



Chapter 1

Market Conjunctural- Low Visibility of Challenges Ahead

Highlights

- Aggressive monetary tightening by global central banks led to tighter financial conditions, although the conditions eased after November 2022 as markets considered the stance of Federal Reserve (Fed) to be less hawkish. Swift action by policymakers alleviated market stress during the United States (US) bank failures in March 2023. However, the easier financial conditions may conceal hidden risks given that changes in the global monetary policy landscape have been drastic. Some of the risks include elevated volatility as the markets adjust to the higher-for-longer environment of interest rates, and potential stress in US banking sector and US dollar funding markets.
- Global market turbulence has had a varied but significant impact on ASEAN+3¹ assets, with local equity and bond markets experiencing less fluctuation than their US counterparts during 2022–23, and portfolio flows to emerging markets in the region (outside of China) gradually recovered. In light of weaker-than-expected economic recovery, milder inflationary pressures, and the presence of robust external buffers, regional central banks have generally been less aggressive than the Fed in tightening monetary policy.
- Despite recent disinflation, lingering inflation risks in the ASEAN+3 region could jeopardize financial stability by prolonging high interest rates and causing market volatility. Even as spillovers to ASEAN+3 from banking stress in the US and Europe have been limited, potential risks remain. Furthermore, the tighter monetary policy would heighten the risk of renewed US dollar funding stress, particularly if investor sentiment were to sour.
- Regional central banks should focus on maintaining price stability while carefully balancing domestic and external factors. They should maintain adequate liquidity for banks and in times of severe stress, provide appropriate regulatory oversight and take measures to minimize spillovers from systemically important nonbank financial institutions. While prioritizing inflation, central banks should also safeguard financial stability. If a conflict were to arise between inflation control and financial stability, a broader coordinated approach involving fiscal and macroprudential measures would be warranted.
- Regional authorities should maintain liquidity facilities for US dollar funding during stress periods, given the dollar's dominant role in trading and investments, notwithstanding the recent trend toward greater use of local currencies in regional cross border payments. To mitigate the financial stability risks posed by growing digital financial infrastructure, key measures should include liquidity backstops, effective communication, and streamlined and targeted digital asset regulations. Finally, a sustained commitment to green finance and climate change initiatives is essential.

This chapter is authored by Prashant Pande and Kimi Xu Jiang under the guidance of Kevin C. Cheng, with contributions from Benyaporn Chantana. Chiang Yong (Edmond) Choo (project manager), Junjie Shi and Xiaofan Zhu provide research assistance.

¹ For groupings of economies, AMRO follows the classification detailed by the IMF (refer to website here: <https://www.imf.org/en/Publications/WEO/weo-database/2023/April/groups-and-aggregates>). The group presentations in charts and tables are for analytical purposes only and do not reflect the official position of AMRO or its member authorities on the classification of the economies.

"Fog is more dangerous than dark, as it gives the illusion of seeing."

Aleksandra Ninković, Author

I. Recent Developments

Global financial conditions have eased, although risks linger

Financial system and markets were tested on multiple occasions over the past few years. Easy financial conditions in major global markets started to gradually reverse in late 2021 (Figure 1.1) amid the rise in global inflation, which was exacerbated by geopolitical events in February 2022. Aggressive monetary tightening by global central banks, led by rate hikes by the US Federal Reserve (the Fed), tightened financial conditions. These eased somewhat after November 2022, only after signals that the Fed was nearing the end of its hiking cycle. Concerns gradually **shifted from the pace and extent of monetary tightening to the effects of prolonged tightness** in 2023. These materialized during the March 2023 stress in US regional banks, intensified by the fall of a major global systemically important bank (G-SIB)—Credit Suisse.

Swift policy action by policymakers helped ease market stress during the bank failures. Global central banks had to balance curbing inflationary pressures with maintaining financial stability. The Fed had softened its ultra-hawkish stance in November 2022, but the banking stress episode raised the hurdle for further tightening and prompted extraordinary measures to contain its impact. The Fed provided liquidity support (the new Bank Term Funding Program and existing discount windows) while other US agencies provided backstop for depositors to mitigate the contagion. The Swiss National Bank acted quickly too when panic selling gripped Credit Suisse by providing an immediate liquidity facility and later by facilitating the takeover by UBS. The success of authorities in containing the spillovers allowed the central banks to refocus on inflation and resume monetary tightening.

While financial conditions have eased since the banking turmoil, hidden risks may lurk amid the drastic shift in global monetary policy stance. This shift—from the “near-zero interest rate with ample liquidity” to the “higher-for-longer interest rate with

receding liquidity” regime—can expose hidden financial vulnerabilities. Unanticipated failures of some regional US banks that were, triggered by the Fed’s tightening policy illustrate how markets might have misjudged such risks and their potential for rapid, wide-reaching spillovers. Despite current market optimism, policymakers should avoid complacency and remain vigilant for hidden risks.

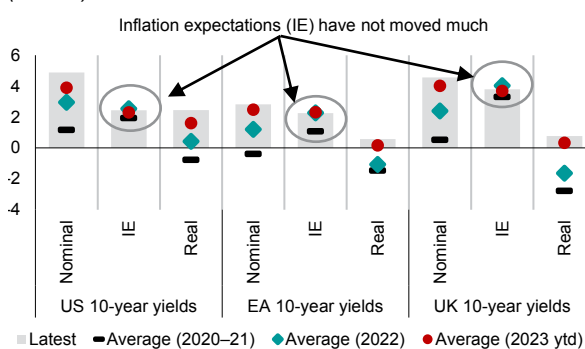
Indeed, despite the apparent stability for now, some indicators point to less-visible financial market risks. The unprecedented monetary tightening led real rates to rise in major economies and pushed bond yields higher, while inflation expectations have largely remained stable (Figure 1.2). Equities fell sharply, and the US dollar strengthened against major currencies through the first three quarters of 2022, (Figure 1.3) accompanied by increased volatility across asset classes (Figure 1.4). Since November 2022, markets have stabilized, except for a temporary reversal when banking came under stress in March. Most major asset classes have regained strength recently and volatility in equity and foreign exchange (FX) markets is now below its post-global financial crisis average. However, volatility in bond markets remains elevated, banking sector stocks have yet to recover from the sharp fall in March (Figure 1.5), and global central banks have resumed their balance sheet reduction (Figure 1.6). These signs point to vulnerabilities in the financial sector and the risk of renewed stress in the US-dollar funding markets. An escalation in geopolitical tensions remains a key risk for financial markets and can trigger episodes of severe risk aversion, which may create stress in the vulnerable parts of the financial system. One such potential escalation could emerge from the tension in the Middle East which started in October 2023.

Figure 1.1. Selected Advanced Economies: Financial Conditions Index (FCI)



Source: Bloomberg Finance L.P.; AMRO staff calculations. Note: Data as of 31 October 2023.

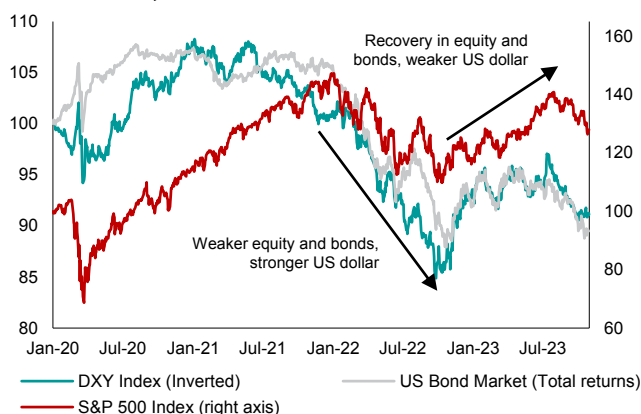
Figure 1.2. Selected Advanced Economies: 10-Year Nominal, Inflation Expectations and Real Government Bond Yields



Source: Bloomberg Finance L.P.; AMRO staff calculations. Note: EA = euro area; UK = United Kingdom; US = United States. The latest and 2023 ytd (year-to-date) average is as of 31 October 2023.

Figure 1.3. Selected Advanced Economies: Equity, Foreign Exchange and Bond Market Indices

(Index, 1 January 2020 = 100)

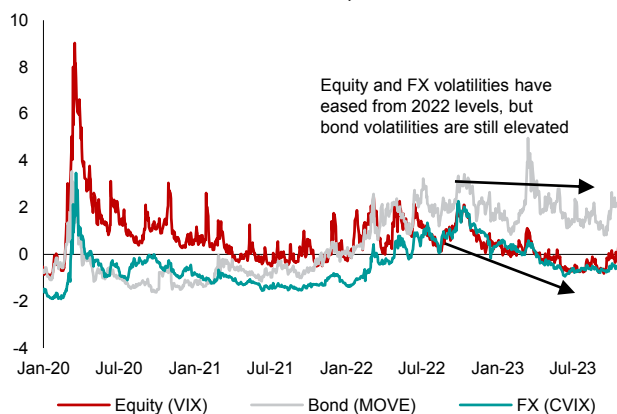


Source: Bloomberg Finance L.P.; AMRO staff calculations.

Note: DXY index refers to US dollar index. Bloomberg US Aggregate Index is used for US bond market (total returns). AE = advanced economies. S&P index refers to Standard & Poor's 500 index. Data as of 31 October 2023.

Figure 1.4. US: Volatility in Key Assets and Corresponding Long-Term Averages

(Z-score based on data since 1 January 2010)

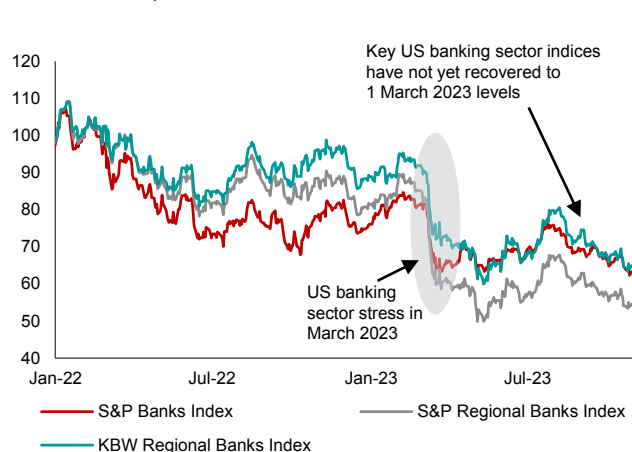


Source: Bloomberg Finance L.P.; AMRO staff calculations.

Note: VIX refers to Chicago Board Options Exchange's Volatility Index. MOVE refers to Merrill Lynch Option Volatility Estimate Index. CVIX refers to Deutsche Bank Currency Volatility Index. Data as of 31 October 2023.

Figure 1.5. US: Banking Sector Stock Indices

(Index, 1 January 2022 = 100)

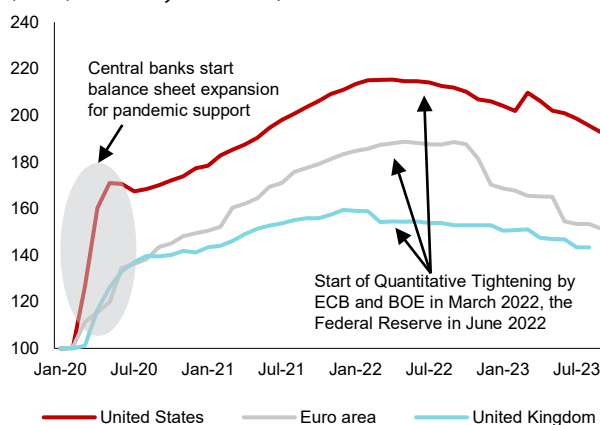


Source: Bloomberg Finance L.P.; AMRO staff calculations.

Note: KBW = Keefe, Bruyette, and Woods; S&P = Standard & Poor's. Data as of 31 October 2023.

