

## Resilient risk-taking in financial markets

With the end of the hiking phase in sight, investors focused on macroeconomic developments during the review period, while staying attuned to their policy implications.<sup>1</sup> Government bond yields rose in advanced economies (AEs), with term structures reflecting increasingly diverse economic outlooks. Despite a spell of de-risking in August, risk-taking was generally resilient, including in emerging market economies (EMEs).

Notable differences marked the evolution of government bond yields in China, the euro area and the United States. While US long-term yields reached highs not seen since before the Great Financial Crisis, such yields barely rose in the euro area. These dissimilar paths were driven by inflation-adjusted, ie real, yields consistent with a stronger economic outlook in the US than in the euro area. As short-term rates rose in the euro area on the back of stubborn inflation, the term structure there inverted further. Bond yields largely declined in China, amid a faltering recovery from Covid restrictions and monetary policy easing.

US Treasuries were at the centre of heightened market volatility in early August. Yield rises accelerated as investors became more convinced that higher rates were here to stay following better than expected US growth numbers. In addition, several, almost concurrent announcements fuelled investor unease and led to a sell-off: an unexpected increase in the issuance of long-dated bonds by the US government; the greater flexibility in the Bank of Japan's yield curve control policy; and a downgrade of the US sovereign credit rating. The upward pressure on US yields spilled over to other AE government bond markets.

Risky assets held up firmly, but also exhibited some divergence across major economies due to the differing outlooks. Consistent with developments in core bond markets, stock returns were higher in the US than in the euro area and China. Likewise, sentiment in corporate credit markets seemed to improve in the US but remained relatively subdued in the euro area. US credit spreads narrowed below historical landmarks and issuance gained some traction. In contrast, bank lending to firms was still sluggish across jurisdictions.

Financial market developments in EMEs reflected a new phase of monetary policy across most jurisdictions as well as external factors. Short yields fell as the monetary policy stance began to turn, with most central banks pausing rate hikes or implementing cuts. Risk-taking continued, with higher-yielding currencies attracting capital inflows. In August, EME spreads and exchange rates also appeared sensitive to the temporary bout of de-risking in AE financial markets: the appreciation of Latin American currencies came to a halt, speculative positions in currency futures declined, and the rise of long-term yields accelerated. In addition, headwinds seemed to emerge from China's slowdown.

<sup>1</sup> The period under review extends from 1 June through 8 September 2023.

### Key takeaways

- Advanced economy government bond yields generally rose, whereas yield curves echoed differences in inflation and economic growth dynamics across jurisdictions.
- Risky asset markets were largely resilient, with stock markets also pricing in the diverging growth outlooks across major economies.
- Financial markets in EMEs reflected differences in policy outlooks and macroeconomic environments across regions, with some de-risking in August amid mounting concerns over the outlook for China.

## US yields led the way upwards

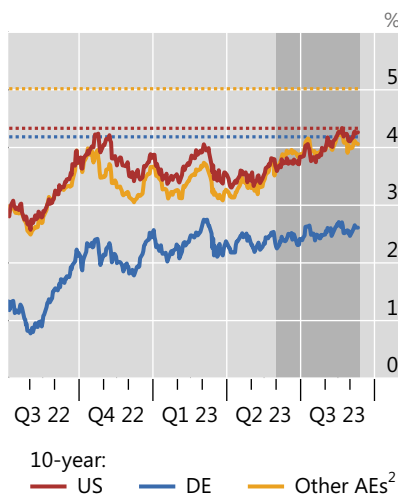
Disinflation and growth have proceeded unevenly across countries. The stronger performance of US markets has shaped trends in core bond markets during the review period. And investors remained closely attuned to the policy implications of the evolving macroeconomic scenarios for these markets.

The paths of long-term government yields were underpinned by the trajectories of real yields, which seemed to reflect both macroeconomic outlooks and perceptions of the monetary policy stance. Ten-year yields rose across most major AEs and reached their highest levels since the Great Financial Crisis in the US (Graph 1.A). And the country's steadily rising real yields (Graph 1.B) were consistent with favourable economic developments, eg a resilient, consumer-led growth. In contrast, long-term nominal yields rose only slightly in Germany and other euro area countries. This reflected largely flat real yields, as the outlook for the region darkened, amid persistent weakness in manufacturing as well as flatlining exports and consumption.

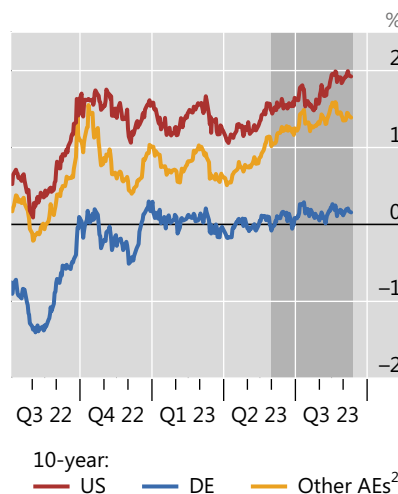
### US yields led the way upward, spurred by strong economic outlook

Graph 1

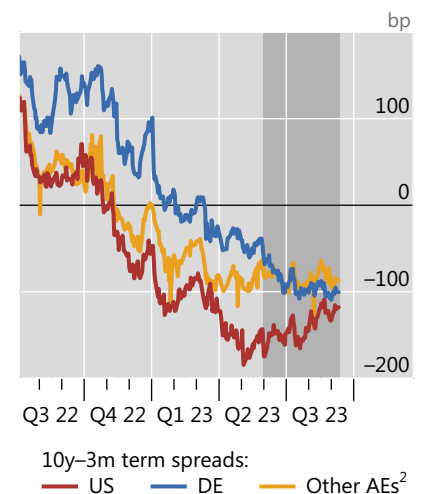
A. Nominal yields in AEs rose...<sup>1</sup>



B. ...in sync with real yields



C. US yield curve turned less inverted with improving economic outlook



The shaded area indicates 1 June–8 September 2023 (period under review).

<sup>1</sup> The horizontal lines indicate January 2007–June 2008 average. <sup>2</sup> Simple average of AU, CA and GB.

Sources: Bloomberg; Datastream; BIS.

The increase in long-term real yields, particularly in the US, was also consistent with a growing conviction by investors that higher rates were here to stay.

Changes in term spreads reflected differences in the pace of disinflation and growth outlooks across jurisdictions. To be sure, yield curves remained strongly inverted in all major AEs, despite a general perception that deep recessions are likely to be avoided. Yet the inversion of the US yield curve moderated (Graph 1.C), as lower inflation kept a lid on short rates while long yields rose. Meanwhile, yield curve inversion deepened further in Germany, where flatter long yields went hand in hand with quickly rising short rates. The latter rose on high and stubborn inflation, which reinforced perceptions that monetary policy will remain tight in the euro area.

