Funds

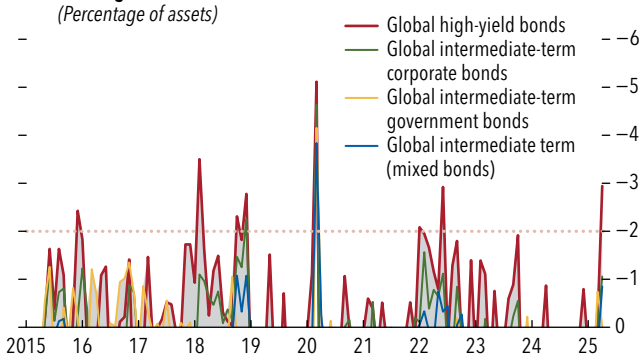
Investment and exchange-traded funds own a large and rising share of the high-yield bond market ...

1. Ownership Shares of Open-Ended Investment Funds and Exchange-Traded Funds
(Percent)



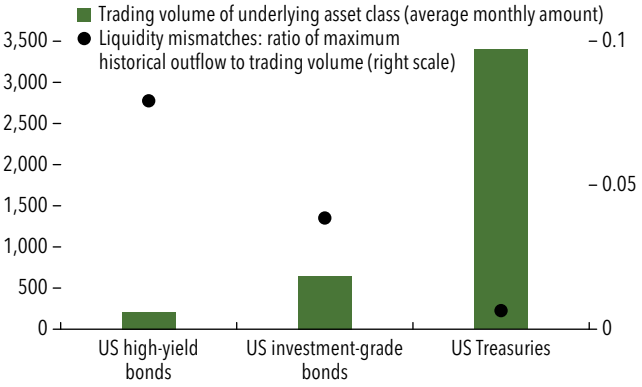
... and their investor base is more flight prone.

2. Monthly Outflows of Open-Ended Investment Funds and Exchange-Traded Funds
(Percentage of assets)



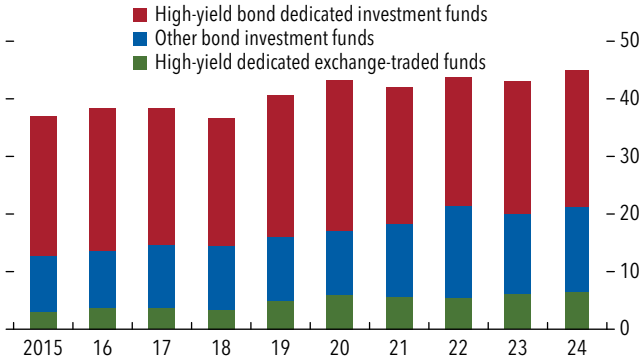
The negative effects of outflows from the high-yield bond market can be worsened by its low liquidity.

3. Maximum Flows and Trading Volumes
(Billions of dollars)



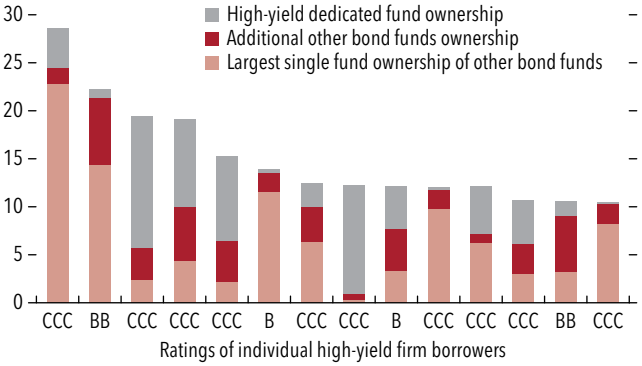
The growing share of investment and exchange-traded funds has been driven by other bond investment funds and high-yield exchange-traded funds.

4. Ownership Shares of US High-Yield Bond Market
(Percent)



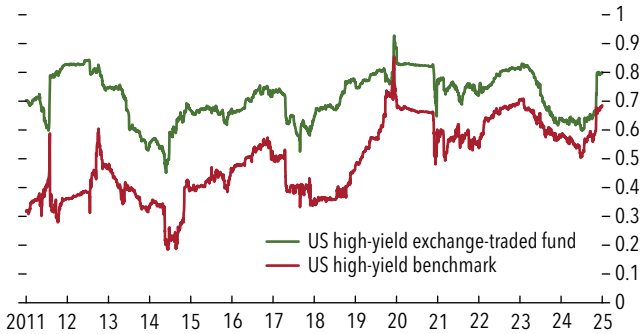
Other bond investment funds can own a large share of the debt of some issuers, increasing their concentration risk ...