Figure 1.6. Selected Advanced Economies: Balance Sheets of Major Central Banks

(Index, 31 January 2020 = 100)



Source: Haver Analytics; AMRO staff calculations.

Note: BOE = Bank of England; ECB = European Central Bank.

ASEAN+3 markets have weathered the storm from global markets

The impact of global market turbulence on regional assets was significant, though varied in scope and timing (Figure 1.7). Most regional equity and bond markets experienced smaller fluctuations during 2022–23 relative to those in US markets, partly because the monetary policy stance in ASEAN+3 economies was less hawkish than in the US. Most regional currencies weakened against the US dollar, especially during the second and third quarters of 2022, driven largely by a change in interest rate differentials as US policy rates rose at a faster pace. The spillovers from global markets, however, varied across regional markets. The largest spillovers from US equity markets and interest rate differentials were experienced by Korean equities and the yen respectively (Box 1.1).

In line with the rise in volatility and low returns in global markets, ASEAN+3 assets also generally experienced an increase in volatility amid poor returns. A marked rise in volatility in ASEAN+3 assets and a broad fall in returns is

apparent from the time period of the pandemic-induced market stress to recovery (April 2020 to December 2021) to the period of the Fed's monetary tightening (January 2022 to latest) (Figure 1.8). ASEAN equity markets were the exception; on average, volatilities declined. Annualized bond returns in ASEAN were lower than before but still better than returns in Plus-3 counterparts.

Beyond global common factors, market divergence across economies in the region also reflected idiosyncratic factors since January 2022. Market concerns around China's growth outlook have contributed towards the weakness in its equity markets and the renminbi. Indonesian equity markets found support from rising commodity prices while Korean equities underperformed due to weakness in the global tech sector weakness and credit stress in the fourth quarter of 2022. The Singapore dollar was supported by proactive tightening by the Monetary Authority of Singapore while Lao PDR external

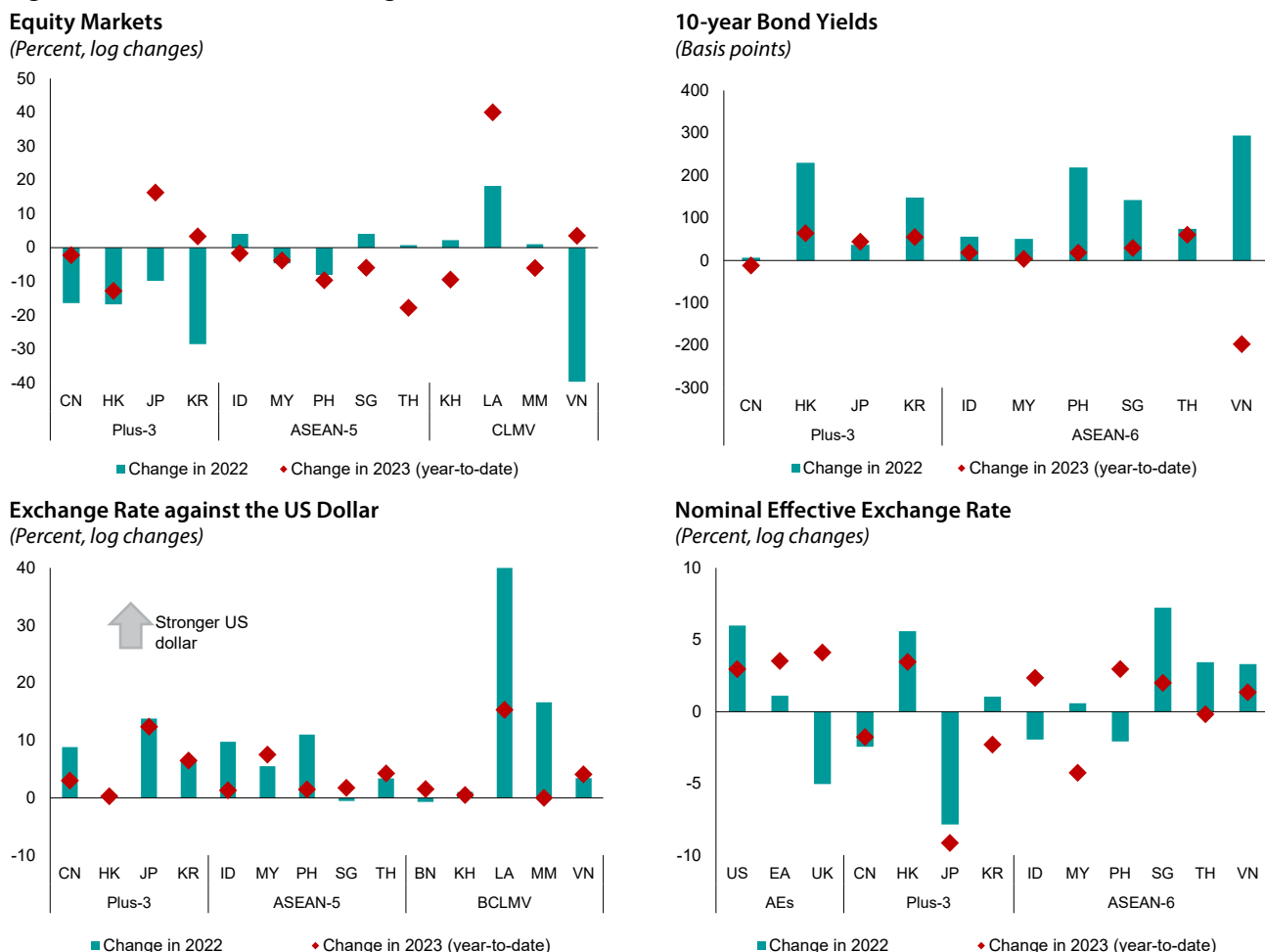
imbalances contributed to sharp depreciation of the kip. Less aggressive monetary tightening in Indonesia and Malaysia and monetary easing in China supported bond markets, whereas inflationary pressures in the Philippines pushed yields much higher. Generally speaking, ASEAN-5 equities and currencies have tended to be more stable than those in Plus-3.

The divergence between market conditions in Plus-3 and ASEAN-5 can be explained using estimates of market stress. Based on the methodology laid out in Hennig, Iossifov and Varghese (2023),² the estimated indicator shows that the market stress declined across economies after the initial impact of the pandemic but started to rise again heading into and during the Fed’s 2022 hiking cycle (Figure 1.9). The primary source of increased market stress across the region was FX market volatility, with property sector stress (proxied by real house price growth) contributing significantly to stress in Plus-3 markets (Figure 1.10). In 2023, market sentiment has improved in all components of the market stress index, (Figure 1.11),

with the breakdown indicating that improved sentiment is primarily driven by lower real domestic bond yields and lower FX volatility. While market concern around known risks appears to be receding, hidden global risks could have a material impact on ASEAN+3 financial stability. That said, absent these, ASEAN+3 assets appear to be positioned to perform well amid improved valuations (Box 1.2) and lower growth risks (AMRO 2023a).

Meanwhile, ASEAN+3 property prices have been volatile, rising before the pandemic and then correcting during monetary tightening. Housing prices surged following the pandemic outbreak supported by loosening monetary conditions and supply constraints (Chapter 2). While housing price gains then began to wane, the turning points varied across economies. Growth of housing prices in most ASEAN economies turned negative in the second quarter of 2021. Cooling housing prices were more evident in China, Hong Kong, and Korea. In contrast, Singapore property prices remained resilient despite tightening in global monetary conditions.

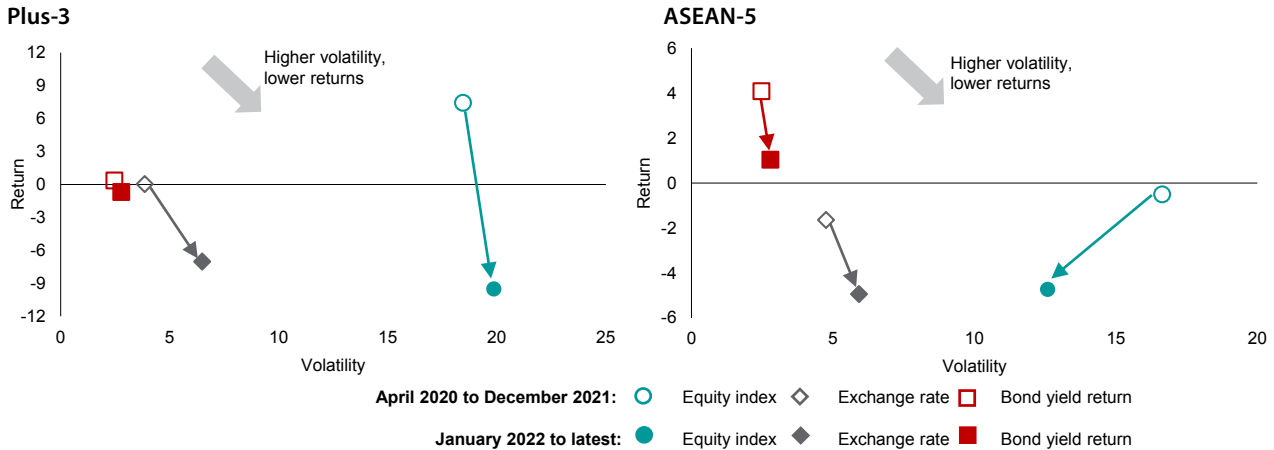
Figure 1.7. Selected ASEAN+3: Changes in Financial Markets, 2022 and 2023



Source: National authorities via Bloomberg Finance L.P.; Bank for International Settlements; Haver Analytics; AMRO staff calculations. Note: The DXY Index is used to determine the change in the US dollar. AEs = Advanced economies; BN = Brunei; CN = China; EA = Euro area; HK = Hong Kong; ID = Indonesia; JP = Japan; KH = Cambodia; KR = Korea; LA = Lao PDR; MM = Myanmar; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand; UK = United Kingdom; US = United States. VN = Vietnam. Data for 2023 (year-to-date) as of 31 October 2023.

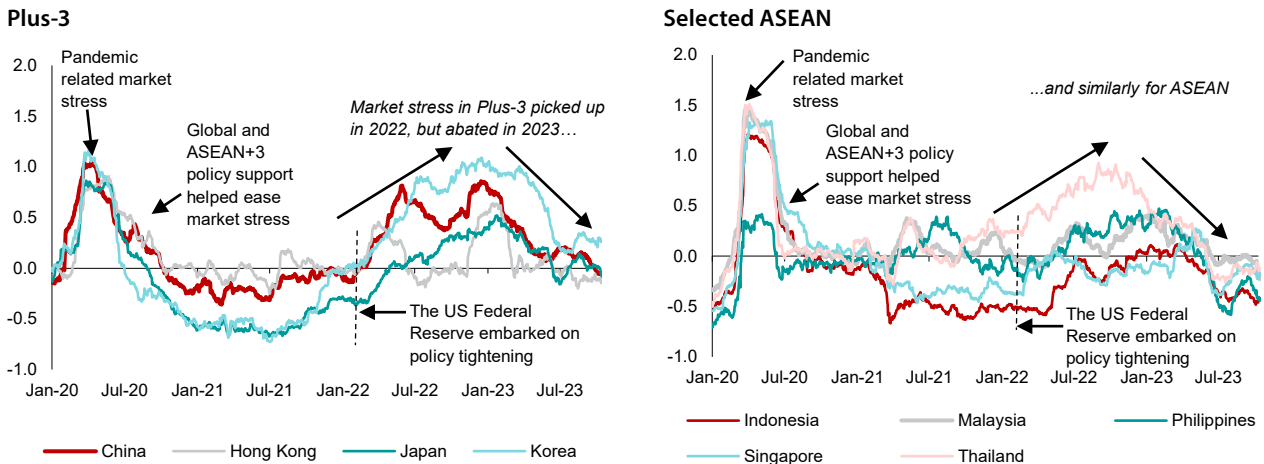
² The Market Stress Index is based on the Mispricing Risk (Refined) proposed in Hennig, Iossifov, and Varghese (2023) which attempts to capture the slack in financial conditions. The Mispricing Risk (Refined) is constructed using a simple average of indicators of price growth and volatility transformed into within-country percentiles. The measure of risk uses real equity market returns, equity market volatility, domestic sovereign bond yield volatility, sovereign FX risk spreads, FX market volatility and real house price growth. We introduce two additional parameters, real domestic government bond yield and growth of real effective exchange rate (REER), which are included in the construction of Mispricing Risk (Unrefined) as high frequency data are available. We also flip the sign of the resultant index so that higher values of the index indicate less slack in financial conditions to create the Market Stress Index.