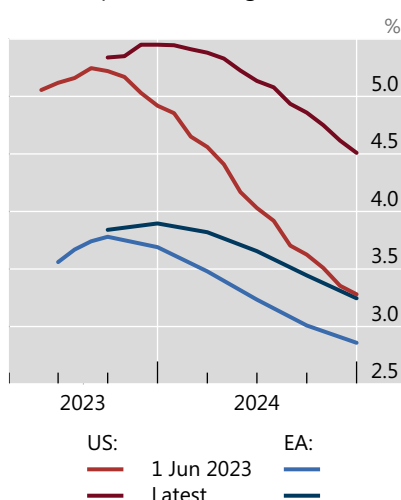
The path of policy rates priced into futures markets in major AEs became more in line with the cautious tone of central banks. The Federal Reserve and the ECB raised policy rates further in July, and emphasised in their communications that future decisions would be data-dependent. Officials also indicated that, while rates might not rise much more, they could stay at their current levels for a prolonged period if inflation remained above target. In accordance with these messages, futures markets in both in the US and the euro area priced in higher rates for 2024 than they had just a few months before (Graph 2.A). And the expected peak in policy rates was pushed higher and later. That said, investors still seemed to anticipate rate cuts as early as the second quarter of 2024, and much deeper in the US than the euro area.

A sell-off of long-term bonds took place in August amid a succession of negative news for US Treasuries. Early in the month, the US Treasury announced a large increase in the issuance of long-maturity securities, catching investors by surprise. This was almost concurrent with the downgrade of the US sovereign credit rating by a major agency. In addition, movements in yields may have been amplified by the lower liquidity of summer trading as well as the partial unwinding of the growing

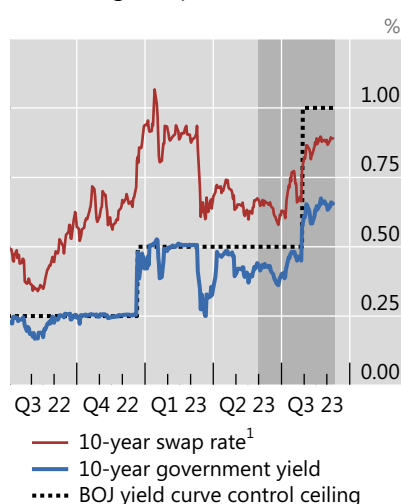
The US dollar fluctuated as policy rate expectations varied across jurisdictions

Graph 2

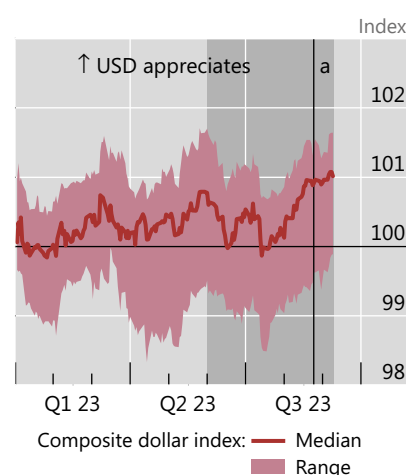
A. Futures-implied policy rate paths shifted upwards and rightwards



B. Yields remained below the implicit YCC ceiling in Japan



C. US dollar appreciated after wide fluctuations<sup>2</sup>



YCC = yield curve control.

<sup>a</sup> Start of Jackson Hole Economic Symposium (24 August 2023).


<sup>1</sup> Simple average of 10-year swap rates from nine different sources. <sup>2</sup> See technical annex for details.

Sources: Bloomberg; Datastream; BIS.

build-up of leveraged speculative positions in US Treasury markets (Box A). Although the sell-off did not last long, it did appear to spill over to government bond markets of other AEs. Yields across AEs subsequently paused their upward momentum after the Federal Reserve’s Jackson Hole symposium in late August, as investors appeared more convinced that a pause in rate hikes was in sight, especially following a string of relatively weak US data releases, including a subdued jobs report.

Box A

## Margin leverage and vulnerabilities in US Treasury futures

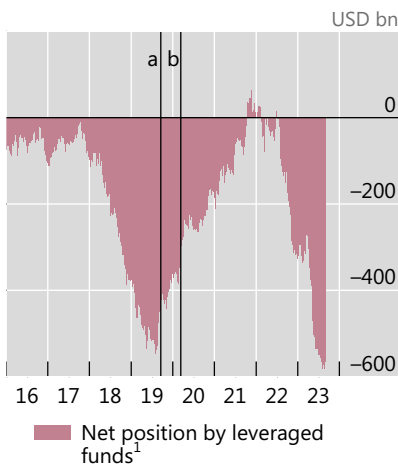
*Fernando Avalos and Vladyslav Sushko* 

Speculative positions by leveraged investors in US Treasuries are back. Over recent months, leveraged funds have built up net short positions in US Treasury futures of about \$600 billion (Graph A1.A), with more than 40% of the net “shorts” concentrated in two-year contracts (Graph A1.B).<sup>2</sup> These funds had been at a comparable level of net shorts in the run-up to the repo market turmoil of September 2019 (marker a) and the US Treasury market dislocations of March 2020 (marker b). This box examines current developments in the light of those experiences. It focuses on the often overlooked leverage associated with futures trading, and how sudden fluctuations in this “margin leverage” may give rise to destabilising margin spirals.<sup>3</sup>

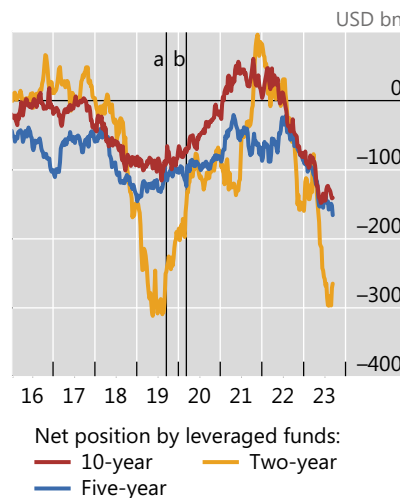
### Speculative positions in US Treasury futures rose despite higher initial margins

Graph A1

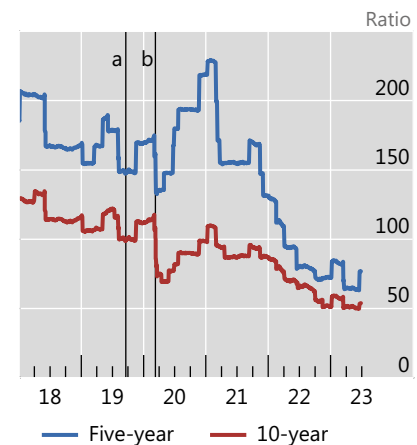
A. Surge of leverage funds’ net short positions in US Treasury futures...



B. ...has been concentrated at the belly of the yield curve



C. Leverage fell sharply before distress episodes in 2019 and 2020<sup>2</sup>



<sup>a</sup> Repo market stress (17 Sep 2019). <sup>b</sup> “Dash-for-cash” (9 March 2020).

<sup>1</sup> The sum of net positions in two-, five- and 10-year US Treasury futures. <sup>2</sup> Contract price over initial margin.

