CHAPTER 1

STEADYING THE COURSE: FINANCIAL MARKETS NAVIGATE UNCERTAINTY

Chapter 1 at a Glance

- Since the April 2024 *Global Financial Stability Report*, near-term financial stability risks have remained contained. Global economic activity has moderated, inflation has slowed, emerging markets have remained resilient, financial conditions have remained accommodative, and volatility in financial markets has remained low, on net.
- However, accommodative financial conditions facilitate the further buildup of vulnerabilities. Asset valuations appear lofty, debt has climbed globally, and the use of leverage among nonbank financial intermediaries has increased. Fragilities in corporate and commercial real estate sectors remain.
- These imbalances could worsen future downside risks by amplifying adverse shocks, which have become more probable due to the widening disconnect between elevated economic uncertainty—stemming from ongoing military conflicts and the uncertain future policies of newly elected governments—and low financial volatility. Market turmoil in early August, though short-lived, served as a reminder of how quickly volatility can catch up to uncertainty, force the unwinding of leveraged trades, and trigger feedback loops between asset prices and deleveraging.
- Certain types of nonbank financial intermediaries amplified the early August turmoil and warrant more active supervisory engagement. The banking system has remained sound, although a weak tail of banks is still confronting exposures to troubled sectors like commercial real estate and ongoing business model challenges.
- Emerging markets have broadly demonstrated continued resilience, but preserving financial stability could be more challenging going forward. The slowing growth outlook in China and fragilities in its financial system are a key downside risk to the global economy. Access to funding for frontier markets and economies with weaker fiscal buffers may become more constrained. Underinvestment in climate finance would delay climate mitigation and adaptation in emerging markets and developing economies, with financial stability implications to come.

Policies to Address Financial Vulnerabilities

- For central banks, clear communications that the path of monetary policy should not react excessively to any individual data point would help reduce uncertainty. Where growth and inflation momentum are set to continue, central banks should gradually ease monetary policy toward a more neutral stance. Where inflation remains stubbornly above targets, central banks should push back against overly optimistic investor expectations for monetary policy easing that would further stretch asset prices.
- With levels of sovereign debt in many advanced and emerging market economies substantially above prepandemic levels, fiscal adjustments should primarily focus on credibly rebuilding buffers to keep external financing costs reasonable and to help anchor medium-term inflation expectations. Sovereign borrowers in frontier economies and low-income countries should strengthen efforts to contain risks associated with high levels of debt vulnerability.
- Policies that address nonbank leverage and liquidity mismatches need to be strengthened. Renewed efforts to implement internationally agreed-upon bank prudential standards in a timely and consistent manner would reduce opportunities for regulatory arbitrage across borders and sectors.
- Authorities should expand recovery and resolution plans, ensure that financial institutions are prepared to access central bank liquidity, and intervene early to prevent future strains in the financial sector from turning systemic.

Introduction

Since the April 2024 *Global Financial Stability Report*, global economic activity has moderated, and inflation has continued to slow. With major central banks undertaking monetary easing and modest risks of an imminent global recession (see the October 2024 *World Economic Outlook*), asset prices have stayed buoyant and financial conditions accommodative. Major emerging markets have remained resilient and have continued the proactive policymaking that has helped mitigate the multitude of shocks since the COVID-19 pandemic. Near-term risks to financial stability, according to the IMF's Growth-at-Risk (GaR) model, have remained contained at around 40th historical percentile.

However, accommodative financial conditions could prompt a further buildup of several vulnerabilities that worsen downside risks in the future. First, asset valuations appear lofty in equity and corporate credit markets, driven by buoyant investor sentiment seemingly undeterred by a slowdown in earnings growth of firms and the continued deterioration in more fragile segments of the corporate and commercial real estate (CRE) sectors. Second, government debt continues to mount, a consequence of still-expansionary fiscal policies in many countries (see the October 2024 *Fiscal Monitor*). A number of advanced economies are increasing the issuances of government bonds while central banks are conducting quantitative tightening, portending larger swings in bond yields. In emerging markets, sovereign credit spreads have become sensitive to countries' fiscal buffers, and certain weaker jurisdictions may have trouble refinancing debt maturing on the horizon at sustainable interest rates. Third, the use of leverage by financial institutions, especially by nonbank financial intermediation (NBFI) like hedge funds and private credit funds, have risen; maturity mismatches at some open-ended funds and insurers have widened.

These imbalances could worsen future financial stability risks by amplifying adverse shocks, which have become more probable due to elevated economic and geopolitical uncertainty. Much of this uncertainty is because half of the world's population has elected or will elect new governments this year, and future policies that these governments will enact—ranging from fiscal to trade to geopolitical—are in many cases difficult to pin down. Heightened uncertainty may also reflect the unpredictability of ongoing military conflicts, notably in the Middle East and in Ukraine. Adverse shocks are not only more probable; the widening disconnect between uncertainty and relatively low volatility in financial markets suggests that they could trigger a spike in volatility, bringing it in line with prevailing uncertainty.[1] This could raise value-at-risk measures, bind risk limits, and trigger margin calls, practices that can protect individual institutions from turbulent markets but may also cause nonlinear effects that hasten sell-offs.[2] For example, broker–dealers may find their balance sheets constrained by risk limits in volatile markets, curtailing their intermediation capacities (see FSB 2017; Adrian, Boyarchenko, and Shachar 2017), while NBFIs facing margin calls might be forced to deleverage by selling assets into a falling market.

The severe, albeit short-lived, market turmoil in early August provided a glimpse of the violent reactions markets can incur when volatility catches up to uncertainty. Global stock prices fell sharply (the Nikkei index declined by 12 percent on August 5)—what began as investors' unwinding of carry trades that borrowed yen to fund long positions in global risk assets was amplified by selling of risk assets following the Bank of Japan's monetary policy decision in late July and a weaker-than-expected July US labor market report. Equity volatility surged from compressed levels, contributing to further sell-offs (see Box 1.3) before subsiding over subsequent days.

Looking ahead, the uncertainty-volatility disconnect may increase downside risks to growth, as quantified in Chapter 2. When shocks arrive and volatility rises, hedge funds may further unwind leveraged positions, and algorithmic traders—which have gained significant market shares in various asset classes—may sell in falling markets to protect themselves against further losses, exacerbating price declines. Recent advancements in artificial intelligence and machine learning suggest that algorithms may play a larger role in future episodes of turbulence, as discussed in Chapter 3.

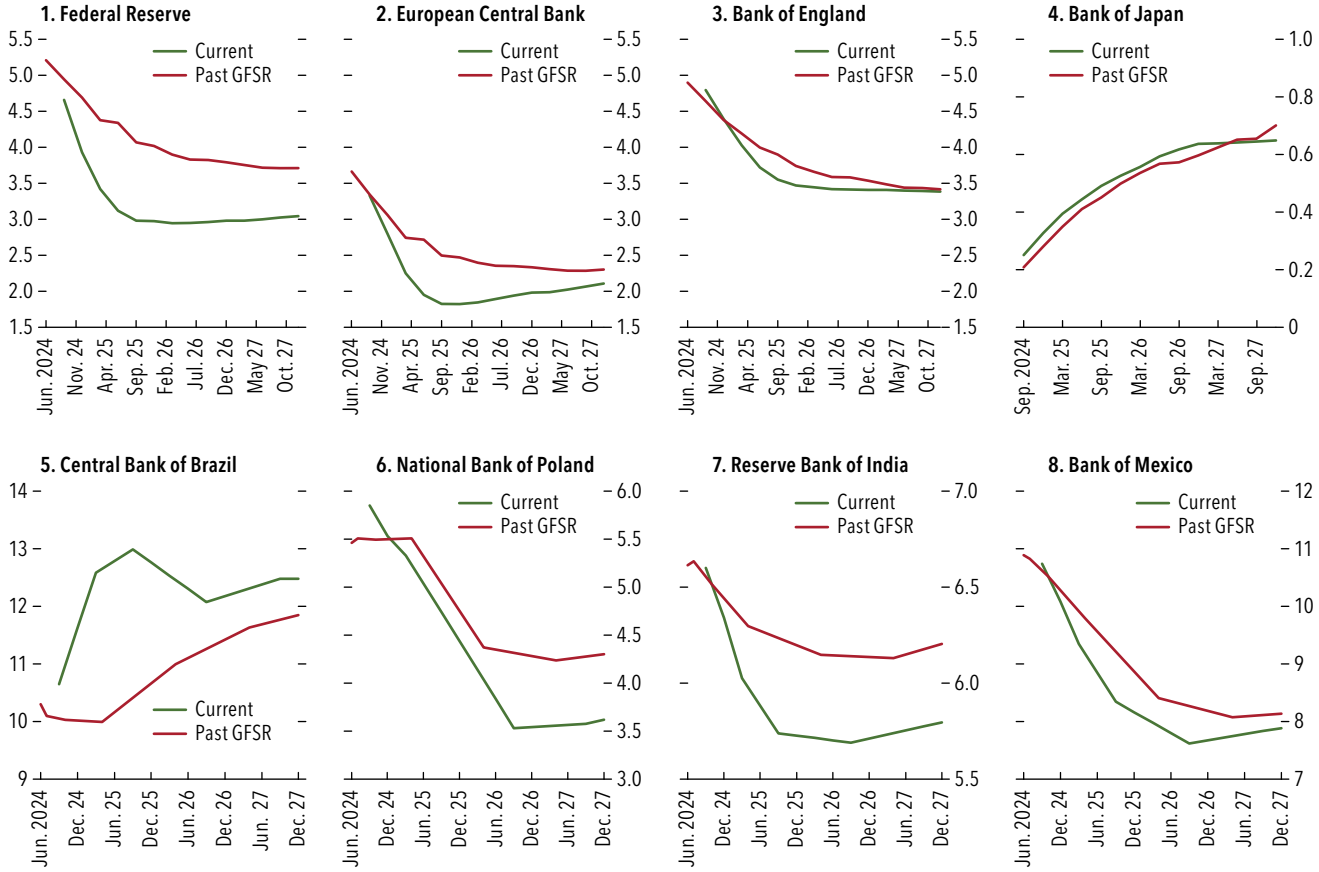
Emerging markets have continued to demonstrate resilience since the April 2024 *Global Financial Stability Report*, notably against pressures on their currencies. A number of major emerging market central banks remain focused on domestic economic and inflation conditions

[1]The asset price literature generally predicts a close link between uncertainty about economic growth and volatility of asset prices. See, for example, the seminal paper of Lucas (1978), in which asset prices and their returns are more volatile the higher the variance of consumption growth because the stochastic discount factor for asset prices is a function of intertemporal marginal utility from consumption. Deviations between the two are explained by the presence of risk premiums in financial markets. The current gap between uncertainty and volatility indicates low risk premiums and investor complacency.

[2]See Abboud and others (2021) for an example of value-at-risk rising with market volatility and Brunnermeier and Pedersen (2009) for a model of the procyclicality between margin requirements and volatility.

Figure 1.1. Market-Implied Expectations of Policy Rates for Selected Advanced and Emerging Market Economies
(Percent)

Market pricing suggests most major central banks will cut policy rates this year.



Sources: Bloomberg Finance L.P.; Federal Reserve; national authorities; and IMF staff calculations.

Note: Expected policy rates shown here are based on interest rate futures or swaps. Information conveyed by these markets may deviate periodically from other measures of policy rate expectations, such as those obtained from surveys of professional forecasters. Such deviations could reflect, for instance, the time-varying influence of risk premiums embedded in yield curves. GFSR = *Global Financial Stability Report*.

in setting monetary policy, relying on exchange rate adjustments to mitigate external headwinds. With major advanced economies having eased monetary policy, pressure on emerging markets could moderate in the near term. Further ahead, however, uncertainty regarding trade and geopolitical policies could make preserving financial stability more challenging. Financial flows may become more volatile and access to international funding may be more difficult, especially for frontier economies. The slowing growth outlook in China and fragilities in its financial system are key downside risks to the global economy, as the measured policy support so far has yet to stabilize the housing market downturn and restore consumer and business confidence.

This *Global Financial Stability Report* delves into the financial vulnerabilities and imbalances and offers recommendations on how policymakers can address them.

Monetary and Financial Developments

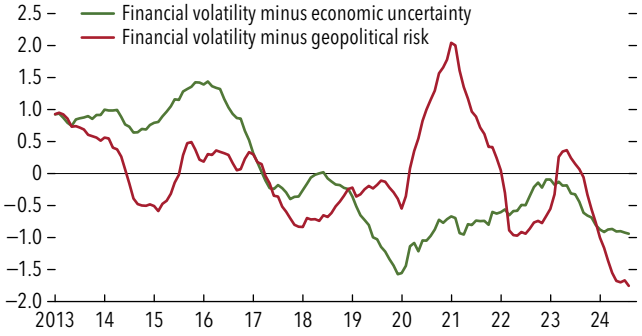
Monetary Policy Is Expected to Ease Globally

With postpandemic supply chain disruptions and commodity price pressures having largely dissipated and labor markets coming into better balance, inflation has continued to move toward central banks' targets, and most have begun to ease monetary policy. Since the April 2024 *Global Financial Stability Report*, the European Central Bank, Bank of England, the Federal Reserve, and Riksbank have cut policy rates. Meanwhile, the Bank of Japan raised its policy rate in July, supported by broad-based wage growth projected to support sustainable and stable achievement of its inflation target (Figure 1.1). That said, the pace and extent of easing delivered by different central banks are expected to vary, with inflation still above target in many regions.

Figure 1.2. Economic Uncertainty and Market-Based Inflation Expectations

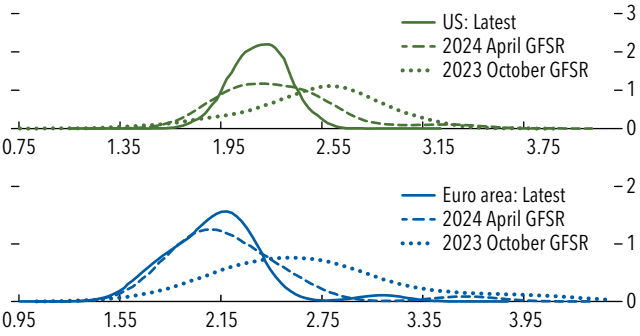
Economic uncertainty and geopolitical risk are elevated, while financial market volatility is compressed.

1. Difference of the Standardized Measures of Financial Volatility, Economic Uncertainty, and Geopolitical Risk
(Differences in historical z-scores)



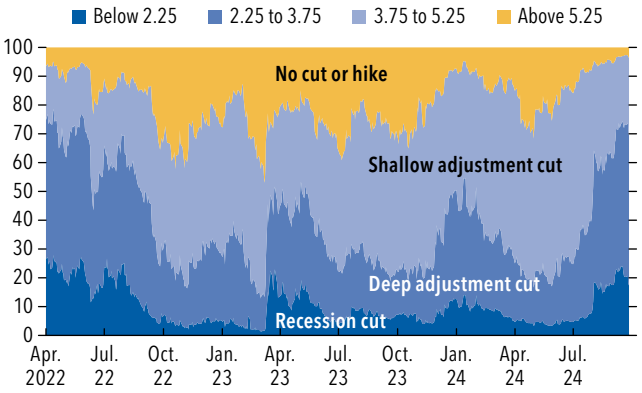
Upside risks to the inflation outlook over the coming year remain meaningful.

2. Distribution of Analysts' Survey Forecasts: One-Year-Ahead Core Inflation
(Percent; probability density)

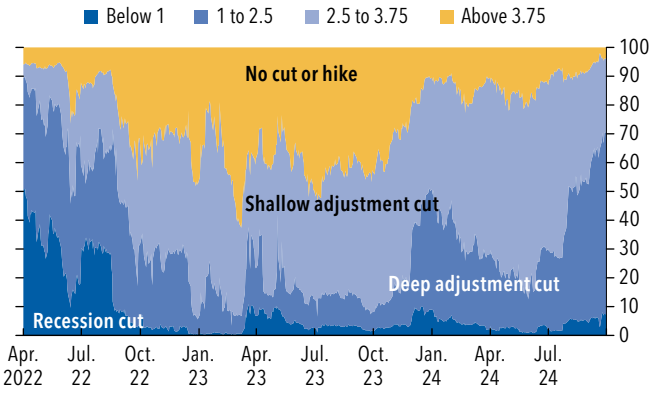


Interest rate derivatives suggest that both shallow and deep adjustment cuts are possible.

3. Option-Implied US Monetary Policy Scenarios over the Next Two Years
(Probability in percent)



4. Option-Implied Euro Area Monetary Policy Scenarios over the Next Two Years
(Probability in percent)



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

Note: In panel 1, "economic uncertainty" is the index of Baker, Bloom, and Davis (2016); "financial volatility" is the average of the Chicago Board Options Exchange's Volatility Index, High-Yield Corporate Volatility Index, and Currency Volatility Index; and "geopolitical risk" is the index of Caldara and Iacoviello (2022). All series are *z*-scores (from 2012 to 2024) of 12-month-moving-average values and then differences were taken. In panel 2, distributions are constructed, using kernel densities, from survey forecast responses submitted by economists and market participants to Bloomberg Finance L.P. Forecasts for core consumer price and personal consumption expenditures indices are shown for the euro area and the United States, respectively. GFSR = *Global Financial Stability Report*.

Markets are pricing in multiple cuts in policy rates among major central banks over the remainder of this year and during the next (Figure 1.1, panels 1–4). The Federal Reserve is expected to cut its policy rate by almost 150 basis points by the end of 2025, more than was expected at the time of the April 2024 *Global Financial Stability Report*. In emerging markets, policy paths have generally been revised downward, however, with some central banks having paused their cutting cycles as interest differentials with respect to advanced economy central banks have narrowed, or raised rates to ensure convergence of inflation to target.

Financial Market Volatility Disconnected with Economic Uncertainty

Expectations for lower policy rates globally and investor optimism have helped compress financial market volatility despite elevated economic policy uncertainty and geopolitical risks. The wedge between volatility and uncertainty (Figure 1.2, panel 1) is currently quite large, raising the risk that volatility could surge when adverse shocks hit to exacerbate vulnerabilities. More specifically, inflation uncertainty is still elevated somewhat, as analysts forecast that upside risks to inflation—especially a 2 percent or higher core inflation in the year ahead—

remain in both the euro area and the United States (Figure 1.2, panel 2). Reflecting the wide range of possible economic outcomes ahead, investors are increasingly attuned to signs of economic or labor market slowdown, with some even discussing recessionary probabilities. As a result of the dual sets of risks, financial markets are pricing in substantial likelihood of shallow cuts as well as deep adjustments, especially in the United States (Figure 1.2, panels 3 and 4).

Yield Curve Disinversion Partly Reflects Higher Expected Debt Levels

Long-term interest rates in most advanced economies and many emerging markets have changed little, on net, since the April 2024 *Global Financial Stability Report* (Figure 1.3, panel 1). In some major emerging market economies, however, long-term rates have seen upward pressure from rising term premiums (Figure 1.3, panels 2 and 3), possibly reflecting higher uncertainty about the pace and timing of policy easing by advanced economies and volatility in exchange rates (see "Global Monetary Policy Synchronization Leads to More Spillovers to Emerging Markets").

Since the April 2024 *Global Financial Stability Report*, the slope of the US yield curve—for example, the difference between 10-year and 2-year Treasury yields—has steepened, with the yield curve disinverting after a historically long period of inversion (Figure 1.3, panel 4). In general, yield curves can steepen when short-term rates fall faster than long-term rates (that is, during a so-called bull steepening) or when longer-term rates rise faster than short-term ones (a so-called bear steepening). Bull steepening episodes have historically been associated with easing of monetary policy and with policy rates being cut, whereas increasing term premiums—both real risk premium and inflation risk premium components—have typically driven bear steepening episodes (Figure 1.3, panel 5). Since the start of the year, the expected path of short-term rates has declined, on net, but this has occurred alongside the term premium moving higher, with the inflation risk premium—reflecting the compensation investors require for bearing risks of inflation uncertainty—notably displaying continued persistence (Figure 1.3, panel 6).

These changes to the yield curve are fairly unique and could lead to indeterminacy in investors' asset allocation and more volatile markets. Historically, bear steepening episodes have been more favorable to risk assets than bull steepening episodes (Figure 1.4, panel 1) because investors expect strong growth momentum, supporting corporate earnings, and spurring demand for equities.[3] Past bull steepening episodes, conversely, have typically occurred when investors expected a deteriorating economic outlook, thereby weighing on risk assets. That said, the recent steepening in the US yield curve is somewhat unique in featuring a decline in the expected policy rate path, as in bull steepening episodes, coupled with a rise in term premium, as in bear steepening episodes, of a broadly comparable magnitude (see Figure 1.3, panel 5). These two forms of steepening will likely continue to work in tandem: The Federal Reserve will probably continue to cut rates. At the same time, Treasury issuance, which is projected to remain high in coming years to fund government deficits, may spur fiscal uncertainty and concerns about the buildup of inflationary pressures (evidenced, in part, by persistent inflation risk premium; see previous discussion and Figure 1.3, panel 6), in turn exerting upward pressure on term premiums (Figure 1.4, panel 2; see also "Quantitative Tightening Has Proceeded in an Orderly Manner So Far").[4] Amid already-high economic uncertainty, the two steepening types operating in tandem may add to the murkiness of signals about the trajectory of economy.

Quantitative Tightening Has Proceeded in an Orderly Manner So Far

Ongoing quantitative tightening has *so far* unfolded in an orderly fashion, reflecting the carefully calibrated pace and scope of balance sheet reduction by central banks aimed at maintaining smooth functioning of government bond and short-term funding markets. Group of Ten central banks have reduced their balance sheets (Figure 1.5, panel 1) from a peak of $28 trillion in March 2022 to $21.5 trillion. The key tail risk that remains is that quantitative tightening may drain bank reserves too much, causing the type of squeeze in funding markets exemplified by the US repo market turmoil in September 2019 (see the October 2019 *Global Financial Stability Report*). Currently, many central banks are engaging in quantitative tightening simultaneously, raising the odds that this type of risk can spill over more widely—for example, inadequate bank reserves in one jurisdiction may end up

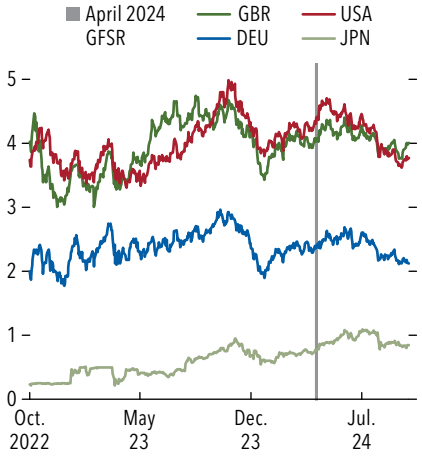
[3]Specifically, growth momentum is expected to more than offset negative effects of high long-term rates on corporate earnings, thereby leading to buoyant prices.

[4]Furthermore, long-term yields may also be bolstered by positive correlation between equity prices and bond yields, as can be expected during a period of high inflation uncertainty (see Aquilina and others 2024), rendering bonds a poor hedge for risk assets and in turn keeping term premiums high.

Figure 1.3. Recent Developments in Longer-Term Interest Rates

Long-term rates remained broadly unchanged, on net, in most major advanced economies, and have moved up in many emerging markets since the April 2024 *Global Financial Stability Report*.

1. Ten-Year Government Bond Yields for Selected Advanced Economies
(Percent)

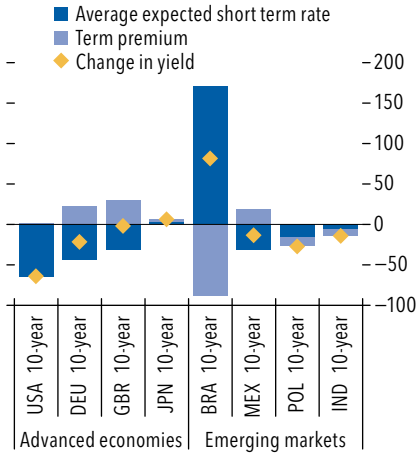


The US yield curve has disinverted after a long period of inversion ...

2. Ten-Year Government Bond Yields for Selected Emerging Market Economies
(Percent)

... with steepening reflecting both the falling expected policy rate path and rising term premiums.

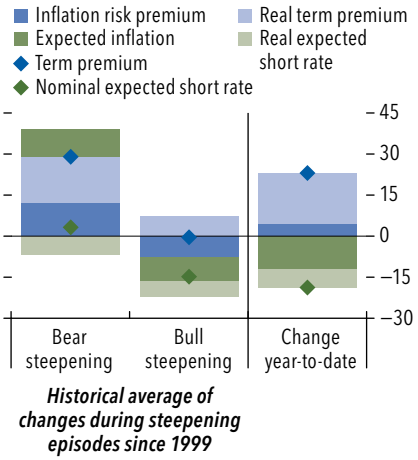
3. Decomposition of Changes in 10-Year Bond Yields Since April 2024 GFSR
(Basis points)



The inflation risk premium component of the term premium has displayed continued persistence.

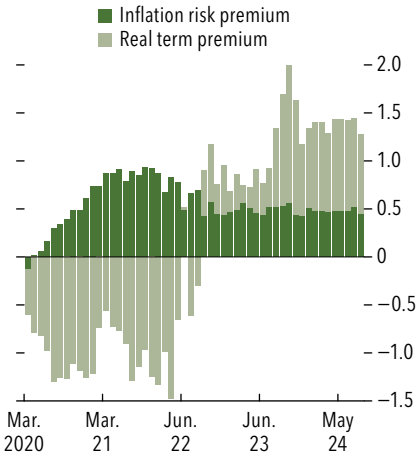
4. Evolution of US Yield Curve Slope Since 1999
(Basis points)

5. Decomposition of Changes in US 10-Year Yields During Historical Steepening Episodes Versus During Recent Period
(Basis points)



Historical average of changes during steepening episodes since 1999

6. Inflation Risk Premium and Real Risk Premium Components of the US 10-Year Bond Yield
(Percent)



Sources: Bank of England; Bloomberg Finance L.P.; European Central Bank; Federal Reserve; and IMF staff calculations.

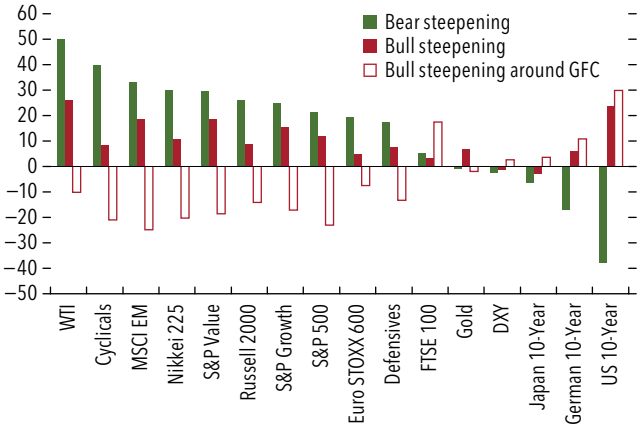
Note: Decomposition of bond yields into expected short-rate and term premiums in panel 3 follows the methodology of Adrian, Crump, and Moench (2013). In panel 4, the average reaction of the US 10-year government bond yield is calculated three months into a steepening episode since 2000. Steepening episodes are defined as in Goldman Sachs (2023). Joint decomposition of nominal and real yields into expected inflation, real expected short-term rate, inflation risk premium, and real term premium in panel 5 follow Abrahams and others (2016). Data labels in the figure use International Organization for Standardization (ISO) country codes. 2s10s = difference between 10-year and 2-year Treasury yields; GFSR = *Global Financial Stability Report*.

Figure 1.4. Drivers of Steepening in the US Yield Curve

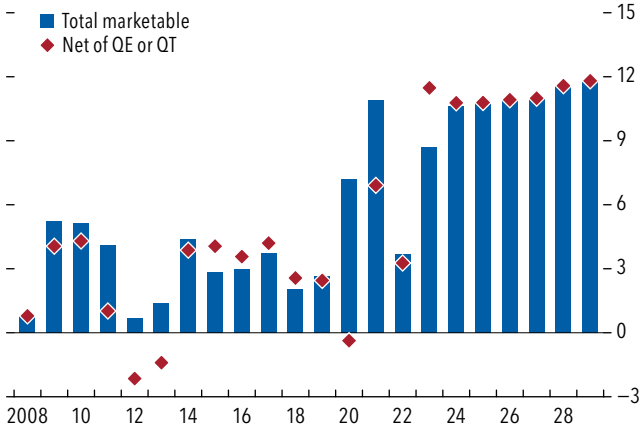
Bear steepening has favored risk assets more than bull steepening.

Net issuance of Treasuries is projected to remain elevated, possibly pushing up term premiums.