Figure 1.8. Selected ASEAN+3: Realized Returns and Volatility in Financial Assets, 2020–2021 versus 2022–Now
(Percent, annualized)



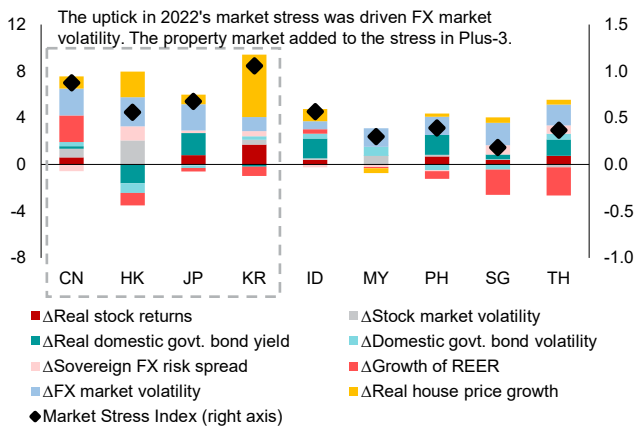
Source: Bloomberg, Haver Analytics; AMRO staff calculation.
Note: ASEAN-5 = Indonesia, Malaysia, Philippines, Singapore, and Thailand; Plus-3 = China, Hong Kong, Japan and Korea. The returns and volatilities for ASEAN-5 and Plus-3 are a simple average across the constituent markets. Latest data as of 31 October 2023.

Figure 1.9. Selected ASEAN+3: Market Stress Indicator
(Index)



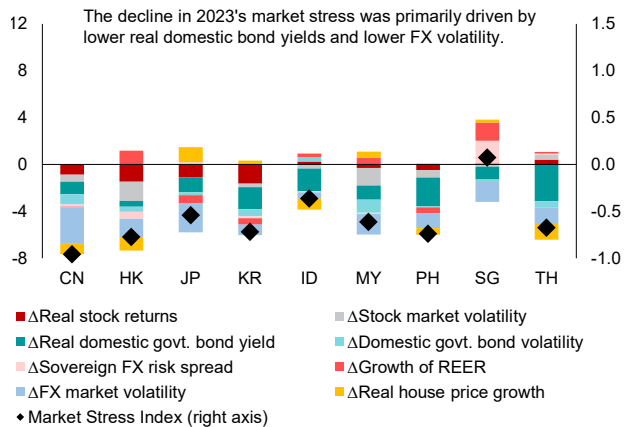
Source: Bloomberg Finance L.P.; Haver Analytics; AMRO staff calculations.
Note: The Market Stress Index is based on the Mispricing Risk (Refined) proposed in Hennig, Iossifov, and Varghese (2023) which attempts to capture the slack in financial conditions. The Mispricing Risk (Refined) is constructed using a simple average of indicators of price growth and volatility transformed into within-economy percentiles. The measure of risk uses real equity market returns, equity market volatility, domestic sovereign bond yield volatility, sovereign FX risk spreads, FX market volatility and real house price growth. We introduce two additional parameters, real domestic government bond yield and growth of real effective exchange rate (REER), which are included in the construction of Mispricing Risk (Unrefined) as high frequency data are available. We also flip the sign of the resultant index so that higher values of the index indicate less slack in financial conditions to create the Market Stress Index. Data as of 30 October 2023.

Figure 1.10. Selected ASEAN+3: Contributors to Change in Market Stress in 2022
(Index)



Source: Bloomberg Finance L.P.; Haver Analytics; AMRO staff calculations.
Note: A rise in stock market volatility, real domestic government yields, domestic government bond yield volatility, sovereign FX risk spread, and FX market volatility; and a fall in real stock market returns, growth of REER and real house prices contribute to higher market stress. FX = foreign exchange; govt. = government; REER = real effective exchange rate; Δ = change in. CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KR = Korea; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand; VN = Vietnam.

Figure 1.11. Selected ASEAN+3: Contributors to Change in Market Stress in 2023, January to October
(Index)



Source: Bloomberg Finance L.P.; Haver Analytics; AMRO staff calculations.
Note: A rise in stock market volatility, real domestic government yields, domestic government bond yield volatility, sovereign FX risk spread, and FX market volatility; and a fall in real stock market returns, growth of REER and real house prices contribute to higher market stress. FX = foreign exchange; govt. = government; REER = real effective exchange rate; Δ = change in. CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KR = Korea; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand; VN = Vietnam. Data as of 30 October 2023.

Box 1.1:

Correlations of ASEAN+3 Asset Prices with US and China Markets

Spillovers from global markets generally increased for ASEAN+3 markets after the pandemic. ASEAN+3 markets (across asset classes) were less correlated with the global markets during 2020 and 2021 when domestic COVID-19 developments were more dominant. In 2022, however, the market focus shifted to high inflation and the Federal Reserve tightening. This deepened the correlation with US counterparts in the region's asset markets in. In 2023, these correlations have strengthened further for bond and currency markets, although have weakened somewhat in equity markets (Figure 1.1.1).

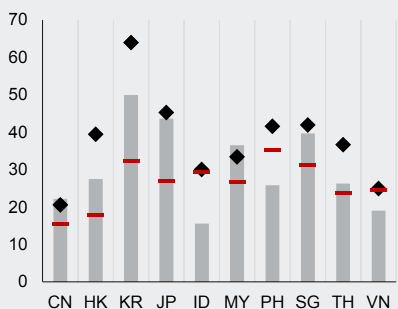
US dollar component is common between renminbi and other currencies, but recent correlations have tended to remain stable or rise for most currencies. On the other hand, the correlations between China and other regional equity markets are weaker in 2023 than in 2022, while those between China and other regional bond yields are mixed.

Similar analysis of China and other ASEAN+3 markets shows that the correlation between the renminbi and other ASEAN+3 exchange rates has strengthened (Figure 1.1.2). Indeed, a

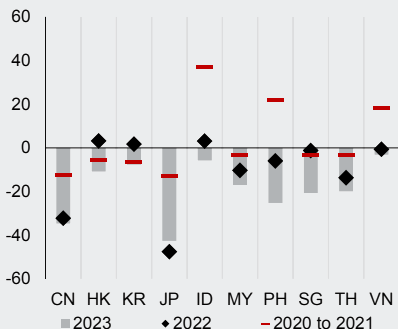
The weaker correlation during 2023 in equities (against the US and China) shows that market participants have shifted their focus to idiosyncratic factors. Easing monetary policies in China and Vietnam have been key in reducing correlations between their bonds markets and US Treasuries. Rising Treasury yields, however, continue drive US dollar strength and have pushed correlations between exchange rates and interest rate differentials higher.

Figure 1.1.1. Spillovers from the US to ASEAN+3 Markets

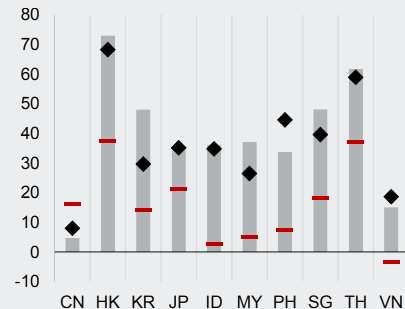
Correlation between Daily Changes in US and ASEAN+3 Equity (Percent)



Correlation between Daily Changes in Interest Rate Differentials and ASEAN+3 Foreign Exchange (Percent)



Correlation between Daily Changes in US Treasury Yields and ASEAN+3 Bond Yields (Percent)

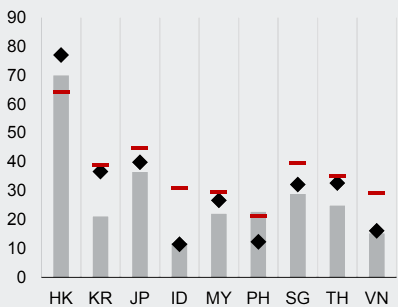


Source: Bloomberg Finance L.P.; Haver Analytics; AMRO staff calculations.

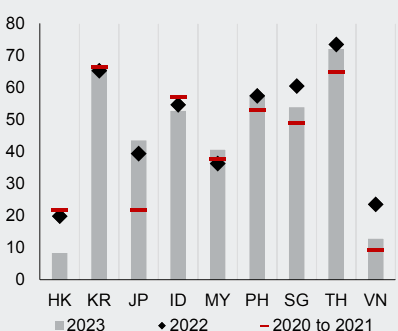
Note: The correlations are calculated using daily log changes for equities and exchange rates (against the US dollar); and daily change in yields and interest rate spreads. For equities, the correlations are on daily changes of benchmark indices, adjusted to minimize distortions from different snap timings. The correlations for daily changes in exchange rates are calculated against the daily change in spread between US Treasury 10-year and domestic government 10-year bond yields. The correlations for daily changes in bond yields are calculated using 10-year yields of US Treasury and domestic government bonds. CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KR = Korea; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand; VN = Vietnam.

Figure 1.1.2. Spillovers from China to ASEAN+3 Markets

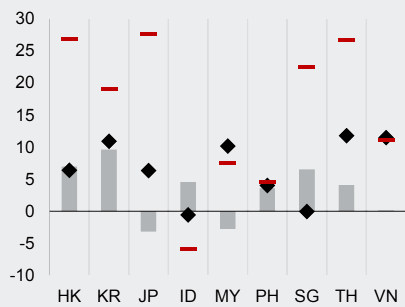
Correlation between Daily Changes in China Stocks and Other ASEAN+3 Equity (Percent)



Correlation between Daily Changes in RMB Exchange Rate and Other ASEAN+3 Foreign Exchange (Percent)



Correlation between Daily Changes in CGB Yields and Other ASEAN+3 Bond Yields (Percent)



Source: Bloomberg Finance L.P.; Haver Analytics; AMRO staff calculations.

Note: The correlations are calculated using daily log changes for equities and exchange rates (against the US dollar); and daily change in yields and interest rate spreads. For equities, the correlations are on daily changes of benchmark indices. The correlations for daily changes in bond yields are calculated using 10-year yields of China government and domestic government bonds. CGB = China government bond; HK = Hong Kong; ID = Indonesia; JP = Japan; KR = Korea; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand; VN = Vietnam.