Sources: Commodity Futures Trading Commission; Bloomberg; Chicago Mercantile Exchange, BIS.

Back in September 2019 and March 2020, price discrepancies between futures and the underlying cash bonds (the cash-futures “basis”) encouraged highly leveraged funds to engage in relative value trades. Recent evidence suggests that the same type of trade may be driving the current build up.<sup>4</sup> When Treasury futures are priced at a premium relative to cash bonds, a common relative value trading strategy consists of selling futures forward (building short positions in futures), matched by purchases of bonds (long positions in the cash market). Such a trade generates profits because the futures and cash prices eventually converge on the futures contract’s expiration date. Since the basis is typically narrow, investors need to boost profits through very high leverage, ie they commit little own capital and borrow the rest. A key way of levering up involves the long positions: investors borrow cash in the repo market (usually having to roll over daily) by posting their US Treasury holdings as collateral.

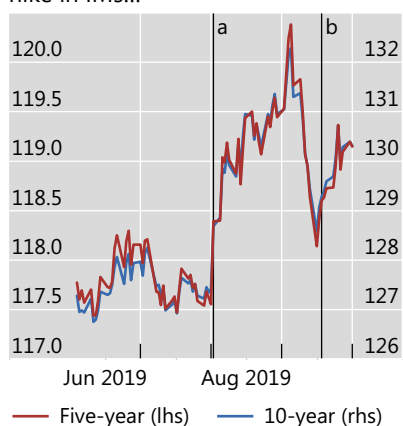
A less discussed aspect of the leverage involved in the cash-futures basis trade stems from futures markets. When entering a futures contract, traders need to post initial margin (IM), ie cash or highly liquid assets that the central counterparty (CCP) keeps as collateral to protect itself against counterparty credit risk. The ratio of futures contract value relative to the IM determines the allowed leverage. For instance, if traders initiate a futures position for \$100 with an IM of \$20, they are effectively borrowing \$80 and the leverage of the position is 5x (= 100 / 20). Leverage in actual US Treasury futures was very high before the pandemic, at about 175x and 120x on average for five- and 10-year Treasuries, respectively (Graph A1.C). It has declined since 2021, as the increased volatility in the US Treasury market has led to higher required IMs, but is still elevated, at about 70x and 50x, respectively. A rise in IM requirements mechanically induces deleveraging, as traders have to either post additional cash to fulfil IM requirements, or close their positions.

## Large initial margin hikes preceded the sudden closing of positions

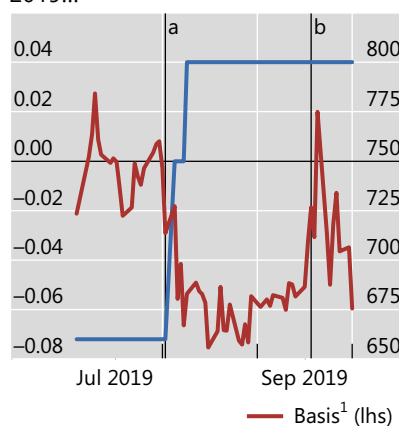
In US dollars

Graph A2

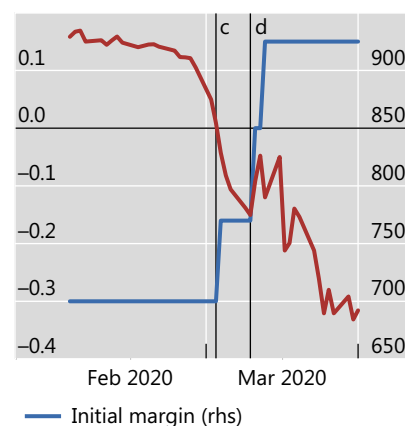
A. As futures prices rose with the hike in IMs...



B. ...the basis turned in September 2019...



C. ...and March 2020



<sup>a</sup> Increase in margins (1 August 2019). <sup>b</sup> Repo market stress (17 September 2019). <sup>c</sup> Increase in margins (1 March 2023). <sup>d</sup> "Dash-for-cash" (9 March 2020).

<sup>1</sup> Five-year cash-futures basis, expressed as futures price (adjusted by the conversion factor) minus the spot price of the cheapest-to-deliver bond.

Sources: Bloomberg; Chicago Mercantile Exchange; BIS.

A disorderly reduction in margin leverage exacerbated fixed income market distress in both September 2019 and March 2020. The two episodes were preceded by significant hikes in IMs (Graph A1.C, drops before vertical markers), to which leveraged relative value traders appeared to respond at least in part by unwinding their positions. This was evident from the jump in the price of US Treasury futures on the day of the IM rise, in early August 2019 (Graph A2.A). As cash bond prices outpaced the rise in futures prices amid increased volatility, the basis inverted, creating further incentives for winding down the trades (Graph A2.B, red line). The ensuing dynamics placed protracted upward pressure on futures prices (Graph A2.A). Similar market dynamics were observed in March 2020, exacerbating the heightened volatility in US Treasury markets caused by uncertainty and lockdowns (Graph A2.C).

Given these experiences, the current build-up of leveraged short positions in US Treasury futures is a financial vulnerability worth monitoring because of the margin spirals it could potentially trigger. While this channel was well recognised in the March 2020 "dash-for-cash" episode,<sup>⑤</sup> other factors garnered more attention in the context of the September 2019 repo market stress.<sup>⑥</sup> Yet the margin deleveraging in August 2019 may have presaged the funding market disruptions that followed a month later. Margin deleveraging, if disorderly, has the potential to dislocate core fixed income markets.

① The views expressed are those of the authors and do not necessarily reflect the views of the BIS. ② Hedge funds' net short positions reflect liquidity provision to asset managers, and can be underpinned by a variety of trading strategies. ③ See S Aramonte, A Schimpf, and H S Shin, "Margins, debt capacity, and systemic risk", *BIS Working Papers*, no 1121, September 2023. ④ See D Barth, R Kahn and R Mann, "Recent developments in hedge funds' treasury futures and repo positions: is the basis trade 'back'?", Board of Governors of the Federal Reserve System, *FEDS Notes*, August 2023. ⑤ S Schimpf, H S Shin and V Sushko, "Leverage and margin spirals in fixed income markets during the Covid-19 crisis", *BIS Bulletin*, no 2, April 2020. ⑥ See eg F Avalos, T Ehlers and E Eren, "September stress in dollar repo markets: passing or structural?", *BIS Quarterly Review*, December 2019, pp 12–14.

The short-lived sell-off may have been exacerbated by an announcement of the Bank of Japan, which introduced greater flexibility to its yield curve control policy. In late July, the Bank effectively raised the upper bound of the intervention band for the 10-year JGB yield to 1%, while otherwise maintaining its accommodative policy stance. In practice, this new ceiling no longer restricted either JGB yields or 10-year swap rates, both of which remained well below the new operational ceiling (Graph 2.B). In the wake of the announcement, investors fretted over potential spillovers, as Japanese investors could eventually find it profitable to repatriate funds from several asset classes, including US Treasuries.