1. Bear versus Bull Steepening Episodes for Asset Returns
(Percent)



2. Net Supply of Treasury Bonds Relative to GDP
(Percent, annualized average)



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

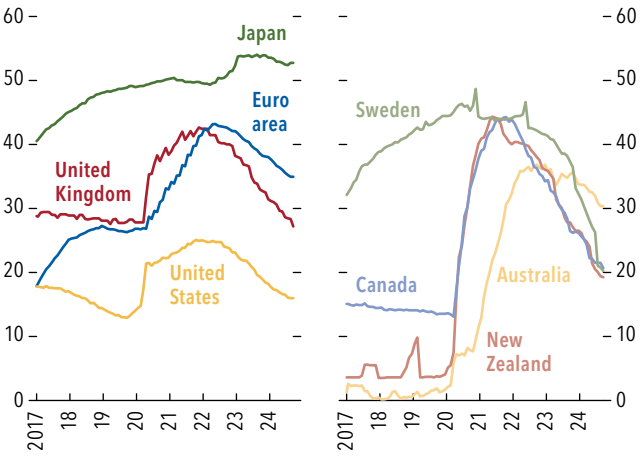
Note: Panel 1 shows the average annualized returns for selected assets over different steepening periods. Goldman Sachs (2023) defines the steepening episodes. Panel 2 shows net duration supply, expressed in terms of 10-year equivalent bonds net of domestic central bank purchases. Forecasts reflect consensus expectations for bond issuance and domestic Federal Reserve purchases. Higher values indicate deteriorating liquidity. DXY = US Dollar Index; FTSE = Financial Times Stock Index; GFC = global financial crisis; QE = quantitative easing; QT = quantitative tightening; WTI = West Texas Intermediate (crude oil).

Figure 1.5. Shifts in Government Bond Buyer Base Toward Price-Sensitive Investors amid Progress on Quantitative Tightening

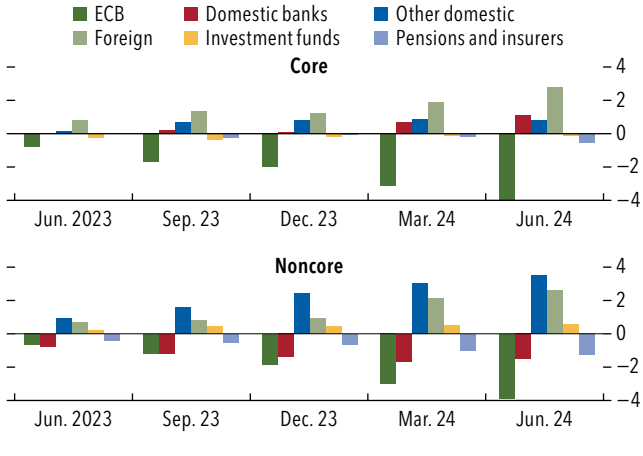
Since the April GFSR, advanced economy central banks continued reducing their footprint in domestic sovereign bond markets.

ECB's QT is shifting the EGB buyer base toward price-sensitive investors, with scarcity premium arising as banks are favoring core sovereign bonds.

1. Central Bank Holdings as Share of Domestic Sovereign Bond Markets
(Percent)



2. Flows into Core and Noncore EGBs by Investor Type
(Percentage points)



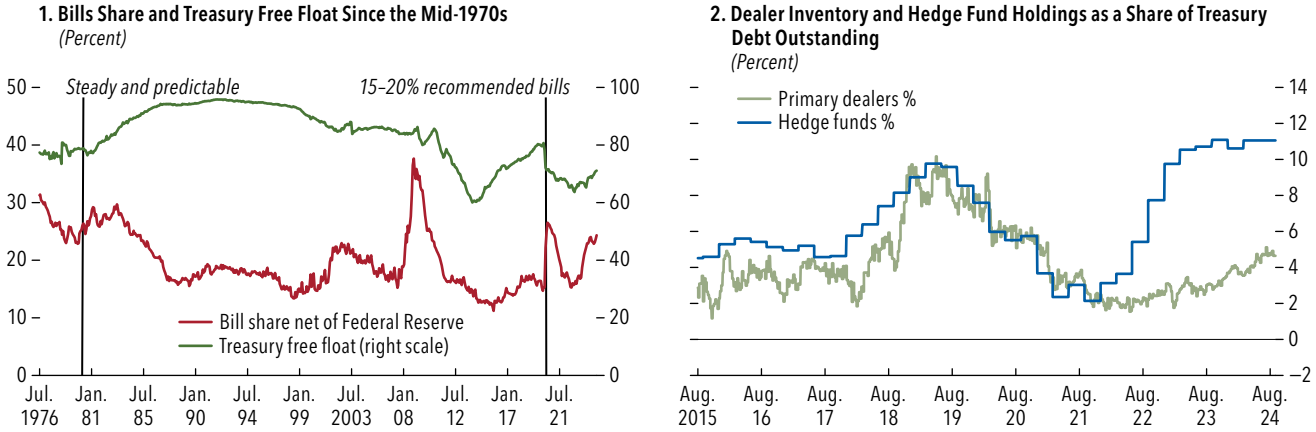
Sources: Bank of England; Bank of Japan; Bloomberg Finance L.P.; EUROPACE AG/Haver Analytics; European Central Bank; Federal Reserve System; national debt management offices; Reserve Bank of Australia; Reserve Bank of Canada; Reserve Bank of New Zealand; Swedish Riksbank; and IMF staff calculations.

Note: Panel 1 features eight central banks representative of the major bond holdings across the Group of Ten countries. Due to data limitations, panel 1 uses relative bond holdings (ignoring maturity profiles) to allow for cross-country comparison. Panel 2 shows cumulative flows using changes in nominal bond holdings relative to outstanding issued amounts of core and noncore EGBs using the ECB's Securities Holdings Statistics by Sector and Securities Issues Statistics databases. Domestic investors reflect aggregate debt holders within the euro area. ECB = European Central Bank; EGB = European government bond; GFSR = *Global Financial Stability Report*; QT = quantitative tightening.

Figure 1.6. Expansion of Primary Dealers' Treasury Holdings amid Rising Free-Floating Securities and Share of Bills

The share of bills in the market has risen amid more free-floating Treasury securities.

Primary dealers are increasingly warehousing longer-dated securities.



Sources: Bloomberg Finance L.P.; EUROPACE AG/Haver Analytics; Federal Reserve Bank of New York; Kuttner (2006); and IMF staff calculations.

Note: In panel 2, "Hedge funds" reflects the percentage share of Treasury securities held by households and nonprofit organizations–by and large composed of hedge funds–relative to outstanding marketable Treasury securities. "Primary dealer" reflects the percentage share of primary dealer positions in Treasury coupon securities relative to the corresponding outstanding issued amount.

amplifying funding pressures in others because globally active banks rely on interconnected funding markets. Continued vigilance on the part of central banks to monitor for possible strains in funding markets is needed to preemptively mitigate this tail risk.

Another risk is that quantitative tightening could increase bouts of volatility in government bond markets. As central banks reduce their holdings of government bonds, regardless of whether they are doing so using *active* or *passive*[5] methods, the buyer base of these bonds could continue to move toward more price-sensitive investors. In the euro area, the European Central Bank's reduced holdings of bonds of core issuers like Germany have been offset by more holdings by domestic banks and foreign investors (Figure 1.5, panel 2), who value German bonds for liquidity management and regulatory capital purposes. By contrast, for bonds of noncore issuers, reduced European Central Bank holdings are offset by "other domestic investors," which include households and the more price-sensitive hedge fund sector.[6] This trend would introduce more volatility in noncore bond markets; should government bond issuance increase—for example, to finance persistent fiscal deficits—higher volatility could be further amplified.

In the United States, quantitative tightening has increased the share of free float Treasury securities, or the portion of outstanding securities net of the Federal Reserve's holdings, which could exert an upward push on Treasury yields and volatility over time. Concurrently, the Department of the Treasury has increasingly issued more shorter-term debt to meet funding needs, which might lower borrowing costs in the near term, but could also expose the Treasury to higher future financing cost (Figure 1.6, panel 1).[7] As larger issuances have increased the prudence of other Treasury security buyers, only hedge funds and dealers have kept more securities on balance sheet

[5]Some—including the Bank of England, the Reserve Bank of New Zealand, and Riksbank—are taking an active approach by selling bonds alongside maturing assets, while others—including the Federal Reserve and European Central Bank—are taking a passive approach, by allowing bonds to roll off without reinvesting.

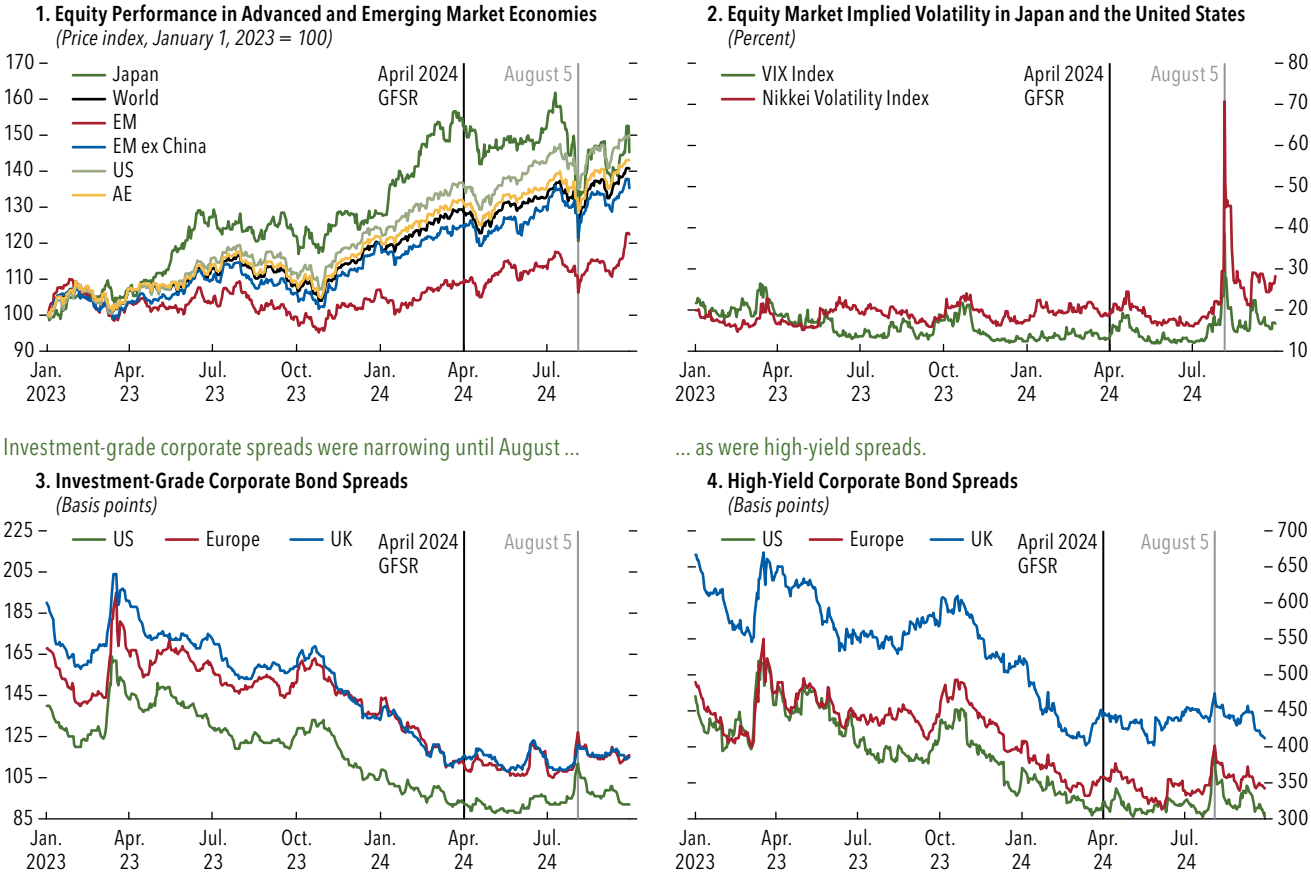
[6]For comparability with US flow of funds data, other domestic investors as holders of European Government Bonds include as categories households and domestic hedge funds, among others. For the increasing role of the latter, see also "Hedge Funds: Good or Bad for Market Functioning?" European Central Bank, blog post, September 23, 2024.

[7]Tentatively speaking, an economic backdrop of uneven normalization of inflation and potential economic deceleration amid unprecedented fiscal supply creates push and pull factors that induce higher volatility in Treasury yields. Some market commentators have linked this backdrop to a potential bear steepening (or bear twist), as investors increasingly favor intermediate maturities with Federal Reserve rate cuts coming into better focus. A historical outperformance of these securities over bills during previous easing cycles underscores this trend. Additionally, price-sensitive market participants remain apprehensive regarding longer-dated Treasury securities, whose real term premiums are being perceived amid the elevated fiscal supply as insufficient to offset the risks of interest rate changes during the life of the bond, as outlined in the April 2024 *Global Financial Stability Report*.

Figure 1.7. Global Asset Prices

An equity rally was interrupted in August by economic slowdown concerns ...

... as implied volatility for equities spiked.



Investment-grade corporate spreads were narrowing until August ...

... as were high-yield spreads.

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

Note: Panel 1 uses the S&P 500 for the United States, Nikkei 225 for Japan, and corresponding MSCI indices for all other series. In panel 2, the Chicago Board Options Exchange Volatility Index, or VIX, is the benchmark measure of US stock market volatility, based on S&P 500 options. Its Japanese counterpart is the Nikkei Stock Average Volatility Index. Panels 3 and 4 employ option-adjusted spreads. Gray vertical lines in panels 1 through 4 mark the date of the early August sell-off peak (August 5). AE = advanced economies; EM = emerging markets; ex = excluding; GFSR = *Global Financial Stability Report*.

(Figure 1.6, panel 2).[8,9] Bloated dealer inventory presents a medium-term risk because in adverse market conditions where investors are selling Treasury securities (for example, if hedge funds were to unwind the Treasury basis trades as described in the April 2024 *Global Financial Stability Report*) primary dealers with larger Treasury inventories are more likely to face internal balance sheet constraints that could prevent them from absorbing the sales, worsening the sell-off.

[8]Unlike intermediaries such as brokers or primary dealers who might buy these securities to facilitate trading and liquidity in the market, end users, including pension funds, insurance companies, mutual funds, corporations, and individual investors, among others, are typically the ultimate holders of Treasury securities.

[9]Since the April 2024 *Global Financial Stability Report*, the rise in household Treasury holdings (primarily driven by hedge funds) has slowed, consistent with the increased warehousing by primary dealers shown in the latest Federal Reserve Board flow of funds statistics.

Lofty Risk Assets Valuations Is a Vulnerability

The rally in global equity markets fueled by expectations of a global soft landing has continued since the April 2024 *Global Financial Stability Report*, although it was briefly interrupted by a severe but transitory sell-off in early August (Figure 1.7, panel 1). But even after accounting for solid economic and earnings outlook, equity valuations appear stretched in various parts of the world, which is a vulnerability to financial stability. Since April, Canada, China, and the United States have experienced the largest equity gains, with

performance in the latter predicated on an impressive run among information technology stocks. Signs of moderating inflation in early July prompted investors to rotate holdings into more rate-sensitive stocks, leading information technology stocks to underperform and small cap stocks to outperform notably. Then in late July and early August, the policy rate increase by the Bank of Japan was followed by worse-than-expected labor market data in the United States that renewed recession fears. These developments led to a brisk narrowing of the interest rate differential between Japan and the United States. This boosted the yen, which in turn reportedly led to a substantial unwinding of carry trades that used the yen as a funding currency to finance long positions in global stocks or emerging market currencies. An abrupt decline in stock prices around the world, along with a spike in volatility (Figure 1.7, panel 2; see also Box 1.3), ensued. Corporate bond spreads also widened for investment-grade and high-yield issuers in Europe and the United States after a long period of decompression (Figure 1.7, panels 3 and 4). NBFIs like momentum-following and commodity trading advisor hedge funds and algorithmic and quantitative traders reportedly contributed to the sell-off, as their strategies stipulated cutting of positions to stop losses (see "Hedge Funds Were Both Catalysts and Victims of the August Market Sell-Off").

Before the sell-off, positive earnings momentum and expectations of lower interest rates had pushed up stock prices since the April 2024 *Global Financial Stability* Report and equity risk premium has increased somewhat (see Figure 1.8, panel 1). But stock valuations are still lofty, risking abrupt corrections. Since January, the share of the Magnificent 7 (M7),[10] a group of large capitalization technology stocks, has increased from 20 to 30 percent of the overall S&P 500 index (market capitalization). Alongside evidence of an increase in correlation between the M7 and S&P (and within the M7) over recent months,[11] this would suggest that the overall index is more vulnerable to adverse developments among this group—that is, raising the level of concentration risk. In this regard, since 2023, there have been 69 days on which fewer than 150 stocks have moved in the same direction than the index (Figure 1.8, panel 2), signaling that headline index returns do not represent the performance of the majority of the constituents, as fewer stocks have dictated index movements.

More fundamentally, the S&P 500 is trading at a level above its historical upper quartile in terms of forward price-to-earnings ratio since 1990, suggesting that the market is expecting high earnings growth over the near to medium term. For this ratio to return to its historical 10-year average by 2026, earnings per share on of the S&P and Nasdaq would need to post compounded annual growth rates of close to 25 and 30 percent, respectively, which are far higher than current market expectations (Figure 1.8, panel 3); the MSCI World and MSCI Advanced Economy indices all require higher growth rates than current expectations to return to historical valuations, a sign that prices are lofty. By contrast, emerging market indices and the Russell 2000, an index of small capitalization stocks in the United States, are experiencing less pressure on current valuations, as required earnings growth to meet historical valuations is less than current expectations.

Declining inflation and expectations of US monetary policy easing led to a significant rotation across indices, with the Russell 2000 outperforming the Nasdaq by about 10 percentage points between the beginning of July and early August, as investors appear to shift from growth toward smaller stocks with less-demanding valuation (Figure 1.8, panel 4). However, as the equity market correction in early August showed, concerns about a slowing of the real economy disproportionally affect smaller stocks.

Market turbulence in early August has so far not affected emerging market assets significantly. Sovereign spreads for emerging market bonds denominated in US dollars have remained tight relative to spreads on investment-grade corporate bonds since the April 2024 *Global Financial Stability Report* (Figure 1.9, panel 1), and spreads between local currency bonds and some Latin American sovereigns have widened, with upward revisions to policy rate paths partly driving the movement (Figure 1.9, panel 2). The performance of emerging market equities has varied across countries this year, but for most countries, valuations remain below historical averages (Figure 1.9, panel 3). Various factors may challenge emerging market assets in the months ahead, including uncertainty induced by monetary policy in advanced economies—especially the United

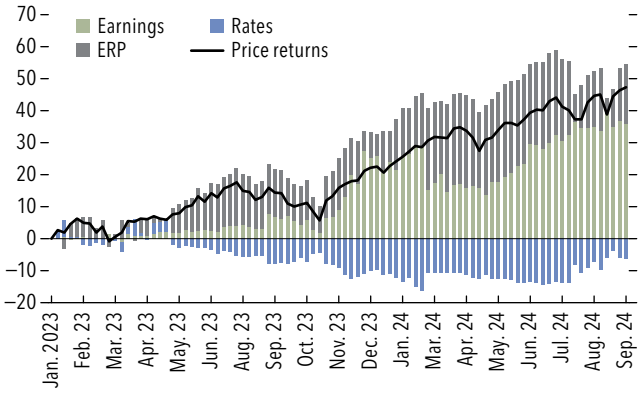
[10]The Magnificent 7 companies are Alphabet (Google), Amazon, Apple, Meta Platforms, Microsoft, Nvidia, and Tesla.

[11]Correlation estimates are calculated as the rolling six-month correlation of daily returns between the average M7 stock and S&P 500. Estimates indicate the correlation between M7 and the S&P has increased from around 40 percent to just above 65 percent since May. Correlation of average pairwise M7 has increased from 10 to 50 percent over the same period.

Figure 1.8. Concentration, Expectations Regarding Growth, and Rotation in the Current Equity Rally

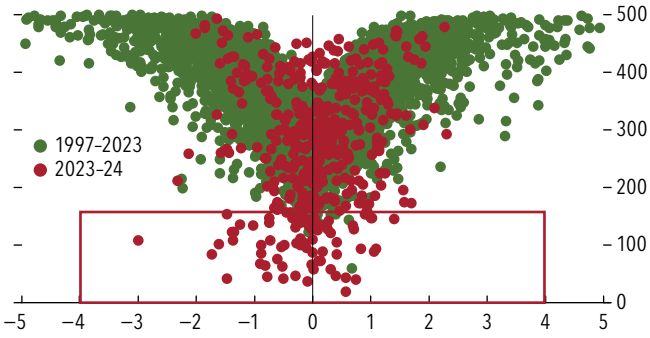
Stocks rallied on positive earnings momentum and supportive risk premiums.

1. S&P 500 Decomposition
(Price index, January 1, 2023 = 100)



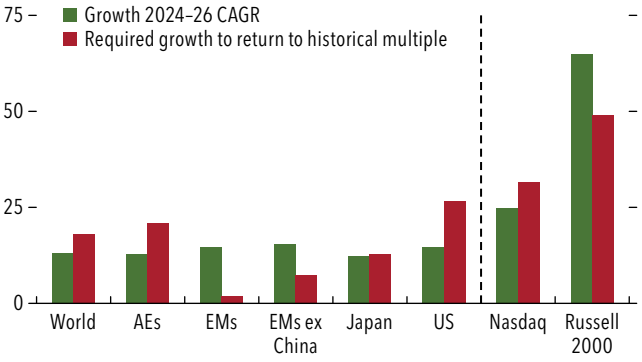
The fewest number of stocks are moving in the same direction as the index since 1997, with M7 stocks dictating index movements recently.

2. S&P 500 Daily Returns and Constituent Movements
(Daily returns, percent; number of constituents)



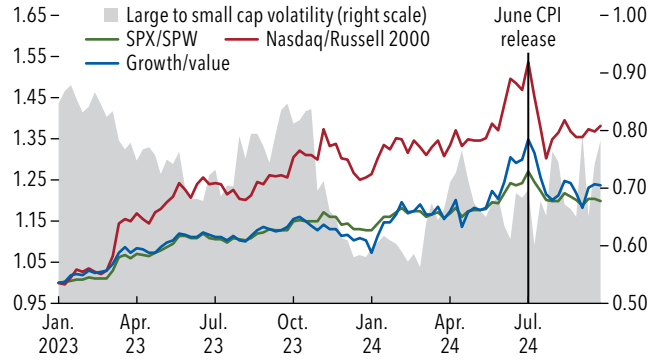
Current valuations of technology stocks demand high earnings growth, while smaller stocks appear undervalued.

3. Required Earnings Growth to Justify Existing Valuation
(Percent)



Expectations of declining inflation and falling rates led to strong asset rotation across indices.

4. Return Ratios and Volatility of Large Stocks Relative to That of Small Stocks
(Ratios)



Sources: Bloomberg Finance L.P.; EUROPACE AG/Haver Analytics; Thomson Reuters IBES and DataStream; and IMF staff calculations.

Note: In panel 3, "required growth to return to historical multiple" is calculated as the CAGR required to make the three-year-forward (end of 2026) price-to-earnings ratio to return to its 10-year historical average. Dashed vertical line indicates indices within the United States. In panel 4, ratios are based on weekly returns. "Large to small cap volatility" is the implied volatility for the S&P 500 divided by the implied volatility for the Russell 2000. AEs = advanced economies; CAGR = compound annual growth rate; CPI = consumer price index; EMs = emerging markets; ERP = equity risk premium; ex = excluding; M7 = Magnificent 7; SPW = S&P 500 Equal Weighted Index; SPX = S&P 500 Index.

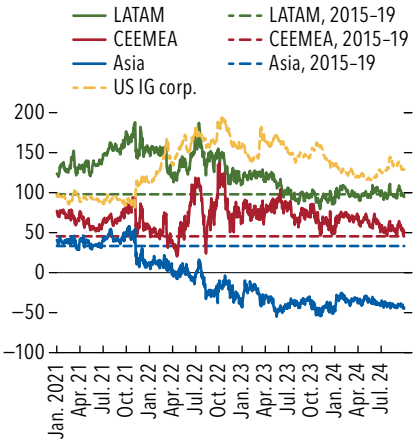
States—and the policies of newly elected governments around the world, especially those that would affect the geopolitical landscape and fragmentation risks.

The crypto rally earlier this year has started to fade, as optimism spurred by the approval of spot Bitcoin and Ethereum exchange-traded products in January and May 2024, respectively, appears to have dissipated (Figure 1.10, panel 1). Meanwhile, the total market capitalization of crypto assets at $2.2 trillion remains below its historical peak in November 2021. Crypto valuations have been driven recently by high rolling correlation between Bitcoin and other asset classes, such as equities (S&P 500) and gold, rather than idiosyncratic developments within this asset class (Figure 1.10). Widespread adoption of crypto assets could undermine the effectiveness of monetary policy, circumvent measures for managing capital flows (Cerutti, Chen, and Hengge 2024), exacerbate fiscal risks, divert resources available for financing the real economy, and threaten global financial stability. In addition, the growing interlinkages between crypto and broader financial markets, including the increasing

Figure 1.9. Performance of Assets in Emerging Markets

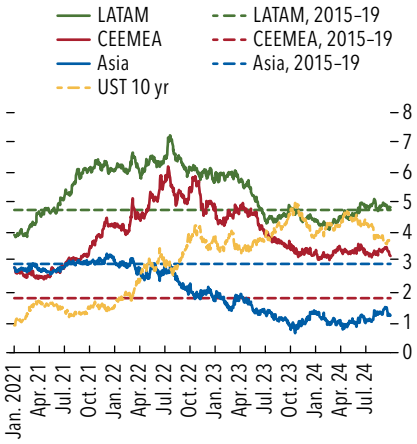
US dollar emerging market sovereign spreads remain tight relative to US investment-grade firms.

1. Spread of Emerging Market Sovereign External Debt Against US Investment-Grade Firms, Spreads of US Investment-Grade Firms Against Treasuries
(Basis points)



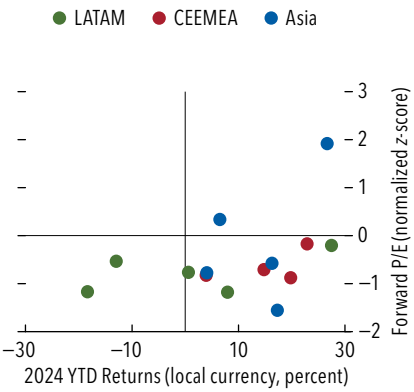
Emerging market government local yields remained broadly stable.

2. Spreads of Local 10-Year Government Bonds as a Share of 10-Year Treasury Yields, and 10-Year Treasury Yields
(Percent)



Emerging market equities have performed positively this year, though valuations remain lower than historical averages.

3. Year-to-Date Total Returns to Equity in Emerging Markets and Normalized Forward Price-to-Earnings Ratio Against Historical 10 Years
(Percent of amounts in local currency; z-score)



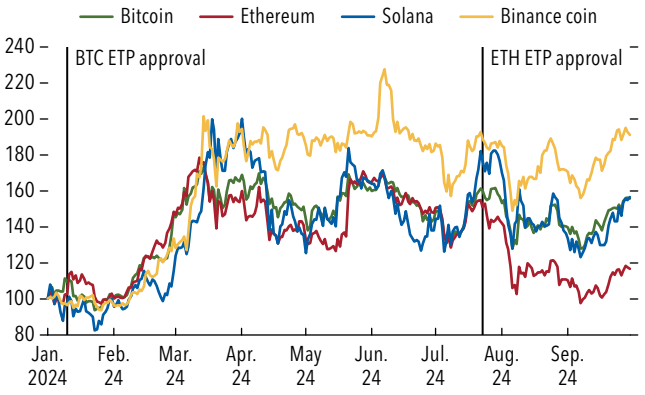
Sources: Bloomberg Finance L.P.; JPMorgan; MSCI; and IMF staff calculations.

Note: Fourteen major emerging markets are included in the calculations. Asia = India, Indonesia, Malaysia, the Philippines, Thailand; CEEMEA = Hungary, Poland, Romania, South Africa; LATAM = Brazil, Chile, Colombia, Mexico, Peru. Thailand is excluded from panel 1 because the sovereign has no outstanding hard-currency dollar-denominated debt. For panel 3, the *z*-score is calculated from the distribution of monthly observations of forward price-to-earnings ratios of the respective MSCI equity indices from January 2014 to August 2024. CEEMEA = Central and Eastern Europe, the Middle East, and Africa; corp. = corporations; IG = investment grade; LATAM = Latin America; P/E = price to earnings; UST 10 yr = Treasury 10-year yield; YTD = year to date.

Figure 1.10. Fading Rally in Crypto Assets

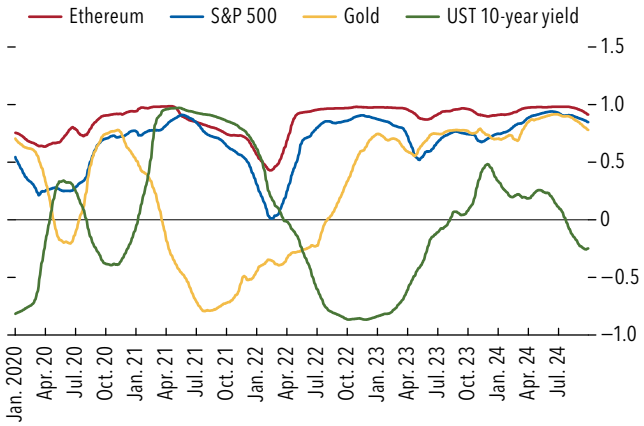
Optimism with regard to crypto assets has dissipated over the course of 2024 so far.

1. Prices of Selected Crypto Assets and Approvals of Products Traded on Spot Exchanges
(Indexed, January 1, 2024 = 100)



High correlations between Bitcoin and other asset classes suggest that broader risk sentiment drives crypto markets.