The pace of monetary policy tightening has generally slowed

Central banks in **the region have been less aggressive in tightening** their policy rates than the Fed, given the lower inflationary pressures and increased buffers in the external sector. Headline inflation in ASEAN+3 rose to a nine-year high in 2022 (AREO 2023b), but has been lower overall than in the US. With safety nets improving and a more resilient external sector since the Asian financial crisis, central banks in the region can focus more on managing domestic economic and financial conditions and worry less about currency devaluation and capital outflows. Indeed, while foreign currency reserves in the region have declined somewhat following the aggressive Fed policy tightening and resultant US dollar strength, the region's foreign exchange reserves remain generally ample, though with some exceptions (Figures 1.12 and 1.13).³

As such, the pace of monetary policy tightening in the region has generally eased during 2023, compared with 2022, though to different levels across economies (Figure 1.14). A varied speed in pace of disinflation across economies, coupled with differences in their economic and financial conditions and monetary policy frameworks (Tan 2023), led to differentiated monetary reactions. In particular:

- Thailand was an exception in the region as it increased rates by more in 2023 than in 2022. The increase in rates started later than regional peers as economic recovery from the pandemic was relatively weak given that inbound tourism was slow to pick up again.
- Korea was the early hiker because of concerns about the effects of higher-than-expected inflation and increased household debt, and had relatively less pressure to follow the Fed in 2023.
- Singapore and Brunei tightened their monetary policy stance in a manner more synchronized with the Fed as the anchor of their monetary policy on exchange rate management. As interbank rates in Hong Kong largely track their US dollar counterparts under the Linked Exchange

Rate System, Hong Kong's monetary condition was also tightened.

- Meanwhile, Japan, China, and Vietnam deviated from the global tightening cycle by either maintaining or conducting monetary easing. Notably, the Bank of Japan has kept its negative interest rate policy unchanged and its balance sheet as a percentage of GDP remains much larger than for other major central banks (Figure 1.15).⁴ China (Figure 1.16) and Vietnam conducted policy rate cuts mainly to support economic recovery.⁵

Market pricing implies that **monetary policy tightening is approaching the end** in the US and most economies in the region. The Fed is expected to stay on hold for the next few months and pivot toward an easing cycle from the third quarter of 2024. Markets currently price in a cumulative 75 basis points policy rate cut by January 2025 (Figure 1.17). In the ASEAN+3, while markets raised the odds of further policy rate hikes in Korea, and Malaysia, and expect the central bank in Thailand to remain on hold over the next 12 months, investors expect the Philippines to ease in the same period as headline inflation moderated as a trend while GDP growth in the second quarter of 2023 was below expectations. China is expected to continue policy easing to support its economy in the near term. Japan is widely expected in 2024 to end the negative interest rate policy introduced in 2016, as inflation has breached its 2 percent target and is expected to remain elevated although the Bank of Japan judges that sustainable and stable achievement of the price stability target 2 percent has not yet come in sight and thinks it is necessary to patiently continue with monetary easing under the framework of yield curve control. (Figure 1.18). That said, caution is warranted in interpreting the implied policy paths given that investor sentiment could be volatile amid an uncertain economic outlook for the global economy and that market pricing could reflect changes in technical factors, such as liquidity and investor positioning of underlying instruments.

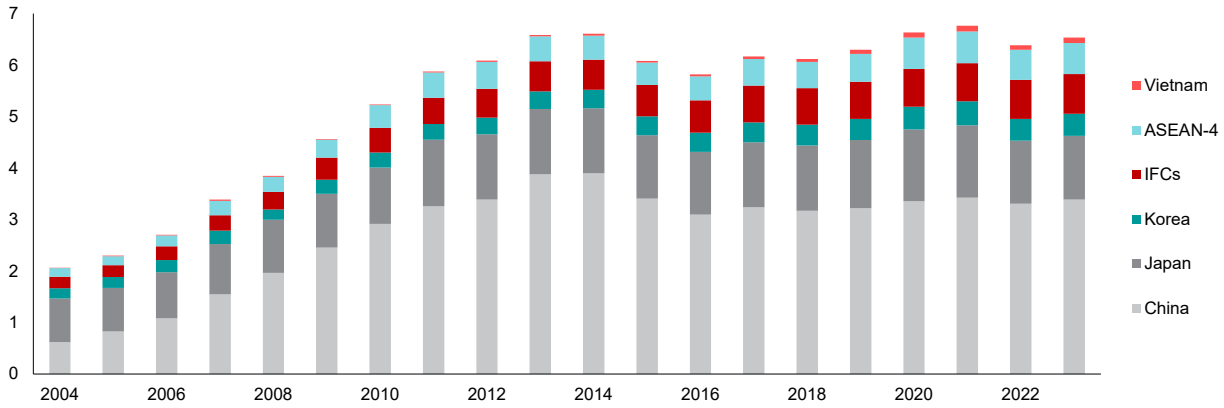
³ According to the International Monetary Fund's thresholds on reserves adequacy, the reserve coverage is challenging in Lao PDR in terms of month of imports. In Malaysia, the relatively low reserve cover to external short-term debt is mitigated by the significant holdings of liquid external assets and the profile of short-term external debt liabilities. Most of the debt is held by banking institutions and around a third consists of interbank borrowings within the same banking group, which reduces rollover risk. In Japan, Hong Kong, and Singapore, although official reserves are low on external short-term debt, public institutions and private businesses hold sizable external assets.

⁴ To mitigate the side effects of the Bank of Japan's sizable Japanese government bond (JGB) purchases on bond market functioning and thereby to add to the sustainability of monetary stimulus measures, the BOJ in December 2022 decided to widen the 10-year JGB target yield band to around 50 basis points from around 25 basis points and in July 2023 to introduce greater flexibility to yield curve control operations with an effective cap of the 10-year JGB yield at 100 basis points. The cap at 100 basis points was further tweaked in October 2023 to be an upper bound as a reference rather than a strict cap.

⁵ Year to date, the People's Bank of China cut the 7-day repo rate by 20 basis points and guided banks to lower both one-year and five-year loan prime rates by 20 and 10 basis points, respectively. The State Bank of Vietnam cut its policy rate four times and lowered the main refinancing rate by a total of 150 basis points.

Figure 1.12. Selected ASEAN+3: Size of Foreign Exchange Reserves

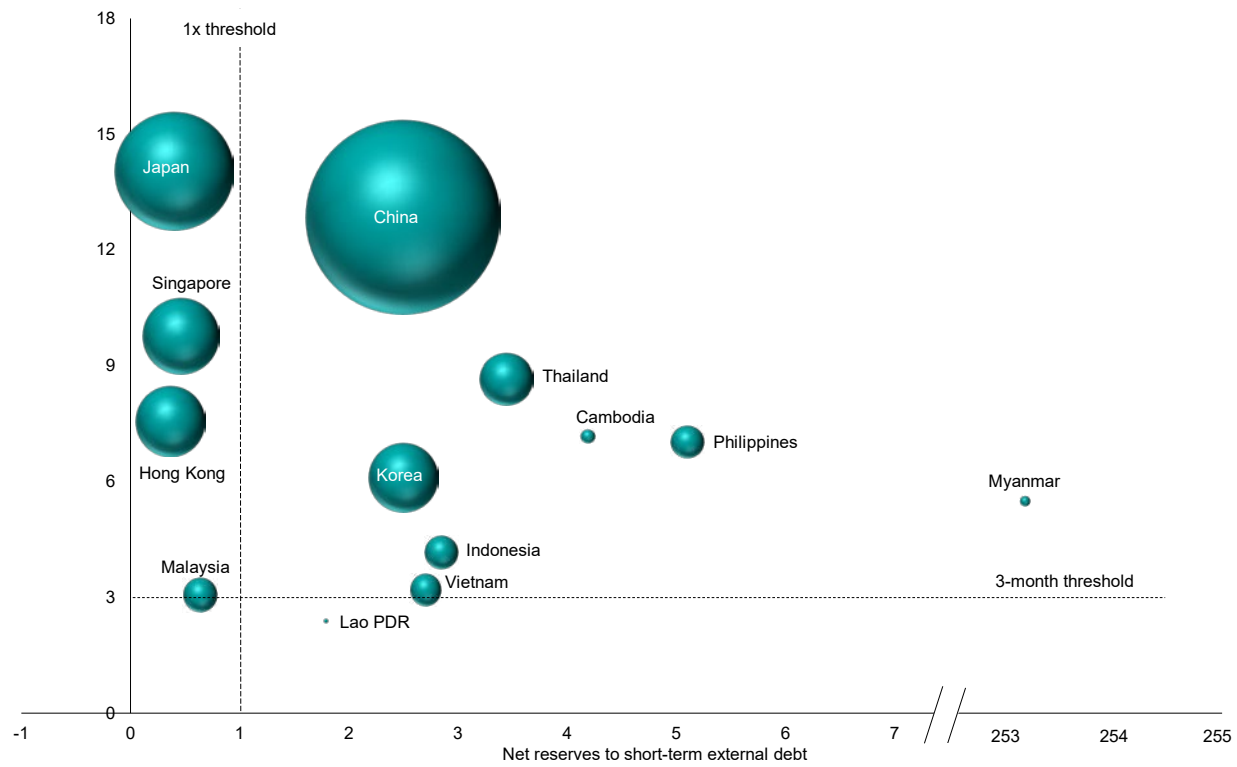
(Trillions of US dollars)



Source: National authorities; IMF; AMRO staff calculations.
 Note: ASEAN-4 = Indonesia, Malaysia, Philippines, and Thailand; International financial centers (IFCs) = Hong Kong and Singapore

Figure 1.13. ASEAN+3: Reserve Adequacy

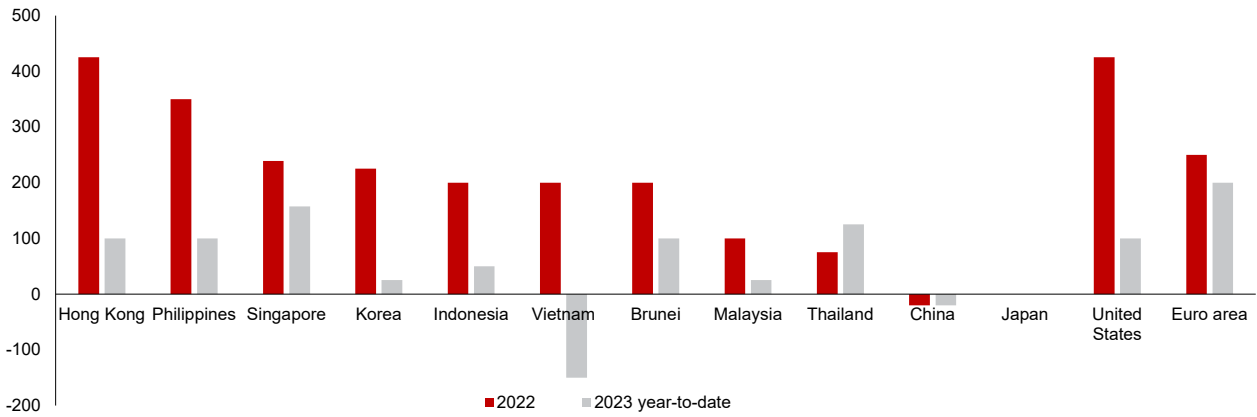
Months of goods and services imports



Source: National authorities; International Monetary Fund; World Bank; AMRO staff calculations.
 Note: Data for reserves are sourced from either national authorities or IMF IFS database and they are as of September 2023, except Cambodia, Vietnam (July 2023), Lao PDR (June 2023) and Myanmar (March 2021). Data for short-term external debt are sourced from IMF Quarterly External Debt Statistics database and they are as of Q2 2023, except China, Thailand (Q1 2023), Laos, Myanmar and Vietnam (end-2021). Data for goods and services imports are sourced from either national authorities or IMF IFS database and they are as of Q2 2023, except Myanmar (Q3 2020). The size of the bubble denotes the relative amount of each economy's net international reserves in US dollars.