5. Share of the Debt of Selected High-Yield Bond Issuers
(Percent)



... whereas the greater sensitivity of exchange-traded funds to major liquid markets increases contagion risks.

6. Average Correlation to S&P 500 Index
(12-month moving average)



Sources: Bloomberg Finance L.P.; EPFR Global; EUROPACE AG/Haver Analytics; J.P. Morgan; TRACE; Tradeweb; and IMF staff calculations.

Note: The total debt of the issuing firms in panel 5 amounts to $90 billion, about 4 percent of the ICE Bank of America Global High-Yield Index. Panel 6 uses the iShares iBoxx $ High-Yield Corporate Bond Exchange-Traded Fund as the proxy.

Strengthening global financial safety nets and foreign exchange market transparency and resilience can mitigate the impact of abrupt asset price corrections—especially in light of recent dollar depreciation—when market volatility spikes. The capacity and operational readiness of global financial safety nets,[43] including bilateral and regional currency swap lines, are crucial to preserve stability in funding and foreign exchange markets amid unforeseen ramifications of dollar weakening during periods of market stress.[44] Over the medium term, the growing role of NBFIs and other new foreign exchange market participants underscores the need for better data reporting and transparency, stronger systemic risk monitoring and stress testing (especially on foreign exchange mismatches), and greater operational resilience among key intermediaries to contain financial stability risks (see Chapter 2).

Urgent fiscal adjustments to curb government deficits and improvements in market structure are crucial to the resilience and functioning of core sovereign bond markets.[45] High debt and delayed fiscal adjustments in many countries could further raise borrowing costs for governments, underscoring the need for more ambitious fiscal measures to reduce sovereign risks. In addition, sustained trust in the institutional foundations in G4 economies has underpinned their sovereign bonds' safe-asset status for decades and needs to be preserved.[46] These foundational elements can be complemented by improvements in market structure, particularly a continued migration toward the central clearing of cash bond and repo transactions to reduce counterparty risk, strengthen intermediaries' capacity through balance sheet netting, and increase transparency. Standing liquidity facilities that backstop core government bond markets are equally crucial.

Emerging markets should deploy policies consistent with the IMF Integrated Policy Framework to mitigate external pressures while further deepening local financial markets, especially bond markets. A softer dollar has tempered the external headwinds for emerging markets in recent months, and rate cuts could induce more global flows into emerging market assets. That said, emerging markets with weaker fiscal positions—for example, real financing costs outpacing real growth—are vulnerable to abrupt changes in investor sentiment. To counteract the effects of capital inflow or outflow pressures, the use of foreign exchange interventions, macroprudential measures, and capital flow management measures may be appropriate under the Integrated Policy Framework for economies, especially if indicators of fragility such as rising inflation expectations and surges in exchange rate and capital flow volatility are observed. For example, provided buffers are available, countries can deploy reserves through foreign exchange interventions or temporarily relax macroprudential constraints to mitigate risks to macroeconomic and financial stability from capital outflow pressures. Such measures, however, should not impair progress on necessary fiscal and monetary adjustments or on the further development of local bond markets (see Chapter 3). Frontier economies should exercise caution against excessive reliance on less-conventional and potentially more fragile forms of borrowing, such as private placements and bespoke instruments.

The growing importance of NBFIs in financial intermediation highlights the need for sound oversight of this segment. Regulators should improve data collection, coordination, and analysis—particularly across borders—to ensure consistent oversight.

To address liquidity mismatches in investment funds, it is key to further improve and expand the availability and usability of liquidity management tools.[47] Timely and consistent implementation of revised recommendations and guidance from the Financial Stability Board (FSB) and International Organization of Securities Commissions is crucial to address structural vulnerabilities in open-ended funds. The use of swing pricing and other antidilution mechanisms can also be effective in mitigating liquidity

[43]Following IMF (2023), the global financial safety net refers to the network of bilateral, regional, and multilateral liquidity arrangements that provide countries with access to foreign exchange liquidity during periods of financial stress. The arrangements include central bank swap lines, regional financing arrangements, and IMF lending instruments.

[44]Both unipolar and multipolar international monetary system configurations can serve as a stable backstop for the global economy. However, risks of volatility and potential instability would rise during the transition between configurations (Chapter 2 of the July 2025 *External Sector Report*).

[45]"Core sovereign bond markets" includes markets covered in the section "Expanding Fiscal Deficits Exert Pressure on Bond Market Stability."

[46]See Gourinchas and Jeanne (2012), who argue that a global safe asset must be backed not only by sufficient fiscal capacity and liquidity support, but also by central bank independence and institutional safeguards that prevent the monetization of debt and preserve monetary credibility to prevent a fiscal-monetary nexus.