2. Correlation Between Bitcoin and Other Assets
(One-year rolling correlation)



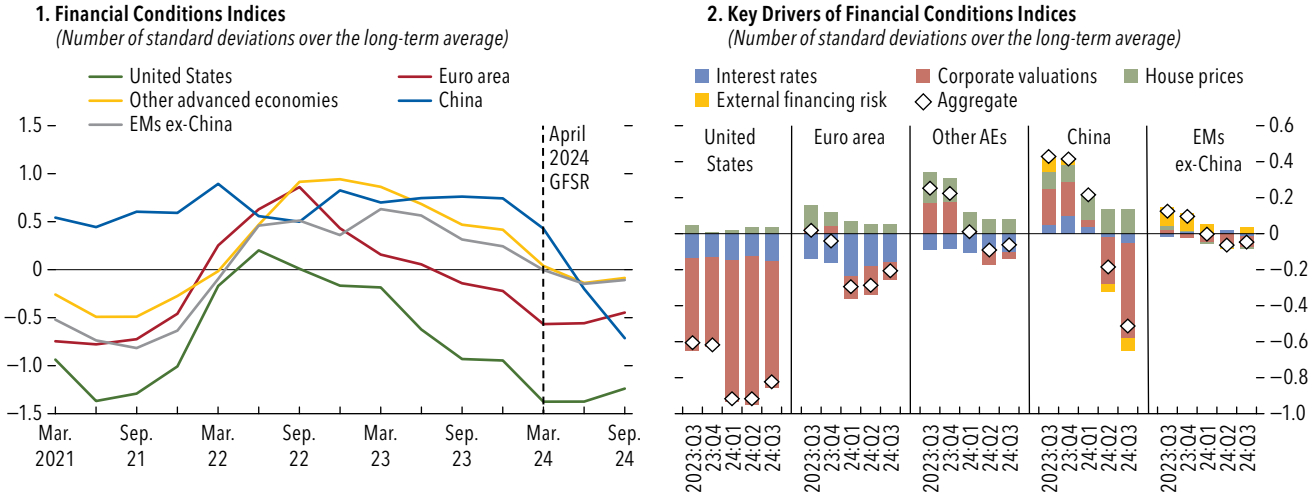
Sources: Bloomberg Finance L.P.; CoinGecko; and IMF staff calculations.

Note: Panel 2 shows the one-year rolling correlation between Bitcoin prices and the prices (or yields) of the assets. BTC = Bitcoin; ETH = Ethereum; ETP = exchange-trade product; UST = US Treasuries.

Figure 1.11. Financial Conditions Indices

Financial conditions have remained accommodative in advanced economies ...

... driven, in part, by improved corporate valuations.



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

Note: The IMF's Financial Conditions Index is designed to capture the pricing of risk. It incorporates various pricing indicators, including real house prices, but does not include balance sheet or credit growth metrics. For details, see Online Annex 1.1 in the October 2018 GFSR. Panel 2 shows the key drivers of financial conditions indices in terms of the contribution of underlying components, which is the weighted average of the *z*-scores of these components. "Aggregate" represents the sum of these contributions, and its values are similar, but not identical, to Financial Conditions Index values shown in panel 1. AEs = advanced economies; EMs ex-China = emerging markets excluding China; GFSR = *Global Financial Stability Report*.

involvement of incumbent providers of financial services, may increase contagion risks in the future (see Box 1.2).

Growth-at-Risk, the Global Macrofinancial Stability Assessment

Financial Conditions Are Still Accommodative Globally

Financial conditions have marginally tightened in many regions, having been somewhat affected by the market turmoil in early August (Figure 1.11, panel 1). Still-elevated equity and corporate bond valuations have kept financial conditions in advanced economies relatively easy by historical standards. In China, where growth outlook and property sector issues had been weighing down risk sentiment over the past year, financial conditions measured by price indicators have loosened as a result of monetary policy easing, a narrowing in corporate credit spreads, and some diminishment of external headwinds (Figure 1.11, panel 2), while quantity indicators such as credit growth keep weakening. Although overall financial conditions in other emerging market economies have been slightly easy on net, external financing costs have risen, offsetting the impact of corporate valuations.

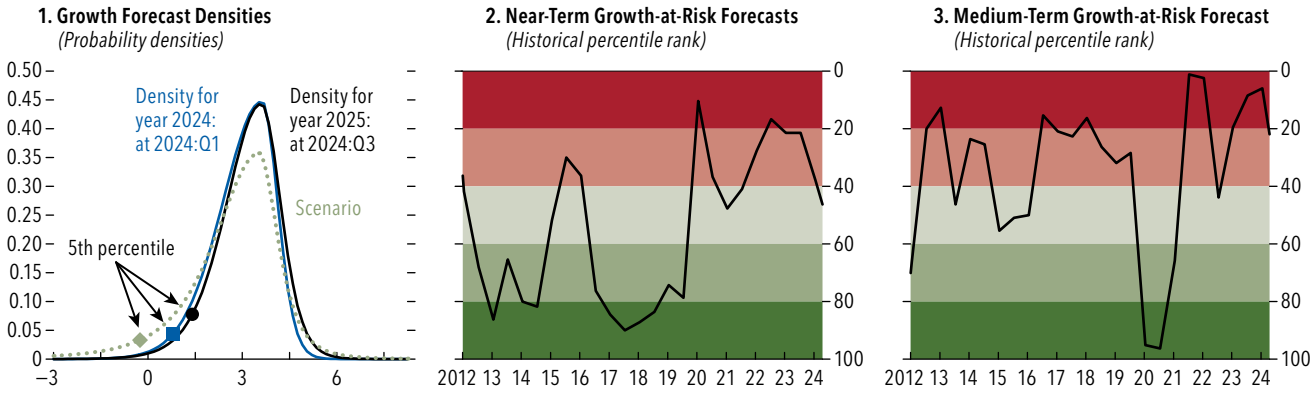
Risks to Financial Stability Moderate in the Near Term; More Elevated over the Medium Term

The updated GaR assessment indicates that over the next year, there is a 5 percent probability that global real growth will fall below 1.2 percent (Figure 1.12, panel 1, black distribution and marker).[12] Although this is appreciably lower than the baseline forecast for growth of 3.2 percent in the *World Economic Outlook*, GaR is around the 40th historical percentile, indicating that near-term risk is contained owing to still accommodative financial conditions and moderate credit growth (Figure 1.12, panel 2). The forecast distribution of growth is skewed slightly more to the left than the forecast in the April 2024 *Global Financial Stability Report*, in line with the *World Economic Outlook*'s assessment that balance of risk to the global outlook is tilted to the downside. However, if financial conditions

[12]The GaR framework assesses downside risks by gauging the range of severely adverse growth outcomes falling within the lower 5th percentile of the conditional growth forecast distribution (that is, the GaR metric).

Figure 1.12. Global Growth-at-Risk

Downside risk to global growth remain elevated over the medium term.



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

Note: In panel 1, the mode (that is, the most likely outcome) of the estimate for current forecast density accords with the IMF, *World Economic Outlook* forecast for global growth for 2025, as of 2024:Q3. In panels 2 and 3, the black line traces the evolution of the 5th percentile threshold (the growth-at-risk metric) of the near-term and medium-term growth forecast densities. The quintile with the lowest percentile rank is bright red and with the highest bright green. The intensity of the shading depicts the percentile rank for the growth-at-risk metric. The scenario used in panel 1 calibrates the response of global financial conditions to a spike in Chicago Board Options Exchange Volatility Index, as seen on August 5, 2024 (EDT). The level of Chicago Board Options Exchange Volatility Index used to calibrate the FCI tightening is computed as the average of intraday VIX, recorded at five-minute intervals, from the start of business on August 5 to end of business on that day. Response functions of financial conditions are computed via linear regression methods applied separately over the full sample and the post–COVID-19 sample. The full sample regression starts in 1991:Q1, whereas the post–COVID-19 sample estimation begins in 2021:Q1, both running until the current period. A 75 percent weight is applied to the post–COVID-19 regression estimates to match comparable co-movements in Chicago Board Options Exchange Volatility Index and financial conditions during several historical stress episodes.

were to tighten by 2.5 standard deviations—broadly corresponding to the average of the intraday increases of the Chicago Board Options Exchange Volatility Index level on August 5 relative to its level at the open—and remain at that restrictive level for one quarter, the year-ahead GaR could worsen to its lowest historical quintile (see Figure 1.12, panel 1, dotted green distribution and green marker; and panel 2). This demonstrates that an abrupt tightening in financial conditions could raise near-term financial stability risks.

On the other hand, downside risk over the medium term, as indicated by GaR four years ahead, has been at around historically elevated levels since 2023. And while it has improved some over the past year, it remains at its worst quintile currently (Figure 1.12, panel 3). Easy financial conditions and strong credit growth have an intertemporal trade-off: Although they reduce near-term risks, they also prompt a buildup of vulnerabilities—like increased debt and leverage documented across this report—that raises downside risks in coming years. This intertemporal trade-off is more acute when economic uncertainty is elevated like at present, and importantly, the trade-off is nonlinear in uncertainty because it also depends on the size of the disconnection between economic uncertainty and market volatility (see Chapter 2).

Emerging Markets

Emerging Market Resilience Challenged by Uncertainty

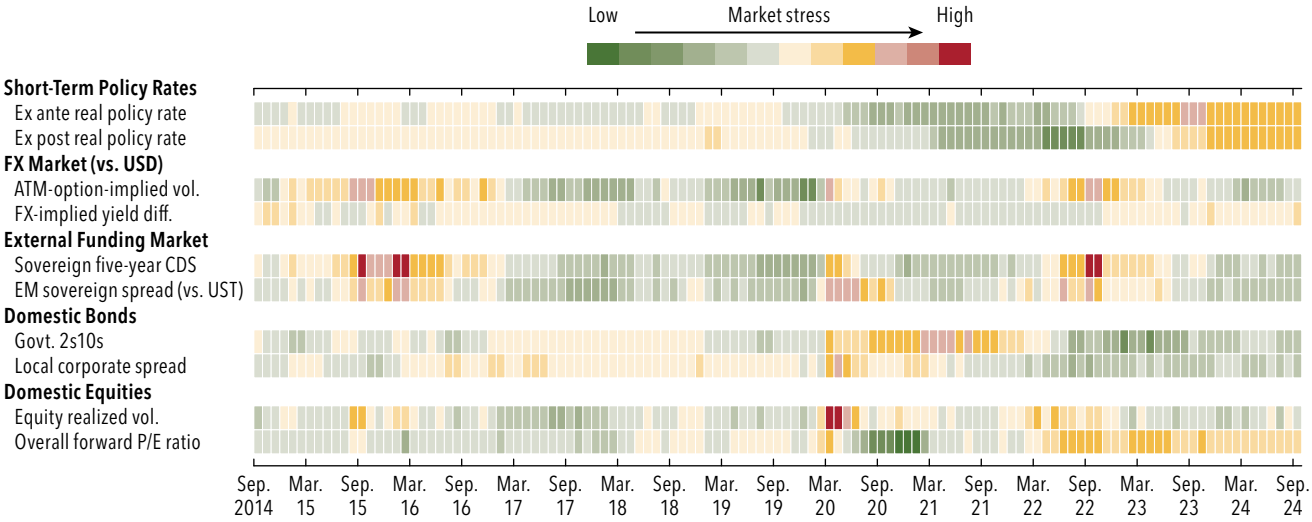
Emerging markets have confronted a multitude of global shocks and elevated economic uncertainty since the pandemic, deploying proactive monetary policy and in certain cases measures related to foreign exchange to strengthen their resilience to external headwinds (Adrian, Natalucci, and Wu 2024). As a result, the aggregate heat map for emerging market assets shows that market stress has remained largely moderate in interest rates, foreign exchange, and other assets (Figure 1.13). The market turmoil in advanced economies in early August has not changed this assessment. Looking ahead, as advanced economy central banks cut interest rates while global growth remains resilient, the dollar could weaken and investor sentiment on emerging market assets could turn more positive, spurring renewed portfolio inflows.

However, global uncertainty would likely remain elevated owing to geopolitical developments as well as uncertain future policies of newly elected governments. Some countries will likely have to navigate further external headwinds while coping with some idiosyncratic risks that led the recent depreciation of some emerging

Figure 1.13. Continuing Resilience in Emerging Markets

Emerging markets continue to exhibit broad resilience, although some markets are showing evidence of pressures.

Financial Market Stress in Emerging Markets



Sources: Bloomberg Finance L.P.; EUROPACE AG/Haver Analytics; JPMorgan; MSCI; and IMF staff calculations.

Note: The heat map reflects funding situations based on key financial market indicators across 14 major emerging markets, including Brazil, Chile, Colombia, Hungary, India, Indonesia, Malaysia, Mexico, the Philippines, Thailand, Peru, Poland, Romania, and South Africa. Each country's indicators are transformed into a normalized *z*-score based on 10 years of monthly observations. High market stress (darkest red) reflects observations exceeding two standard deviations from mean (*z*-score > +2), and low market stress (darkest green) reflects observations more than two standard deviations below mean (*z*-score < −2). 2s10s = 2-year and 10-year local currency government yield differentials; ATM = at-the-money; CDS = credit default swaps; EM = emerging market; FX = foreign exchange; P/E = price-to-earnings; USD = US dollar; UST = US Treasuries; vol = volatility.

market currencies. Therefore, divergence among the emerging markets universe may be more pronounced down the road. Financial conditions for frontier markets remain challenging, with many countries that are grappling with higher borrowing costs and financial instability still not having access to funding through international markets despite sovereign spreads that are moderating lower.

Global Monetary Policy Synchronization Leads to More Spillovers to Emerging Markets

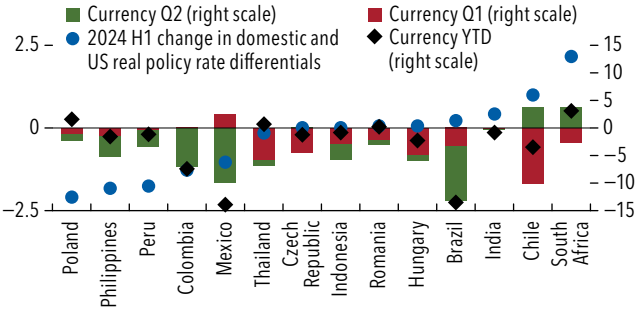
Positive interest rate differentials in emerging markets vis-à-vis advanced economies, a key source of resilience in 2023, have generally narrowed since the April 2024 *Global Financial Stability Report*, which has put some pressure on emerging market currencies (Figure 1.14, panel 1). At the same time, increased volatility in financial markets, including the rapid appreciation in early August in the Japanese yen—a common funding currency—have made carry trades less attractive on a risk-adjusted basis (Figure 1.14, panel 2; see also Box 1.3). But the narrowing of interest rate differentials and less attractive carry do not fully explain the year-to-date depreciation in emerging market currencies. Indeed, an IMF staff model finds that whereas the carry factor was the dominant driver of currency moves in 2023, an idiosyncratic factor, a proxy for domestic policy risks and uncertainty in global markets, has played an important role in 2024 alongside the strength of the US dollar, notably for Latin American currencies and the South African rand (Figure 1.14, panel 3). High-yield sovereigns and commodity exporters have generally been more susceptible to larger swings in foreign exchange rates. To manage the consequences of such an external shock, several central banks in emerging markets had turned more cautious and slowed or paused their rate cut cycles. Some central banks in emerging markets have also conducted foreign exchange interventions to smooth currency volatility. The Fed rate cut in September and the subsequent weakening of the US dollar have eased some of the pressures faced by EM central banks, and markets continue to expect easing across emerging markets broadly.

Henceforth, after two years of decoupling, market participants expect monetary policy cycles in emerging markets to be more synchronized with those in the

Figure 1.14. Emerging Market Monetary Policy and Currencies

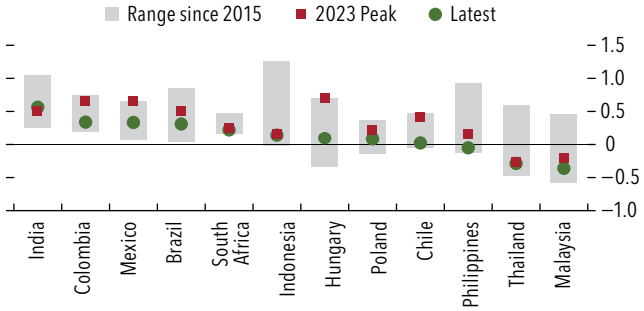
Most currencies depreciated in the first half of 2024, especially those of countries where real policy differentials have narrowed ...

1. Currency Movements and Changes in the Difference Between Domestic and US Real Policy Rates
(Percent)



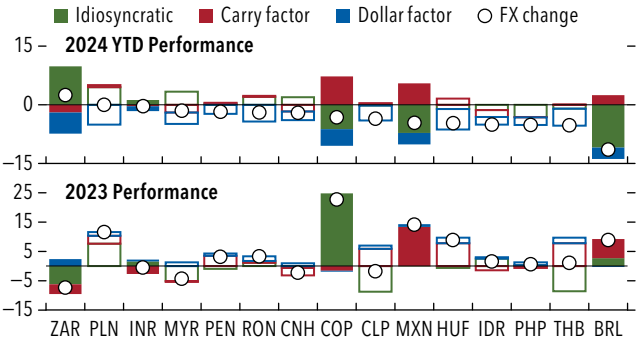
... and heightened volatility has eroded the attractiveness of carry trades.

2. Emerging Market Carry, Adjusted for Volatility
(Three-month implied yield differential versus US dollar rate, divided by implied volatility)



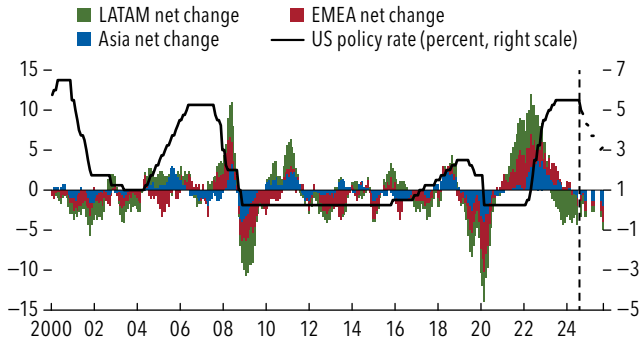
Country-specific factors drove currency returns in 2024, even in high-carry countries.

3. Decomposition of Currency Returns
(Percent; solid bars refer to high-carry countries)



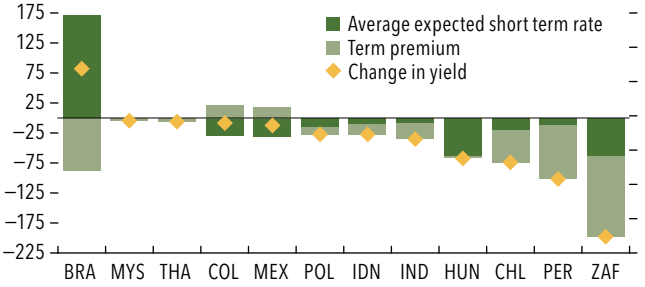
Markets expect emerging market central banks to be more in line with the Federal Reserve.

4. US Policy Rate Versus Changes in Emerging Market Policy Rates
(Number of central banks changing policy and percent)



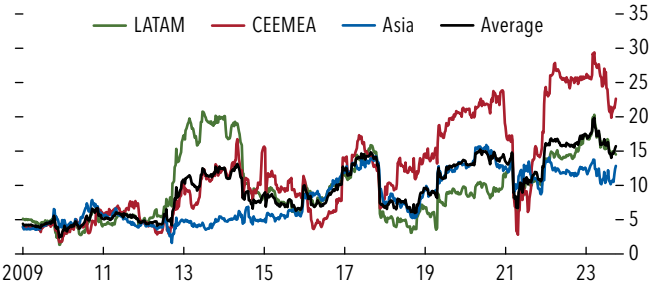
Term premiums have mostly driven longer-term yields in emerging markets ...

5. Changes in 10-Year Yields Since the April 2024 GFSR
(Basis points)



... and the spillover of changes in US term premium remains high, notably for CEEMEA.

6. Effect of Changes in US Term Premium Across EM Regions
(Proportion of variance explained)



Sources: Bloomberg Finance L.P.; EUROPACE AG/Haver Analytics; IMF, World Economic Outlook database; national sources; and IMF staff calculations.

Note: Panel 2 uses six-week averages. In panel 3, carry factor includes both interest rate differential and a global carry factor. The construction of the global carry factor and the dollar factor follows Verdelhan (2018), using a portfolio of 16 EM and 9 advanced economy currencies. The decomposition is based on a rolling regression over 18 months. Panel 6 reports spillovers from changes in US term premiums to EM term premiums. Specifically, the measure of spillovers reported here—using the methodology proposed by Diebold and Yilmaz (2009)—is the proportion of variation in EM term premiums that can be explained by shocks emanating from US term premiums. EMs include 15 countries accounting for about 76 percent of total EM GDP. The spillovers shown here correspond to a 100-week rolling window. Data labels in the figure use International Organization for Standardization (ISO) country codes. BRL = Brazilian real; CEEMEA = Central and Eastern Europe, the Middle East, and Africa; CLP = Chilean peso; CNH = Chinese renminbi; COP = Colombian peso; EM = emerging market; EMEA = Europe, the Middle East, and Africa; FX = foreign exchange; GFSR = *Global Financial Stability Report*; HUF = Hungarian forint; IDR = Indonesian rupiah; INR = Indian rupee; LATAM = Latin America; MXN = Mexican peso; MYR = Malaysian ringgit; PEN = Peruvian sol; PHP = Philippine peso; PLN = Polish zloty; Q1 = first quarter; Q2 = second quarter; RON = Romanian new leu; THB = Thai baht; YTD = year to date; ZAR = South African rand.

United States (Figure 1.14, panel 4). Greater policy alignment should stabilize interest rate differentials between advanced economies and emerging markets. That said, it may also increase the sensitivity of bond yields in emerging markets to those in advanced economies, both because expected policy paths will be more synchronized and as a result of spillovers from the term premium component that captures uncertainty in interest rates. Increases in term premiums in most emerging markets (Figure 1.14, panel 5), likely resulting from larger spillovers from higher US term premiums (Figure 1.14, panel 6), have primarily driven recent changes in yields.

Portfolio Outflows Risks Have Receded Somewhat

Portfolio flows to emerging markets have been positive on net in recent months (Figure 1.15, panel 1). Several countries, notably Egypt and Türkiye, have experienced large inflows into local currency bonds amid renewed investor optimism about the outlook despite lingering debt challenges and elevated inflation, and flows into Indian markets have benefited from India's inclusion in global bond indices. Conversely, equity flows have been under pressure in some countries, which may reflect concerns regarding the growth outlook or political uncertainty in some cases. Year-to-date international issuance of sovereign bonds has risen to its highest level since 2021, although weak inflows into hard-currency bond funds suggest that market conditions could become more challenging absent a turnaround.

The IMF's capital-flows-at-risk measure indicates that there is a 5 percent probability that emerging market outflows could reach 2.4 percent of GDP over the next three quarters, a marginal increase in outflow risk since the April 2024 *Global Financial Stability Report*. However, rising market volatility, as seen during the early August shock, would materially increase outflows risks if sustained over a longer period (Figure 1.15, panel 2). Changes in the investor base have mitigated the risks of portfolio outflows to some extent, as long-term domestic investors like insurers and pension funds have absorbed increasing shares of emerging market bonds, likely serving as a stabilization force (see Box 1.4). Foreign investors appear to have become more cautious about emerging market assets in aggregate, as portfolio inflow cycles have become shorter and smaller on average (Figure 1.15, panel 3). Global factors—such as the interest rate environment or geopolitical uncertainty—may continue to affect the relative attractiveness of cross-border investment in emerging markets. Indeed, dedicated emerging market bond and equity funds domiciled in the United States have experienced cumulative outflows since March 2022 (Figure 1.15, panel 4).

Emerging Markets with Weaker Fiscal Buffers Could Face More Constrained Funding Conditions

Although many emerging markets have experienced lower financing costs in recent years, investors continue to be attuned to these markets' fiscal sustainability. After progress following the pandemic, the momentum on fiscal consolidation has waned, and market analysts' consensus expectations regarding the budget balance for the aggregate government in 15 major emerging markets over the next three years have become more pessimistic and are firmly in deficit territory (Figure 1.16, panel 1), with 11 of these countries set to underperform[13] analysts' forecasts for fiscal year 2024.

Some sovereigns could be ensnared in a "debt begets more debt" quandary, especially considering that still-high global interest rates, larger financial spillovers from advanced economies, and weaker prospects in regard to longer-term economic growth are making it more difficult to service existing debt. To avoid such an outcome, these sovereigns need to improve their primary balances. And yet many emerging markets are operating well below their long-term fiscal buffers,[14]

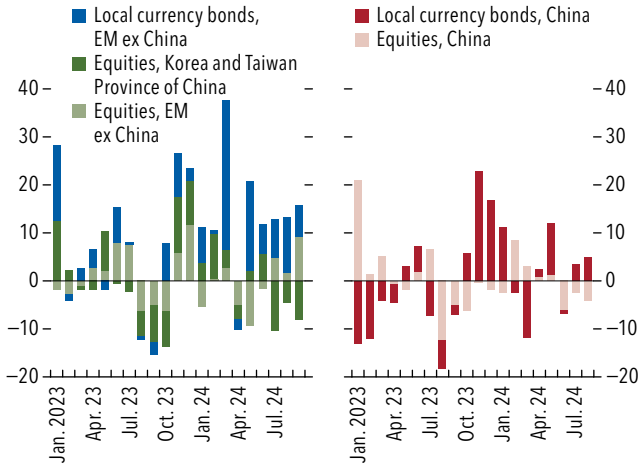
[13]Compared to analysts' consensus estimates made in the third quarter of 2022.

[14]The concept of fiscal buffers is motivated by the primary balance space, as described in the April 2024 *Fiscal Monitor*. The debt-stabilizing primary balance for the contemporaneous year can be defined as $P_t^* = \left(\frac{r_t - g_t}{1 + g_t}\right) \times d_{t-1}$, given the values of the nominal effective interest rate (r_t) and growth rate (g_t). In this context, the long-term debt-stabilizing primary balance is simplified as $P^* = \left(\frac{r - g^*}{1 + g^*}\right) \times d$, with the assumption that the effective steady-state long-term interest rate (r) is equivalent to the nominal forward five-year yield in five years, implied by the rate on current on-the-run government bonds, adjusted by differences in term premiums. The interest rate is also weighted by outstanding local- and foreign-currency-denominated debt and takes into account the cost arising from annualized depreciation of the external debt based on historical long-term data (January 2000 to July 2024). Long-term nominal growth (g) is derived from *World Economic Outlook* estimates, and gross debt (d) is based on the prevailing gross government debt level as of the end of 2023. The 2024 fiscal buffer is estimated by subtracting the long-term debt-stabilizing primary balance from the expected 2024 primary balance.

Figure 1.15. Emerging Market Portfolio Flows

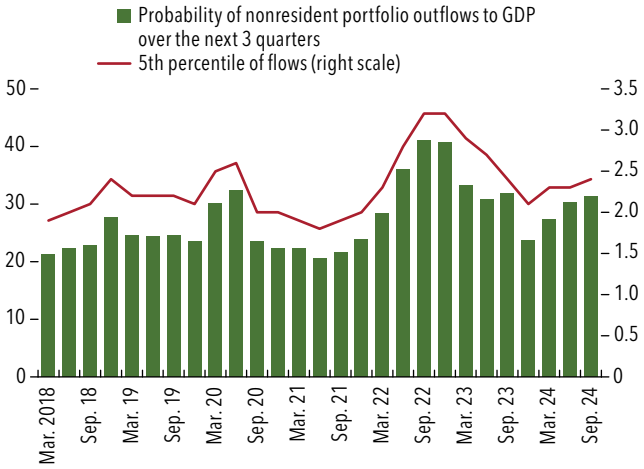
Portfolio flows have remained positive on net, though with considerable differentiation.

1. Portfolio Flow Tracking: Local Currency Bonds and Equities
(Billions of US dollars)



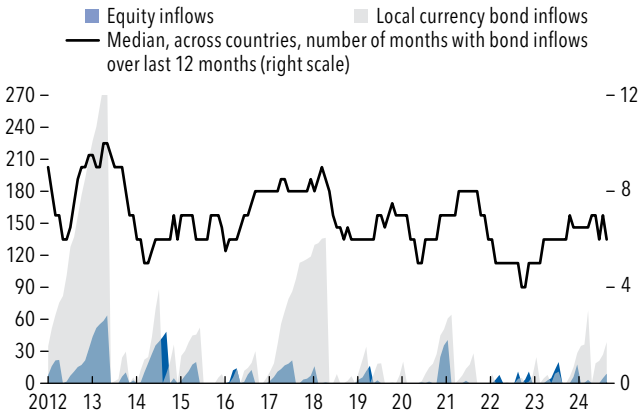
Capital-flows-at-risk worsened modestly; risks appear slightly higher than average.

2. Capital Flows at Risk
(Percent of GDP)



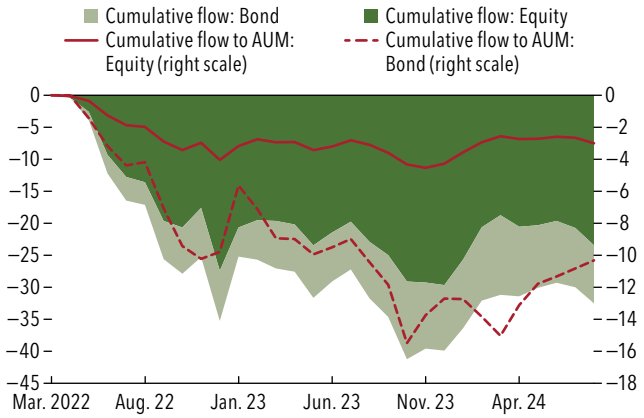
Portfolio flow cycles have become shorter in recent years.