Figure 1.14. Selected ASEAN+3: Policy Rate Changes, 2022 and 2023

(Basis points)

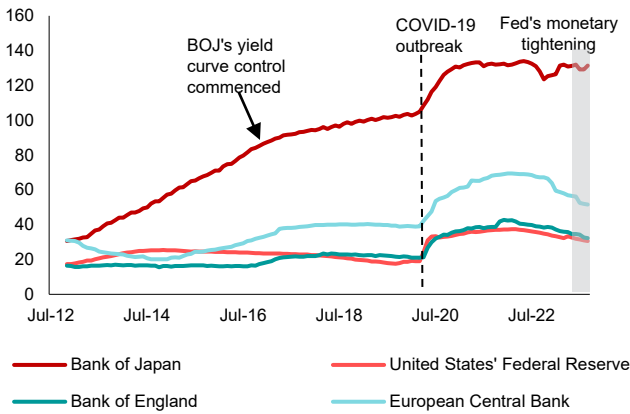


Source: National authorities via Haver Analytics; AMRO staff calculations.

Note: For Vietnam, we use the main refinancing rate. For Brunei, we use the standing facility lending rate. For Singapore, we use the overnight rate average. For China, we use the People's Bank of China (PBC) 7-day reverse repurchase yield. For Hong Kong, we use the Base Rate. Data for 2023 as of 31 October.

Figure 1.15. Selected Advanced Economies: Size of Balance Sheets of Central Banks

(Percent of GDP)

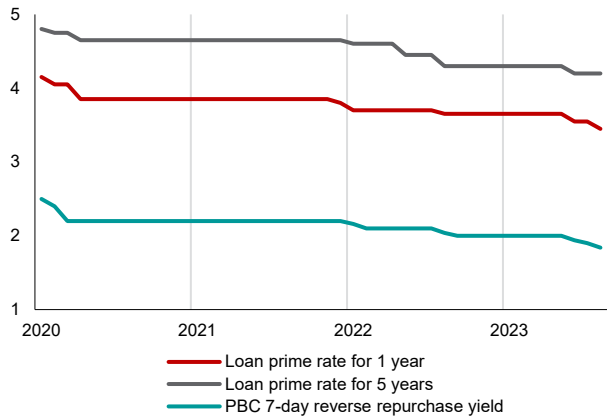


Source: Bloomberg Finance L.P.

Note: The size of the balance sheet as a percentage of GDP is reported as the month-end value of total assets divided by a four-quarter average of interpolated nominal GDP. Data as of September 2023. BOJ = Bank of Japan; Fed = US Federal Reserve.

Figure 1.16. China: Key Interest Rates

(Percent)

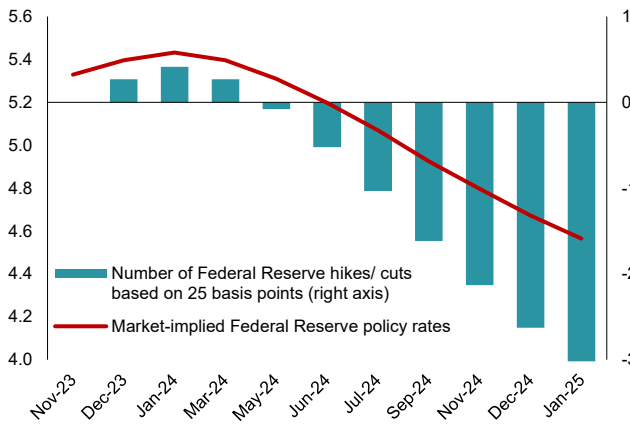


Source: People's Bank of China (PBC) via Haver Analytics

Note: Data as of October 2023.

Figure 1.17. US: Market-implied Policy Rates at Forthcoming FOMC Meetings

(Percent; number)

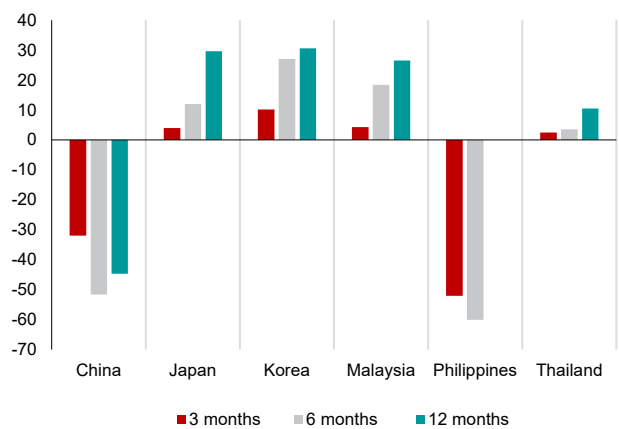


Source: Bloomberg Finance L.P.

Note: FOMC = Federal Open Market Committee. Data as of 31 October 2023.

Figure 1.18. Selected ASEAN+3: Market-implied Changes in Policy Rates

(Basis points)



Source: Bloomberg Finance L.P.; AMRO staff calculation

Note: Bars denote the cumulative changes in market-implied policy rates in a respective time horizon. We do not use the 12-month data point for the Philippines due to its pricing irregularities. Data as of 31 October 2023.

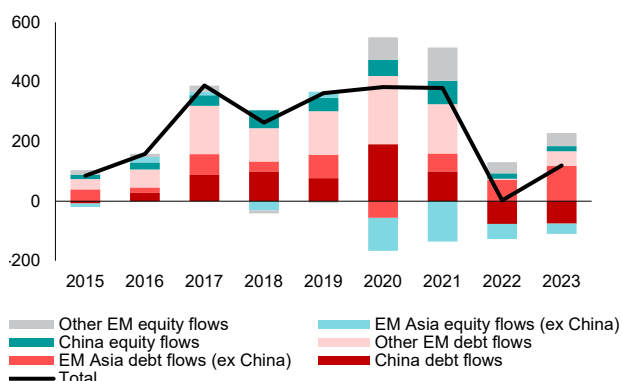
Portfolio investments ebb and flow

Emerging market (EM) portfolio inflows fell sharply in 2022 (Figure 1.19) as the Fed embarked on its monetary tightening cycle amid resurging inflation. Inflows into equity and debt markets fell sharply for most emerging markets. Notably, China's debt markets saw large outflows in 2022 (Figure 1.20), which have continued in 2023 despite the Fed easing its ultra-hawkish stance. Foreign interest in Chinese debt markets seems fixated on the spread against US Treasury yields, and its narrowing has made Chinese bonds less attractive to foreign investors. Optimism around China's reopening helped boost equity inflows in December 2022 and January 2023, but the growth momentum has since faltered. Recent market turbulence caused by concerns over the growth outlook, US-China tensions, and the property sector can lead to large outflows from Chinese equity markets.

Outside China, the recovery in debt flows of ASEAN+3 markets has been strong but inflows into equity markets have eased. There was significant heterogeneity in the flow backdrop among ASEAN+3 markets through 2022 and 2023 (Figures 1.21 and 1.22). Since monetary policy was a key common driver across many economies other idiosyncratic factors led to the diverse volumes.

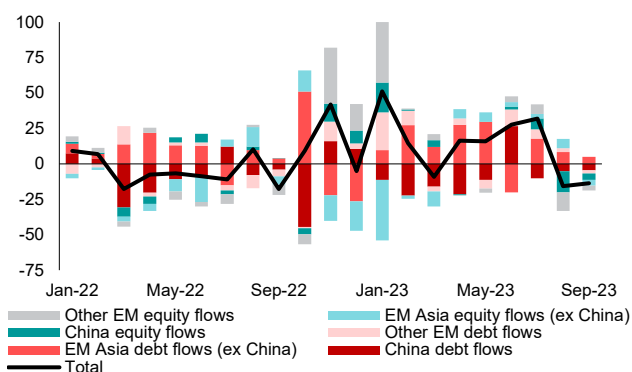
- The Bank of Thailand's delayed policy tightening (relative to regional peers) along with a reopening of the economy for tourists provided a favorable backdrop for equity and debt inflows in 2022 but the gradual shift toward hawkishness and political uncertainty drove outflows in 2023.
- Korean bond market inflows accelerated in 2023 amid expectations the Bank of Korea would ease monetary conditions. If the easing materializes, amid stable US interest rates, near-term returns of Korean bonds could outweigh the yield pickup provided by US Treasuries. The other important driver was sectoral developments, with equity outflows in 2022 and inflows in 2023 reflecting the performance of global tech stocks.
- Indonesia's strong equity inflows have reflected strong commodity prices. Valuations played an important role in determining flows into Indonesian and Malaysian bonds, both experienced outflows when valuations worsened in 2022 but that reversed in 2023 (Box 1.2).

Figure 1.19. Emerging Markets: Annual Portfolio Flows
(Billions of US dollars)



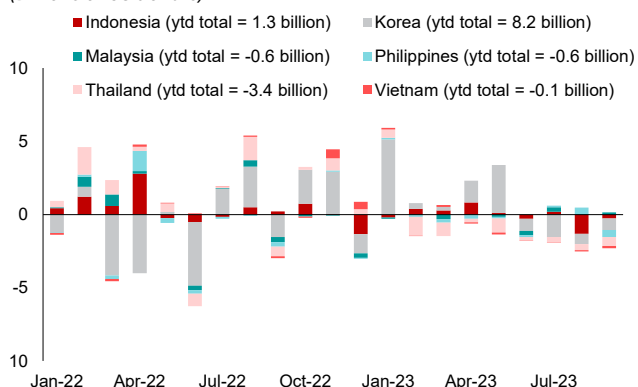
Source: The Institute of International Finance via Haver Analytics; AMRO staff calculations. Note: Data for 2023 as of September 2023. EM = emerging market.

Figure 1.20. Emerging Markets: Monthly Portfolio Flows
(Billions of US dollars)



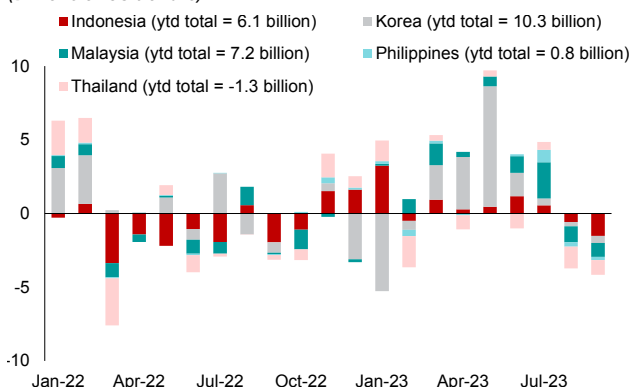
Source: The Institute of International Finance via Haver Analytics; AMRO staff calculations. Note: Data for 2023 as of September 2023. EM = emerging market.

Figure 1.21. Selected ASEAN+3: Monthly Equity Flows
(Billions of US dollars)



Source: National authorities; Bloomberg Finance L.P.; Haver Analytics; AMRO staff calculations.

Figure 1.22. Selected ASEAN+3: Monthly Debt Flows
(Billions of US dollars)



Source: National authorities; Bloomberg Finance L.P.; Haver Analytics; AMRO staff calculations. Note: The debt flows data includes foreign investments in local currency debt only. The data consists only of government bonds for Indonesia and Philippines; and government and corporate bonds for other markets.

Box 1.2:

Valuations of Regional Equity and Bond Markets

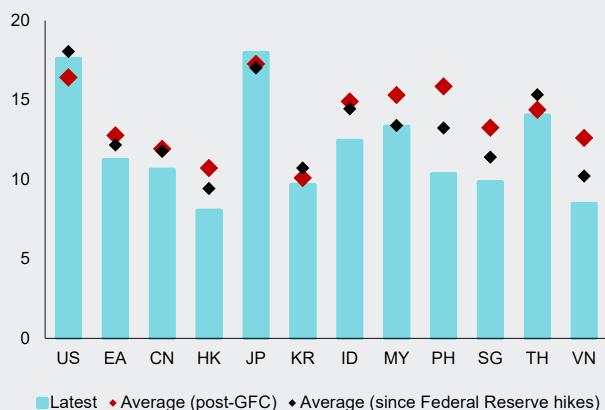
ASEAN+3 asset valuations have become more attractive amid a hawkish stance from the Federal Reserve.