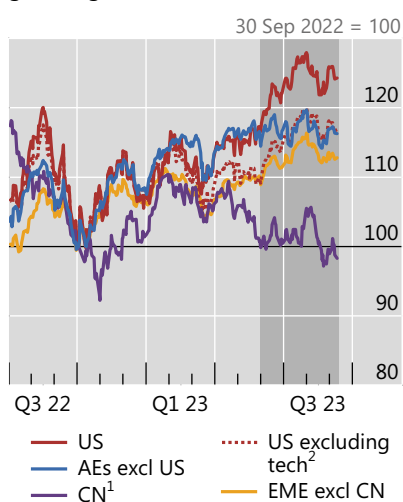
The US dollar saw wide fluctuations during the review period. After weakening in July, it strengthened persistently, as the US outlook improved and real yields rose further (Graph 2.C), and then lost some momentum again after the Jackson Hole meeting. At the level of currency pairs, differences in the attendant monetary outlooks played a role. The dollar remained largely flat vis-à-vis currencies whose interest rates were expected to remain relatively high, such as the euro and the British pound, and appreciated markedly vis-à-vis those at the opposite end of the spectrum, such as the Scandinavians and the yen. It appreciated similarly against commodity currencies, such as the Australian and Canadian dollar, not least because of perceptions of a weakening demand from China.

## Investors ploughed ahead in risky assets

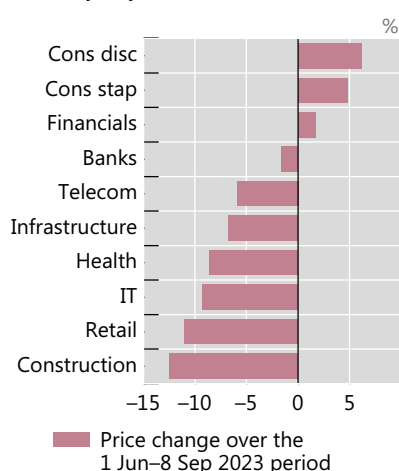
Risky assets extended their gains from the previous quarter, despite a brief pause in August alongside the heightened volatility in fixed income markets. With the end of the hiking cycle perceived to be in sight and the prospects of US recession fading, primary market activity in corporate credit markets regained some dynamism, particularly in the US high-yield segment. However, bank lending remained subdued across jurisdictions.

Beyond the overall gains, equity markets also reflected the diverging economic outlook across major economies. US equities outperformed those in other regions (Graph 3.A), in part because of fading recession fears, and the exuberance about technology stocks. Excluding those stocks, the US market performance was closer to global averages (dashed red line). In turn, the gains were smaller in other AEs, particularly European stocks, in part due to spillovers from China's economic malaise. The losses in Chinese stocks deepened during the review period, as the economic rebound after the lifting of Covid restrictions increasingly disappointed. Reflecting the woes in the property sector, the country's construction and infrastructure stocks were among the worst performers during the review period, together with retailing (Graph 3.B).

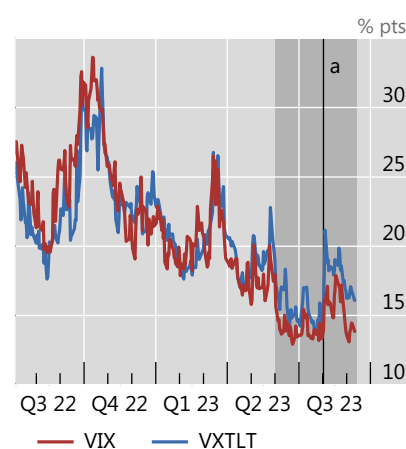
A. Global equity prices generally gained ground



B. China's stock market weighed down by key sectors³



C. Volatility rose briefly in August



The shaded area indicates 1 June–8 September 2023 (period under review).

<sup>a</sup> US Treasury announces increase in long-term securities issuance (2 August 2023).

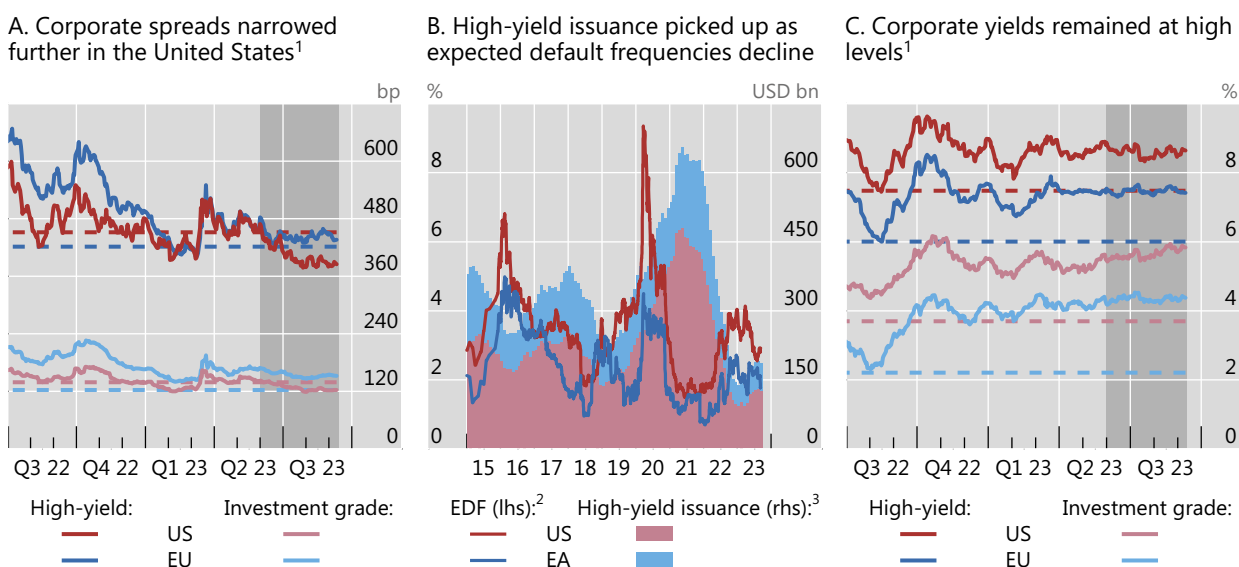
<sup>1</sup> Shanghai Shenzhen CSI 300 index. <sup>2</sup> S&P 500 excluding information technology index. <sup>3</sup> Cons disc = consumer discretionary; cons stap = consumer staples.

Sources: IMF; Bloomberg; Datastream; BIS.

Stock price fluctuations reflected macroeconomic news, as investors digested their policy implications. For example, equity markets lost some ground with a better-than-expected second quarter release of US GDP figures in late July, as it seemed to raise the likelihood of tighter policy ahead.

Likewise, equity and bond yield volatilities co-moved as investors interpreted macroeconomic surprises in terms of their implications for future interest rates. The VIX jumped alongside the implied volatility of US long-term yields, as the late July release of better than expected US GDP data suggested higher future interest rates. Subsequently, both receded in the wake of the Jackson Hole meeting and weaker-than-expected US job openings data in late August (Graph 3.C).