3. Portfolio Inflow Cycles
(Cumulative equity and local currency bond inflows before outflows, billions of US dollars, based on monthly data)



Dedicated emerging market bond funds domiciled in the United States have seen large outflows since 2022.

4. Flows in US-Domiciled Emerging Market Mutual Funds and Exchange-Traded Funds
(Billions of US dollars)



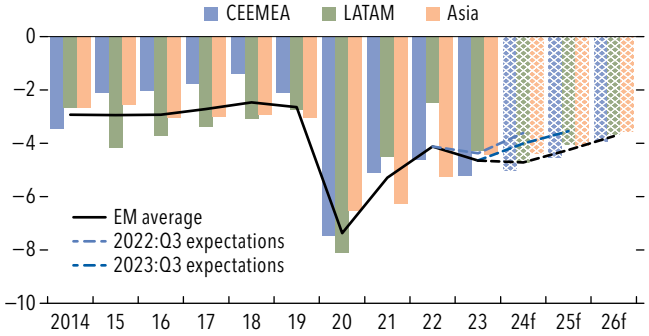
Sources: Bloomberg Finance L.P.; EPFR; EUROPACE AG/Haver Analytics; IMF, World Economic Outlook database; national sources; and IMF staff calculations.

Note: Panel 1 reports data separately for Korea and Taiwan Province of China because the IMF does not classify them as emerging markets. "EM ex China" includes an unbalanced sample of 20 emerging markets. Daily data on Chinese equity flows ceased being available as of August 11. In panel 2, "portfolio flows at risk" is defined as the 5th percentile of the three-quarters-ahead nonresident portfolio flows' probability density. Panel 3 includes monthly data on 16 countries for equity flows and 20 countries for bond flows. Inflow episodes are reset at the first monthly occurrence of outflows. AUM = assets under management; EM ex China = emerging markets excluding China.

Figure 1.16. Emerging Market Fiscal Buffers and Financial Costs

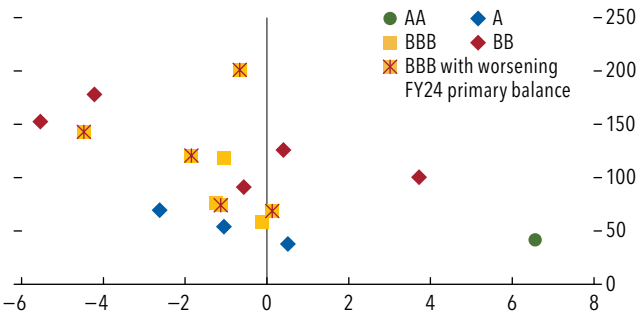
With fiscal consolidation delayed, deficits have remained above prepandemic levels.

1. Overall Fiscal Balances and Analyst Expectations
(Percent of GDP)



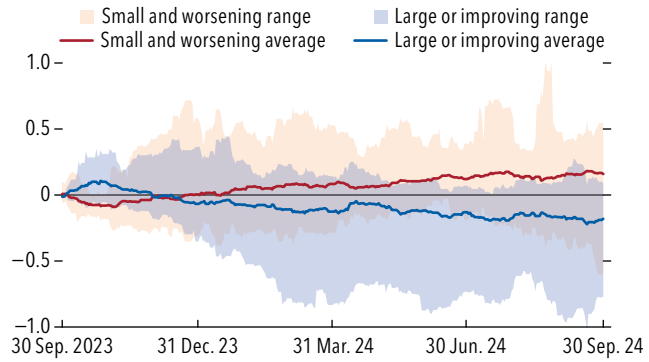
While some emerging markets have room for fiscal expansion, most face higher spreads.

2. Five-Year Credit Default Swap Prices and 2024 Fiscal Buffers Estimates
(Basis points; percent of GDP)



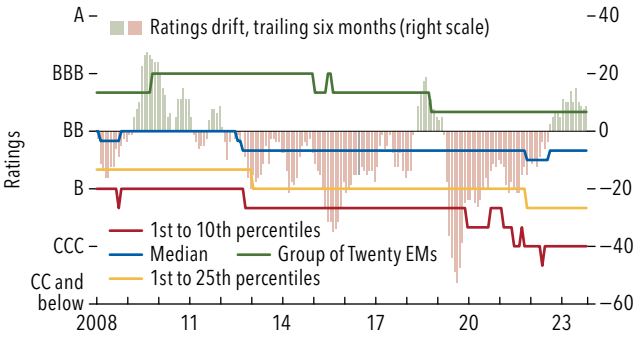
Sovereign risk premiums for emerging markets rose with worsening fiscal buffers ...

3. Pricing of Sovereign Credit Risk
(Cumulative change in five-year credit default swap z-scores since 2023:Q3)



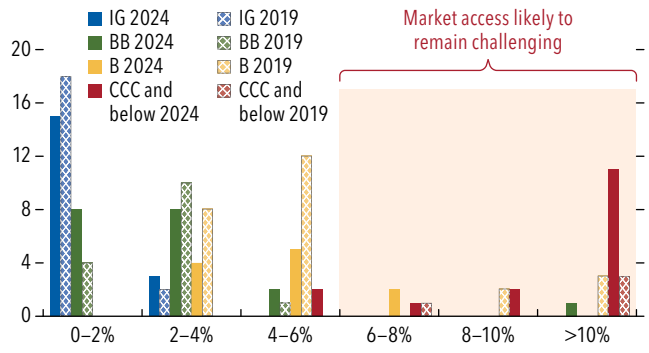
... and continued fiscal underperformance could precede rating reassessment and "cliff effects."

4. Average Credit Ratings and Ratings Drift
(Rating by group; trailing six-month percentage)



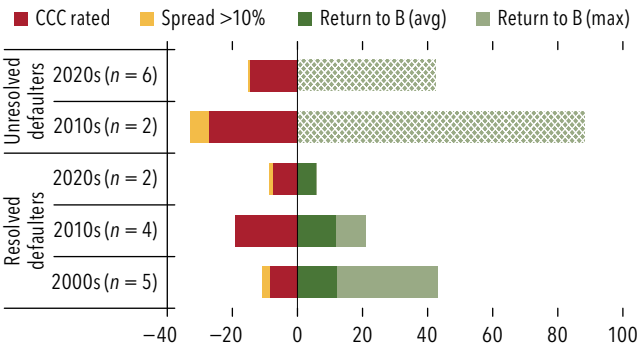
Downgrades to the B-rating band could push vulnerable EMs closer to the brink of losing market access.

5. Distribution of EM Sovereigns by Hard-Currency Spreads
(Number of sovereigns by spread range)



Recently, it has been taking defaulted sovereigns longer to return to B ratings or better.

6. Timeline for Recently Defaulting Sovereigns
(Average months to and after default, t = 0)



Sources: Bloomberg Finance L.P.; Fitch Ratings; JPMorgan; Moody's Investor Services; S&P Global; and IMF staff calculations.

Note: Data in panel 1 consist of those for 15 major EM sovereigns whose fiscal balance trajectories are tracked by broad analysts and for which expectations for a two-year forward-looking horizon are available. Sample in panels 2 and 3 includes 16 major EM sovereigns with outstanding external debt denominated in US dollars, with eight in each category. Panels 4 and 5 include a sample of 80 EM sovereigns that were continuously rated by at least one of three international rating agencies from December 2008 to August 2024. The sample excludes sovereigns whose ratings were withdrawn but includes those under default. "Ratings drift" is defined as total net change (as a percentage of total) in credit ratings by the three agencies over the preceding six months. Positive ratings drift is in green, while negative ratings drift is in red. avg = average; CEEMEA = Central and Eastern Europe, the Middle East, and Africa; EMs = emerging markets; f = forecast; FY = fiscal year; LATAM = Latin America; Q3 = third quarter.

with primary balances for the 2024 fiscal year failing to meet the requirements to achieve longer-term debt-stabilizing primary balances. Financial markets appear to have differentiated countries along this dimension: Emerging markets with worse fiscal buffers generally have higher credit default spreads (Figure 1.16, panel 2), and these spreads are diverging between countries with "large or improving" and "small and worsening"[15] buffers (Figure 1.16, panel 3). Nonetheless, with most sovereigns' fiscal buffers still hovering within a reasonable range,[16] many are still within reach to steer toward a more sustainable debt pathway.

Increased pricing of emerging market sovereign risks could also reflect fears of a reassessment in credit ratings. Ratings downgrades are susceptible to "cliff effects," for which downgrades can be extreme and can further constrain funding conditions owing to incorporation of ratings into regulations and risk limits (Figure 1.16, panel 4; see also Chapter 3 of the October 2010 *Global Financial Stability Report*). Worryingly, sequential downgrades involve a risk that even at ratings a notch or two above the "near default: CCC ratings" threshold, some sovereigns may already find themselves on the verge of losing market access (Figure 1.16, panel 5), as historical ratings transitions indicate a significant likelihood of default.[17] Critically, more sovereigns are finding themselves in that situation now relative to the number in 2019,[18] and the IMF's sovereign Debt-at-Risk framework (see the October 2024 *Fiscal Monitor*) estimates that debt risks may heighten further under high economic uncertainty.

[15]The relative risk-pricing differentiation among the sample group is measured using a normalized *z*-score methodology. "Small or worsening" sovereigns are identified as those with fiscal buffers beyond a deficit of 2 percent, and "borderline" sovereigns have fiscal buffers ranging from –2 to 2 percent and expect to have widening fiscal year 2024 primary deficits. "Large or improving" sovereigns are those with large fiscal buffers (exceeding 2 percent), as well as borderline sovereigns expected to experience narrowing fiscal year 2024 primary deficits.

[16]A "reasonable rate" is within the –2 to 2 percent range, as the average five-year standard deviation of sample sovereigns' primary balances is about 2 percent of GDP (based on expectations from fiscal year 2020 to fiscal year 2024).

[17]B-rated sovereigns have a cumulative default rate of up to 17 percent over a period of five years, based on historical five-year issuer-weighted rating transition studies for sovereigns based on Fitch ratings (1995 to 2023), Moody's issuer ratings (1983 to 2023), and S&P foreign currency ratings (1975 to 2023). The Moody's study also indicates that ratings of defaulted sovereigns, on average, tend to be in the B-rating range one year before a default event.

[18]Of the 80 sovereigns sampled, 17 (21 percent) have average ratings at CCC+ or worse, compared with 4 (5 percent) in December 2019.

And markets often front-run ratings actions, with some defaulting sovereigns' spreads having exceeded 10 percent before a downgrade to a rating band of CCC or lower (Figure 1.16, panel 6).[19] More concerning is the recent postpandemic trend wherein many defaulted sovereigns are experiencing an extended duration in rating bands of CCC or worse, with their prolonged stays in that range reflecting ongoing external and domestic challenges and a probable necessity for persistent fiscal reforms (see Kogan and others 2024). The continued struggle for market confidence and access underscores how important it is for emerging market sovereigns, especially during periods of strong growth, to maintain sufficient fiscal buffers and flexibility to mitigate effects of unexpected shocks.

Frontier Markets Are Still Grappling with High Borrowing Costs

Frontier sovereign spreads[20] have followed global trends and tightened further in the second quarter, having approached long-term average levels (Figure 1.17, panel 1). Significant progress on debt restructuring has also helped lift investor sentiment toward frontier markets. For example, the Eurobond restructurings in Suriname, Zambia and Ghana were completed in December, June, and October, respectively, while an agreement in principle was reached with creditors in Sri Lanka in September. Policy actions by local authorities have also resulted in positive developments; for example, in Nigeria, rate hikes and the clearing of overdue domestic central bank foreign exchange obligations have helped the naira show more signs of stability.

Against this backdrop, frontier economies continued to issue international debt in the second quarter, although yields remained high. Some frontier economies and low-income countries took advantage of strong investor risk appetite to issue sovereign bonds after a lengthy hiatus. However, although just 14 percent of frontier economies have sovereign spreads above 1,000 basis points—a lower share

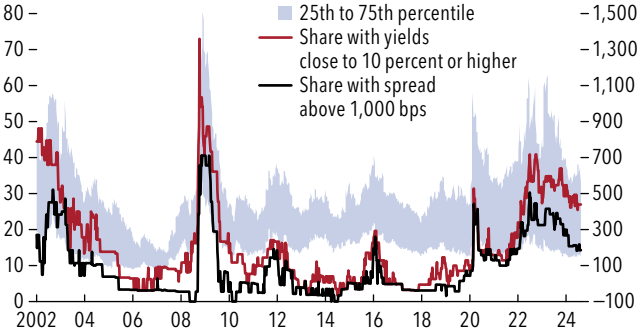
[19]An examination of default events since 2020 suggests that hard-currency spreads for 12 out of a sampled 19 defaulting sovereigns exceeded 10 percent before a downgrade to CCC or worse.

[20]The "frontier market" classification comprises 43 countries that either are included in the JPMorgan Next Generation Market index or, if not included in that index, are low-income countries with international bond issuance.

Figure 1.17. Frontier Market Developments

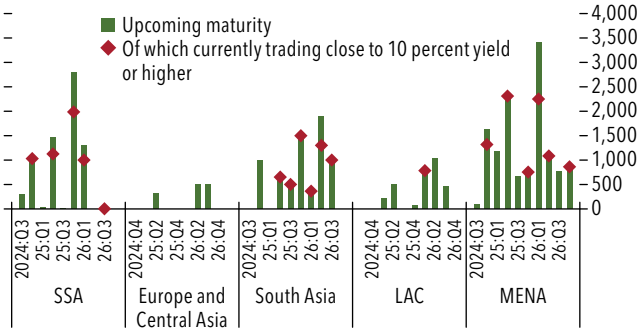
Sovereign spreads have tightened for frontiers, but yields remain high.

1. Frontier Market Spreads and Yields
(Basis points; percent)



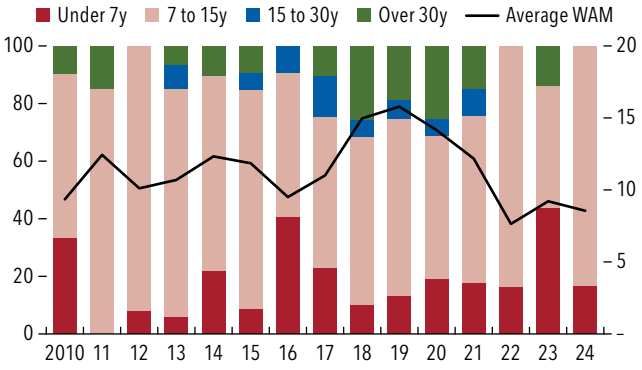
A large proportion of debt maturing in coming months is trading close to or above 10 percent.

2. Coupon at Issue Versus Current Yield of Eurobond Maturities
(Millions of US dollars; yields)



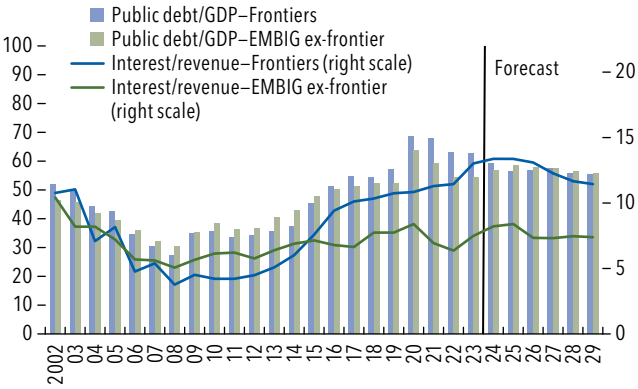
The maturity of eurobond issuances has declined over time and remains relatively low, indicating higher upcoming refinancing needs.

3. Maturity Distribution of Frontier Market Eurobond Debt Issuance
(Distribution of maturities frontier market Eurobond issuances, percent)



Median public debt levels are high by historical standards, but interest-to-revenue ratios are much higher in frontiers, indicating lower capacity to service debt.

4. Median Fiscal Metrics
(Percent of GDP; percent of fiscal revenue)



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

Note: Panel 1 shows the 25th and 75th percentiles of the JPMorgan Next Generation Market Index. Panel 3 shows the weighted average maturity of international debt issuance by frontier economy sovereigns. bps = basis points; EMBIG = JPMorgan Emerging Market Bond Index Global; LAC = Latin America and the Caribbean; MENA = Middle East and North Africa; SSA = sub-Saharan Africa; WAM = weighted average maturity.

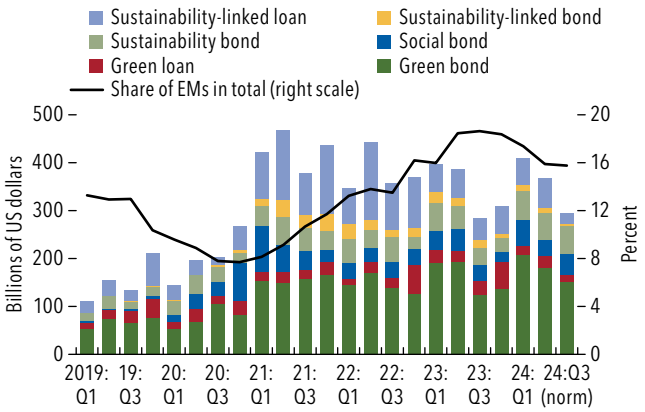
than a year ago—roughly a fifth of frontier economies still have yields close to 10 percent or higher, a materially larger share than the long-term average. Significant amounts of frontier debt are coming due in the remainder of 2024 (roughly $4 billion) and in 2025 and 2026 (roughly $13 billion and $14 billion, respectively), with roughly 60 percent of maturing bonds issued by countries with prevailing yields close to or above 10 percent, notably frontier economies in South Asia, and sub-Saharan Africa (Figure 1.17, panel 2).

A decline in global interest rates would alleviate refinancing pressures for these frontier economies, although the decline in the weighted average maturity of frontier debt issuance—that is, reliance on shorter-term debt—makes frontiers more exposed to gyrations in expectations regarding monetary policy, as refinancing would occur more frequently (Figure 1.17, panel 3). More fundamentally, debt-to-GDP ratios for both emerging market and frontier economies remain well above historical average levels. Under IMF staff projections, these debt levels are not expected to come down meaningfully in the medium term, and interest repayment burdens for frontier economies are projected to ease somewhat but remain relatively high in the medium term (Figure 1.17, panel 4).

Figure 1.18. Update on Sustainable Debt Issuance by Emerging Markets

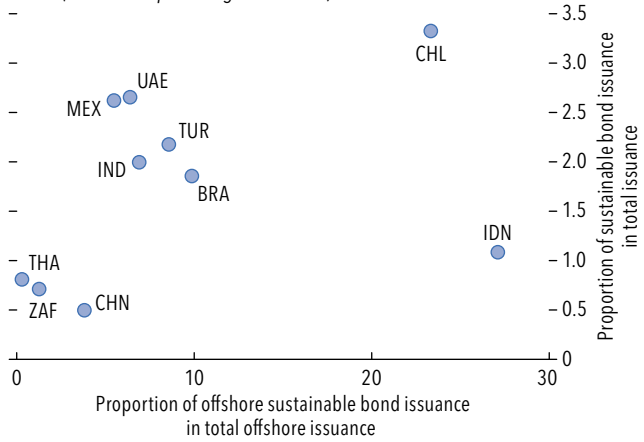
Global sustainable debt issuance has improved this year, led by record green bond issuance.

1. Global Sustainable Debt Issuance by Instrument
(Billions of US dollars; percent of total)



Emerging market sustainable debt makes up a relatively larger share in offshore markets than in total debt issuance.

2. Country-Level Sustainable Bond Issuance in Emerging Markets as a Share of Total Domestic and Offshore Issuance
(Cumulative percentage since 2015)



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

Note: In panel 1, the share of EMs shows the four-quarter moving average of total issuance in EMs as a percentage of global issuance, and the third quarter of 2024 value is based on the latest available information as of August 2024. "24:Q3 (norm)" refers to the normalized value for the third quarter of 2024, based on issuances during July–August 2024. Data labels in panel 2 use International Organization for Standardization (ISO) country codes. EMs = emerging markets.

Adaptation and Mitigation Can Strengthen Emerging Markets' Climate Resilience

Global issuance of sustainable debt rebounded in the first half of 2024. Green bonds remained the largest component, accounting for roughly half of sustainable debt issuance and exceeding the amount issued in the first six months of past years. The share of issuance by emerging markets has somewhat declined recently (Figure 1.18, panel 1). Moreover, issuance of sustainable debt continues to account for a relatively small portion of total debt issuance in emerging markets, even though the share of offshore issuance of sustainable debt in total issuance of sustainable debt is somewhat higher (Figure 1.18, panel 2), likely reflecting that demand for sustainable bonds from emerging markets originates from investors based in advanced economies who prefer hard-currency over local-currency debt. Underinvestment in climate change mitigation and adaptation in emerging market and developing economies could lead to global risks to financial stability through greater exposure to systemic climate-related financial risks, including contagion effects along value chains (see Chapter 2 of the October 2022 *Global Financial Stability Report*).

Different estimates suggest that about 75 to 90 percent of climate finance flows are directed toward mitigation efforts (CPI 2023; OECD 2023; UNEP 2023), even though there is growing awareness that investing in climate adaptation, in addition to mitigation, is both an inevitable and necessary priority. Specifically, mitigation is focused on reducing or eliminating the emission of greenhouse gases to limit further climate change, but adaptation finance is aimed at assisting communities and ecosystems to cope with climate change impacts already occurring or expected to occur. Emerging market and developing economies are disproportionately affected by both climate change and a lack of adaptation investment despite historically contributing the least to greenhouse gas emissions, while international adaptation finance flows to developing countries are 10 to 18 times below estimated needs, and the gap is widening (UNEP 2023). A significant portion of private sector capital providers are unfamiliar with the adaptation investment thesis, and even among those who are familiar, the perceived risk remains prohibitively high. Among private sector investors, mitigation is typically seen as an opportunity, whereas adaptation is often

viewed as a government responsibility, too complex, or lacking clear metrics or sufficient investment returns (IMF, forthcoming). To date, tracked adaptation finance is dominated by public actors (98 percent) (Climate Policy Initiative 2023). While three out of five surveyed private financial institutions intend to increase their allocation to adaptation investments, they also highlight multiple barriers to investment and call for more product innovation and public–private partnership to unlock capital for adaptation, practical investment guidance, and investor-relevant metrics (Standard Chartered Bank 2024).

Slowing Growth and Deflationary Pressures Weigh on China's Financial System

China continues to experience deflationary pressures amid slowing demand both domestically and from external markets. Policy support across the monetary, fiscal, and housing fronts continues to be measured so far and appears unable to offset the drag that housing market adjustment, now heading into its fourth year, is exerting on business and consumer confidence. In addition, slowing global growth and rising pressures related to fragmentation may weigh on the export sector, the key driver of growth in recent quarters. Against this backdrop, expectations regarding inflation continue to decline, with one-year-ahead expected consumer price index inflation having nearly halved from a year ago, to 1.3 percent, and the probability that it will fall below its current level of 0.3 percent has also increased (Figure 1.19, panel 1). Coupled with a housing market turnaround not yet in sight—home price declines have accelerated again recently, with primary and secondary home prices down 7 and 13 percent from their peaks, respectively, and primary market sales 40 percent lower than their prepandemic peak—these pressures call for more decisive and vigorous policy support.

Recent declines in government bond yields reflect the downbeat sentiment. Both the 2- and 10-year central government bond yields have fallen to near record lows. The compression of term premiums (Figure 1.19, panel 2), especially those for longer-term rates, indicates a weaker economic outlook and flight to safety, as returns on other assets like housing and stocks have continued to disappoint. The outperformance of stocks in defensive and high-dividend sectors, like utilities and energies, also points to low appetite for risk (Figure 1.19, panel 3).

At the end of September, Chinese authorities unveiled a series of monetary and regulatory stimulus measures aimed at bolstering the domestic economy and stabilizing the property sector and consumer sentiment. The announcement initially triggered a strong appreciation in stock prices, which was partially retraced in subsequent days as investors reportedly await details on potential fiscal stimulus measures viewed as crucial in addressing the structural challenges faced by the Chinese economy.

A decline in benchmark bond yields has also driven other bond yields lower, led by local government financing vehicles debt following the fiscal support for financially weak regions. Institutions like retail-focused wealth management products and mutual funds have displayed a strong appetite for fixed income assets.[21] In addition, foreign investors have also increased their holdings of renminbi-denominated bonds, particularly negotiable certificates of deposit in the interbank market (Figure 1.19, panel 4). A sudden rise in benchmark bond yields could trigger a sharp repricing in the broader fixed income markets, redemptions from investment funds, and significant market volatility.

The performance of China's banking system in this challenging environment is crucial to financial stability. Asset quality will continue to deteriorate if policy support fails to restore growth momentum, and weak credit demand is weighing on lending volumes and profit margins. So far, despite financial troubles in the property-related sectors, including local government financing vehicles, banks reported nonperforming loan (NPL) ratios have remained low. Low mortgage defaults (NPL ratios less than 1 percent) and manageable direct exposures to developers (less than 6 percent of total bank loans) have alleviated pressures. Importantly, banks have been proactive in addressing nonperforming assets (NPAs[22]), with write-offs and disposals topping 3 trillion yuan each year since 2020 (Figure 1.20, panel 1). Since 2012, the cumulative reported NPLs amounted to less than 3 trillion yuan in 2023, and write-off and

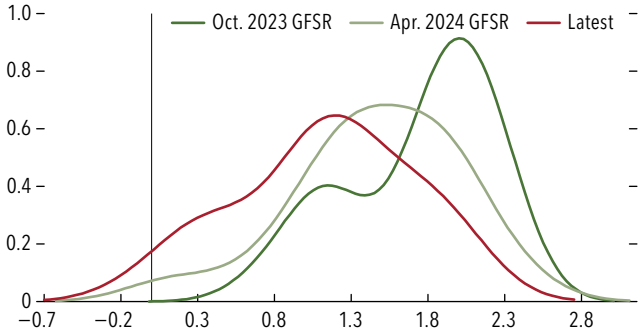
[21]Over the past few months, the Chinese authorities have issued repeated warnings against interest rate risks and have taken preemptive measures, including administrative interventions, to guide smaller financial institutions to reduce their bond exposures. On August 31, the central bank announced to have conducted secondary market transactions in August by buying short-term central government bonds and selling long-term central government bonds, resulting in a net liquidity injection of 100 billion yuan.

[22]NPA includes nonloan assets and is broader than NPLs. However, disclosure of NPA ratio is limited.

Figure 1.19. Inflation and Asset Developments in China

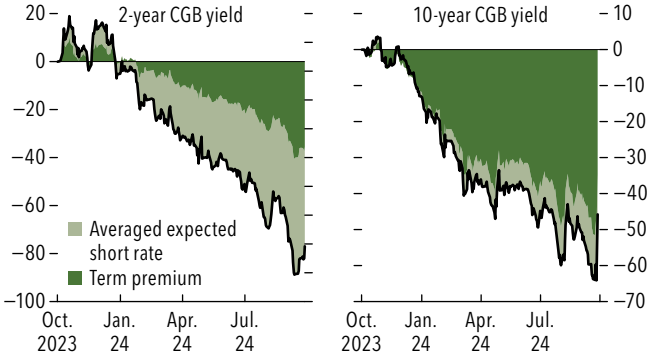
Deflation pressure is intensifying amid weak demand from home and abroad.

1. Distribution of Analysts' Forecasts for One-Year-Ahead Headline Inflation
(Probability density)



Government bond yields have dropped to record lows, with compressing term premiums on flight to safety driving the decreases.

2. Decomposition of Changes in Yields on Central Government Bonds
(Cumulative changes since October 2023, basis points)

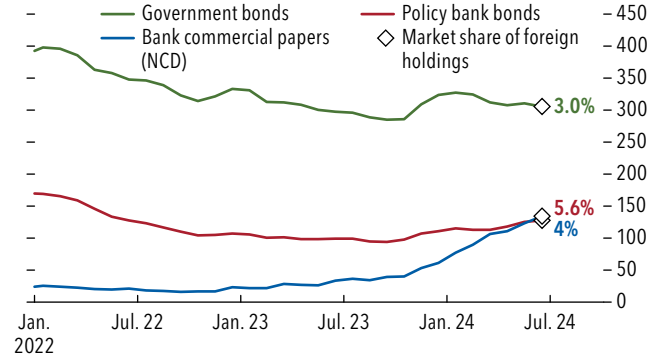


High-dividend and defensive stocks have outperformed.

3. Performance by MSCI China Sectors in 2024
(Percent)

Strong investor appetite from foreign investors as well as others has fueled a bond rally.

4. Foreign Holdings by Instrument
(Billions of renminbi)



Sources: Bloomberg Finance L.P.; EUROPACE AG/Haver Analytics; and Thomson Reuters.