- **Equity market ¹:** The US stock market's price-to-earning (P/E) ratio fell close to its post-Global Financial Crisis average in 2022 when the Fed maintained its ultra-hawkish stance. However, as that stance eased, equity markets recovered and helped P/E ratios improve. The current P/E ratio is higher than the average P/E seen after global financial crisis (Figure 1.2.1). On the other hand, US Treasury yields rose significantly and eroded the equity risk premium (Figure 1.2.2), which is now close to its lowest level since the GFC. Regional equity markets appear to be more attractive than their US counterparts. P/E ratios for most regional equity markets have not recovered as strongly as the US and are below their post-global financial crisis valuations. Most of these markets also provide a decent pickup over government bonds and should remain attractive to domestic investors.
- **Bond markets:** The sharp rise in US Treasury yields reduced the spread of local government bonds over US bonds

(Figure 1.2.3), and has been among factors that also pushed regional bond yields higher (Box 1.1). The rise in US Treasury yields has been sharp enough that, barring Indonesia and the Philippines, ASEAN+3 10-year bond yields are now lower than the US and are much lower than the postcrisis average. However, since the US yield curve is inverted, foreign investors can hedge exposure to ASEAN+3 currencies for an additional yield pickup, which enhances yields on local currency bond investments (Figure 1.2.4).

Valuations play an important role in investor decision-making but volatility in financial markets can override the valuation advantage for ASEAN+3 markets. ASEAN+3 equity and bond valuations appear attractive as compared to their own historical valuations and to US assets. However, valuations can benefit the assets only in periods of low market volatility. When volatility rises, the risk adjusted returns due to attractive valuations diminish and investors seek safer assets. In a low volatility environment, better valuations will be supportive of ASEAN+3 asset prices.

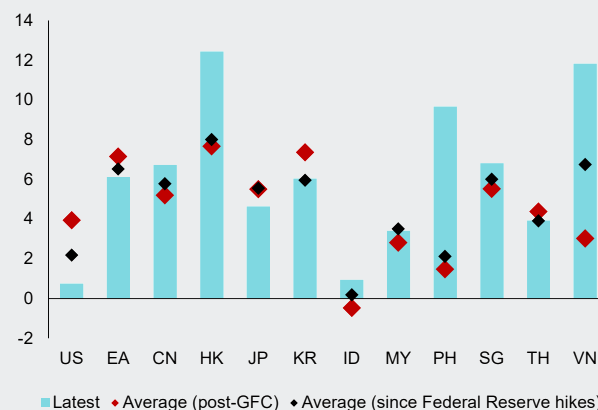
Figure 1.2.1. US, Euro area, and Selected ASEAN+3: Forward Looking Price-to-Earnings Ratio (Ratio)



Source: Bloomberg Finance L.P.; AMRO staff calculations.

Note: The forward-looking price-to-earnings ratio used is for the benchmark equity indices of the respective markets. EA = Euro area; CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KR = Korea; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand; US = United States; VN = Vietnam. Data as of 31 October 2023.

Figure 1.2.2. US, Euro area, and Selected ASEAN+3: Equity Risk Premium (Percent)



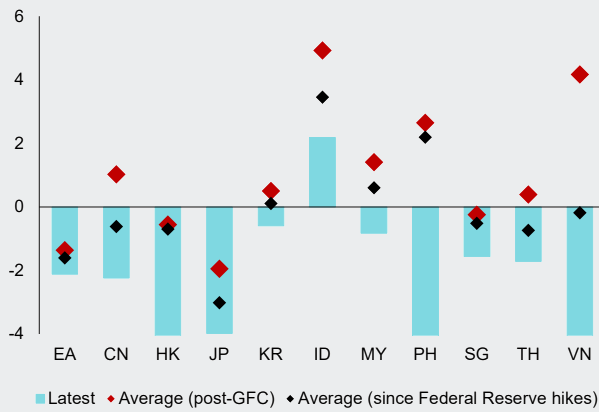
Source: Bloomberg Finance L.P.; AMRO staff calculations.

Note: The Equity Risk Premium is calculated as the difference between forward-looking earnings-per-share for benchmark equity indices of the respective markets and the domestic 10-year bond yield. EA = Euro area; CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KR = Korea; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand; US = United States; VN = Vietnam. Data as of 31 October 2023.

This author of this box is Prashant Pande.

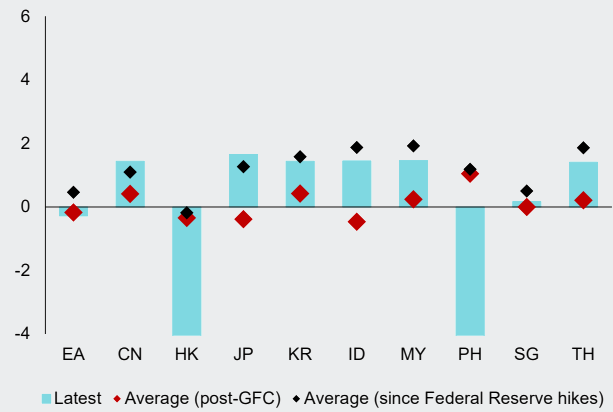
¹ Higher price-to-earnings ratio means that the stock is expensive; higher equity risk premium implies that the expected yield on the stock is more attractive than the government bond yield.

Figure 1.2.3. Euro area and Selected ASEAN+3: 10-year Yield against 10-year US Treasury Yield (Basis points)



Source: Bloomberg Finance L.P.; AMRO staff calculations.
 Note: EA = Euro area; CN = China; GFC = global financial crisis; HK = Hong Kong; ID = Indonesia; JP = Japan; KR = Korea; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand; VN = Vietnam. Data as of 31 October 2023.

Figure 1.2.4. Euro area and Selected ASEAN+3: FX Hedged 10-year Yield against 10-year US Treasury Yield (Basis points)



Source: Bloomberg Finance L.P.; AMRO staff calculations.
 Note: The domestic 10-year bonds are assumed to be FX hedged for one-year using FX forwards. EA = Euro area; CN = China; GFC = global financial crisis; HK = Hong Kong; ID = Indonesia; JP = Japan; KR = Korea; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand; VN = Vietnam. Data as of 31 October 2023.

II. Risks

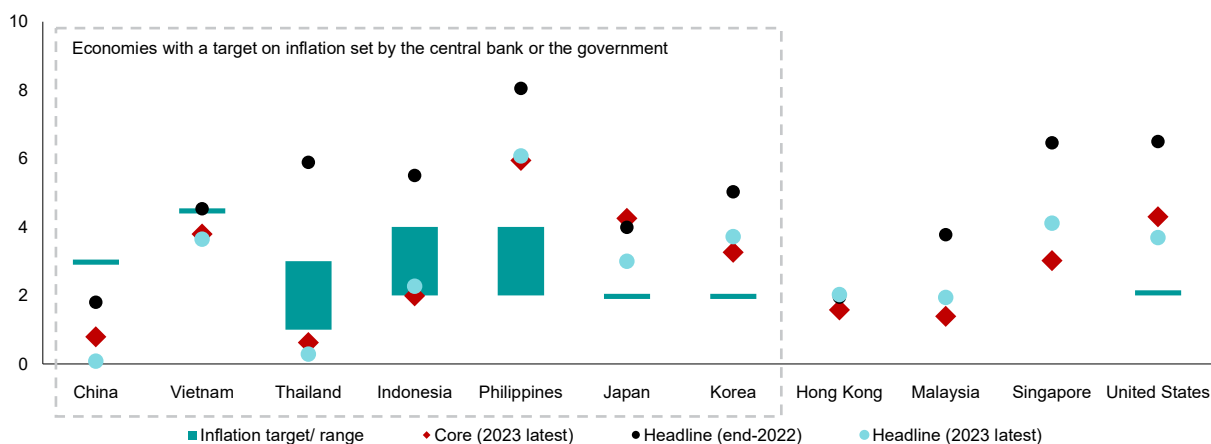
Inflation may persist and see a resurgence

Disinflation varied across economies in the region in 2023 (Figure 1.23). Headline inflation in 2023 has declined in ASEAN+3 after rising rapidly in 2022, though at a different pace across economies, while Indonesia and Thailand have brought headline inflations back to or below official target range, it remains above the price stability target in Korea, Japan, and the Philippines. China, which was little affected by global inflationary pressures in 2022, registered negative inflation in July 2023 but inflation turned positive in August before retreating to zero percent. Disinflation in core prices has also varied from economy to economy, depending on the degree of passthrough from headline inflation and second-round effects from wage growth and inflation expectations.

Against this backdrop, it is **still too early to claim victory over inflation in the region**. Upside risks to inflation remain. A tight labor market and the lagged effects of high inflation could push up wages and in turn spur inflation. The recent uptick in commodity prices (Box 1.3) poses another risk that could keep inflation high for longer.

A resurgence in inflation could put regional central banks in the challenging situation of having to balance multiple objectives in managing inflation, supporting economic growth, and ensuring financial stability. Inflationary pressure could arise from various sources such as exchange rate fluctuations, global commodity price increases, supply constraints (such as the result of weather-related issues), geopolitical tensions including the current one in the Middle East (which may exacerbate supply constraints and disrupt trade) and second-round inflation effects due to inflation expectations and nominal wage growth. Such a scenario might compel central banks to either intensify or maintain their restrictive monetary policies. This, in turn, would limit their flexibility to simultaneously support economic growth and financial stability. Furthermore, if major global central banks opt to tighten monetary policies in response to inflation, this could add to the headwinds faced for regional central banks trying to achieve a balance between controlling inflation and supporting growth.

Figure 1.23. Selected ASEAN+3: Headline and Core Inflation, Inflation Targets
(Percent)



Source: National authorities via Haver Analytics.

Note: Malaysia, Singapore and Hong Kong do not have an inflation target. Vietnam targeted a ceiling of 4.5 percent annual inflation in 2023. Headline and core inflation data for China, Japan, Korea, Indonesia, the Philippines, Thailand and Vietnam are as of September 2023. Data for the other economies are as of August 2023.

Box 1.3:

The Uptick in Commodity Prices

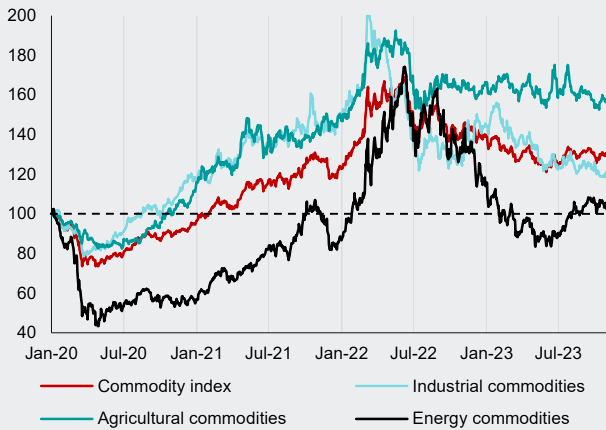
Commodity prices, in general, have eased since 2022. The surge in prices in 2022 was a combination of resurgent post-pandemic demand and supply chain disruptions. As these factors eased, commodity prices also normalized but have settled at levels much higher than pre-pandemic prices (Figure 1.3.1). The fall in commodity prices since mid-2022 has also been an outcome of poor demand outlook as markets positioned for weaker growth (even recession) as global central banks tightened monetary policy.