Market funding conditions for banks remained somewhat tighter. The banking sector stock subindices continued to trail the broader equity market aggregates in major economies. Recent downgrades of mid-sized US banks by a major rating agency were a probable recent contributing factor, as was a negative watch/outlook for some of their larger peers. Also, conditions in bank short-term funding markets became more discriminating (Box C), as liquidity was gradually removed by central banks' quantitative tightening. At the same time, sovereign debt issuance continued to grow.



The shaded area indicates 1 June–8 September 2023 (period under review).

<sup>1</sup> The horizontal lines indicate 2005–current medians. <sup>2</sup> Daily average across available non-financial corporate EDF. <sup>3</sup> Twelve-month rolling sum.

Sources: Dealogic; ICE BofAML indices; Moody's; BIS.

Corporate credit spreads, which had narrowed earlier in the review period, found a floor during the de-risking episode of August. Spreads had fallen well below long-term watermarks in the US, in both the investment grade and high-yield segments, indicative of sustained risk-taking (Graph 4.A). On the back of improved sentiment, high-yield issuance regained momentum after the steep decline of 2022 (Graph 4.B, red bars), as the US stock market gains drove a material fall in expected default frequencies (red line). Spread compression was more moderate and issuance scarcer in the euro area, where the direction of expected defaults was less clear amid stagnant economic prospects (blue line).

Despite the compression in credit spreads, corporate funding costs reached highs well above long-term levels as a result of rising benchmark rates. Corporate bond yields in both the investment grade and high-yield segments remained well above their long-term averages (Graph 4.C). This may represent a significant financial burden for some firms going forward. For now, many firms have been able to postpone new borrowing, given their diminished cash needs after strong debt issuance during the low-for-long era (Box B). Nevertheless, corporate default rates have started to edge up. High-yield bond default rates reached 4% in July (Graph 5.A, light red line), taking the aggregate default rate for all US issuers to over 2%. As debt maturities loom large within the next three years, highly leveraged firms with low profitability may come under pressure and defaults may rise further.



## Non-financial corporates' balance sheets and monetary policy tightening

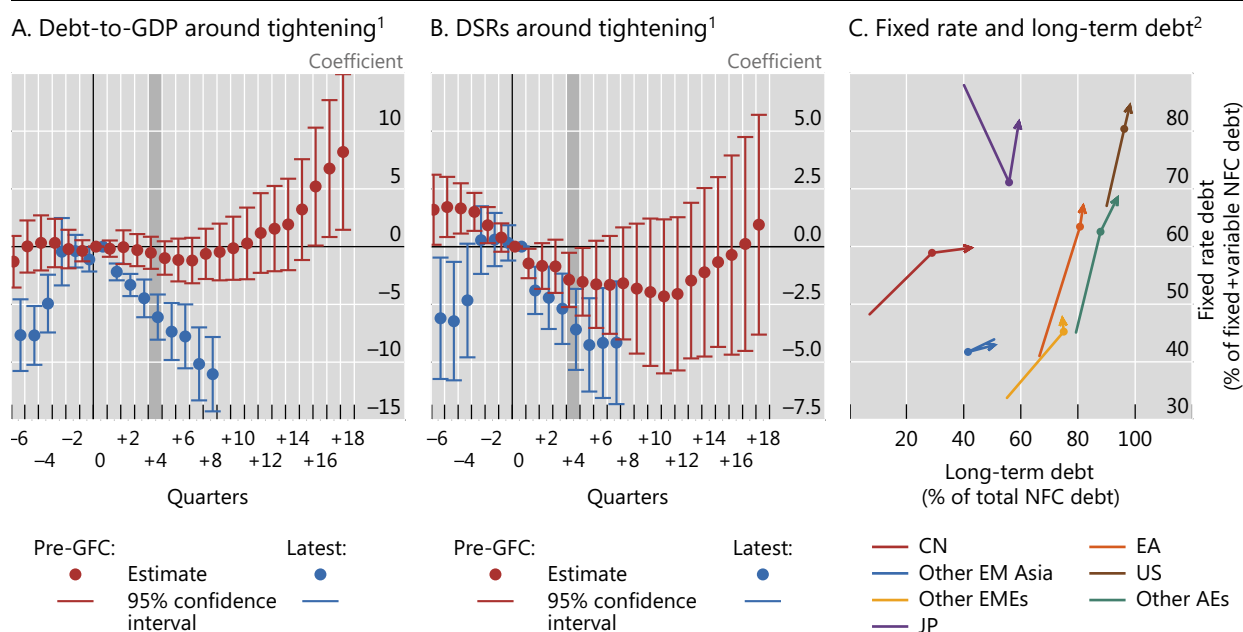
Miguel Ampudia, Egemen Eren, Marco Lombardi<sup>1</sup>

The recent weak growth in credit to non-financial corporates reflects both supply and demand factors, as illustrated in the main text. The supply factors include higher interest rates and overall tighter lending standards. Demand factors include a weakening economic outlook, not least due to tighter monetary policy. In addition, the circumstances preceding the ongoing tightening cycle also helped non-financial corporates (NFCs) build liquidity buffers and, more generally, strengthen their balance sheets. This box documents a decline in debt service burdens since the start of the current tightening episode and argues that this development is exceptional and due to NFCs' pre-positioning during the low interest rate era. It also documents a recent worsening of NFCs' balance sheets and a looming rise in debt refinancing needs at higher interest rates.

There are stark differences between the last pre-GFC tightening episode (2004–07) and the current one in terms of NFC debt-to-GDP and debt service ratios (DSRs). A cross-country analysis suggests that NFC debt-to-GDP and DSRs were flat or even declining prior to the pre-GFC tightening cycle and then steadily increased (Graph B1.A and B1.B, red dots). By contrast, the current tightening episode (blue dots) displays a different pattern: debt-to-GDP and DSRs were increasing before the tightening started, reflecting the effects of the pandemic and the forceful policy response. These ratios subsequently declined, notwithstanding the substantial monetary policy tightening that has been deployed so far.

### NFCs took advantage of easy credit conditions

Graph B1



<sup>1</sup> Time fixed effects in a cross-country panel regression of NFC debt-to-GDP and DSRs, including also country fixed effects. The base quarter (vertical line) is Q2 2003 for the pre-GFC period and Q1 2021 for the latest tightening. The shaded area is the quarter in which US monetary policy tightening began. <sup>2</sup> The start (end) of an arrow represents 2008 (2021). The midpoint represents 2019. Median value per country. Only firms reporting between 2008 and 2021 are used.

Sources: IIF; S&P Capital IQ; national data; authors' calculations.