[47]Evidence from recent IMF Financial Sector Assessment Programs indicates that there is room to further improve and expand the availability of liquidity management tools to fund managers.

mismatches by reducing incentives for investors to redeem shares ahead of others, especially during periods of market stress (see Chapter 2 of the October 2022 *Global Financial Stability Report*). More definitive guidance to lengthen redemption frequency for funds investing in illiquid assets—including high-yield bonds—could more fundamentally address liquidity mismatches, although they may require amendments to the legal frameworks in some jurisdictions (IMF 2021).

Broader retail participation in private credit could translate into herd behavior to redeem investments during stress episodes. In line with FSB recommendations, private credit funds should create and redeem shares at a low frequency or require long notice or settlement periods. Regulators should implement stringent requirements to ensure that private credit firms use liquidity management tools and conduct stress testing to assess the sufficiency of these tools during economic downturns or episodes of procyclical redemptions. Securities market regulators should also ensure funds that permit retail participation clearly and comprehensively disclose potential risks and redemption limitations to their investors. Increasing retail participation requires close supervision of conduct risks, as more frequent redemptions may exacerbate concerns about valuations. Furthermore, the potential use of continuation funds would require stricter oversight.

Global banking stress tests have found that improved capitalization is key to addressing weak banks and enhancing banking sector resilience. To preserve financial stability amid high economic uncertainty, it is vital to implement Basel III and other internationally agreed-upon standards that ensure sufficient capital and liquidity in the banking sector. The efficiency of regulations should be ensured by reviewing any undue complexity without undermining the overall resilience of the banking sector or international minimum standards. The increased interconnectedness between banks and NBFIs means that strains at weaker, lightly regulated financial institutions can have significant consequences for banks and the broader financial system. Supervisors should carefully monitor banks' exposures to NBFIs by assessing the solvency and liquidity implications of these exposures under adverse scenarios. Supervisors from all financial sectors and macroprudential authorities need to coordinate more closely to establish sound governance structures, mechanisms, and processes to monitor banks and NBFIs from a systemwide perspective. In countries with insufficient buffers, policymakers should consider whether macroprudential buffers can still be built at the current juncture to increase resilience against a range of shocks while avoiding a broad tightening of financial conditions. Were a downturn in activity to lead to substantial financial stresses, such buffers could be released to help banks absorb losses and support the provision of credit to the economy, thereby reducing financial amplification of the downturn.

In light of risks to financial stability from weak banks, continued efforts to strengthen the financial sector safety net are critical. Central banks should establish frameworks for emergency liquidity assistance and stand ready to provide support to solvent and viable banks facing temporary liquidity shortfalls, subject to strong safeguards (for example, forward-looking solvency and viability assessments, appropriate interest rates, collateralization, and appropriate haircuts). Furthermore, all banks should periodically assess their access to central bank lending, including their ability to mobilize collateral quickly. Further progress on enhancing recovery and resolution frameworks is essential to ensure that authorities are well positioned to manage potential shocks without systemic disruption or exposure of taxpayers to losses.

Potential increasing adoption of stablecoins could impact safe-asset markets, financial intermediation, and monetary sovereignty. Effective regulation, supervision, and oversight of stablecoin arrangements is crucial to mitigate financial stability and integrity risks, including those associated with stablecoin runs. A comprehensive policy, legal, and regulatory response for crypto assets is necessary to address the risks they pose to macroeconomic and financial stability. Policymakers should implement the FSB's high-level recommendations for crypto assets and the broader IMF-FSB policy recommendations, ensuring that market and prudential authorities possess adequate powers, effective risk management frameworks are in place, anti-money laundering and combatting the financing of terrorism measures in line with international standards are effectively implemented, and relevant authorities cooperate with one another. It is also necessary to guard against excessive capital flow volatility and adopt unambiguous tax treatment of crypto assets. Sound macroeconomic policies and credible institutional frameworks can ensure monetary sovereignty is preserved, even as the stablecoin market continues to develop.

Box 1.1. Global Real Estate Update

Global commercial real estate (CRE) prices across all regions have continued their tenuous recovery since the April 2025 *Global Financial Stability Report* (Figure 1.1.1, panel 1). The recent price recovery may not have captured ongoing challenges in some sectors, such as offices. Indeed, in the United States, delinquency rates, as indicated by CRE that backs commercial mortgage-backed securities, rose to 7.29 percent for August, driven by continued stress in the office sector (Figure 1.1.1, panel 1). Rising CRE prices coincide with positive investment momentum: after bottoming out in 2023, the direct CRE investment growth rate recovered to 34 percent year-over-year in the latest quarter (Figure 1.1.1, panel 2), reaching $185 billion. Investment has been buoyed by sectors experiencing strong structural demand, such as logistics, data centers, and multifamily housing. Market analyses suggest that growth remains driven by liquid debt markets, stronger institutional demand, and increased cross-border activity.