Looking at specific commodities (Figure 1.3.2), some price rises for crude oil and copper have occurred, while surges in rice prices are related to weather and an export ban from

India. A continued resurgence cannot be ruled out as speculative net long positions are building (or net short positions are reducing) in some of these commodities (Figure 1.3.3). A closer look at oil prices shows the recent uptick is driven by supply side factors with minimal contributions from demand (Figure 1.3.4), which includes the geopolitical tensions which have increased since October 2023. Similarly, factors driving rice prices higher are related to weather conditions (Jadhav 2023), which have constrained supplies. Nevertheless, these commodity price rises can create inflationary pressures—or at the least decrease deflationary pressures—in the global economy.

Figure 1.3.1. Major Commodity Groups: Price Trends since 2020

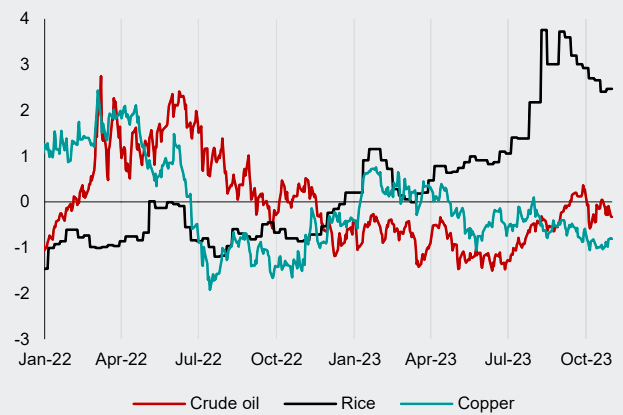
(Index, 1 January 2020 = 100)



Source: Bloomberg Finance L.P.; AMRO staff calculations. Note: The indices are compiled by Bloomberg for broad categories of commodities. Data as of 31 October 2023.

Figure 1.3.2. Selected Commodities: Price Trends since 2022

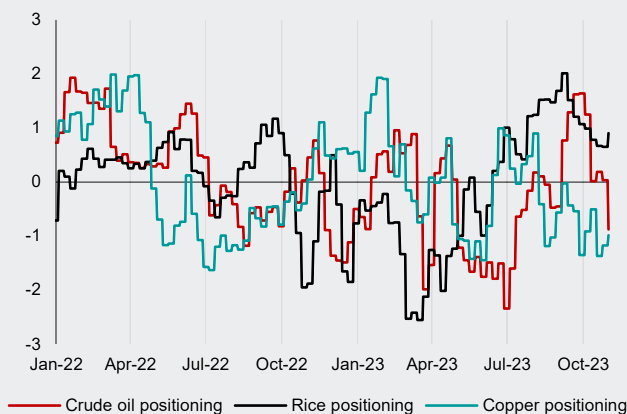
(Z-score)



Source: Bloomberg Finance L.P.; AMRO staff calculations. Note: The first contract price is used for crude and copper prices, The price for rice used is based on white rice (5 percent) export price provided by Thailand's commerce ministry. The z-score is calculated for the prices from 1 January 2022 to latest. Data as of 31 October 2023.

Figure 1.3.3. Selected Commodities: Net Positions of Money Managers in Futures and Options

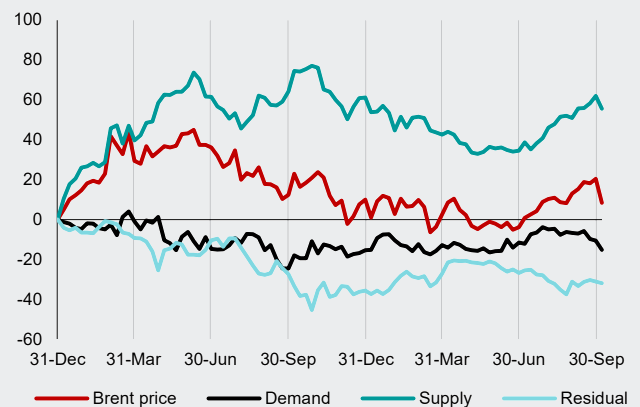
(Z-score)



Source: Bloomberg Finance L.P.; AMRO staff calculations. Note: Data as of 31 October 2023.

Figure 1.3.4. Oil Prices: Decomposition of Price Changes in Supply and Demand Factors

(Basis points)



Source: New York Federal Reserve; AMRO staff calculations. Note: Data as of 31 October 2023.

Markets may need to adjust to the “higher-for-longer” new normal

The Fed may be closer to the end of its tightening cycle but **the risk of further tightening cannot be dismissed** and uncertainty remains over how long interest rates will remain elevated. The market pricing for the Fed policy rate and its own projections show that the policy rate is close to (if not at) the peak. However, the risk of further hikes cannot be ignored. The Fed’s policy rate projections have risen steadily since it embarked on a tightening path. An upward revision to projections in the June Federal Open Market Committee meeting came as a surprise, after the US regional bank turmoil in March when credit conditions would have tightened (Figure 1.24). Since then, the policy rate projection for end-2024 has been revised higher in September and a further upward revision in the projections cannot be ruled out given a strong US economy, robust labour market, and the risk of a resurgence of inflation. Even if the Fed pauses, markets will need to price out rate cuts in 2024. Momentum in the Fed dot plots suggests that the Fed may raise its forecasts for end-2024 policy rates, and currently implies a cut of about 50 basis points over 2024. The market will likely follow them.

Market evaluation of the Fed’s reaction function has changed over the years. One recent trend in the interplay between market expectations and the Fed’s policy rate forecasts has been the convergence between the two as markets chase the projections. From 2013 to 2017, markets typically would price in a less hawkish Fed stance than the Fed’s median projections, and the actual interest rate rise was even lower. However, during 2017–2018 (the mid- and late- stages) of the 2015–2018 hiking cycle, the realized end-year policy rates were higher than both the Fed and market projections at the beginning of the year (Figure 1.25). The dovish bias of markets has re-emerged in the latest hiking cycle. Since mid-2022, markets have played catchup to Fed projections. Uncertainty around the policy decisions has also increased recently. The markets, on average, have lacked clarity on the extent of the central bank’s hawkishness and typically have adjusted their expectations in the weeks before each policy meeting (Figure 1.26).

As markets realign to the “higher-for-longer” narrative, this can lead to increased market volatility. Such a scenario would make conditions unfavorable for strength in ASEAN+3 markets and could lead to an erosion of capital flows.

That said, while sustained high interest rates might appear to be problematic for ASEAN+3 markets, the situation is more nuanced. The US Treasury yield, decomposed into inflation expectations (a gauge of market evaluation of the macroeconomic backdrop of growth and inflation) and real yields (which reflect the US monetary stance) provides key insights:

- Data since late 2021 shows a decline in US inflation expectations that is less sharp than the rise in real yields (Figure 1.27). This suggests concerns over negative growth remain relatively steady relative to the more prominent effect of tightening monetary conditions.
- In the ASEAN+3 region, assets are more sensitive to inflation expectations than to real yields (Figure 1.28). Higher inflation expectations typically boost regional equities and currencies, while rising real yields generally weaken them. Rising inflation expectations and real yields both drive yields higher in regional bond markets.
- The relative steadiness of inflation expectations, combined with their higher influence on regional markets, has helped maintain market stability despite the breakneck pace of the Fed’s rate hikes.
- A sudden economic downturn, which would push inflation expectations lower (as happened during the global financial crisis and early in the COVID-19 pandemic), is likely to be more disruptive for markets than the Fed’s monetary tightening. However, the likelihood of such a downturn has lessened due to recent robust US economic data, making a “higher-for-longer” interest rate scenario more probable.

Fed’s Policy Rates: Comparison of Market and Fed’s Projections

Figure 1.24: Market and Fed’s Projected Policy Rates since the Fed’s Hiking Cycle Started
(Percent)

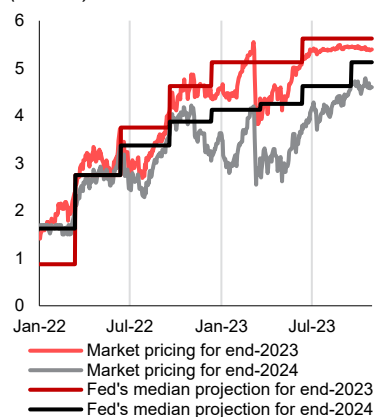


Figure 1.25: Projected (at the Start of Year) versus Actual (at the End of Year) Policy Rates
(Percent)

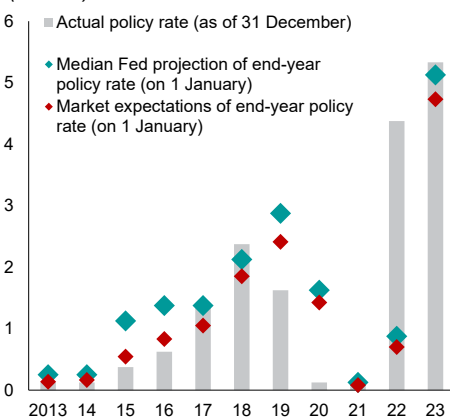
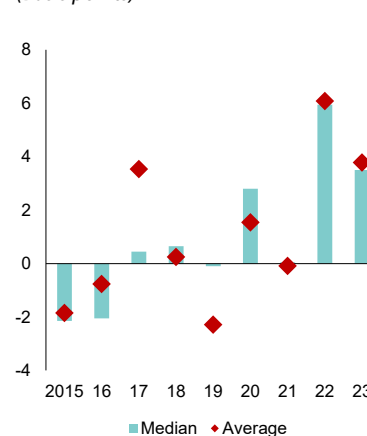


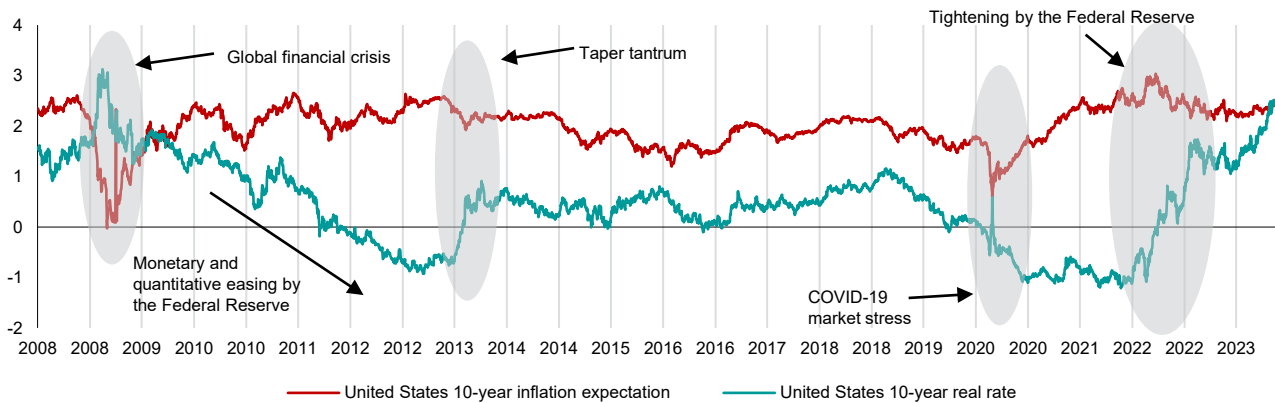
Figure 1.26: Intra-Meeting Change in Market Projections
(Basis points)



Source: Bloomberg Finance L.P.; Haver Analytics; AMRO staff calculations.