One explanation of these diverging experiences stems from different inflation dynamics in the two episodes. Before the pre-GFC tightening cycle, inflation had been rising gradually and peaked at a very moderate level. By contrast, the current tightening occurred in the wake of an exceptionally swift rebound in economic activity due to the post-pandemic reopening and an unexpected surge of inflation to levels last seen in the 1980s. Thus, while NFCs' nominal revenues increased moderately in the earlier episode, they have surged recently. While such developments



## Bank CP rates amid asymmetric funding-liquidity conditions across currencies

*Fernando Avalos and Vladyslav Sushko*<sup>①</sup>

Commercial paper (CP) markets constitute an important source of unsecured funding for banks (Aquilina et al (2023, in this issue)).<sup>②</sup> Bank CPs are short-term (one- and three-month) and are issued at rates that track other money market rates fairly closely, albeit with a time-varying spread relative to the (nearly) risk-free benchmarks, such as overnight index swap (OIS) rates. A wider (positive) CP-OIS spread indicates tighter funding conditions for banks, reflecting liquidity risk and credit risk premia.<sup>③</sup>

This box studies bank CP spreads across major currencies. It highlights apparent anomalies in CP market pricing that probably stem from abundant liquidity. It also documents how US dollar CP spreads responded to the resolution of the US debt ceiling impasse in early June. The data comprise quotes by CP dealers on the Bloomberg trading platform, posted during the liquid trading hours in Europe and the US: two snapshots per day, from 31 March to 22 August 2023. They also cover issuer identity, tenor, currency denomination and credit rating.

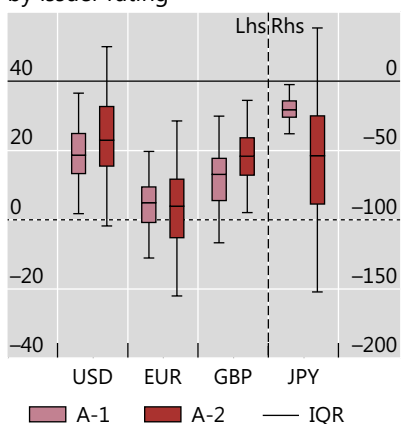
In some currencies, the CP-OIS spread suggests anomalies as regards the compensation that investors demand for liquidity and/or credit risk. While CP-OIS spreads are positive in the US dollar and the British pound, they are approximately zero in the euro and negative in the Japanese yen (Graph C1.A). In the first two currencies, there is thus evidence that liquidity commands a premium, possibly resulting from increased policy rates and reduced bank reserves. In addition, the somewhat wider spreads on lower-rated CP indicate compensation for credit risk (light versus dark red). In comparison, the compressed euro CP-OIS spreads suggest that liquidity is still abundant in the euro area, despite repayments on the ECB's targeted longer-term refinancing operations and its quantitative tightening. Likewise, the similarity of euro spreads across rating categories indicates little compensation for credit risk. Finally, the negative and wide CP-OIS spreads in the yen suggest that yen liquidity continues to be abundant, with investors willing to *pay* a premium to place their yen cash in bank-issued CP.

### Bank CP spreads across currencies and around the US debt ceiling resolution

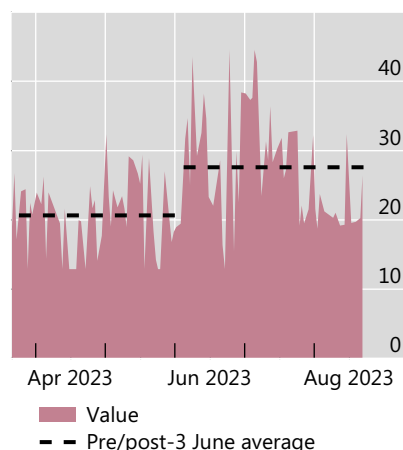
In basis points

Graph C1

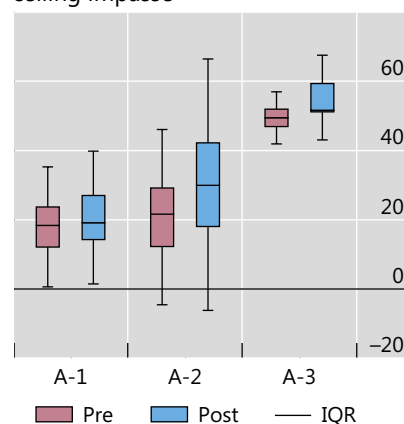
A. CP-OIS spreads across currencies, by issuer rating<sup>1,2</sup>



B. US dollar CP-OIS rates<sup>2,3</sup>



C. CP-OIS spreads and the US debt ceiling impasse<sup>2,4</sup>



<sup>1</sup> 31 March through 22 August 2023 sample period. <sup>2</sup> Three-month tenors. <sup>3</sup> A2-rated CP issuers. <sup>4</sup> Two months before and after the 3 June signing date.

Sources: Bloomberg; BIS.

We also find that bank funding conditions tightened after the US debt ceiling impasse was resolved on 3 June. Namely, the average three-month OIS spread was almost 20 basis points higher for a period of about two months after 3 June compared with about the same period before ((Graph C1.B), dashed lines). This is consistent with investors expecting the debt ceiling resolution to tighten funding liquidity conditions in bank CP markets. This is because the resolution was expected to unleash heavy Treasury bill issuance, materially boosting the supply of low-risk instruments into the short-term funding markets where CP also resides. The effect was most noticeable for CP of the low-rated, A3 issuers (Graph C1.C), which tend to be the first to confront a change in funding conditions. The CP-OIS spread narrowed back in early August, in the wake of the surprise announcement by the US Treasury that new issuance will take place at the long end of the yield curve, which investors did not perceive as a substitute for CP.

① The views expressed are those of the authors and do not necessarily reflect the views of the BIS. ② M Aquilina, A Schimpf and K Todorov, "CP and CDs markets: a primer", *BIS Quarterly Review*, September 2023, pp 63 – 76. ③ See, for example, D Gefang, G Koop and S Potter, "Understanding liquidity and credit risks in the financial crisis", *Journal of Empirical Finance*, vol 18, no 5, 2011, pp 903–14.

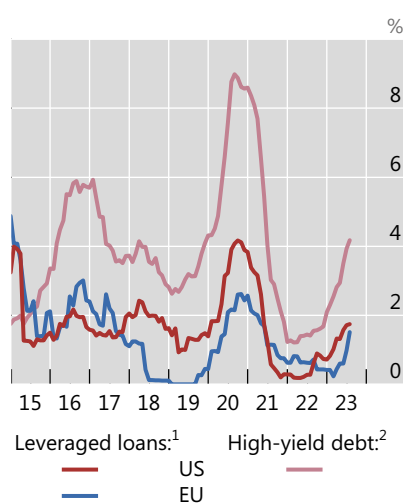
With default rates on loans also climbing, banks kept their credit extension within modest bounds. Consumer loan delinquency rates rebounded, after being cushioned by fiscal support in the wake of the pandemic. In addition, default rates on leveraged loans rose steadily from below 1% in mid-2023 to approximately 2% most recently in both the US and euro area, with the increase gathering speed in the second half of the year (Graph 5.A, dark red and blue lines). And forward-looking provisions for credit losses surged to the highest levels since the second quarter of 2020. In this context, bank loan growth was weak or negative in all major AEs. Likewise, leveraged loans issuance remained sluggish both in the US and the euro area (Graph 5.B), showing few signs of recovery after the steep decline in 2022.