Developments in the office market are heterogeneous around the world. Some markets, such as in London, Paris, Sydney, and Tokyo, are experiencing strong rental and leasing growth. Others, especially major cities in the United States, continue to experience elevated vacancy rates, reflecting differences across cities in tenant preferences and adaptability to new workplace standards (Figure 1.1.1, panel 3).

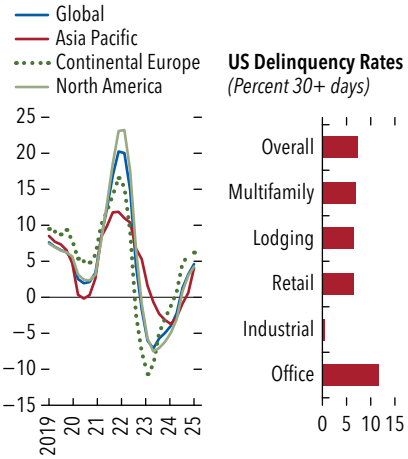
Looking ahead, private CRE markets are still facing headwinds. Real estate sentiment surveys indicate that the share of investors expecting improvements in market conditions has declined in recent months, reportedly over concerns about market volatility, construction cost pressures, and uncertainty around funding spreads (Figure 1.1.2, panel 1). An index of CRE market liquidity, which tends to lead to changes in CRE valuations, deteriorated during the brief global market turmoil in April (Figure 1.1.2, panel 2), suggesting that CRE sentiment is sensitive to broader

This box was prepared by Corrado Macchiarelli.

Figure 1.1.1. Commercial Real Estate Activity

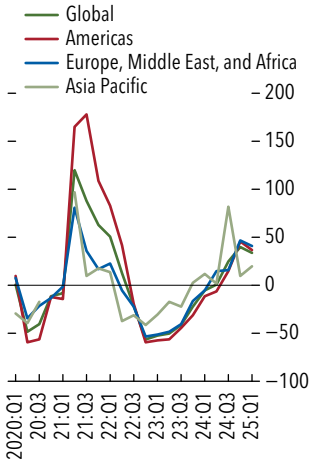
Recent commercial real estate activity suggests an uneven recovery.

1. Global Property Fund Index and Commercial Mortgage-Backed Security Delinquencies
(Index growth, annualized; percent)



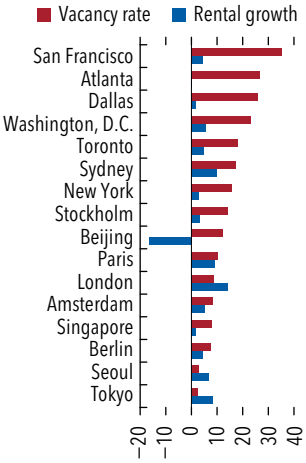
Capital flows are driving growth in direct real estate transactions ...

2. Quarterly Year-over-Year Change in Direct Investment, by Region
(Percent)



... with some cities witnessing a rebound in leasing and occupancy more than others.

3. Commercial Real Estate Vacancy Rates and Rental Growth Rates in Major Cities
(Percent)



Sources: MSCI; Trepp; JLL Research; and IMF staff calculations.

Note: In panel 1, the change in the MSCI Global Quarterly Property Fund Index is annualized. The last observation is for the second quarter of 2025. "US delinquency rates" refers to August 2025. In panels 2 and 3, the last observation is for the first quarter of 2025. In panel 3, transactions larger than $5 million exclude land/development and entity-level deals.