Note: In panel 2, decomposition of bond yields into expected short rate and term premiums follows Adrian, Crump, and Moench (2013). In panel 3, the decomposition is based on 12-month-forward measures of valuation and earnings. CGB = central government bond; Comm. = communications; Cons. disc. = consumer discretionary; GFSR = *Global Financial Stability Report*; IT = information technology; NCD = negotiable certificates of deposit.

disposal totaled 22 trillion, which have effectively lowered banks' headline NPL ratios by 1.5 percentage points.[23] Disposals have been done mainly through transferring NPAs to state-owned asset management companies (AMCs) in the primary market, while the secondary market—non-AMC buyers of NPAs—remains nascent. Disclosures from listed AMCs show the bulk of NPA acquisitions in 2023 originating from the property market, small and medium enterprises, and local government financing vehicle–related sectors (Figure 1.20, panel 2).

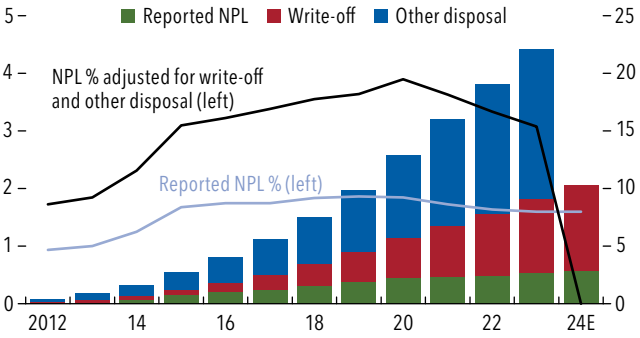
The key question is whether AMCs will continue to have the capacity to absorb problem assets with their balance sheets weakening. The four national AMCs established in 1999 (80 percent market share), which mainly serve state-owned and joint-stock banks, dominate the primary market for NPAs, along with more than 50 regional AMCs established since 2015

[23]The adjusted NPL ratios are likely still underestimating asset quality risks given the frequent use of regulatory forbearance and systematic perceptions of implicit guarantees.

Figure 1.20. Drill-Down on Chinese Asset Management Companies

Banks have relied on write-offs and disposals to manage bad debt.

1. Cumulative Changes in Banks' Nonperforming Loans, Write-Offs, and Other Disposals Since 2012
(Percent; trillions of renminbi)

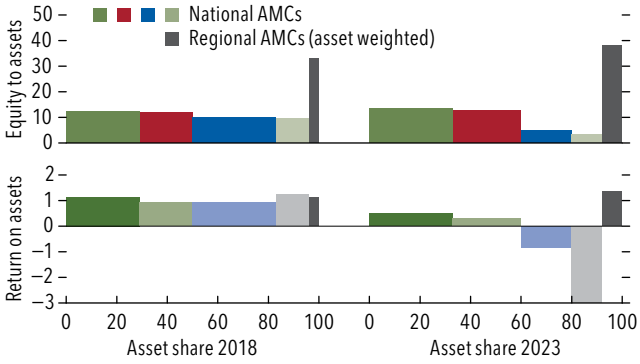


Disposals have focused on property and LGFV-related nonperforming loans.

2. Acquisitions of Nonperforming AMCs by Sector, 2023
(Percent, based on disclosure of the largest AMC)

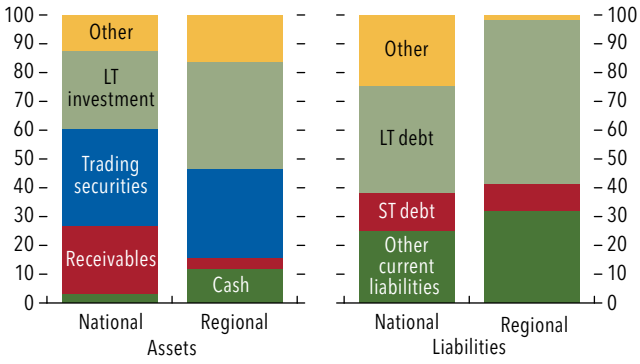
AMCs' fundamentals have weakened since the pandemic and the property downturn.

3. Equity and Profitability of AMCs
(Three-year average percent of total assets)



Failure of AMCs could generate macrofinancial instability.

4. Composition of Assets and Liabilities of AMCs
(Percent)



Sources: China, National Financial Regulatory Administration; company disclosures; EUROPACE AG/Haver Analytics; and S&P Capital IQ Pro.

Note: In panel 1, "other disposal" is disclosed periodically, and the value is imputed for some years based on actual volume of nonperforming loans. AMC = asset management company; E = estimate; LGFV = local government financing vehicle; LT = long term; NPL = nonperforming loan; ST = short term.

that target smaller banks in their regions.[24] In previous years, the national AMCs have grown into conglomerates through networks of subsidiaries offering services beyond NPA acquisition, such as lending, trust, insurance, brokerage, and real estate. The fundamentals of the national AMCs have weakened since 2018, as profitability from both NPAs and other business lines has suffered as a result of the pandemic, the property market downturn, and in some cases, overexpansion. Capital levels, as proxied by equity-to-asset ratios, have dropped to distressed levels of below 5 percent at two of the national AMCs (Figure 1.20, panel 3). Based on disclosures from a limited sample, regional AMCs appear more resilient on these two measures, likely reflecting more confined business models,[25] though limitation on the availability and granularity of disclosures warrants caution about this finding. Moreover, in the near term, regional AMCs are unlikely to fill any gap left by their national peers.

Financial distress in China's AMCs could generate macrofinancial instability. They are intertwined with the rest of the country's financial system through

[24]A fifth national AMC, established in 2020, remains small, holding less than 0.2 percent of total AMC assets.

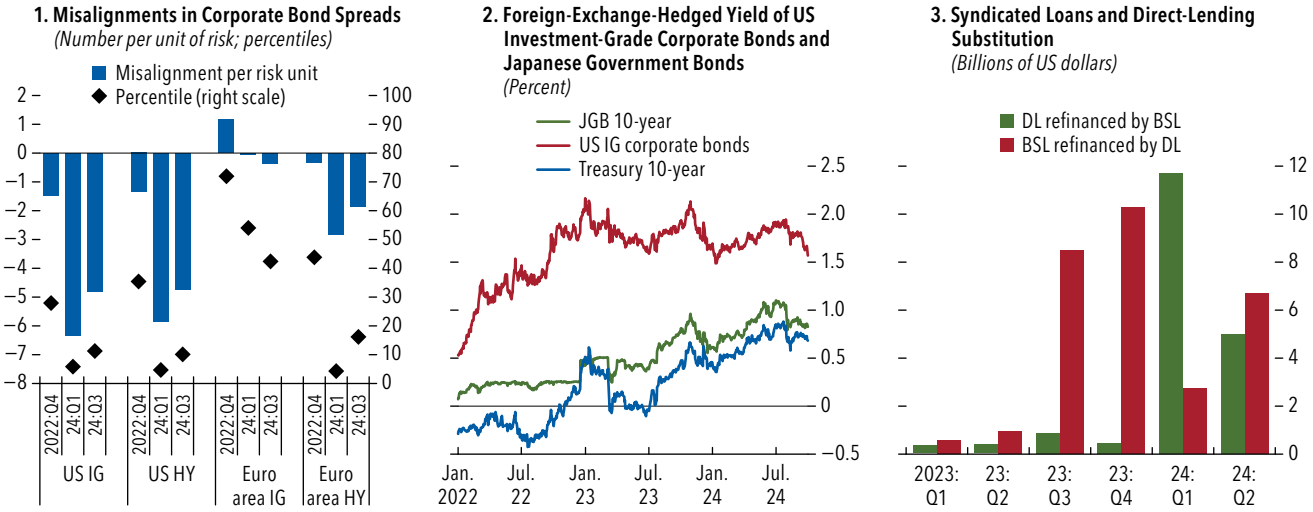
[25]Regional AMCs have not expanded beyond the NPA market and are required to operate within their jurisdictions.

Figure 1.21. Corporate Market Dynamics

US corporate bond valuations remain stretched, though they have eased somewhat.

Foreign-exchange-hedged US corporate bonds are attractive to Japanese investors.

The syndicated loan market has become active recently, regaining share from private credit direct lenders.



Sources: Bank for International Settlements; Bloomberg Finance L.P.; EUROPACE AG/Haver Analytics; JPMorgan; PitchBook Data, Inc.; Thomson Reuters DataStream; and IMF staff calculations.

Note: In panel 1, misalignment is the difference between market spread and model-based spread scaled by the standard deviation of monthly changes in spread. Negative values indicate overvaluation. For the model details, please see the October 2019 *Global Financial Stability Report*, Online Annex 1.1. Intuitively, this measure indicates how many standard deviations of monthly changes in spread (or "risk units") it would take for the spreads to get back to fair value. "US" valuations are based on the Bloomberg US corporate bond index and includes non-US issuers. "Euro area" valuations are based on the Bloomberg Euro Corporate Bond Index and includes non–euro area issuers. Panel 3 shows yields hedged in Japanese yen. BSL = broadly syndicated loans; DL = direct lending; HY = high yield; IG = investment grade; JGB = Japanese government bond.

investments, lending (or receivables), and reliance on bank and market financing (Figure 1.20, panel 4). A credit event at a large AMC would hamper a source of NPA disposal for banks, putting some banks at risk. Distress in one national AMC generated significant ripple effects in the financial system, requiring a $6.6 billion state-led bailout in 2021. The Chinese authorities have strengthened regulations on AMCs in recent years by, among other things, centralizing the supervision of local AMCs under the National Financial Regulatory Administration.

Rising asset quality and profitability pressures create additional challenges to the banking sector's capacity to manage bad debt on its own. Asset quality risk will continue to rise if policy support fails to restore growth momentum. Profitability pressures will remain in the near term as weak credit demand and downbeat sentiment continue to weigh on business volumes and profit margins.

Corporate Credit

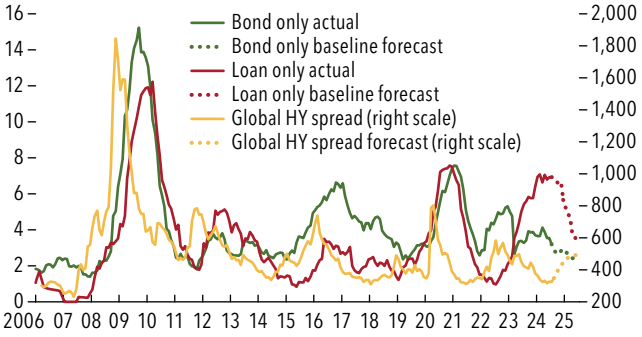
Debt Servicing Remains Challenged for Many Firms Even with Monetary Policy Easing

Investor optimism that the global economy will achieve a soft landing has helped keep corporate bond spreads tight (see Figure 1.7, panels 2 and 3). However, the misalignment in corporate bond valuation, based on a model that account for macro fundamentals, has remained at levels similar to those at the time of the April 2024 *Global Financial Stability Report*. The degree of overvaluation among US issuers is elevated by historical standards (Figure 1.21, panel 1). In addition to confidence in the global economy, strong demand from overseas investors drove valuation up; for instance, Japanese investors have reportedly preferred US investment-grade corporate bonds to Treasury securities because the yields on the former more than compensate for costs associated with foreign exchange

Figure 1.22. Corporate Credit Fundamentals

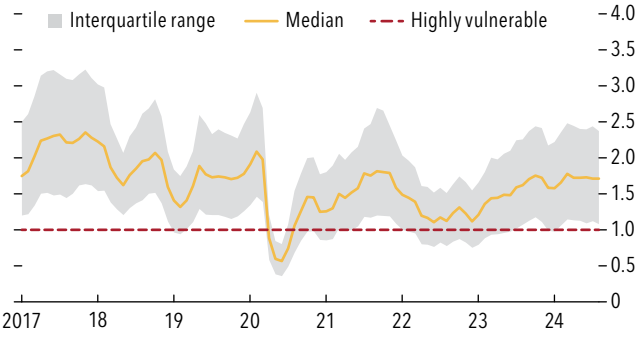
Default rates have risen somewhat ...

1. Corporate Default Rate
(Percent, last 12 months, left scale; basis points, right scale)



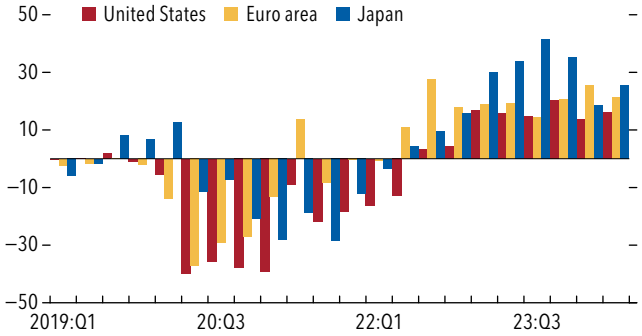
... and some firms are not far from insolvency.

2. Distance to Insolvency in the United States and Europe
(Index)



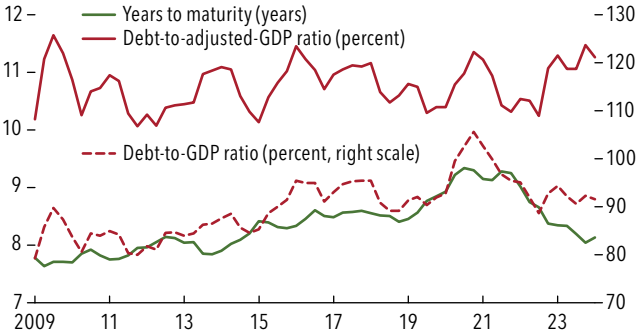
Bankruptcy cases continue to increase as smaller firms face difficulties.

3. Growth Rate of Corporate Bankruptcies
(Percent, four-quarter change)



Corporate-debt-to-GDP ratios, adjusted for the maturity of debt, are at their highest levels since the global financial crisis.

4. Global Nonfinancial-Corporate-Debt-to-GDP Ratios and Average Duration of Outstanding Debt
(Years; percent, right scale)



Sources: Bloomberg Finance L.P.; EUROPACE AG/Haver Analytics; JPMorgan; Moody's; and IMF staff calculations.

Note: Panel 2 shows distance to insolvency, based on Atkeson, Eisfeldt, and Weill (2013), for constituents of the S&P 500 and STOXX Europe 600. In panel 3, the last data point is 2024:Q2. HY = high yield.

hedging (Figure 1.21, panel 2).[26] Other credit instruments have also benefited from buoyant investor sentiment, as banks' syndicated lending has regained some market share from private credit lenders (Figure 1.21, panel 3; Figure 1.24, panel 2; April 2024 *Global Financial Stability Report*), and collateralized loan obligations have experienced their largest issuance[27] since the start of the Federal Reserve hiking cycle, as investors have sought alternative credit products.

Although solid economic activity and healthy corporate balance sheets with large cash buffers[28] have kept margins robust for some firms, loan and bond default have steadily risen as weaker firms have struggled (Figure 1.22, panel 1). Forward-looking metrics like the global distance to insolvency[29] indicate that around one-quarter of firms are vulnerable to insolvency (Figure 1.22, panel 2). Bankruptcies among smaller firms have continuously risen in recent months, with

[26]Japanese investors typically see US investment-grade corporate bonds as alternative to high-quality duration products such as Japanese government bonds or US Treasury bonds, although it does not mean that they do not manage credit risks.

[27]Collateralized loan obligation issuance volumes in the United States and euro area for the second quarter of 2024 were 60–90 percent higher than the average volumes between the first quarter of 2022 and the first quarter of 2024.

[28]On margins for firms, see the October 2023 *Global Financial Stability Report*.

[29]"Distance to insolvency" is a measure, based on Atkeson, Eisfeldt, and Weill (2013), that aims to measure the financial soundness of individual firms using data from financial statements and market-based information. US data include those for constituent firms of the S&P 500 stock index, and data for Europe include those of STOXX Europe 600 constituents.

cases exceeding prepandemic levels in Europe and Japan (Figure 1.22, panel 3). Among investment-grade firms, the amount of debts issued by "fallen angels"—issuers that have been downgraded to below investment grade—is now roughly equal to the amount of "rising stars"—debt upgraded to investment grade[30]—whereas up until the April 2024 Global Financial Stability Report, rising stars outnumbered fallen angels.

A decrease in average maturity has characterized the recent corporate debt market, as borrowers have issued less long-term debt, on average. Although this is in part a response to a monetary policy cycle with rate cuts expected in the near future, it has increased refinancing risks, as repayment obligations are concentrated over a short period, all else equal. Indeed, a version of the debt-to-GDP ratio that accounts for the remaining years of corporate debt[31] shows that corporate leverage has been rising and is now at about its highest levels since the period after the global financial crisis, even though the simple debt-to-GDP ratio has been declining (Figure 1.22, panel 4). Larger effective debt burdens could raise concerns relating to financial stability. More important, this risk is more pronounced in the high-yield segment, in which the maturity of debt has dropped much more steeply.[32]

A deeper look at individual firms reveals that cash buffers are dwindling, especially for a weak tail of companies. The share of firms with cash-to-interest-expense ratios below 1.5 has been increasing (Figure 1.23, panel 1; see also the April 2024 *Global Financial Stability Report*), especially among smaller firms. Worryingly, the share of weak small and medium firms has steadily become larger in advanced economies. Earnings relative to interest expenses, or the interest coverage ratio (ICR), have clearly deteriorated over the past year for some European and emerging Asian countries, including those that already have lower ICRs (Figure 1.23, panel 2).

For weaker firms, difficulties in servicing debt may be exacerbated by tough refinancing conditions. Refinancing yields are significantly higher than coupons on existing debt, particularly those on debt issued at very low fixed rates. Among global corporate debt coming due in 2025, for example, fixed-rate debt accounts for close to 50 percent, with existing coupons between 3.5 and 4 percent, significantly lower than the current refinancing yield of 5.5 percent (Figure 1.23, panel 3). Should monetary policy ease, global refinancing would become less costly, albeit not necessarily cheaper. If that does not happen, however, refinancing 2024 and 2025 bonds at higher interest rates would bring ICRs down by an average of 12 percent, reducing debt servicing capacity further.

Refinancing costs remain elevated specifically for emerging market corporations, especially those for foreign currency bonds, putting pressure on debt sustainability (Figure 1.23, panel 4). Correspondingly, issuance has remained much slower than before the current monetary tightening cycle (Figure 1.23, panel 5). An easing in monetary policy would help firms in emerging markets with their debt sustainability, as would a shift toward issuing in local, rather than foreign, currencies.

Trade restrictions or geopolitical events would also likely affect firms, through higher input costs.[33] The resulting margin compression would further deteriorate ICRs—in a scenario in which input costs increase by 10 percent, the weak tail of firms, with ICRs that are less than one, would increase by an additional 3 to 6 percentage points, depending on the region, with the impact especially large in emerging markets (Figure 1.23, panel 6). Although regional or industry heterogeneity are not taken into account in this

[30]The gap between the market return of a global investment-grade corporate debt index and the return implied by changes in yields (adjusted for duration) and coupons has been declining, on a 12-month rolling basis, since mid-2023, while remaining positive. This implies that the value of the index has declined at a faster pace than the yields and coupons, primarily because of an increase in the value of debt of fallen angels (which exit the index as a result of the downgrades in their ratings).

[31]A stock-to-stock approach is used here, wherein the flow variable of GDP is converted into a stock variable by interacting it with the remaining years to maturity of debt. This allows repayment obligations to be compared with the resources or earnings generated over the repayment period. The leverage of global nonfinancial corporations, measured in terms of the debt-to-GDP ratio under the stock-to-flow approach, has decreased from 108 percent in 2021 to below 100 percent currently, as recovery in GDP masks an increase in nominal debt value. However, the remaining years to maturity of debt are shortening at a faster pace. Hence, the leverage metrics that adjust for duration, that is, the debt-to-GDP ratio times the average remaining life of debts, have been increasing steadily.

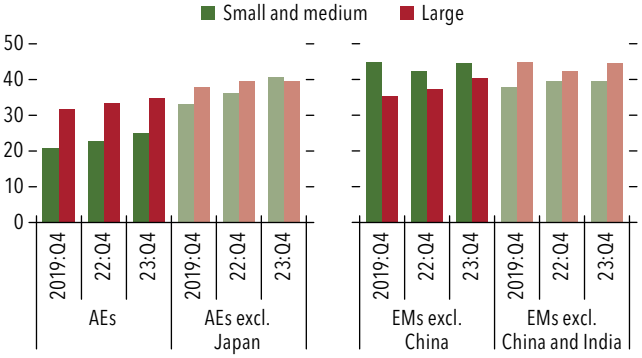
[32]The average remaining life of high-yield debt has declined at a faster rate, reaching 4.6 years in the fourth quarter of 2023 from 6.7 years in the third quarter of 2009, when leverage based on the stock-to-stock approach was near the levels seen recently.

[33]This part of the scenario being presented is calibrated to reflect higher marginal financing costs (by 150 basis points) and potential upward pressures on input costs because of factors like recalibration of international trade policies globally or supply chain disruptions caused by geopolitical events. These are seen as potentially compressing corporate margins in the near term, although such a compression would be contingent on the degree of market power (that is, a firm's ability to pass on the increase in costs to customers). In other words, the larger a firm's market power, the smaller the impact on margins. Broadly speaking, about 90 percent of firms in advanced economies have little or no meaningful market power (April 2019 *World Economic Outlook*). Hence, higher input costs will likely affect the profit margins of these firms adversely.

Figure 1.23. Corporate Debt Sustainability

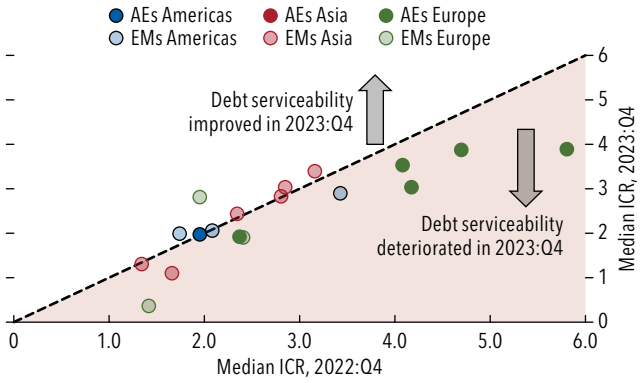
The shares of firms with less cash buffers are increasing.

1. Share of Debt Issued by Firms with Cash Buffers to Interest Expense Ratio below 1.5
(Percent of total debt, average across countries)



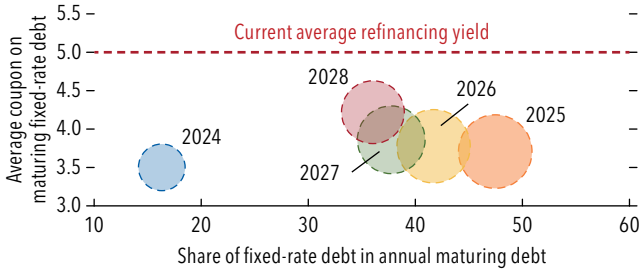
ICR has declined faster for European firms, although from high levels. ICR has slipped below two for some emerging Asia countries.

2. Interest Coverage Ratios Across Regions and over Time
(Ratios)



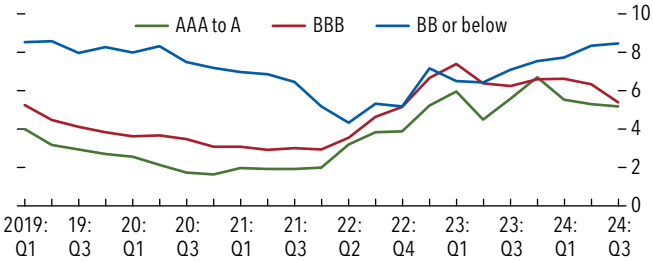
Firms have to refinance 30 percent of existing debts at higher funding costs ...

3. Average Coupon of Maturing Debt versus Share of Fixed-Rate Debt
(Percent)



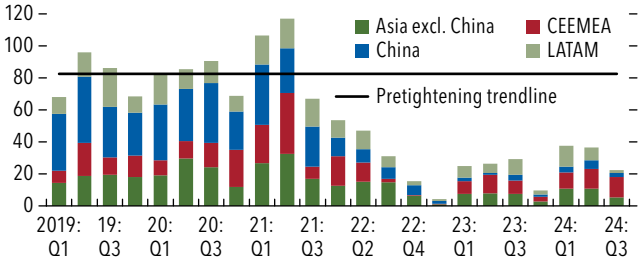
... and the average borrowing cost for EM corporates has increased over the past two years.

4. Average Coupons for Emerging Market Corporate Bonds in Different Rating Categories
(Percent)



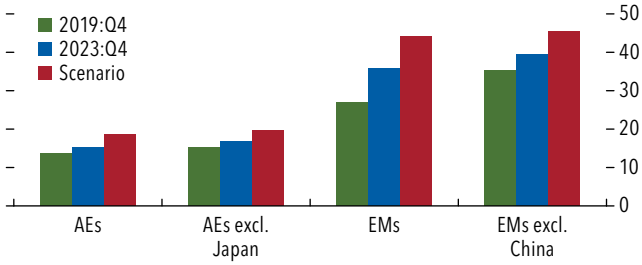
EM hard-currency corporate bond issuance has slowed.

5. Emerging Market Hard-Currency Bond Issuance by Region
(Billions of US dollars)



In a scenario where more trade tensions lead to higher input costs, the share of firms with low interest coverage rises meaningfully above prepandemic levels.

6. Share of Corporate Debt with ICR Below One in Total
(Percent)



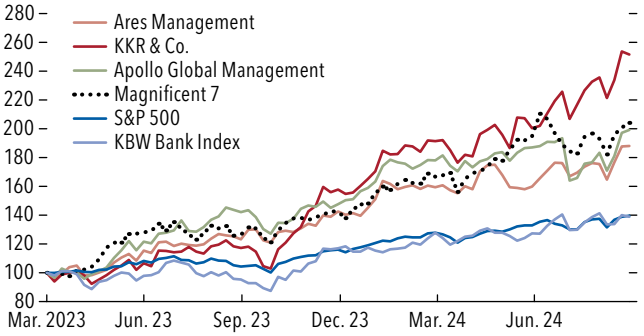
Sources: Bloomberg Finance L.P.; Bond Radar; Dealogic; IMF, World Economic Outlook database; S&P Capital IQ Pro; and IMF staff calculations.

Note: Panels 1, 2, and 6 are based on data from a sample of 19 countries comprising Brazil, Chile, China, France, Germany, India, Indonesia, Italy, Japan, Korea, Malaysia, Mexico, Poland, Russia, Spain, Thailand, Türkiye, the United Kingdom, and the United States. For these panels, the aggregate values represent the average weighted by outstanding debt. In panel 2, the outliers beyond the scale are not displayed in order to improve presentation. In panel 3, the size of the bubbles represents the total outstanding debt maturing. In panel 5, "pretightening trendline" is an average of values for 2019:Q1 and 2021:Q4 at $82.5 billion. In panel 6, "scenario" shows the share of debt that bears an interest coverage ratio of below 1 in the scenario explained in note 37. AEs = advanced economies; CEEMEA = Central and Eastern Europe, the Middle East, and Africa; EMs = emerging markets; excl. = excluding; ICR = interest coverage ratio; LATAM = Latin America.

Figure 1.24. Expansion in Private Credit Despite Borrowers' Struggles

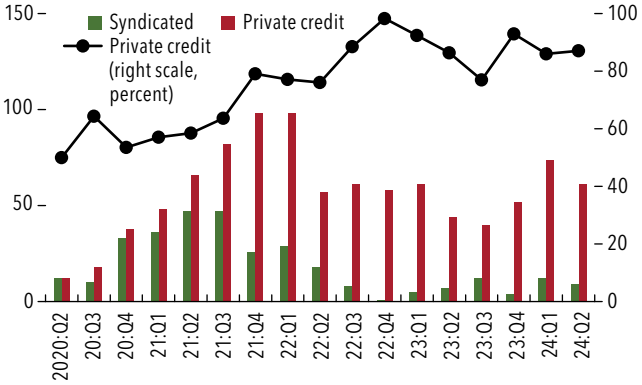
Favorable expectations for the private credit industry have supported stock prices of specialized asset managers.

1. Stock Prices of Selected Asset Managers Versus the Rest of the Equity Market
(Normalized, March 2023 = 100)



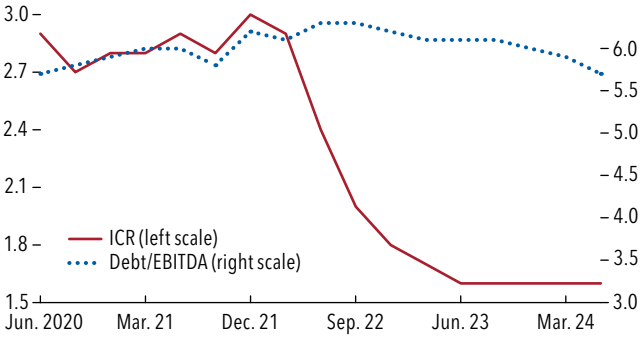
Private credit expansion beyond middle-market firms intensifies competition with banks on large deals.

2. Number of LBOs Financed Through Broadly Syndicated Loans versus Private Credit
(Number of LBOs; percent)



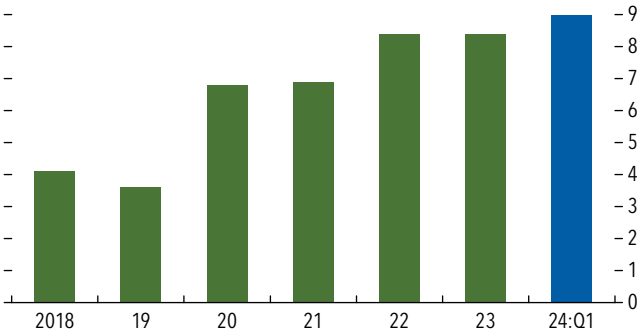
High interest rates and leverage have jeopardized borrowers' ability to service their debt ...