Both supply and demand factors played a role. For one, survey results indicated tight lending standards (Graph 5.C). And even though market intelligence suggests that banks subsequently became more open to credit extension, they faced weak loan demand. As in the case of corporate bond markets, firms with strong cash buffers were reluctant to borrow at increased lending rates.

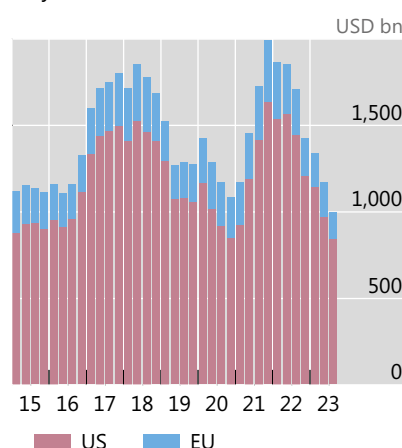
## Default rates started to edge up and bank lending remained subdued

Graph 5

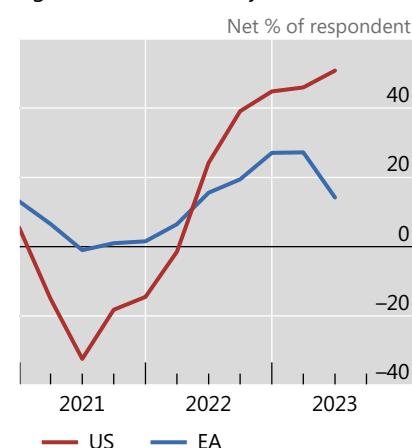
A. Default rates are rising...



B. ...while leverage loan issuance stayed subdued<sup>3</sup>



C. Lending standards remained tighter than in recent years



<sup>1</sup> Twelve-month rolling default rates based, respectively, on Morningstar LSTA US Leveraged Loan Index (LLI) and Morningstar European Leveraged Loan Index (ELLI). <sup>2</sup> Based on Moody's 12-month rolling US speculative-grade default rates. <sup>3</sup> Four-quarter rolling sum.

Sources: Board of Governors of the Federal Reserve System; Datastream; Dealogic; Moody's; PitchBook Data Inc; PitchBook | LCD; BIS.

## EMEs confronted with global cross-currents

EME financial markets reflected differences in policy outlooks and macroeconomic environments across regions. As economies grappled with the varying headwinds coming from the slowdown in China, policy outlooks have increasingly diverged.

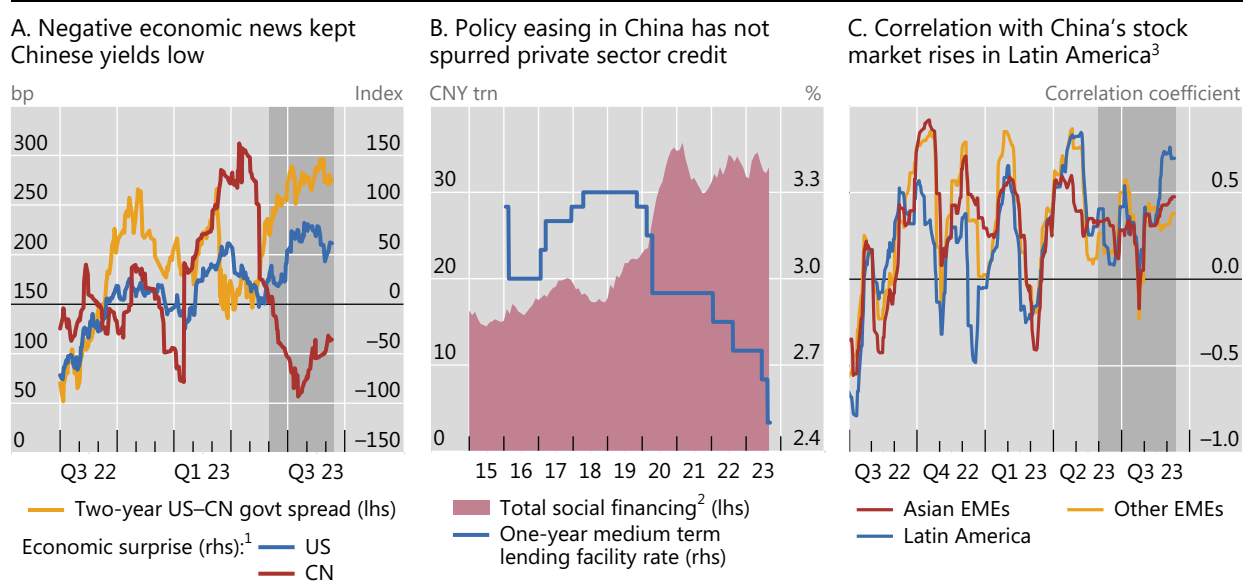
Financial markets reflected China's slowdown. As negative economic surprises piled up during the review period in China, in contrast to the positive surprises in the United States (Graph 6.A, red and blue line, respectively), the respective policy stances diverged. While the Federal Reserve steadily tightened policy during the last two years, the People's Bank of China continued to ease to stimulate credit growth and the economy (Graph 6.B, blue line). Accordingly, the spread between the US and China's two-year government yield widened (yellow line). Despite the easing, growth of credit to the private sector in China was sluggish (red area), and a sustained economic recovery following the lifting of pandemic restrictions failed to materialise.

Investors appeared increasingly concerned about the prospects of global spillovers, should the outlook for China continue to deteriorate. The relatively modest performance of some AE stock markets, as seen above, was one manifestation of that anxiety. In EMEs, correlations with China equities were high during the period under review and rose markedly for Latin American stocks (Graph 6.C). The latter may reflect concerns about the decline in China's demand for commodities, which represent a large share of the region's exports.

Sovereign bond yields reflected the different stages of the respective policy rate cycles across EME regions. Yields on two-year government bonds declined steadily in Latin America and the Europe, Middle East and Africa (EMEA) regions (Graph 7.A). This stemmed from perceptions that the general monetary policy stance in Latin

Financial markets reflected weakness in the Chinese economy

Graph 6

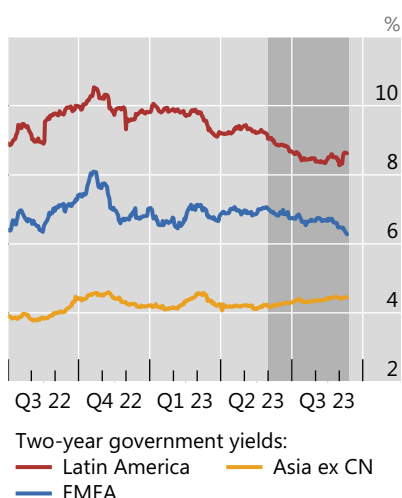


The shaded area indicates 1 June–8 September 2023 (period under review).