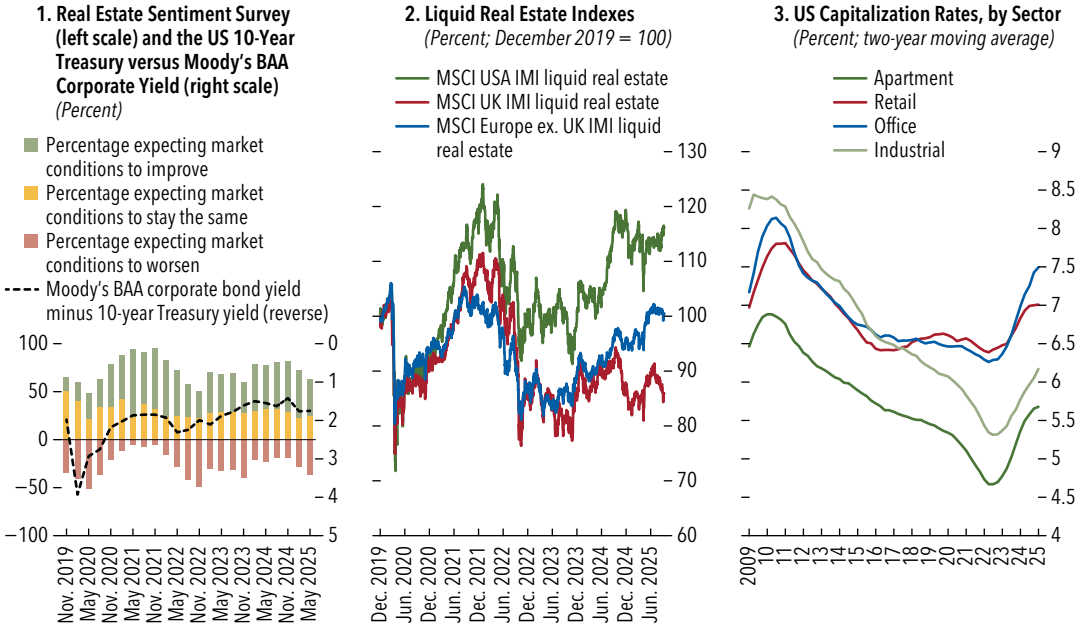
Box 1.1 *(continued)*

Figure 1.1.2. Commercial Real Estate Headwinds

Forward-looking commercial real estate sentiment has become somewhat more downbeat ...

... as reflected in liquid real estate indices.

Capitalization rates are widening, indicating that investors are demanding lower prices.



Sources: JLL Research; Federal Reserve Bank of St. Louis, Federal Reserve Economic Data; Bloomberg Finance L.P.; MSCI; and IMF staff calculations.

Note: Panel 1 shows the response to the following question in JLL Research's Real Estate Sentiment Survey: "Over the next six months, do you think market conditions will improve, stay the same, or worsen?" Panel 2 illustrates the indexed performance of MSCI IMI Liquid Real Estate indices for Europe (excluding the United Kingdom), the United Kingdom, and the United States. These indices track the performance of publicly traded real estate securities, offering a liquid proxy for regional real estate dynamics. Index values are normalized to December 2019. The last observation is for September 2025. Panel 3 displays a two-year moving average of quarterly capitalization rates for four major US commercial real estate sectors. Capitalization rates are calculated as the ratio of net operating income to property value, proxying real estate yields. In panels 1 and 3, the last observation is for the second quarter of 2025. ex. = excluding; IMI = Investable Market Index.

market sentiment. Finally, CRE capitalization rates in the United States have increased in office and retail segments, suggesting that new CRE investors will likely demand lower property prices before they invest (Figure 1.1.2, panel 3). This repricing process makes refinancing of CRE debt more challenging at a time when a substantial volume of US CRE debt is due to mature in a higher interest rate environment (see the April 2025 *Global Financial Stability Report*).

Similar to CRE, after rising strongly immediately after the COVID-19 pandemic and then being weighed down by higher interest rates in 2022 and 2023, residential real estate markets are entering a phase of uneven recovery. In some advanced economies, price growth has resumed modestly, supported by falling interest rates (Figure 1.1.3, panels 1 and 2). Where household leverage and debt-servicing capabilities have eased, real home prices have in some cases also demonstrated stronger growth (Figure 1.1.3, panel 3). This indicates that less-constrained borrowers are also more likely to support housing demand through increased credit uptake, thereby reinforcing price momentum, although the relationship varies considerably across countries.