3. Interest Coverage Ratio and Leverage (Ratio of Debt to EBITDA) for Borrowers from US BDCs
(Ratios)



... and are exerting significant pressure on cash flows of private credit borrowers.

4. PIK Income as Share of Interest and Dividend Income of US BDCs
(Percent)



Sources: BDC disclosures; Bloomberg Finance L.P.; Fitch; PitchBook; and IMF staff calculations.

Note: Panel 2 is based on US data. In panel 4, when interest is paid in kind, no cash flow occurs. Instead, the interest coupon is added–usually at an extra cost–to the loan's principal. BDC = business development company; EBITDA = earnings before interest, taxes, depreciation, and amortization; ICR = interest coverage ratio; LBO = leveraged buyout; PIK = payment in kind.

scenario, negative fallout could be more pronounced in trade-dependent economies or industries. In contrast, some economies or industries could benefit from supply chain reorganization or trade reallocation.

Private Credit Continues to Grow and Vulnerabilities Are Rising

Private credit—that is, credit provided outside the realms of either commercial banks or public debt markets—continues to grow, and the favorable outlook for this market has pushed up the stock prices of specialized asset managers, which have outperformed bank stocks and the broader equity market (Figure 1.24, panel 1). Private credit has now entered credit segments beyond lending to midsized corporate borrowers, intensifying competition with banks in the syndicated loan markets in which they dominate (Figure 1.24, panel 2).

However, signs are mounting that high interest rates are pressing private credit borrowers, and a severe downturn has not yet tested the many features designed to mitigate credit risks at the private credit industry's current size and scope. There are signs that the private credit industry's rapid growth, competition from banks on large deals, and pressure to deploy capital may be leading to a deterioration of underwriting standards and weakened covenants, amid interest rate pressure.

Business development companies are often used as a proxy for the overall industry, as their granular reporting provides a valuable window on the normally opaque world of private credit. They show that ICRs have continued to decline because of borrowers' high leverage, the floating rate nature of loans, and the slowdown of economic activity (Figure 1.24, panel 3). And although defaults, narrowly defined (that is, missed payments), are relatively rare among private credit borrowers because of the inherent flexibility of private credit vehicles to amend and extend loans (and potentially complement them with equity warrants; see McDonnell 2024), default under broader measures, including restructurings or breaches of covenants, is becoming frequent (Berlin 2024). Indeed, a significant share of borrowers are facing cash flow pressures, as the ever-growing share of payment-in-kind coupons shows (Figure 1.24, panel 4).

The opaqueness of the private credit industry makes it challenging to assess risks related to it and quantify the full extent of deterioration of private credit loans (Ellias and de Fontenay 2024; Chapter 2 of the April 2024 *Global Financial Stability Report*). In a downside scenario, stale and uncertain valuations of private credit could lead to deferred realization of losses followed by a spike in defaults (April 2024 *Global Financial Stability Report*). This possibility makes the private credit industry vulnerable to episodes of crisis of confidence, which may be triggered, for example, by an outsized share of defaults in a group of funds. An adverse feedback loop could ensue, wherein fundraising for private credit might be temporarily frozen, semiliquid funds might suffer runs, and at the same time, banks or other investors might refuse to continue providing leverage and liquidity to private credit funds. Such a scenario could force the entire network of institutions that participate in the private credit industry to reduce exposures to the sector simultaneously, triggering spillovers to other markets and the broad economy.

Real Estate

Home Prices Continued to Decline at a Modest Pace with Stability Risks Remaining Contained

The decline in global real house prices has continued at an increasingly modest pace but will be unlikely to affect the financial stability of households, given manageable debt burdens and the presence of only a limited number of complex financial instruments that can amplify a housing downturn into a broader turmoil. On an annual basis, real home prices in emerging markets have declined by 1.6 percent, and in advanced economies, the drop has been 0.3 percent. Still, global real house prices remain 5 percent above the prepandemic average, causing affordability to remain stretched globally (Figure 1.25, panel 1). Supply-side constraints, such as rising construction costs and shortages of construction materials, have partly dampened the pass-through of elevated interest rates on demand through lower affordability, particularly in some countries, resulting in a varying price elasticity of new housing supply (Figure 1.25, panel 2).

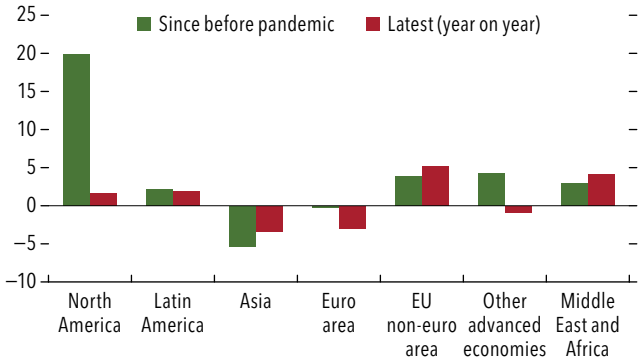
Year-over-year real home price changes are widely distributed (Figure 1.25, panel 3). Countries with a higher percentage of variable-rate mortgages, such as Norway (see also Chapter 2 of the April 2024 *World Economic Outlook*) as well as countries experiencing a very large price buildup in the aftermath of the pandemic (for example, Canada), have continued to record significant declines. Home prices in Korea, South Africa, and Sweden, and, to a lesser extent, the euro area and the United Kingdom, have also undergone annual declines, and weak demand has continued to weigh down China's property despite recent government support measures (see "Slowing Growth and Deflationary Pressures Weigh on China's Financial System"). The sharp decline in residential investment observed in some countries, however, suggests that the house price drop in those jurisdictions may not extend much further, especially as supply constraints continue to bind, with price being further supported by potential improvements in demand going forward. US house prices, on the other hand, have increased 2 percent year over year, as housing inventories have continued to be absorbed briskly and lower mortgage rates have boosted refinancing activity and mortgage origination. There is still room for house prices to decline in some jurisdictions, particularly those with high levels of household leverage (Figure 1.25, panel 4) and overvalued property markets, as well as those in which substantial easing in monetary policy is less likely. However, risks to financial stability are contained: Further increases in mortgage rates are not projected to raise household debt-servicing expenses significantly ("Scenario 1" in Figure 1.25, panel 4), a limited number of risky and complex financial instruments are tied to the housing market, and household and bank balance sheets are sound overall.[34]

[34]Of issuances, small amounts remain of the private-label residential mortgage-backed securities that played a role during the global financial crisis. See Sifma (2024).

Figure 1.25. Developments in Global Residential Real Estate Markets

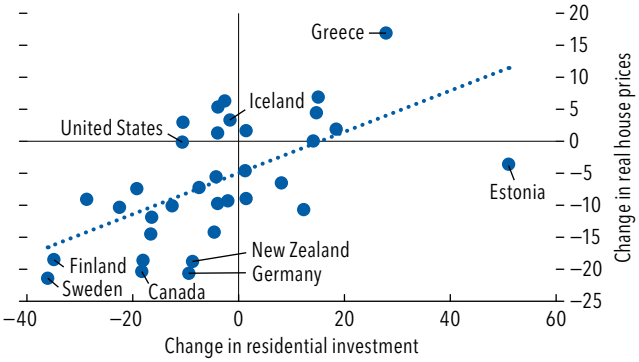
House prices continue to decline globally, however, at an increasingly modest pace, with Asia, the euro area, and other advanced economies leading the decreases.

1. Real Growth in House Prices by Region
(Percent)



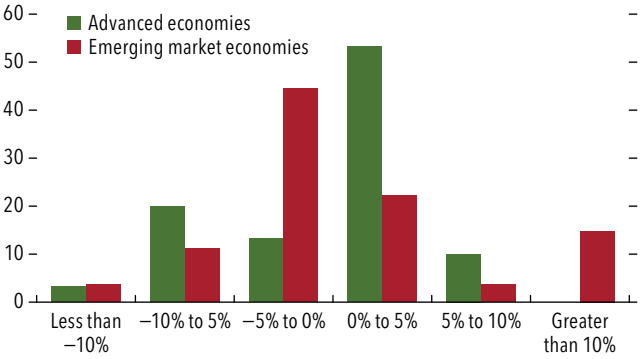
Price elasticity of new housing supply continues to show significant variation among countries.

2. Changes in Real House Prices and Residential Investment (Proxy for Supply) since 2022
(Percent)



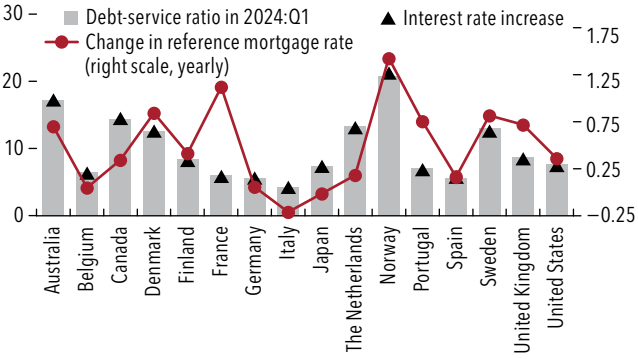
Price change has slowed, with less than 5 percent of jurisdictions recording double-digit declines.

3. Distribution of Yearly Changes in Real House Prices Across Countries
(Percent of jurisdictions)



Contained household debt limits debt-servicing ratios even at higher mortgage interest rates.

4. Effect of Mortgage Rates on Households' Debt-Service Ratios
(Percent)



Sources: Bank for International Settlements; EUROPACE AG/Haver Analytics (Group of Ten accounts); Federal Reserve Bank of New York Consumer Credit Panel/Equifax; National Association of Realtors; Organisation for Economic Co-operation and Development; and IMF staff calculations.

Note: In panel 1, "Since before pandemic" refers to 2019:Q4. Countries are grouped based on 2023 real GDP in purchasing power parity from the IMF's World Economic Outlook database. "Other advanced economies" includes Australia, New Zealand, Norway, Switzerland, and the United Kingdom. In panel 2, "change in residential investment" refers to gross fixed capital formation in housing. In panel 4, the debt-service ratio is defined as the ratio of interest payments plus amortizations to income, assuming debt is repaid in equal portions over the maturity of the loan (that is, no prepayments). The reference mortgage rate in each country is obtained from the Group of Ten accounts of EUROPACE AG/Haver Analytics. For Belgium, Denmark, Finland, France, Germany, Italy, The Netherlands, Portugal, Spain, Sweden, and the United Kingdom, the reference mortgage rate is represented by a weighted average of the prevailing mortgage interest rates. For Canada, the reference mortgage rate is the five-year average residential mortgage lending rate, and for the United States, it is the 30-year fixed mortgage rate. Scenario 1 considers a change in household debt-service ratios in proportion to the observed or predicted (based on the average mortgage rate change since 2023) change in mortgage interest rates over the following quarter, with credit obtained by extrapolating the previous year-on-year growth.

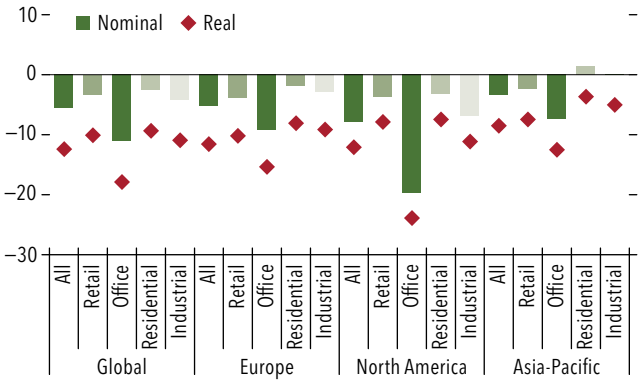
Pressures on the Commercial Real Estate Sector Remain Acute

CRE is at risk of further correction, especially if financial institutions active in lending to this market come under strains, including real estate investment trusts, commercial mortgage-backed securities (CMBSs), and some banks. Funding could then be withdrawn discreetly, pushing down prices and putting more institutions under pressure in an adverse feedback loop. Based on latest available data, global CRE prices have fallen by 12 percent year over year, weighed down by still-high interest rates and poor investor sentiment (Figure 1.26, panel 1). The US (European) office sector is experiencing a 23 (16) percent decline. There are signs of stabilization as price decline of CRE owned by institutional investors has

Figure 1.26. Developments in Commercial Real Estate Markets

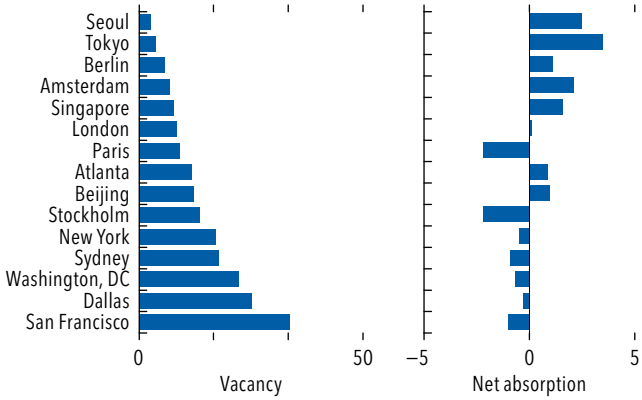
The global CRE market continues to reprice ...

1. Changes in Private CRE Valuations
(Percent year over year, 2023:Q4)



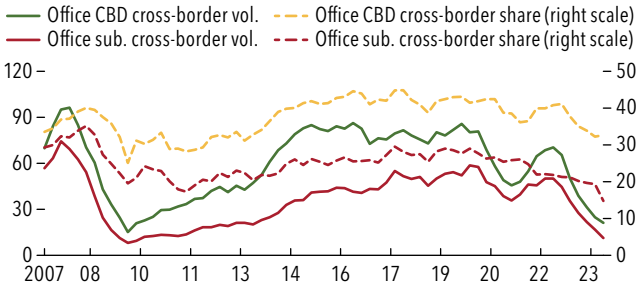
... although demand for CRE differs across regions.

2. Vacancy and Net Absorption Rates Across Cities
(Percent)



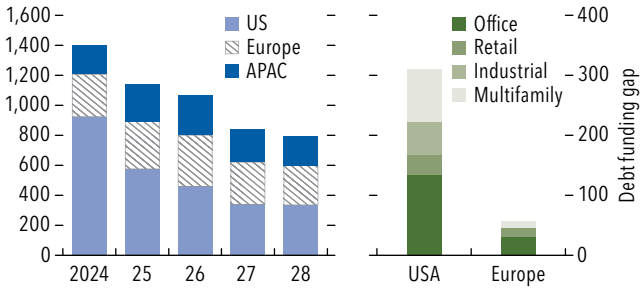
The office sector continues to face financing challenges.

3. Cross-Border Investments in Office
(Billions of US dollars, left axis; share of total investment in sector, percent, right scale)



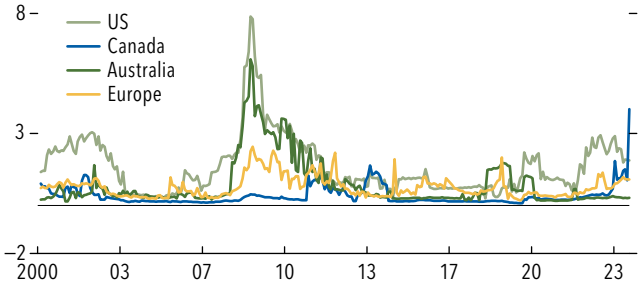
Significant volumes of CRE debt will mature in the next few years.

4. CRE Maturing Debt and Funding Gap
(Billions of US dollars)



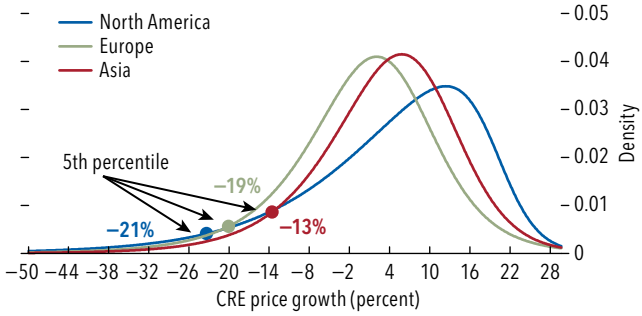
Funding conditions are also affecting alternative investors in CRE markets.

5. Expected Default Frequency of REITs
(Percent, one year ahead)



CRE markets continue to face downside risks.

6. Downside Risk to CRE
(Probability density, cumulative real price growth over three years)



Sources: AEW; Bloomberg Finance L.P.; EUROPACE AG/Haver Analytics; Green Street; JLL; MSCI Real Estate; RICS; and IMF staff computations.

Note: Panel 1 shows changes in the asset value growth index across different regions and CRE sectors. In panel 2, the net absorption rate indicates the proportion of total available space that has been absorbed (that is, leased or occupied) within a specific period, relative to the total inventory or supply of space in the market. In panel 3, the volume of cross-border acquisitions by property type is based on trailing four-quarter data. In panel 4, the debt funding gap for each origination year and sector is based on the fraction of loans maturing within five years divided by the average loan-to-value ratio for that year. This value is adjusted for expected price corrections and compared with agencies' forecast loan-to-value ratios to calculate the debt funding gap with respect to the original loan amount. In panel 6, probability densities are estimated for the distributions of three-year-ahead (cumulative) CRE price growth (in real terms), following the approach in Deghi, Mok, and Tsuruga (2021). Bullets indicate price declines with a 5 percent probability. APAC = Asia and Pacific; CBD = central business district; CRE = commercial real estate; REIT = real estate investment trust; sub. = suburban; vol. = volatility.

slowed, and the spread of prime property yields over long-term government bond yields has eased in some regions. Nonetheless, transaction volumes were just over $130 billion in 2023, a 37 percent decrease from the previous year.[35]

Changing international trade patterns, along with region-specific shocks and postpandemic shifts to remote working, are leading to diverging country and regional performance. US metro areas have higher vacancy rates than those anchored by other global cities and are projected to have negative net absorption rates, indicating that occupancy is outpaced by newly vacant space (Figure 1.26, panel 2). By contrast, technological transformations like artificial intelligence and cloud computing are expected to boost demand for data centers and other similar types of CRE, especially in Asia-Pacific.

Over the past few years, sources of CRE funding have shifted significantly. Tight bank lending standards and subdued investor sentiment are expected to further restrict CRE financing, leading to project delays or cancellations and reducing supply.[36] Equity investments by institutional investors have declined significantly as they favor debt instead.[37] Cross-border investment flows into global property markets, especially the office sector, would likely remain subdued in the near term as properties face high vacancy rates. Historically, offices accounted for 40 percent of cross-border CRE investments between 2010 and 2023 (Figure 1.26, panel 3). With the rise of hybrid work models, this share has declined by close to 10 percentage points since 2022.

In the United States, banks with global footprints have the greatest exposure to vulnerable loans on central business district offices, with this segment accounting for 26 percent of their total CRE loan originations over the past three years, whereas the same share is just 4 percent for national and regional and local banks. Banks could lend more conservatively toward central business district office and other vulnerable CRE segments, posing challenges to refinancing of a high volume of loans coming due (Figure 1.26, panel 4). In the United States alone, nearly $1 trillion in CRE debt will mature between 2024 and 2025, with a funding gap of almost $300 billion. Globally, about 40 percent of loans held by banks, 25 percent by commercial mortgage-backed securities, and 20 percent by investor-driven lenders like debt funds are maturing over this period. CMBS lenders have the largest exposure to loans maturing in 2024, accounting for nearly 30 percent of the balance. Strains in the sector are likely to persist, as delinquencies of CMBSs specializing in office properties are above 8 percent, up 3 percentage points from the previous year, and CMBSs still have very wide spreads. Real estate investment trusts, which depend on bank funding for liquidity, have elevated expected frequencies of default in Canada and the United States (Figure 1.26, panel 5).

Overall, the unprecedented combination of maturing debt, high interest rates, general dearth of CRE sales, and varied effects across property types distinguish this CRE cycle from past ones. Rate cuts alone might not resolve all the challenges facing investors in CRE, as many markets continue to contend with postpandemic remote work that has reshaped CRE demand, particularly in the market for central business district offices. Taking into account various supply, demand, and financing factors, the CRE price-at-risk model of Deghi, Mok, and Tsurunga (2021) indicates that CRE prices still have room to correct. With 5 percent probability, real prices are estimated to decline over the next three years by about 20 percent in North America and 19 percent in Europe (Figure 1.26, panel 6).[38]

[35]In Europe, for instance, the excess spread of prime property yields over long-term government bond yields is rebounding and nearing its 25-year historical average. Meanwhile, in the United States, market agencies project rates of capitalization—the ratio of a property's net operating income to its value—will peak in 2024.

[36]Total cumulative distress related to US commercial property reached $94.2 billion in the second quarter of 2024, with $10.6 billion of new distress in the period. Spikes in the numbers of terminated deals (when a property goes under offer and the transaction collapses) and of pulled offers (when assets are brought to market but do not sell) also indicate the dislocation. Globally, the number of such events spiked in the first quarter of 2024 to the highest levels since 2010.

[37]Debt funds have significantly outperformed equity investments in European real estate since the end of 2022, according to MSCI's recently launched Europe Quarterly Private Real Estate Debt Fund Index, as higher rates have led to a widespread correction in property values. The presence of CRE debt premiums, as indicated by the spread between 10-year fixed-rate CRE and corporate A to Baa rates, could be driving this correction.

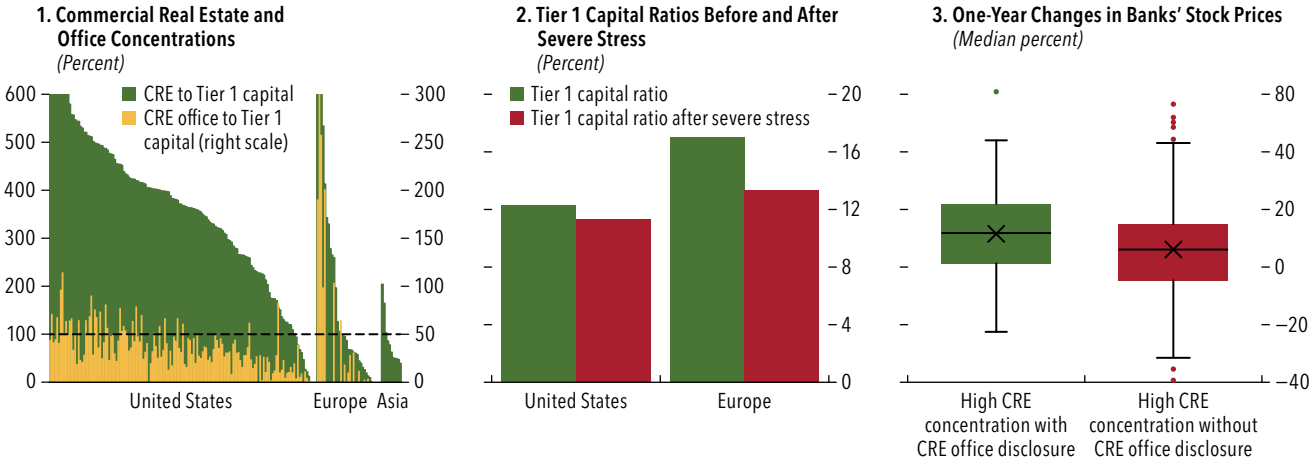
[38]CRE price projections in an adverse scenario with 5 percent probability are based on a CRE prices-at-risk model. For further details, see Deghi, Mok, and Tsuruga (2021). The analysis suggests that prolonged high interest rates and tighter financing conditions heighten downside risks to CRE.

Figure 1.27. Bank Exposures in Commercial Real Estate Offices

A high share of banks has concentrations in CRE office exposures.

Most banks in Europe and the United States can withstand a severe CRE office shock, but some might face solvency challenges.

Banks with more detailed CRE disclosure outperform banks without office disclosures.



Sources: Bloomberg Finance L.P.; S&P Capital IQ Pro; US firms' annual reports and Securities and Exchange Commission Forms 10-Q and 10-K; and IMF staff estimates.

Note: In panel 1, dashed lines indicate high concentrations of CRE offices, defined as ratios of exposures of CRE offices to Tier 1 capital above 50 percent. In panel 2, high concentrations of CRE offices are defined as ratios of exposures to CRE offices to Tier 1 capital greater than 50 percent. Severe stress corresponds to a scenario in which exposures to CRE offices lose 50 percent of their value. In panel 3, "high CRE concentration" is defined as ratios of CRE exposures to Tier 1 capital plus loan loss reserves greater than 300 percent in the United States and ratios of CRE exposures to Tier 1 capital greater than 100 percent in Europe. Median shown as middle line in each box; dots depict outliers. CRE = commercial real estate.

Concentrated Exposure in Office Commercial Real Estate May Challenge Some Banks

Pressures on CRE have kept banks with large exposures to it in the spotlight. Although most banks appear to have adequate loan loss reserves and capital buffers to absorb potential CRE losses, some, particularly those with exposures concentrated in the office segment, might face challenges. A review of the financial reporting of 398 banks in Asia, Europe, and the United States, including all global systemically important banks, reveals that many have a high ratio of CRE loans to Tier 1 capital, particularly in the United States (Figure 1.27, panel 1).[39] In this sample, only about one-quarter of publicly traded US banks disclose exposures to the embattled office sector, and only a few European banks disclose this information.[40] Nonetheless, among banks that report information on CRE offices, many have large exposures, with about 25 percent of sample US banks and almost 50 percent of sample European banks reporting CRE office exposures in Tier 1 capital greater than 50 percent (Figure 1.27, panel 1).

In an adverse scenario in which CRE office exposures lose 50 percent of their value, the aggregate Tier 1 capital ratio of US banks would decrease from 12.3 to 11.3 percent. Among European banks, the ratio would drop from 17 to 13.3 percent (Figure 1.27, panel 2).[41] Although such a shock seems manageable at an aggregate level, 4 percent of the banks in the sample (US and European banks)—representing 1 percent of assets—would find their Tier 1 capital ratios dipping below 7 percent. The lack of granular CRE disclosures complicates risk assessments, and investors appear to penalize banks that forgo providing detailed information. For example, stock prices of US banks with high CRE concentrations that disclose their office exposures tend to outperform those of banks not disclosing them (Figure 1.27, panel 3).[42]

[39]A high ratio is defined here as a CRE exposure in Tier 1 capital greater than 300 percent in the United States and 100 percent in Europe.

[40]More German banks opted to disclose CRE exposures in the second half of 2023 to alleviate investors' concerns. See IMF (2024a, p. 22).

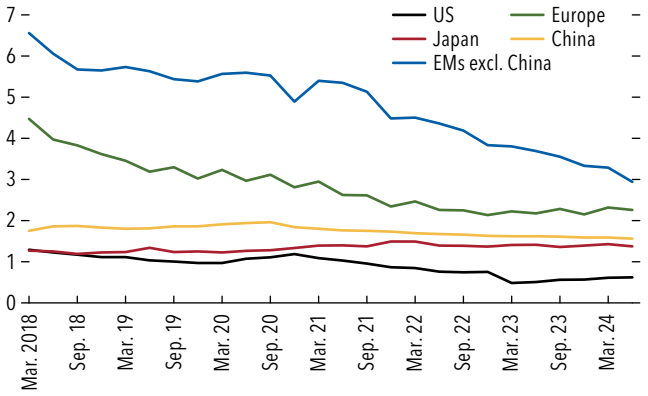
[41]A simplified severe CRE office stress test was performed for a sample of 14 banks in Europe and 145 banks in the United States that disclosed CRE office exposures in their periodic reporting as of the end of 2023 or the first quarter of 2024.

[42]As measured by changes in one-year stock prices as of July 31, 2024.

Figure 1.28. Broad Resilience in the Banking Sector, with Persistent Weakness Among Several Small Banks

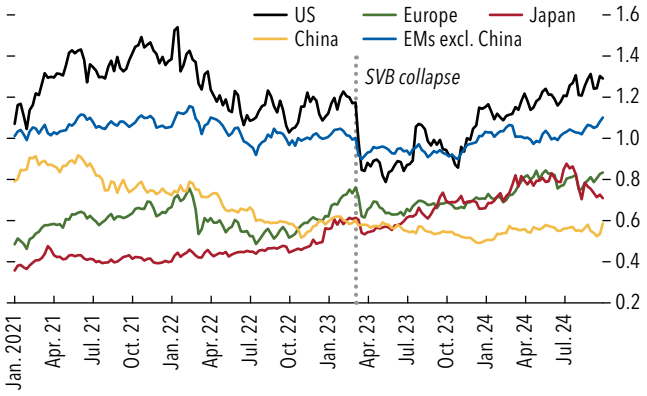
Modest deterioration of asset quality has helped banks' earnings.