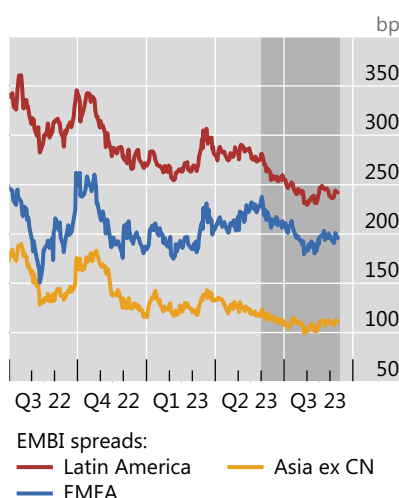
<sup>1</sup> Citi economic surprise index. <sup>2</sup> Twelve-month rolling sum. <sup>3</sup> See technical annex for details.

Sources: Bloomberg; Datastream; BIS.

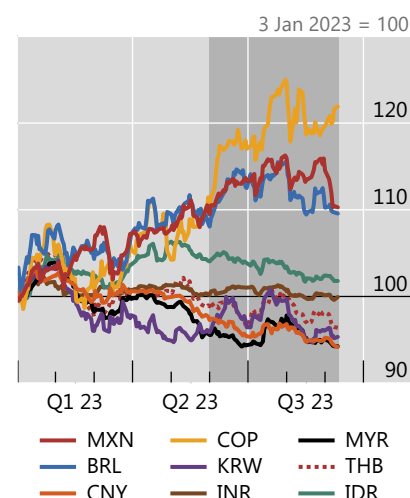
A. EME two-year yields fell outside Asia<sup>1</sup>



B. EMBI spreads remained stable<sup>1, 2</sup>



C. Many EME currencies appreciated against the dollar or remained stable



The shaded area indicates 1 June–8 September 2023 (period under review).

<sup>1</sup> See technical annex for details on country groupings. <sup>2</sup> Strip spreads.

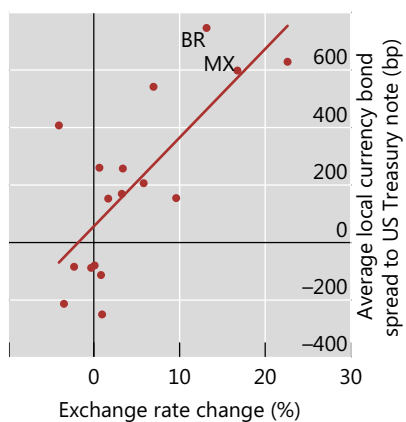
Sources: Bloomberg; Datastream; JPMorgan; BIS.

America was poised to reverse, after steep rate hikes in the past two years. Indeed, the central banks of Brazil and Chile cut policy rates during the review period, with investors expecting the central banks of Colombia and Mexico to follow suit soon, as inflation continued to fall in the region. By contrast, two-year yields in Asian EMEs rose somewhat, even as most central banks in the region put rate hikes on hold. Ostensibly, investors perceived moderate upside risks to inflation.

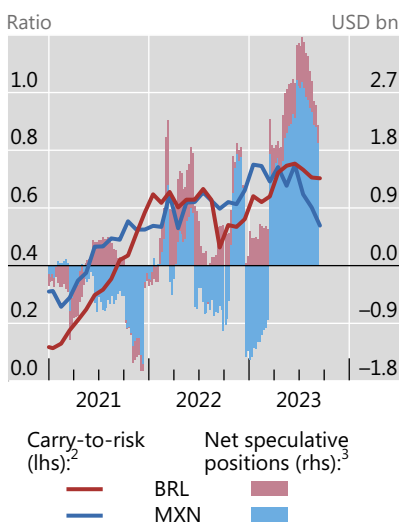
Foreign investor appetite for EME risk did not wane. Sovereign spreads on US dollar-denominated debt compressed further (Graph 7.B), while the exchange rates of major EMEs either appreciated or held steady (Graph 7.C). Since the beginning of the year, currencies with higher local government bond yields vis-à-vis the comparable US Treasury appreciated further (Graph 8.A). In particular, Latin American currencies, such as the Brazilian real and Mexican peso, appreciated materially against the US dollar. Favourable carry-to-risk ratios provided significant incentives for carry trades (Graph 8.B).

EME spreads and currency markets were sensitive to the temporary bout of de-risking in AE financial markets in early August. Long-term yields in Latin American government bond markets rose and their yield curves steepened (Graph 8.C). In addition, the appreciation of Latin American currencies came to a halt, as carry-to-risk ratios declined and some speculative positions were unwound. Sovereign spreads on US-dollar denominated debt also widened somewhat since August in both Latin America and in EMEA.

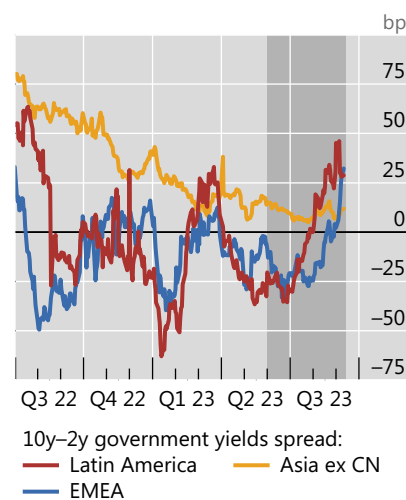
A. High-yield currencies appreciated more in 2023<sup>1</sup>



B. Carry trades encouraged by favourable risk-return indicators



C. Yield curves steepened<sup>4</sup>



The shaded area indicates 1 June–8 September 2023 (period under review).

<sup>1</sup> Sample period: January–July 2023. <sup>2</sup> One-month interest rate differential divided by the implied volatility of one-month at-the-money currency options. <sup>3</sup> Proxied by net positions of non-commercial traders. <sup>4</sup> See technical annex for details on country groupings.

Sources: Commodity Futures Trading Commission; Bloomberg; Datastream; BIS.

## Technical annex

Graph 2.C: Based on standardised dollar exchange rates (z-scores) against AUD, CAD, CNY, CZK, EUR, GBP, HUF, INR, JPY, KRW, NOK, SEK and ZAR, calculated over the period 3 January 2022–8 September 2023. The index is equal to 100 plus the z-score.

Graph 6.C: Thirty-day moving correlation between log changes of country-level equity index and log change of the Shanghai composite index, averages across countries within the region indicated.

Graph 7.A: Latin America: simple average of BR, CL, CO, MX and PE. Asia ex CN: simple average of ID, IN, KR, MY, PH, TH and SG. EMEA: simple average of CZ, HU, IL, PL and ZA.

Graph 7.B: Latin America: simple average of BR, CL, CO, MX and PE. Asia ex CN: simple average of ID, IN, MY and PH. EMEA: simple average of HU, PL, SA and ZA.

Graph 8.C: Latin America: simple average of BR, CL, CO, MX and PE. Asia ex CN: simple average of ID, IN, KR, MY, PH, TH and SG. EMEA: simple average of CZ, HU, IL, PL and ZA.