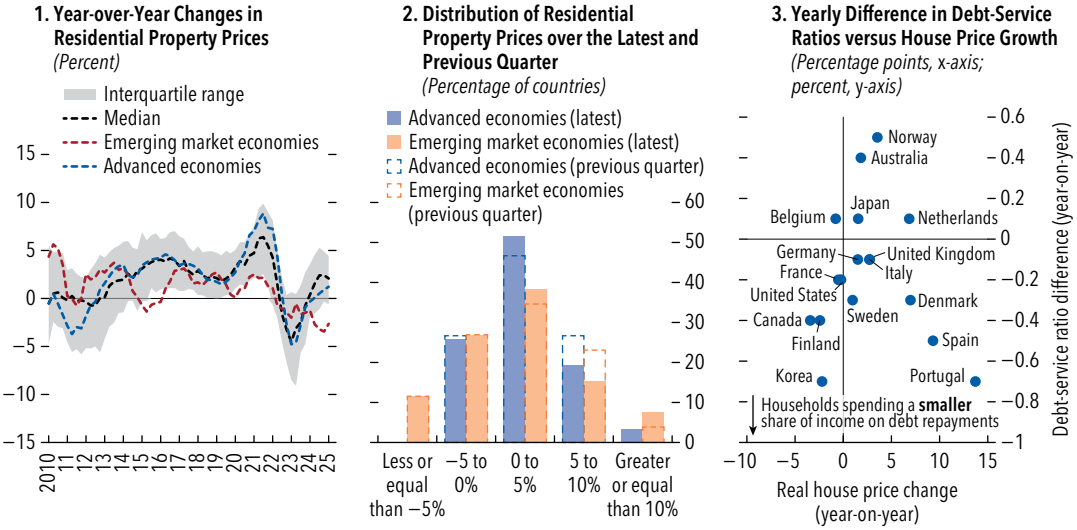
Box 1.1 *(continued)*

Figure 1.1.3. Residential Real Estate Activity

Residential real estate markets globally are entering a phase of uneven recovery.

Some emerging market economies are facing extended declines.

Lower debt-service burdens are associated with stronger real house price growth.



Sources: Bank of International Settlements; and IMF staff calculations.

Note: In panels 1 and 2, advanced and emerging market economies are calculated by the Bank for International Settlements, using rolling GDP and purchasing power parity exchange rate weights. In panels 1, 2, and 3, the last observation for real house prices is for the first quarter of 2025. In panel 3, the last observation for debt-service ratios is for the fourth quarter of 2024.

Box 1.2. Low Interest Rates in China Could Imperil Bank Profits and Lending

Since 2022, China's economy has endured relatively weak growth compared with historical rates and sustained low inflation (IMF 2024, 2025b). In response, the People's Bank of China has lowered key interest rates to stimulate growth, bringing the benchmark policy rate down to 1.4 percent from 2.2 percent three years ago. Meanwhile, bond yields have fallen to near historical lows. This decline in interest rates has weighed on banks' margins and profitability. Such erosion, combined with banks' ongoing challenges to generate capital organically (for example, through retained earnings) could imperil bank balance sheets and stifle credit supply, raising financial stability concerns as well as imperiling China's economic growth.

Banks' profitability pressures have intensified amid continued margin compression. Average net interest margins across the banking system declined to a historic low of 1.42 percent in the second quarter of 2025, as the benchmark seven-day reverse repo rate also reached a historical low (Figure 1.2.1, panel 1). The deposit spread—proxied by the gap between the one-year China government bond yield and the one-year time deposit rate—compressed sharply in late 2024 as bond yields fell faster than deposit rates, underscoring pressure on asset yields. The loan spread (China's one-year loan prime rate minus one-year government bond yield) has remained elevated (around 150 basis points), suggesting that banks have sought to partially offset the erosion in asset yields by maintaining loan rates at a relatively high level to preserve profitability (Figure 1.2.1, panel 2).

If this erosion in asset yields were to persist, banks' equity base might weaken, hindering the sector's ability to withstand negative shocks. Weighed by net interest margins, both return on equity and return on assets for the banking sector have declined, falling to 8.2 percent and 0.63 percent in the second quarter of 2025, near their lowest in a decade, compared with 8.9 percent and 0.69 percent a year earlier (Figure 1.2.1, panel 3). This decline in nominal rates could constrain lending—a scenario known as "reversal interest rates," whereby persistently low rates cut into banks' profits and capital base, curbing lending, despite accommodative monetary policy (Abadi, Brunnermeier, and Koby 2022; Wang 2025). Currently, capital buffers at the largest banks are adequate (IMF 2025b). Still, despite such buffers and low rates, loan growth at these banks has slowed below the five-year average on subdued demand (Figure 1.2.1, panel 4). Earlier this year, the authorities injected 500 billion yuan (or about $69 billion) of capital into large state-owned banks to help expand lending capacity, reflecting concerns that declining profitability could constrain credit supply. Such concerns underscore the difficult trade-offs policymakers face as they ease rates to low levels: whereas low rates support growth in the short term, sustained low rates could weaken bank profitability and reduce lending capacity over time.

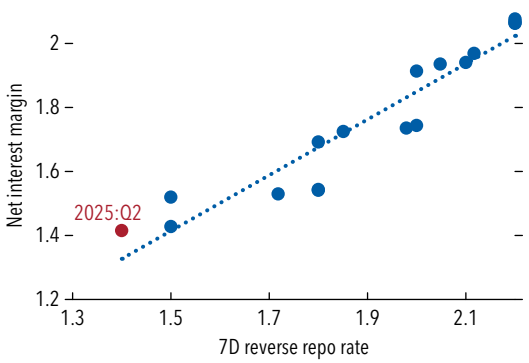
This box was prepared by Sally Chen, Lawrence Tang, and Jing Zhao.