1. Ratio of Nonperforming Loans to Gross Loans
(Weighted-average ratio, percent)



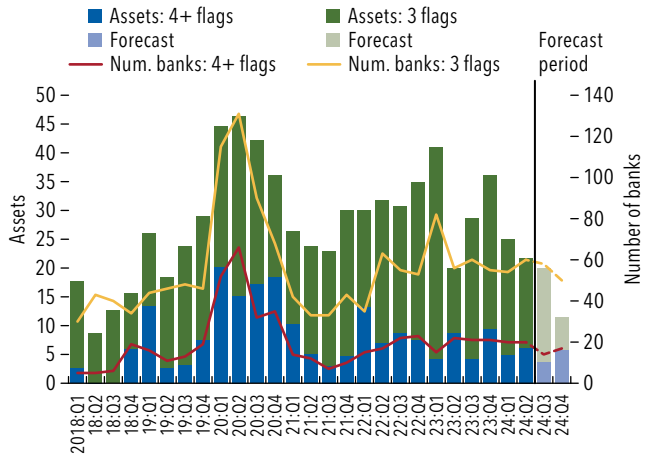
The relatively favorable outlook has improved valuations.

2. Price-to-Book Multiplier
(Percent)



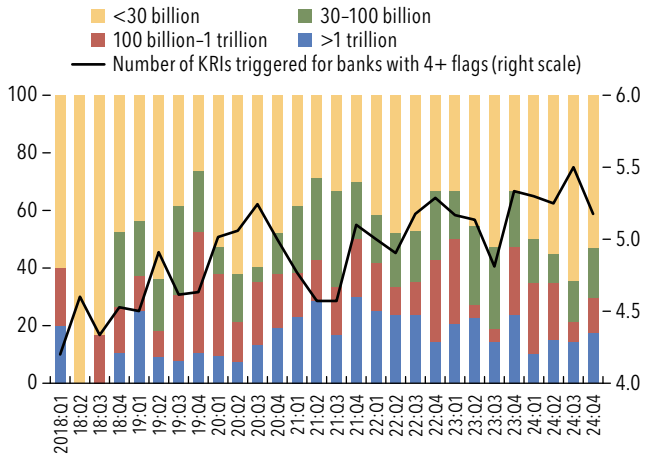
The number of banks with multiple flags has diminished, signaling receding risk.

3. Total Assets of Banks Signaling Vulnerabilities in Three or More Areas of Risk
(Trillions of US dollars)



The participation of small banks in the IMF monitoring list is increasing.

4. Participation in IMF's Monitoring List by Banks' Size
(Percent, average number of KRI)



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

Note: In panel 3, the forecast period is based on aggregate consensus analyst forecasts that are used to track the evolution of the key risk metrics over the subsequent three quarters as a measure of forward-looking risks. In panel 4, banks' size refers to banks' total assets in US dollars. EMs = emerging markets; excl. = excluding; KRI = key risk indicator; num. = number of; SVB = Silicon Valley Bank.

Bank and Nonbank Financial Intermediaries

The Global Banking Sector Is Resilient Although a Weak Tail of Smaller Banks Faces Challenges

The global banking sector has remained resilient since the April 2024 *Global Financial Stability Report*, with capital and liquidity buffers ample and profitability having improved. Although NPL ratios have risen in some forms of lending, such as consumer credit cards, auto loans, and CRE, overall asset quality has not deteriorated significantly (Figure 1.28, panel 1). Banks' profitability has benefited from higher noninterest income, like fees and commissions, and from measures to reduce operational costs, pushing up their stock valuations (Figure 1.28, panel 2). In the near term, net interest margin and bank profitability could be adversely affected by interest rate cuts, as banking assets tend to reprice more quickly than deposits. However, in the medium term, lower interest rates

could stimulate a rebound in lending, and reduced refinancing costs might help alleviate some of the pressures facing the CRE sector.

The IMF staff's key risk indicators (Chapter 2 of the October 2023 *Global Financial Stability Report*) capture the improved risk outlook, with fewer banks expected to be flagged as deficient in three or more risk indicators by the end of the year (Figure 1.28, panel 3). However, the number of banks with four or more weak risk indicators is expected to rise, suggesting that weak banks are becoming increasingly vulnerable. This trend appears to be more pronounced in Asia and reflects expectations for a deterioration of asset, liquidity, and market risk metrics.

Smaller banks with assets less than $100 billion have featured more prominently on the monitoring list in recent times (Figure 1.28, panel 4). Although specific reasons for their weaknesses vary, many face challenges related to their business models that result in lower earnings and underperformance or undervaluation of their stocks. In the United States, unrealized losses in securities portfolios and high CRE exposures remain a concern (see "Concentrated Exposure in Office Commercial Real Estate May Challenge Some Banks"). Some banks have recently increased their use of synthetic risk transfers to manage risks and boost capital ratios, which requires attention from supervisors (see Box 1.1).

Although the bout of market volatility in early August has led only to a temporary sell-off of some banks' stocks, its cause—investor fears about a forthcoming recession—highlights the challenges facing the banking industry. An economic slowdown can deteriorate asset quality and reduce loan demand, and the associated easing of monetary policy will likely lower interest income, at least in the short term. Importantly, during downturns, investors can shift rapidly from a balance sheet view to a mark-to-market view of risks, in which they assess a bank's viability based on the market value of its assets, irrespective of their accounting or regulatory value. Supervisory attention to the effect of a downturn on banks' safety and the soundness of their business models, especially for weak institutions, is paramount. The significant risk that financial crimes pose to macrofinancial stability also requires the integration of measures against money laundering and the financing of terrorism within the broader financial stability framework.

Growth of Bond Funds Renews Concerns About Maturity Mismatches and Use of Leverage

The potential mismatch between the liquidity of underlying assets and redemption terms is a key vulnerability of the asset management industry because it could precipitate forced selling when asset prices are falling. There are signs that this vulnerability is growing among open-ended bond mutual funds. Many allow for daily redemptions, whereas the underlying assets are relatively illiquid compared to, for example, equity funds. Two trends are contributing to the growing significance of this vulnerability. First, bond funds have grown strongly over past decades, with assets under management increasing sevenfold between 2009 and 2024 in the US market. Holdings of US bonds among exchange-traded funds (ETFs) and open-ended mutual funds now account for about 25 percent of the total outstanding, up from about 10 percent in 2009 (Figure 1.29, panel 1). Second, there has been a rotation toward institutional investment funds and ETFs, with institutional mutual funds having overtaken retail mutual funds in size.

Bond ETFs and institutional mutual funds are more likely to face large and sudden outflows, with fund flows-at-risk that have higher (across funds) medians and larger ranges (Figure 1.29, panel 2). Although the structure of ETFs—through authorized participants—partly shields the underlying bond market from sudden redemptions, these funds may have a less stable investor base attracted to intraday trading and shorting of ETF shares (Cai and others 2024). There is considerable heterogeneity across types of ETFs, and some face large peak outflows, as their large fund flows-at-risk reflect.[43] Peak outflows are also larger for institutional mutual funds compared with those for retail mutual funds, possibly because institutional investors are more active in reallocating investments than retail ones.

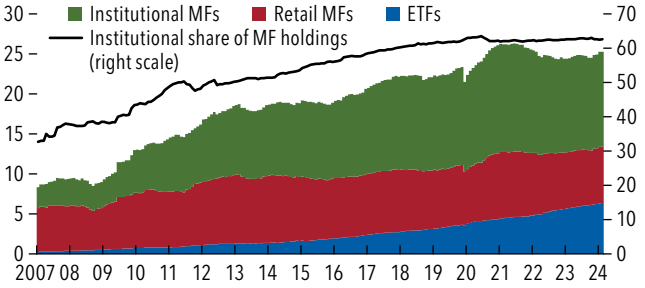
Sudden fund outflows could lead to forced sales of assets funds hold, affecting the broader market. And in less liquid markets, there may be an adverse feedback loop: Investors who are aware of the illiquidity of their funds' underlying assets may withdraw their investments more quickly and in larger quantities; these large outflows would have outsized price effects on

[43]Fund flows-at-risk are defined as the 5th percentile of the historical flow distribution. The analysis presented in this section uses monthly data covering 2014–24 to calculate the fund flows-at-risk, at the level of each individual fund.

Figure 1.29. Growth, Outflows, and Leverage of Bond Funds

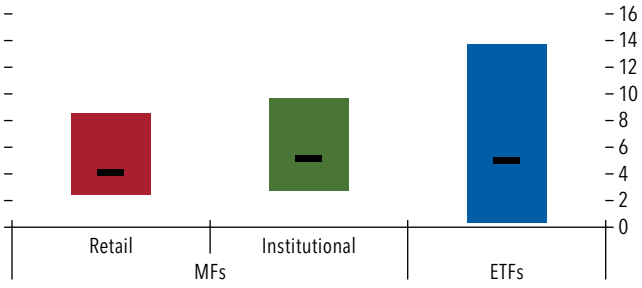
US bond funds' assets under management have grown strongly.

1. US Bond Fund Assets Under Management
(Percent of bonds outstanding, left scale; institutional share of mutual fund holdings, percent, right scale)



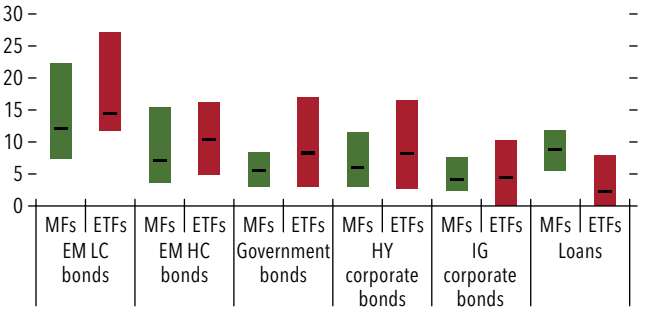
Peak outflows tend to be higher for institutional mutual funds and ETFs.

2. Distribution of Monthly Fund Flows-at-Risk Among US Bond Funds
(Median and interquartile range, percent of assets under management)



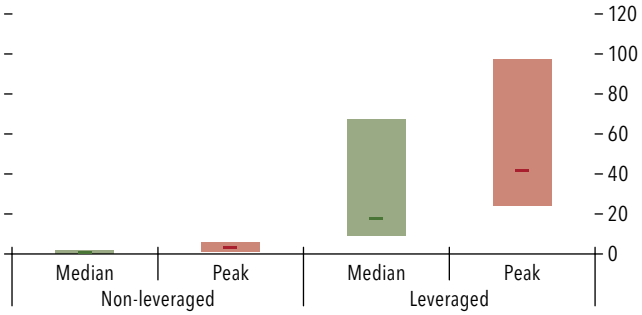
Fund flows-at-risk are particularly high for emerging market bond funds, especially ETFs.

3. Median Fund Flows-at-Risk by Bond Fund Type
(Percent of assets under management)



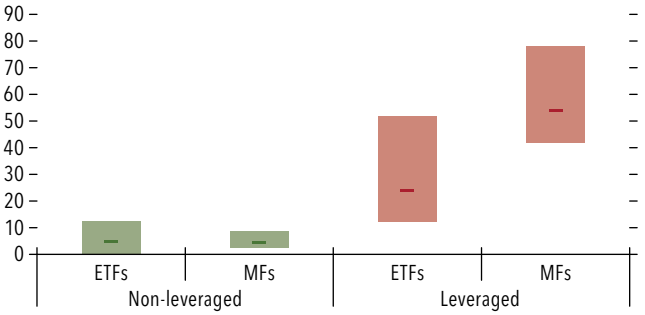
Leveraged bond funds take on significant leverage through repurchase agreements.

4. Median and Peak US Bond Fund Repo Usage
(Percent of assets under management)



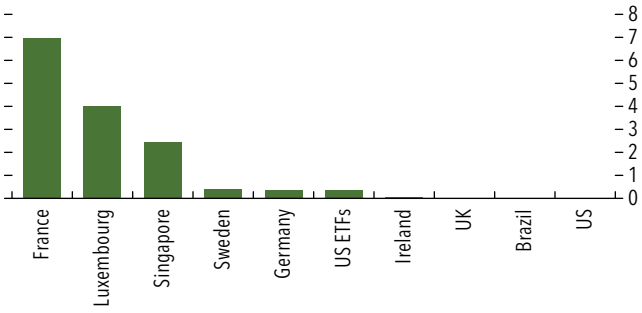
Leveraged funds can face very large outflows ...

5. Monthly Fund Flows-at-Risk
(Percent of assets under management)



... but account for a relatively small share of most jurisdictions' bond mutual fund universe, with some exceptions.

6. Leveraged Fund Share by Country
(Share of bond funds, percent)

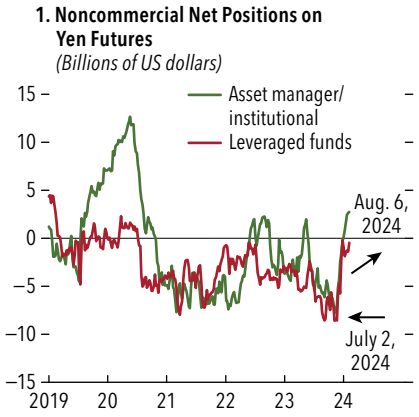


Sources: Bloomberg Finance L.P.; EPFR; Lipper; and IMF staff calculations.

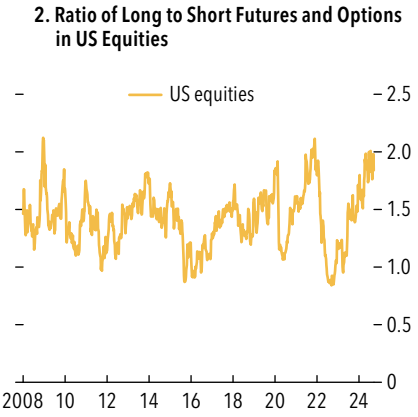
Note: "Fund flows-at-risk" are the 5th percentile of flows, based on historical flow data, that is, in 5 percent of cases, the outflows would have been larger. In panel 1, ETF and MF holdings of US-domiciled funds are compared with the market value of the Bloomberg Barclays US aggregate bond index. Some holdings, however, may be in foreign bonds, and some US bonds may be held by foreign funds. The percentages shown in panel 1 are therefore indicative. In panels 2–5, the analysis is based on Lipper data covering US-domiciled bond funds. The panels show median values and interquartile ranges across funds within each category of funds. The median flow, the fund flows-at-risk, and the median and peak repo usage are first computed for each individual fund, based on monthly data spanning 2014–24, before the distribution across funds is computed. Peak repo usage refers to the 95th percentile of a fund's monthly data on repo usage. The analysis in panel 6 is based on Lipper data covering bond funds and is subject to fund coverage and classification by Lipper. The panel shows a selection of jurisdictions. The share of leveraged US bond ETFs is added for illustration; for other countries, only the share of leveraged bond mutual funds is shown. In all panels, the analysis of MF flows covers open-ended MFs only, and "MFs" is used as shorthand for open-ended MFs. EM = emerging market; ETF = exchange-traded fund; HC = hard currency; HY = high yield; IG = investment grade; LC = local currency; MF = mutual fund.

Figure 1.30. Hedge Funds and Carry Trades

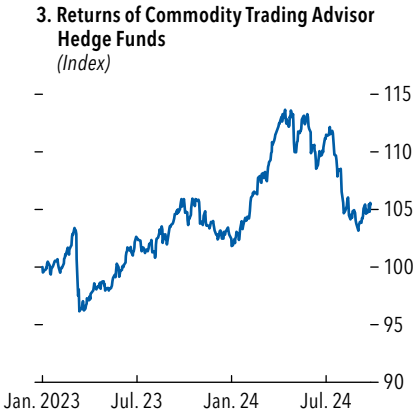
Hedge funds, along with other leveraged institutions and investment funds, built substantial short positions in yen futures ...



... and long positions in equity options and futures ...



... that contributed to market volatility and generated substantial losses when they were unwound in early August.



Sources: Bloomberg Finance L.P.; MSCI; US Commodity Futures Trading Commission; and IMF staff calculations.

Note: Panel 1 shows estimated net positions in US dollars based on the number of long and short contracts reported on a weekly basis. In panel 2, "US equities" comprises futures and options on E-mini contracts for the S&P 500, the Dow Jones, and the Nasdaq for both noncommercial asset managers and leveraged funds. The index in panel 3 is calculated as the weighted average return of 10 selected mutual funds managed by some of the largest commodity trading advisor hedge funds globally.

the underlying market, further exacerbating illiquidity. Bond funds in emerging markets—both those in local and those in hard currency—stand out in this regard, as they have relatively large fund flows-at-risk (Figure 1.29, panel 3) and the underlying market is also relatively illiquid (see Chapter 1 of the April 2024 *Global Financial Stability Report*).

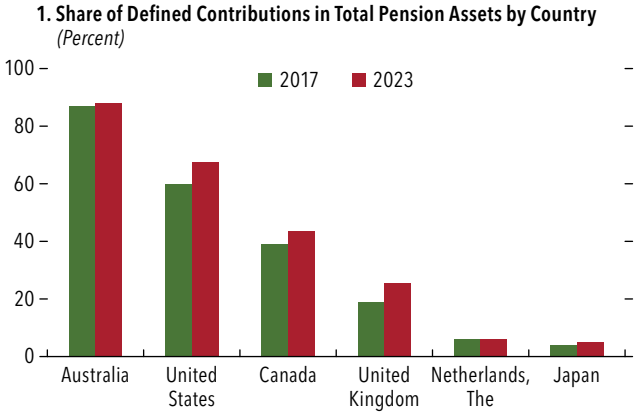
With investors likely aware of the risk associated with funds that employ repos (Figure 1.29, panel 4), leveraged bond funds tend to experience larger peak outflows compared with their nonleveraged peers (Figure 1.29, panel 5). The former currently constitutes a small share of the bond fund sector, although there are differences across jurisdictions (Figure 1.29, panel 6). Regulators should be aware that deleveraging by even a small set of funds could have an outsized effect on the broader financial system (see also Breeden 2022).

Hedge Funds Were Both Catalysts and Victims of the August Market Sell-Off

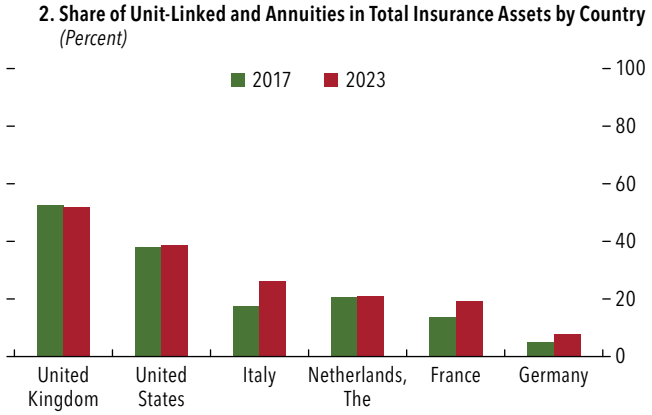
The spike in volatility observed in early August is another example of how leveraged NBFIs, such as hedge funds—a $7 trillion industry very much connected to the rest of the financial markets—can propagate strains through the financial system and amplify stress (FSB 2023; April 2024 *Global Financial Stability Report*). Hedge funds with strategies based on momentum and macroeconomic factors participate heavily in carry trades, a strategy that involves borrowing in a country with low interest rates to invest in other assets or currencies with a higher return. During the last few years, these hedge funds contributed to building up substantial short positions in yen (Figure 1.30, panel 1), which they often matched with long positions in US equity futures (Figure 1.30, panel 2) and in currencies of emerging markets (see Box 1.3). After the Bank of Japan's monetary policy decision, worse-than-expected labor market data in the United States sparked renewed fears of a recession and rapidly narrowed the interest rate differential between Japan and the United States, equities declined, and the yen appreciated. Because of these market moves, many hedge funds reportedly reached risk limits and received increased margin calls, which forced them to rapidly close their positions, erasing the year's returns for many hedge funds (Figure 1.30, panel 3). Even in the absence of hedge fund failures, which could generate counterparty risk and transmit the shock to bank and nonbank institutions, the rapid unwinding of

Figure 1.31. Defined-Contribution Pension Funds and Unit-Linked and Annuity Insurers

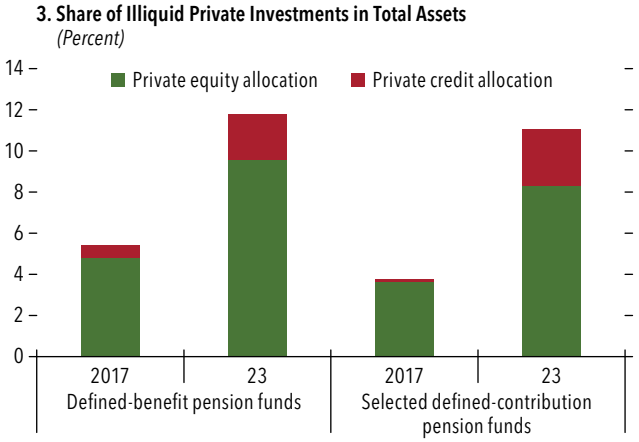
The shift toward defined-contribution pensions ...



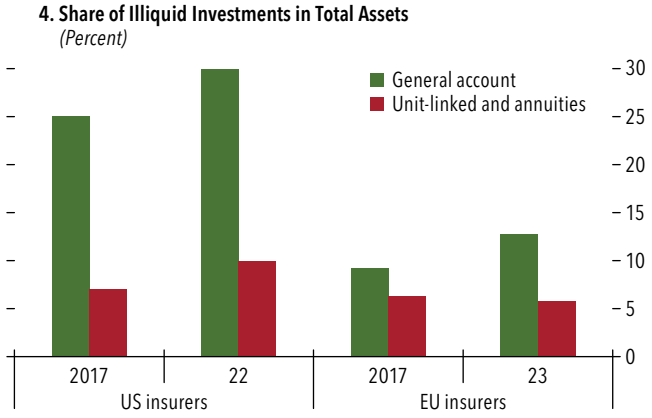
... and unit-linked insurance products has continued, but the rate of growth and the products' relative size differ significantly across countries.



Selected defined-contribution pension and superannuation funds are increasing their illiquid investments ...



... in a manner similar to US insurance annuities, but European unit-linked products have not seen an increase in their illiquid investments.



Sources: American Council of Life Insurers; Bank of England; European Insurance and Occupational Pensions Authority; Preqin; Thinking Ahead Institute; and IMF staff calculations.

Note: The calculations for defined-contribution pensions in panel 1 are based on data from the Thinking Ahead Institute. The calculations in panel 3 are based on the private equity and private credit investments of a sample consisting of 26 selected defined-contribution private pension and superannuation funds with $1.4 trillion in assets under management domiciled in Australia, Canada, Germany, Mexico, Sweden, Switzerland, the United Kingdom, and the United States. The defined-benefit calculations assume all public pension funds in the Preqin database are held in defined-benefit plans. The calculations for illiquid investments in panel 4 do not include the same items in the European Union and the United States and therefore are not directly comparable. The illiquid investments for US insurers are calculated as the sum of miscellaneous assets, mortgages, and real estate investments as of the end of 2022, according to the latest published factbook from the American Council of Life Insurers. The illiquid investments of EU insurers are calculated as the sum of investments in real estate funds, alternative funds, private equity funds, infrastructure funds, real estate structured notes, real estate collateralized securities, mortgages, loans, and property as defined by the European Insurance and Occupational Pensions Authority.

crowded and concentrated positions could exacerbate price movements across global indices, propagating the stress throughout the financial system. With limited transparency in the hedge fund industry, it might also be difficult for investors and supervisory authorities to gauge how much leverage is still in the system in real time and what might trigger another bout of hedge fund deleveraging.

Illiquid Investments by Pensions and Insurance Raises Maturity Mismatch Vulnerabilities

The share of defined-contribution pensions and unit-linked insurance products has risen globally in recent years (Figure 1.31, panels 1 and 2). As clients holding these products bear any profits and losses of the underlying investments, providers of defined-contribution plans typically offer clients

frequent opportunities to enter or exit investment options. This flexibility may exacerbate liquidity mismatches between the underlying assets—especially illiquid assets, such as private equity and credit—and plan liabilities because the effective duration of the liabilities has been reduced. For example, Australian superannuation funds are required to allow clients to switch between different investment options generally within three business days, even though these funds hold, on average, illiquid exposures exceeding 20 percent of their total assets.[44] This liquidity mismatch could affect members' outcomes in a liquidity stress event. Furthermore, liquidity stress could spill over to financial markets, especially those markets in which pension funds and insurers have a large footprint, such as government bonds, equities, and corporate bonds.

There is some evidence that this type of liquidity mismatch is on the rise. Selected large private defined-contribution pension and superannuation funds have increased the amount of their assets allocated to illiquid private equity and credit in recent years (Figure 1.31, panel 3), and several countries have recently introduced initiatives to encourage further allocation to illiquid investments.[45] In the United States, annuities (a type of unit-linked insurance product) have also increased their allocations to illiquid investments, in a manner similarly to that observed in general accounts, which already hold a substantially higher proportion of illiquid assets (Figure 1.31, panel 4). However, European unit-linked insurance products do not appear to have increased the shares of illiquid investments in their portfolios, with exposures to assets such as real estate and private equity limited and materially smaller than those of European general account insurers (Figure 1.31, panel 4).

Policy Recommendations

Inflation continues to moderate in many countries, and markets are pricing in multiple cuts in policy rates from major central banks. Yet economic uncertainty is elevated, and adverse surprises to either inflation or growth could drive financial market reactions that might complicate central banks' task. Although monetary policy should always be data dependent, clear communications from central banks that the path of policy rates should not react excessively to any individual data point would help ameliorate uncertainty by underpinning their commitment to achieving their objectives. Where growth and inflation momentum are set to continue to slow, central banks should gradually ease monetary policy toward a more neutral stance. Where inflation remains stubbornly above central banks' targets, central banks should push back against overly optimistic investor expectations for monetary policy easing.

The reduction of central banks' balance sheets has so far unfolded in an orderly fashion. But since more central banks are now engaging in quantitative tightening simultaneously, the decline of central bank reserves is global, requiring careful monitoring of and preparedness for the impact on funding markets. Central banks should monitor a broad spectrum of indicators encompassing both liquidity conditions and funding rates in money markets, and remain attuned to potential uneven distribution of liquidity and central bank reserves across banks, while standing ready to address market stresses. Policymakers should clearly communicate the objectives and steps for removing liquidity.

Many emerging markets have made notable progress on inflation, but central banks should continue to ensure inflation targets are met and preserve resilience against external pressures amid elevated economic uncertainty. Countries should integrate their policies, where applicable, using the IMF's Integrated Policy Framework. The use of foreign exchange interventions may be appropriate as conditions warrant and provided intervention does not impair the credibility of macroeconomic policies or substitute for their necessary adjustment. In the event of imminent crises, capital flows management measures may be an option for some countries as part of a broader policy package to

[44]Illiquid level 3 assets in five of the largest Australian superannuation funds, with assets under management exceeding $0.5 trillion, are estimated to account for almost one-quarter of total assets (Bradley 2023). Note that prudential regulations in Australia require super funds to determine sufficient liquidity levels within each investment option to manage client switching.

[45]The US Department of Labor has provided guidance on how US plan fiduciaries may offer certain private-asset investments without violating regulations associated with the Employee Retirement Income Security Act of 1974 (Pensions&Investments 2023). Former UK Chancellor of the Exchequer Jeremy Hunt has called on defined-contribution pension schemes to boost investment in unlisted UK equities (Hunt 2023). The European Union's Reformed European Long-Term Investment Fund (ELTIF 2.0) regulation, which has widened the scope of eligible assets and relaxed diversification and concentration rules, is seen as more friendly toward investment in illiquid assets (JPMorgan 2024).

lessen outflow pressures. Those measures should not substitute for warranted macroeconomic adjustments or policies that can help contain systemic risks from capital flows.

With levels of sovereign debt in many countries substantially above prepandemic levels, fiscal adjustments should primarily focus on credibly rebuilding buffers to keep external financing costs reasonable and to help anchor medium-term inflation expectations. For countries with less fiscal space, the credibility of fiscal plans is imperative to prevent cliff effects in ratings, which could adversely affect financing conditions. Countries near debt distress should enhance early contact with creditors. Bilateral and private sector creditors should find ways to coordinate preemptive and orderly restructuring to avert costly hard defaults and prolonged loss of market access. The Group of Twenty Common Framework should be used when applicable, and further efforts should be made to improve the forum's effectiveness. Continued use of enhanced collective-action clauses in international sovereign bonds and the development of majority voting provisions in syndicated loans would help facilitate future debt restructurings to be preemptive and orderly. Countries able to access funding should borrow prudently and avoid excessive debt issuance, which may compromise medium-term sustainability. Moreover, countries should foster economic growth to create space for financing development and climate-related spending while keeping debt on a sustainable path.

To durably improve confidence and alleviate disinflationary pressures, China still needs accommodative macroeconomic policies along with structural and promarket reforms to bolster near-term activity, mitigate risks, and ensure a smooth transition toward higher-quality and more balanced growth over the medium term. Property sector policies should prioritize the completion of presold unfinished housing and the restructuring troubled property developers in a timely manner. Additional easing of monetary policy, especially through lower interest rates, and reorientation of public expenditures toward households could bolster near-term recovery, and comprehensive fiscal reforms are needed to ensure the sustainability of local government finances. Policy response should balance the medium-term health of balance sheets in the financial sector amid slowing credit growth. For the banking sector, it is critical to enforce prudential policies strictly, by phasing out regulatory forbearance measures and maintaining adequate loss-absorbing buffers, among other measures, to strengthen efforts to restructure weak small- and medium-sized banks and safeguard risks to financial stability. The Chinese authorities have made progress in reducing risks in the nonbank financial sector, but additional regulatory measures to enhance management of liquidity and maturity risk, as well as to close regulatory and data gaps, could help contain future systemic risks.