Box 1.2 *(continued)*

Figure 1.2.1. Low Interest Rates Have Weighed on Bank Profitability in China

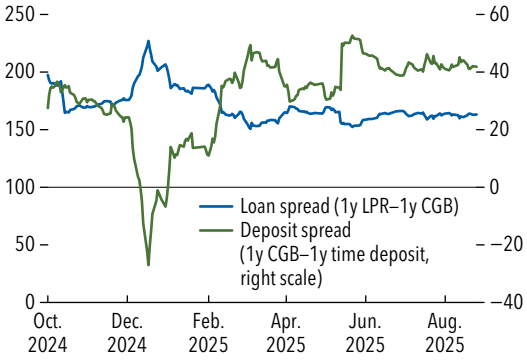
The net interest margin is at a historical low ...

1. Banks' Net Interest Margin and the Seven-Day Repo Rate, First Quarter of 2021 to the Second Quarter of 2025
(Percent)



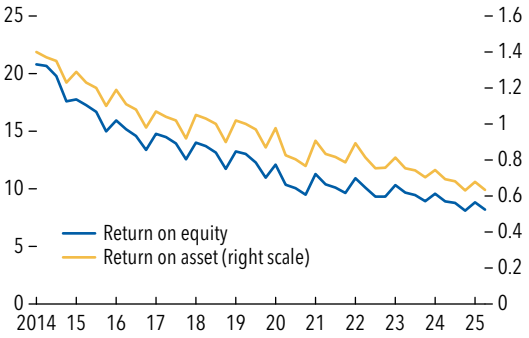
... while deposit income has fallen and loan spreads are stable.

2. Deposit Income versus Loan Spreads
(Basis points)



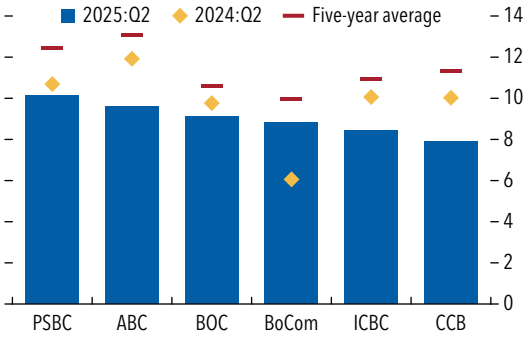
Bank profitability is at a 10-year low ...

3. Return on Assets and Equity
(Percent)



... and loan growth has slowed.

4. Loan Growth at Large Banks
(Percent; year-over-year)



Sources: Bloomberg Finance L.P.; CEIC; J.P. Morgan; and WIND.

Note: In panels 1 and 3, net interest margin, return on equity, and return on assets reflect data for the entire banking sector in China. In panel 2, the one-year time deposit rate is estimated by J.P. Morgan, currently at 0.95 percent, while the PBOC's official benchmark one-year deposit rate stands at 1.5 percent, which is generally viewed as the ceiling, and the one-year lending prime rate, which is a weighted average of rates submitted by 20 quoting banks, stands at 3 percent currently. In panel 4, the loan growth analysis focuses on the six largest state-owned banks: Postal Savings Bank of China (PSBC), Agricultural Bank of China (ABC), Bank of China (BOC), Bank of Communications (BoCom), Industrial and Commercial Bank of China (ICBC), and China Construction Bank (CCB). CGB = China government bond; LPR = loan prime rate; Q = quarter.

Box 1.3. Banks and Insurers Are Deepening Ties with the Private Credit Ecosystem

The exponential growth of private credit has raised concerns that credit provision is migrating from strictly regulated banks and relatively transparent public markets to the comparatively lightly regulated and opaque private credit industry. The emerging financial system, however, is marked by intertwined operations whereby traditional institutions like banks and insurers, as well as alternative nonbanks like private credit funds, are not substitutive entities but instead part of an increasingly integrated system. Recent partnerships among the private credit industry, banks, and insurers highlight that cooperation can generate significant economic benefits for the parties involved. To realize these benefits for the broader economy, adjustments to supervisory and regulatory approaches are needed to address the buildup of risks across sectors and borders.

Banks

In the past decade, the private credit industry has built a sizable channel for raising long-term capital from institutional investors. The "patient" nature of capital in most private credit balance sheets gave it a competitive advantage in originating and retaining credit in the riskiest areas, like leveraged finance to middle-market borrowers or subordinated debt to commercial real estate transactions—areas often avoided by strictly regulated banks. To tap into other types of clients and credit products, several private credit managers have entered more than 20 partnerships with banks in various countries in the last three years. Larger private credit managers have been partnering with global banks with a wide network of clients (in particular, global systemically important banks) or smaller banks with deep expertise in a particular lending niche (for example, asset-based finance). Such partnerships often aim to distribute private credit products to banks' wealth management clients or create channels for banks to offload capital-intensive assets to private credit funds, in line with sales of banks' loan portfolios or the growing trend of synthetic risk transfers (see the October 2024 *Global Financial Stability Report*). Smaller private credit managers look for anchor bank partners to back their growth by providing leverage to their private credit funds and strengthening their pipeline of lending deals.

Many partnerships assume the "originate-to-distribute" model that relies on banks' network of potential borrowers: banks earn fees for originating and servicing corporate loans and asset-based finance, which are consequently booked in private credit funds (for example, forward-flow origination). Often, such partnerships are complemented by an agreement that banks provide leverage to engaged private credit funds and additional banking services to private credit borrowers, including revolving lines of credit. Although such partnerships in principle are beneficial for banks and private credit managers, they have not yet been tested over time. Some market participants raise concerns that the partnerships may lead to looser underwriting standards and weaker loan monitoring.

Insurance Companies

Private credit has long been an important component of insurers' portfolios, especially in North America, where it represents about one-third of total investments (Figure 1.1.3, panel 1). Private credit instruments offer insurers additional spread for illiquidity and supply long-duration assets to match their long-term liabilities. However, increasing exposure to private credit requires advanced asset-liability management to account for higher asset illiquidity, policy surrender risk, and single-name concentrations. Whereas some private credit investments represent simple credit originated by nonbank lenders, a significant and growing portion of insurers' private credit portfolios is in structured instruments providing leverage to the high-yielding part of the private credit ecosystem: for example, securitized products (such as middle-market collateralized loan obligations and commercial real estate collateralized loan obligations), fund financing through feeder notes, collateralized fund obligations, and private placements of private credit funds' debt. A growing share of insurers' private credit exposure is sourced through either affiliated private credit managers or partnerships with private credit managers, which requires special attention because of potential conflicts of interest and the lack of transparency (Cortes, Diaby, and Windsor 2023).

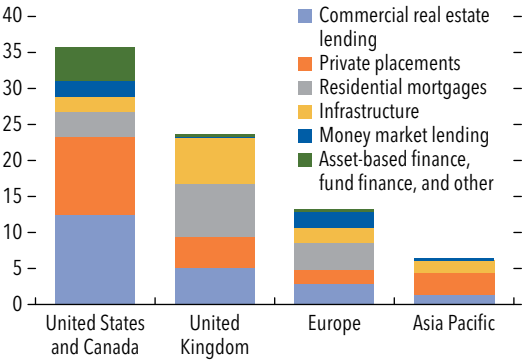
Most insurers' exposure to private credit is classified as investment grade, and many private credit instruments would be much less appealing if classified as below investment grade. The investment-grade status allows favorable risk-capital treatment and considers the instruments' cash flows sufficiently reliable to qualify for asset-liability matching. Insurers' search for private credit exposures classified as investment

Box 1.3 *(continued)*

Figure 1.3.1. Insurers' Exposure to Private Credit

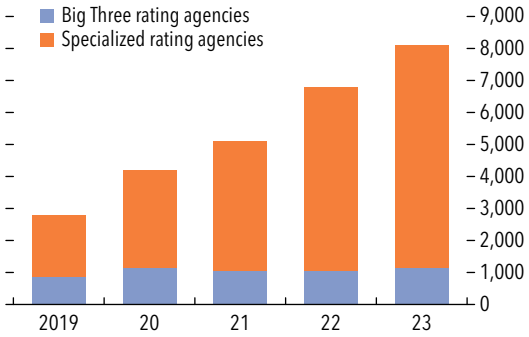
Insurers have diverse exposure to private credit instruments, especially in North America and the United Kingdom.

1. Moody's Survey of Insurers' Average Positions in Private Credit Instruments
(Percent of total investments)



Private ratings have been growing in number and importance in the United States.

2. Privately Rated Securities Held by US Insurers
(Number)



Sources: Moody's; NAIC; and IMF staff calculations.

Note: Panel 1 refers to Moody's 2024. In panel 2, the "Big Three rating agencies" are Moody's Investors Service, Standard & Poor's, and Fitch Ratings.

grade has changed the rating landscape in the United States, with an increasing share of the assessment being conducted by smaller rating agencies specializing in the private credit ecosystem (Figure 1.3.1, panel 2).

Misclassification of below-investment-grade instruments into the investment-grade bucket may result in default losses significantly exceeding those expected during an economic shock, leading to the erosion of insurers' capital and potentially causing liquidity gaps because of insufficient cash flow from the defaulted entities. Because reliable private ratings are key for insurers' prudential regulation, it is imperative to keep the risk of inflated ratings minimal by ensuring the soundness of private rating assessments and requiting adequate transparency of methodologies and reports.

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