Climate finance needs to be ramped up, including adaptation finance. Widespread consensus on the importance of adaptation has yet to catalyze meaningful private sector participation, as adaptation finance has so far solely relied on government expenditures. Creating investment opportunities attractive to private investors, especially in emerging market and developing economies, is the key challenge. To scale up adaptation finance, it is essential to align the interests and actions between the public and private sectors, improve the tracking and measurement of adaptation finance flows, provide investment guidance and adaptation taxonomies, and integrate adaptation considerations across asset classes. Continued support to low-income and vulnerable middle-income countries is imperative. Since its establishment in 2022, the Resilience and Sustainability Trust has been integrating adaptation support in its 18 programs, with country authorities emphasizing the importance of building economic resilience in the face of climate change risks.

Continued vigilance is warranted to monitor vulnerabilities in the CRE sector to minimize potential risks to financial stability. To ensure resilience in the banking system, authorities should collect detailed information on CRE exposures and conduct stress-testing exercises that incorporate scenarios involving large declines in CRE prices. The stress tests should include smaller banks with material exposure to CREs. Supervisors should also review banks' assumptions regarding CRE valuations and ensure that provisions are adequate.

With private credit playing an increasingly significant role in financial markets, it is imperative to enhance reporting requirements to improve monitoring and management of credit, liquidity, leverage, valuations, and risks related to interconnectedness. Given the potential macro criticality of private credit, coupled with its exponential growth and increasing retail participation, authorities may consider adopting a more intrusive supervisory and regulatory approach.

The buildup of debt amid elevated uncertainty underscores the need to strengthen the macroprudential policy framework to contain excessive risk taking in the nonbank financial sector and to ensure that capital and liquidity buffers in banking systems are adequate to support the provision of credit through periods of stress. Policymakers should tighten appropriate macroprudential tools to increase resilience against a range of shocks, as well as to forestall further increases in pockets of elevated vulnerabilities, while avoiding a destabilizing tightening of financial conditions.

The tail of weak banks in the global financial system and the risk of contagion to healthy institutions highlight the urgent need to enhance financial sector regulation and supervision. Despite repeated calls from the Group of Twenty, some major jurisdictions that are members of the Basel Committee have delayed implementing the remaining elements of Basel III or have introduced deviations from it, which could undermine the effectiveness of the standard-setting process and increase regulatory fragmentation. Full, timely, and consistent implementation of Basel III and other international standards remains an important step.

Authorities should prepare to deal with financial instability, including by ensuring that financial institutions are prepared to access central bank liquidity and by intervening early to address liquidity stress in the financial sector. All banks should be required to test their access to central bank instruments periodically. Central banks should set up their frameworks for emergency liquidity assistance in normal times, anticipating that they will have to intervene in a crisis. Central banks should be ready to provide liquidity against a broad universe of assets while abiding by the appropriate principles concerning solvency and viability, collateralization, and appropriate haircuts. Further progress on adopting and implementing frameworks for recovery and resolution is critical to proactively address the problems of weak or failing banks without undermining financial stability or risking public funds.

Market turmoil in early August is a reminder of how leveraged NBFIs can amplify stress. Even in the absence of defaults, which could give rise to counterparty risk and lead to contagion across financial institutions, rapid unwinding of leveraged positions can generate liquidity imbalances that amplify market disruptions. One of the challenges in addressing these issues is inadequate data, which hinder authorities' ability to assess the vulnerabilities associated with nonbank leverage and to identify large and concentrated positions. It is crucial to enhance reporting requirements for nonbank institutions and to strengthen policies that mitigate vulnerabilities and amplification mechanisms stemming from nonbank leverage, where judged to pose a threat to financial stability. In addition, the growth of bond funds highlights the need to reduce systemic risks by ensuring the effectiveness of tools for managing liquidity. Timely and consistent implementation of the Financial Stability Board's revised recommendations to address structural vulnerabilities from liquidity mismatches in open-ended funds is crucial.

Data gaps often hinder the monitoring of interconnectedness risks posed by pension funds and insurers. Supervisors should fill data gaps and cooperate with each other, including across borders, to ensure effective monitoring of these risks. Cross-border cooperation assumes importance in situations in which cross-border interconnections are significant and concentrated. International bodies, such as the Financial Stability Board, can aid in improving data gaps globally. In jurisdictions in which defined-contribution pensions and unit-linked insurance products are material, supervisors should closely monitor the share of illiquid investments held by these products. Liquidity stress tests that consider scenarios involving crises related to liquidity availability across the major asset classes are important. It is also paramount to ensure the compatibility between the liquidity of assets and notice periods required for clients to switch between different investment products.

Box 1.1. Synthetic Risk Transfers: Managing Risks or Creating New Ones?

An increasing number of banks around the world have begun using synthetic risk transfers (SRTs) to manage credit risk and lower capital requirements. SRTs move the credit risks associated with a pool of assets from banks to investors through a financial guarantee or credit-linked notes while keeping the loans on banks' balance sheets. Through this credit protection, banks can effectively claim capital relief and reduce regulatory capital charges (Figure 1.1.1, panel 1). However, the transactions can generate risks to financial stability that need to be assessed and monitored.

Globally, more than $1.1 trillion in assets have been synthetically securitized since 2016, of which almost two-thirds were in Europe (Figure 1.1.1, panel 2). In the United States, activity picked up in 2023 and is expected to accelerate further because the regulatory landscape has become clearer. In Europe, corporate and small- and medium-enterprise lending, a well-known and stable loan category for investors, backs up most of the issuance; recent transactions in the United States have centered on retail loans, particularly automobile loans. In Europe, issuers of SRTs include global systemically important banks and large banks, whereas in the United States, regional banks issue SRTs as well. Private credit funds are the dominant buyers, with a market share exceeding 60 percent, followed by pension funds, with close to 20 percent (Gonzalez and

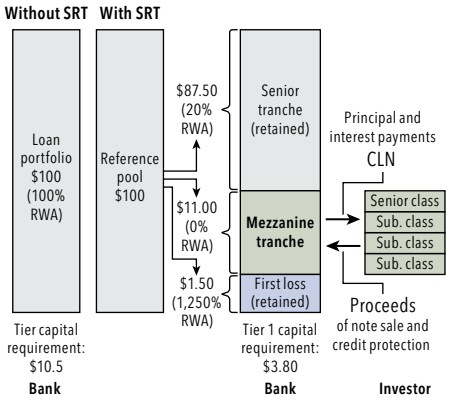
Figure 1.1.1. Selected Information for SRT Structures, Issuance, and Returns

Banks use SRTs to offload risk and claim capital relief.

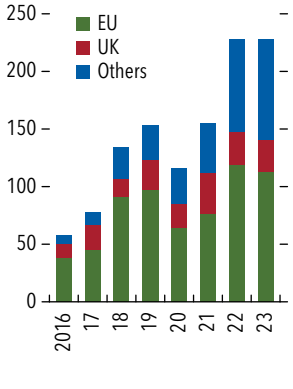
Synthetic securitization volumes have grown in recent years.

Credit risk indices suggest asset quality in SRT reference pools is starting to deteriorate, particularly for SMEs.

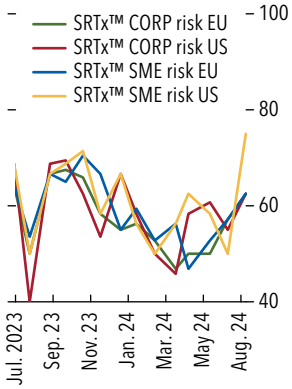
1. Stylized Example of a Direct Bank-Issued CLN Structure



2. Underlying Pool Size of Synthetic Securitization at Inception by Region
(Billions of US dollars)



3. Synthetic Risk Transfers: SRTx™ Credit Risk Indices
(Indices)



Sources: Bloomberg Finance L.P.; International Association of Credit Portfolio Managers; Structured Credit Investor; and IMF staff calculations.

Note: Panel 1 shows a bank-issued CLN in which the bank buys protection for the mezzanine tranche by issuing CLNs to investors for cash up front and retains the first-loss and senior tranches. Under securitization treatment, the senior tranche carries 20 percent in RWA, and the first-loss tranche carries 1,250 percent in RWA. The RWA for the mezzanine tranche becomes zero because the bank is no longer exposed to the losses from this tranche. In panel 3, each SRTx™ Credit Risk Index is compiled from contributor survey responses and measures market sentiment regarding the direction of the SRT reference pool credit risk over the near term. The index scale ranges from 0 to 100, with levels above 50 indicating a higher proportion of respondents estimating that credit risk is worsening. CLN = credit-linked note; RWA = risk-weighted assets; SMEs = small and medium enterprises; SRT = synthetic risk transfer; SRTx™ CORP EU = credit risk index for large firms in the European Union; SRTx™ CORP US = credit risk index for large firms in the United States; SRTx™ SME EU = credit risk index for small and medium enterprises in the European Union; SRTx™ SME US = credit risk index for small and medium enterprises in the United States; sub. = subordinate.

This box was prepared by Gonzalo Fernandez Dionis, Yiran Li, and Silvia L. Ramirez.

Box 1.1 *(continued)*

Triandafil 2023). Industry estimates expect issuance of SRTs to remain above $200 billion in Europe and to more than triple in the United States to surpass $50 billion in 2024 (Alloway 2024).

The amount of capital relief varies by transaction. In Europe and the United States, the lack of data on private transactions makes an aggregate calculation of capital relief for banks challenging. Proceeds from capital relief can be used to originate more loans, fund stock repurchases, or pay dividends. If interest rates fall, certain motivations behind SRTs become less relevant. In addition, SRTs allow banks to limit loan book concentration, reduce counterparty risk, and, for some US banks, avoid realizing potential mark-to-market losses linked to gyrations in interest rates compared with an outright sale of the loans. Investors purchase SRTs to access loan categories that may not be easily accessible through public markets or direct lending to earn attractive returns (8–12 percent) compared with those from other asset classes as well as to meet mandates to allocate capital in private credit.

However, certain SRT characteristics could increase risks to financial stability. First, SRTs may elevate interconnectedness and create negative feedback loops during stress. For instance, there is anecdotal evidence that banks are providing leverage for credit funds to buy credit-linked notes issued by other banks. From a financial system perspective, such structures retain substantial risk within the banking system but with lower capital coverage. The magnitude of the interconnections is difficult to assess because the market remains opaque, with only a fraction of deals being made public and no centralized repository for data on SRTs. Second, SRTs may mask banks' degree of resilience because they may increase a bank's regulatory capital ratio while its overall capital level remains unchanged. Increased use of SRTs may reflect inability to build capital organically because of weaker fundamentals and profitability performance. Furthermore, overreliance on SRTs exposes banks to business challenges should liquidity from the SRT market dry up. Currently, the asset pools being securitized seem to be of higher quality; however, there are signs of increased concerns regarding deterioration of asset quality (Figure 1.1.1, panel 3). Financial innovation may lead to securitization of riskier asset pools, challenging banks with less sophisticated tools for risk management, because some more complex products make the identity of the ultimate risk holder less clear. Finally, although lower capital charges at a bank level are reasonable, given the risk transfer, cross-sector regulatory arbitrage may reduce capital buffers in the broad financial system while overall risks remain largely unchanged. Financial sector supervisors need to closely monitor these risks and ensure the necessary transparency regarding the SRTs and their impact on banks' regulatory capital.

Box 1.2. Interconnectedness Through Tokenization

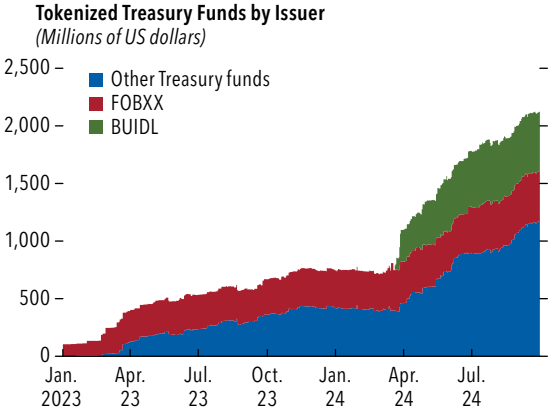
Tokenization of real-world assets involves creating a digital representation of these assets on a blockchain.[1] Although it is not a new phenomenon, its adoption in certain financial markets by large players could lead to increased interconnectedness between the traditional financial markets and crypto markets. In recent years, tokenization of money market funds' shares, repos, and Treasuries has gained popularity because high interest rates have allowed these products to offer high yields, particularly in comparison to stablecoins (see Figure 1.2.1). In addition, there are expectations that tokenization may generate benefits such as potential immediate trade settlement, lower costs related to ownership, fractional use of safe and liquid collateral for management of liquidity, and timely receipt of asset yields or coupons.[2] In regard to repos specifically, investors reportedly seek the immediacy and cost-efficiency of blockchain-based transactions to manage intraday liquidity, which helps mitigate mishaps that might otherwise result in costly intraday repos with central banks.[3]

Traditional finance institutions have shown interest in participating in the tokenization wave. BlackRock and Franklin Templeton have launched tokenized Treasury funds, the BlackRock USD Institutional Digital Liquidity Fund and Franklin OnChain US Government Money Fund, respectively. Major banks such as JPMorgan, UBS, and DBS are using systems such as Onyx and Broadridge's Distributed Ledger Repo to tokenize shares of money market funds for use as collateral and to execute intraday repos. Performance of tokenized money market funds has been at par with that of traditional money market funds; for example, the Franklin OnChain US Government Money Fund's average annual return through the end of July 2024 was 5.3 percent, compared with 5.0 for Federated Hermes' Treasury Obligations Fund.

Concerns regarding financial stability stemming from the tokenization of real-world assets are limited at present, given its still-small scale. Over the medium term, tokenization deepens the nexus between the ecosystem of crypto assets and the traditional financial system. If more real-world assets become tokenized, the resulting increased interconnectedness can transmit shocks or volatility from crypto markets to the real-world markets of the underlying assets, or vice versa. Volatility might arise, for example, if investors become uncertain about the value of a token or the possibility of redeeming it, or if a shock occurs during a weekend, when the underlying real-world assets cannot be traded or funded as opposed to tokenized

Figure 1.2.1. Interconnectedness Through Tokenization

Tokenization of money market funds has gained momentum, though it remains at a nascent stage, as key traditional finance players have entered the market.



Sources: Bloomberg Finance L.P.; RWA.xyz; and IMF staff estimates.

Note: BUIDL = BlackRock USD Institutional Digital Liquidity Fund; FOBXX = Franklin OnChain US Government Money Fund.

This box was prepared by Gonzalo Fernandez Dionis and Kleopatra Nikolaou.

[1]Digital tokens are assets issued on electronic ledgers that are shared, trusted, and programmable (Agur and others, forthcoming).

[2]Fractional ownership involves digitizing real-world assets and representing them on a blockchain as tokens. Each token represents a fraction of the asset's total value. Investors can purchase these tokens and use them as collateral for loans.

Tokenized money market funds are digital representations of shares in traditional money market funds on a blockchain. Tokenized repo is a type of short-term borrowing in fixed income through the exchange of cash for tokenized collateral. Tokenized Treasuries are digital representations of US Treasury securities in the form of tradable tokens on the blockchain. In practice, however, tokenized Treasuries often refer to tokenized fund shares, with Treasuries as the underlying collateral. Tokenized Treasuries allow investors engaging in blockchain trading to receive interest payments and principal repayments according to the Treasuries' schedules and rates.

[3]For a quantitative assessment of the benefits from financial asset tokenization, please refer to Box 2 in Agur and others (forthcoming).

Box 1.2 *(continued)*

funds, which allow 24/7 trading (see Carapella and others 2023). Concerns may also arise as a result of technology risks and increased use of leverage through tokenization. Finally, a rise in tokenized safe and liquid assets, such as tokenized Treasuries, can interact with the rise of stablecoins, especially considering that many stablecoins do not offer returns. The growth of this new form of financial intermediation will depend also on regulatory developments, which can be complex and evolve slowly. Supervisors in the financial sector should continue to monitor risks related to interconnectedness within the crypto markets and between those markets and traditional capital markets for potential increases in vulnerabilities.

Box 1.3. Summertime Blues: The Carry Trade Unwind and VIX Surge of August 2024

Carry trades involve borrowing money in currencies with low funding costs and investing in assets in currencies with higher returns, allowing investors to earn the spread, or "carry," of relative returns.[1] Carry trades have been popular for many decades, and recently, the divergence of monetary policies worldwide provided investors with opportunities to increase exposures to them. Various funding currencies have been used for these trades over time. Over the past several years, the relatively low interest rates in Japan vis-à-vis in other advanced economies have driven the yen as the preferred funding currency over others. Although it is difficult to estimate the overall size of carry trade positions (see BIS 2024), the amount of Japanese yen borrowed by nonresidents, who do not naturally need Japanese yen, could serve as one guide to an upper bound of the estimate (Figure 1.3.1, panel 1). Many investors have reportedly used the Japanese yen as a funding currency to invest in Brazilian and Mexican government bonds, Indian equities and corporate bonds, and US technology stocks in artificial intelligence. Absent any significant changes in the exchange rate or relative interest rates, this type of trade can generate large profits over time. However, carry trades are inherently unstable: When currency and interest rate volatilities surge, the carry may no longer be there, and profits from the carry trade can be quickly wiped out.[2] Carry trades therefore tend to accumulate gradually during periods of sustained low volatility, when leverage and risk taking accumulate—for example, borrowing yen to invest in Mexican pesos—but can unwind rapidly and in large volumes when conditions turn adverse, potentially destabilizing markets.

Worse-than-expected labor market data in the United States following the Bank of Japan's monetary policy decision in July meant that carry trades were no longer profitable, and their unwinding led to spikes in stock and currency volatility in early August. The interest rate differential between the dollar and yen narrowed, and the yen appreciated in a speed-up of trends that began in July (Figure 1.3.1, panel 2). High-yielding currencies that were targets of carry trades depreciated (Figure 1.3.1, panel 3). At the same time, the Nikkei index experienced a collapse of 12.4 percent on August 5, its largest one-day move since 1987. In the United States, the Chicago Board Options Exchange Volatility Index (VIX) surged from 16 to more than 65, before lowering to 37 by the end of the day. Other major indices such as the S&P 500 (–3 percent) and the STOXX Europe 600 (–2 percent) also lost ground, as few stocks were spared. Anecdotally, along with the unwind of carry trades by nonbank financial intermediaries like hedge funds, momentum and algorithmic traders also fed into the sell-off, guided by their trend-following algorithms, as did broker–dealers who were selling stocks to hedge risks created by selling large amounts of options to their clients.

This period of high volatility was ultimately short-lived and risk assets regained most of the losses in subsequent days, indicating that traders did not see the declines to be justified by macroeconomic fundamentals. The massive move in the VIX did not trigger a more widespread US sell-off, as the signal of excessive volatility it was conveying largely reflected issues related to the index's construction, rather than actual market transactions (possibly because out-of-the-money options currently play a much larger role than they did in previous years).[3] Front-end VIX futures saw much smaller moves on August 5 than the index itself (Figure 1.3.1, panel 4). In contrast, during past episodes such as the COVID-19 pandemic

This box was prepared by Deepali Gautam, Sanjay Hazarika, Harrison Kraus, Mustafa Oguz Caylan, and Aki Yokoyama. The box provides an update on market developments since the April 2024 *Global Financial Stability Report*.

[1]Carry trade refers to borrowing at a low interest rate and investing in a high-return asset but is best known for those conducted between currencies. Many are executed via off-balance-sheet derivatives that are partially reflected in on-balance-sheet statistics. For example, foreign exchange swaps typically exchange the notional amount in two different currencies for each party requiring financing. Meanwhile, currency options may not be fully reflected.

[2]While the difference in interest rates between two currencies, or "carry" earned over the course of a year, is only single-digit percentage, exchange rates can move more than 10 percent once they start to move, and the capital loss from a market move in an unwanted direction can easily exceed the carry earned over time.

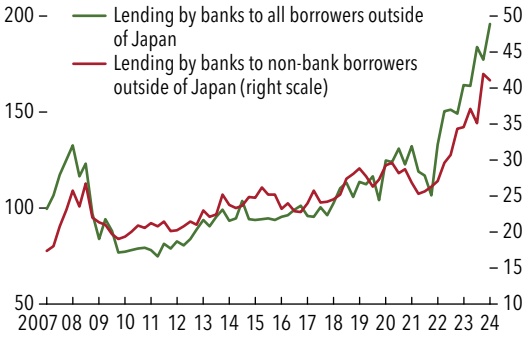
[3]The VIX is effectively a weighted average of the midpoints of the bid and ask prices of multiple option contracts; the weight used is proportional to 1 divided by the strike price squared (CBOE 2022). By construction, the weight of the far-out-of-the-money put option with a lower strike price is more significant, and illiquid market conditions easily lead to higher midpoint prices as sellers pull back their ask prices. Front VIX futures expire on August 21, and, therefore, the much lower levels of futures prices relative to the VIX indicate that traders did not view the high VIX level to be sustained for more than two weeks.

Box 1.3 *(continued)*

Figure 1.3.1. Unwinding of Carry Trades in Early August

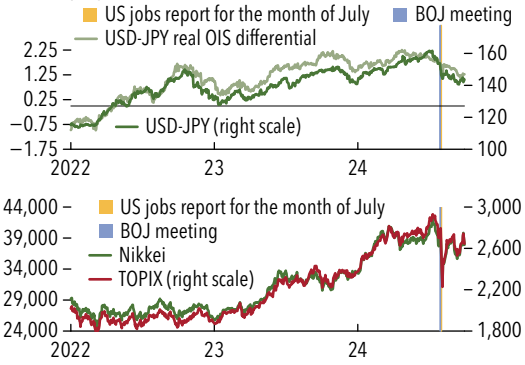
Cross-border borrowing in yen has risen sharply in recent years.

1. International Bank Claims Denominated in Japanese Yen
(Trillions of Japanese yen)



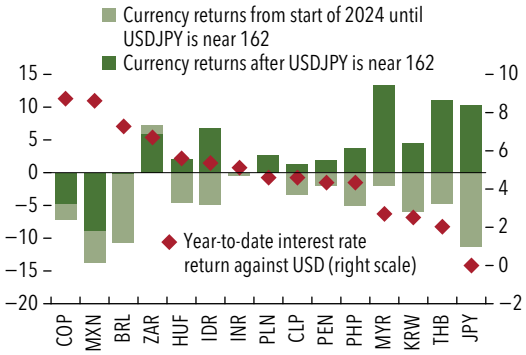
The Bank of Japan's monetary policy decision and a weaker-than-expected US jobs report was followed by the unwinding of carry trades.

2. US-Dollar-to-Japanese-Yen Spot Rate versus Rate Differential and Major Japanese Equity Indices
(Percentage points, top left scale; yen per dollar, top right scale; index, bottom scales)



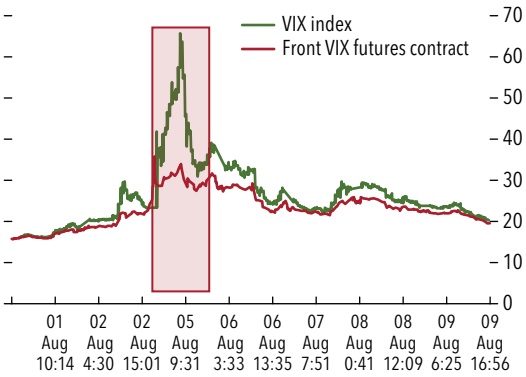
Unwinding of carry trades led to depreciation of high-yielding currencies and appreciation of low-yielding ones.

3. Currency Returns
(Percentage points)



Traders did not believe the spike in the VIX was sustainable.

4. Intraday VIX versus Front VIX Futures Contract
(Percent, intraday moves on August 5, 2024)



Sources: Bank for International Settlements; Bloomberg Finance L.P.; and Haver Analytics.

Note: In panel 4, the front VIX futures contract is a generic first future of the VIX, which has a one-month maturity. BOJ = Bank of Japan; BRL = Brazilian real; CLP = Chilean peso; COP = Colombian peso; CPI = consumer price index; HUF = Hungarian forint; IDR = Indonesian rupiah; INR = Indian rupee; JPY = Japanese yen; KRW = Korean won; MXN = Mexican peso; MYR = Malaysian ringgit; OIS = overnight index swap; PEN = Peruvian sol; PHP = Philippine peso; PLN = Polish zloty; THB = Thai baht; TOPIX = Tokyo Stock Price Index; USD = US dollar; VIX = Chicago Board Options Exchange Volatility Index; ZAR = South African rand.

and the 2015 China devaluation, the VIX and VIX futures surged in tandem. The episode highlights the potentially destabilizing role that leveraged strategies such as carry trades can play in global markets, underscoring the need for more regulatory scrutiny, especially in regard to nonbank financial intermediaries. It is also a reminder that the disconnect between heightened uncertainty and low market volatility may abruptly close, with adverse consequences for asset prices. Carry trades have thrived in various forms as a result of the prolonged low-yield and low-volatility environment in the past, and it remains to be seen how large the unwinding of these positions could be in the future.

Box 1.4. Domestic Investors in Local Bond Markets: A Stabilizing Force?

Local bond markets in emerging markets have been growing over the years. Alongside banks, nonbank financial intermediaries—especially pension and insurance funds—are playing an increasingly important role in markets for local currency government bonds (LCGBs). Total assets under management in nonbank financial intermediaries have grown since 2002 to reach 25 percent of GDP in the median emerging market from less than 10 percent as recently as 2003. The importance of these funds has grown since the end of the pandemic, as the role of foreign investors has declined and domestic banks have shed some of their holdings of domestic government bonds acquired during the early stages of the pandemic. The recent increase of the share of holdings by nonbank financial intermediaries has varied across countries, with pension funds playing an increasing role, as various countries have recently either instituted or proposed new rules that could significantly increase the amount of assets these funds hold.

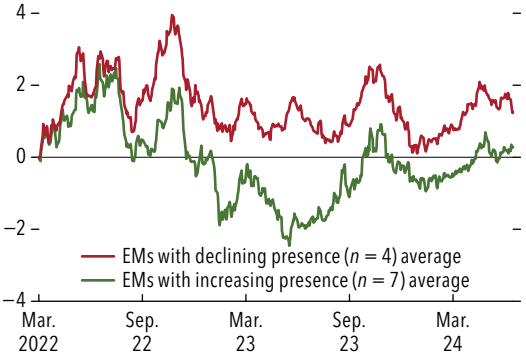
Long-term domestic institutional investor funds tend to focus their investments in LCGBs, providing governments with a stable source of funding as other asset classes such as domestic corporate bonds and equities are comparatively less developed. The rise of this investor base has reduced reliance on foreign capital, mitigating risks of capital outflows; enhanced market depth and liquidity; and reduced volatility. Countries in which the share of domestic government bonds held by pension and insurance companies has increased have experienced less volatility in term premiums, whereas those in which the share has declined have seen term premiums rise (Figure 1.4.1, panel 1). In addition, a sizable domestic investor base with a long-term investment horizon could mitigate a rise of a sovereign-bank nexus, such as the one that occurred during the pandemic (see Chapter 2 of the April 2022 *Global Financial Stability Report*).

The greater presence of long-term domestic institutional investors could have important implications for

Figure 1.4.1. NBFIs Play an Important Role in NBFI Markets

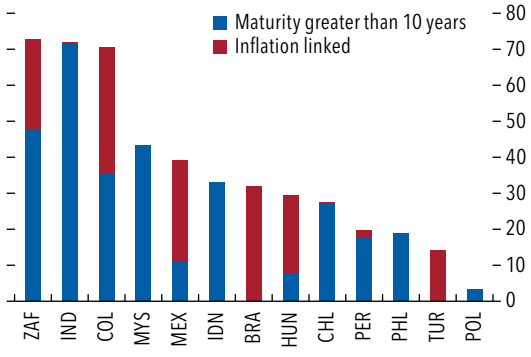
Countries with a rising share of holdings among pension and insurance funds broadly experienced less pressure on term premiums.

1. Change in Term Premiums for Local Currency 10-Year Government Bonds, March 2022 to June 2024
(Cumulative change to z-scores on domestic term premiums since the onset of the Federal Reserve's hiking cycle)



The availability of long-dated and inflation-linked assets varies significantly across jurisdictions.

2. Local Government Bonds That Have Remaining Maturities of at Least 10 Years or Are Linked to Inflation
(Percent)



Sources: Arslanalp and Tsuda 2014; Bank for International Settlements; Bloomberg Finance L.P.; Financial Stability Board; and IMF staff calculations.

Note: In panel 1, the sample includes 11 major emerging markets. Local currency government bond holdings by pension and insurance funds are assessed from December 2021 to December 2023. Term premiums are on the 10-year yield and follow the methodology in Adrian, Crump, and Moench (2013). Data labels in the figure use International Organization for Standardization (ISO) country codes. EMs = emerging markets.

This box was prepared by Jeffrey Williams.

Box 1.4 *(continued)*

decisions by government agencies charged with debt management. These funds tend to prefer longer-dated securities, as well as inflation-linked assets, to better match their liability structures. Such instruments are already a large fraction of LCGBs outstanding in several countries (Figure 1.4.1, panel 2), and in others, this growing asset class could present an opportunity to extend the domestic yield curve. Although the growth of this investor base could present a stabilizing force for LCGB markets, it also presents risks. With limited alternative options for domestic investment, funds may become overly concentrated in LCGB, leaving them vulnerable to large losses should interest rates rise precipitously, the yield curve steepen sharply, or inflation surge. Additionally, from the government's point of view, an unexpected increase in redemptions from these funds could drive a sudden rise in the cost of domestic funding.

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