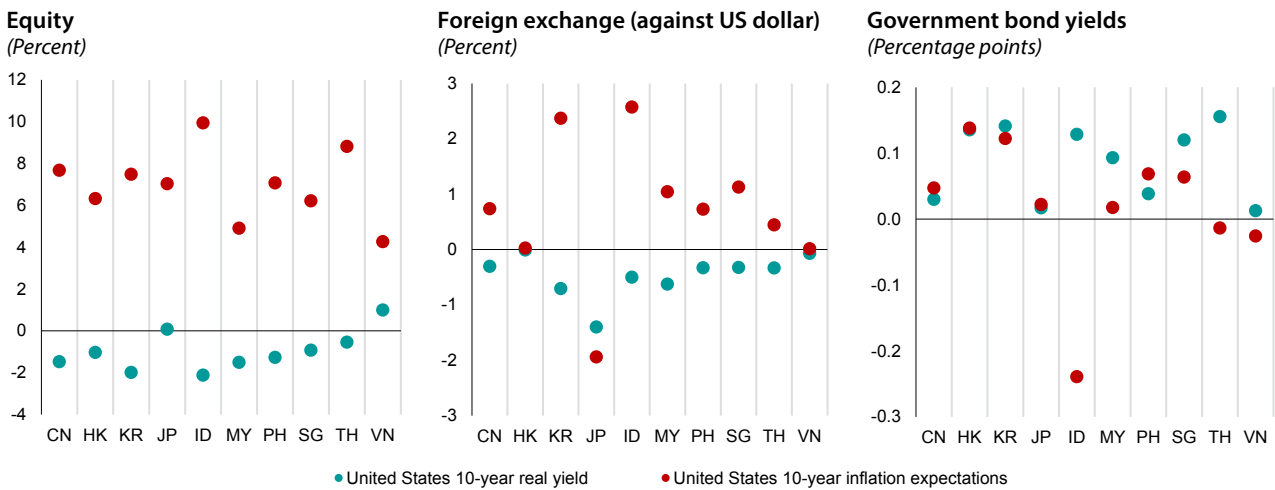
Note: The projected (at the start of year) is the latest available market pricing and median dots on 1 January for end-year policy rates. The intra-meeting change in market projections shows the average and median change in the market projections for the policy rates of each meeting during the year from the day after the previous meeting. Fed = Federal Reserve. Data for 2023 is as of 31 October 2023.

Figure 1.27. US: Inflation Expectations and Real Rates since 2008
(Percent)



Source: Bloomberg Finance L.P.
Note: Data as of 31 October 2023.

Figure 1.28. Selected ASEAN+3: Sensitivity of Asset Prices to US Inflation Expectations and Real Yields



Source: Bloomberg Finance L.P.; Haver Analytics; AMRO staff calculations.
Note: The sensitivity is calculated using daily changes of ASEAN+3 assets (log changes for equity indices, exchange rate against the US dollar, and change in bond yields) and the daily change in US Treasury 10-year yield components (real yield and inflation expectations) using data from 1 January 2020 to the latest available. The changes in asset classes are estimated for a 100-basis points change in the US Treasury 10-year yield components. The exchange rate against the US dollar denotes the value of each currency in US dollar terms. Hence a positive [negative] sensitivity denotes a stronger [weaker] regional currency when the underlying yield component rises. The equity indices used for the analysis are Morgan Stanley Capital International (MSCI) economy-level indices. CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KR = Korea; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand; VN = Vietnam. Data as of 31 October 2023.

ASEAN+3 markets have avoided US and Europe banking stress but risks linger

Significant stress hit the banking sector in some advanced economies in March, particularly among US regional banks. This led to the collapse of Silicon Valley Bank, Signature Bank, and the liquidation of Silvergate Bank, followed by First Republic Bank’s collapse in late April. These events also hurt Credit Suisse, a Global Systemically Important Bank (G-SIB). Though idiosyncratic factors contributed to each bank’s failure, the Fed’s tightening cycle was the common catalyst. These failures caught markets off guard and created a domino effect that started with Silicon Valley Bank. To mitigate widespread impact, the Fed and Swiss National Bank intervened promptly, aiming to curb risk aversion and market volatility.

The banking turmoil caused significant turbulence in global markets, including ASEAN+3, although the recovery was also rapid. These ruptures raised significant concerns about the

health of the banking system across the world and, triggered a sharp fall in banking stocks. Shares of ASEAN+3 financials fell because of the knock-on effects on asset prices via increased investor risk aversion. The drawdown in most ASEAN+3 financial indices was limited compared with US counterparts (Figure 1.29) and some are now stronger than that before the turmoil.

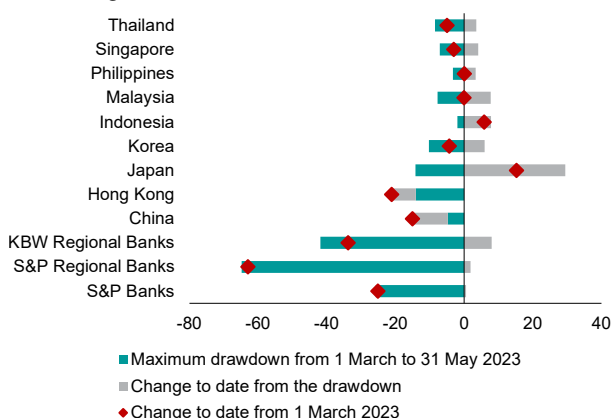
However, the lack of recovery in US’ banking stocks indicates that investors remain concerned about the financial sector. Analysis shows that **market betas for US banks** have surged since the banking turmoil (Figure 1.30, Box 4.1) while those in ASEAN+3 banks have remained stable. It indicates that the markets see US banks as much riskier now than before the turmoil. One of the more visible risks arises from weakness in corporate real estate, which can cause further stress in US small- and mid-sized banks (Azhar and Tracy 2023). There is a risk that contagion from

these banks will spread to ASEAN+3, more from the investor sentiment channel than direct linkages.

Turning to ASEAN+3, the banking system appears more resilient to factors that led to the collapse of US regional banks. These factors include: (i) business concentration risk on both the asset and liability sides; (ii) forced recognition of marked-to-market losses on hold-to-maturity securities; (iii) inadequate deposit insurance; and (iv) rapid deposit withdrawals. ASEAN+3 banks generally maintain a higher

Figure 1.29. US and Selected ASEAN+3: Drawdown and Recovery in Banking and Financial Index after the Banking Turmoil

(Percent, log returns)



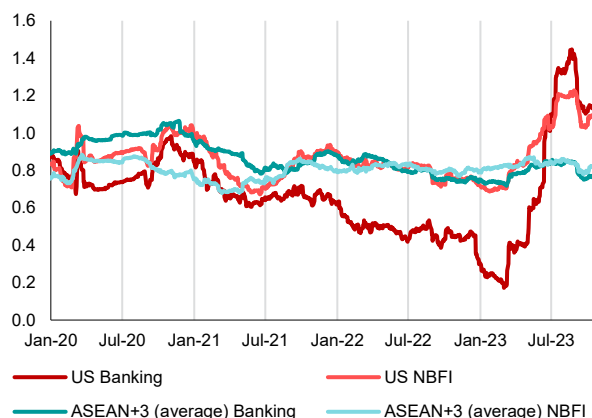
Source: Bloomberg Finance L.P.; AMRO staff calculations.

Note: MSCI Financial Indices have been used for ASEAN+3 economies. KBW = Keefe, Bruyette, and Woods; S&P = Standard & Poor's. Drawdown refers to the change in index from 1 March 2023 to the trough in the index before 31 May 2023. The change to date is the change from the lowest level seen between 1 March 2023 and 31 May 2023 to the latest level (as of 31 October 2023).

proportion of stable fixed deposits than those in the US and other advanced economies (Figure 1.31). More liquid current and savings deposits have sizeable share of retail deposits, which are usually more stable than institutional deposits. Due to a stronger focus on lending, they also hold a lower percentage of total assets in securities investments, which cuts their exposure to marked-to-market losses (Figure 1.32). Nevertheless, authorities are aware of the importance of deposit insurance and some have raised or are considering raising the insurance limits.

Figure 1.30. US and ASEAN+3: Market Betas for Banking and NBFIs Sectors.

(Index)

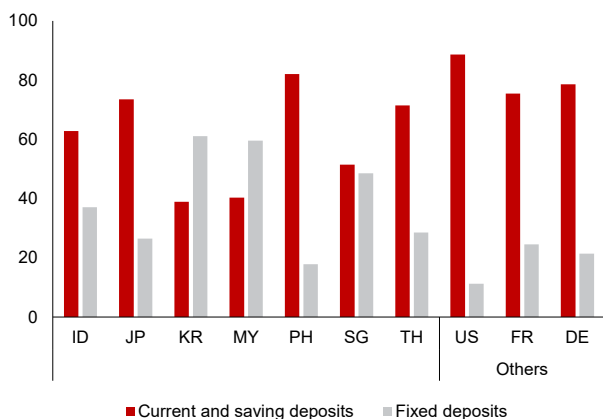


Source: Bloomberg Finance L.P.; AMRO staff calculations.

Note: ASEAN+3 (average) is the simple average of the market betas for China, Hong Kong, Japan, Indonesia, Korea, Malaysia, Philippines, Singapore, and Thailand. NBFIs = nonbank financial institution; US = United States. Latest level as of October 2023.

Figure 1.31. Selected ASEAN+3 and Selected Advanced Economies: Share of Banking Sector Loans and Securities, Q2 2023

(Percent of total assets)

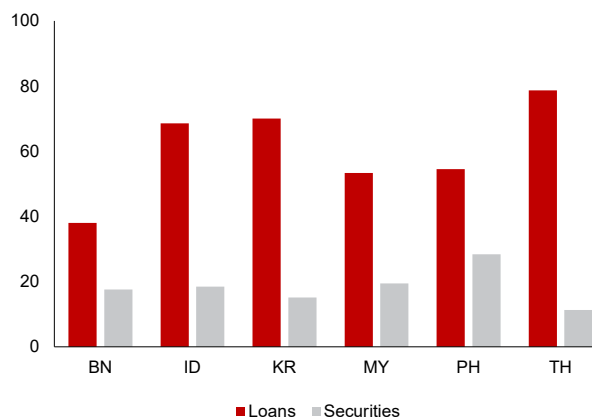


Source: IMF International Financial Statistics via Haver Analytics; AMRO staff calculations.

Note: Fixed deposits for the US are represented by the share of large time deposits (time deposits in denominations of USD 100,000 or more). DE = Germany; FR = France; ID = Indonesia; JP = Japan; KR = Korea; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand; US = United States. Data for Korea as of Q2 2022.

Figure 1.32. Selected ASEAN+3: Composition of Deposits, Q2 2023

(Percent of total deposits)



Source: IMF International Financial Statistics via Haver Analytics; AMRO staff calculations.

Note: BN = Brunei; ID = Indonesia; KR = Korea; MY = Malaysia; PH = Philippines; TH = Thailand. Data for Philippines as of Q1 2023.

US dollar funding remains ample though is receding at the margin

Most headline indicators show US-dollar onshore liquidity to be plentiful. The Fed's balance sheet, though shrinking, is still almost twice the size as before the pandemic (Figure 1.33). Surplus liquidity is evident in the amount of bank reserves parked with the Fed, which have receded slightly but remain at elevated levels. Funds placed in the central bank's overnight reverse repo program are also close to record highs. The spreads (Figure 1.34) have stabilized after the recent stress in banking sector and although higher interest rates have made it costlier to procure funds, the normalization of spreads shows that the premium charged to compensate for uncertainties has stabilized.

However, market mechanics reveal that a US dollar funding crunch cannot be ruled out. Previous instances of such stress have been attributed to either US monetary policy tightening, as seen in the Fed's 2022 hiking cycle, or spikes in safe-haven demand for the dollar during periods of market uncertainty, such as the US banking crisis in March 2023 and the pandemic-triggered stress in March 2020. An exceptional case occurred in September 2019 amid falling bank reserves. That squeeze was set off by a confluence of quarterly corporate tax payments drawing funds from bank and money market accounts to transfer into the Treasury's Fed account, and the US Treasury issuing USD54 billion of long-term debt. The current situation bears similarities: the Fed's balance sheet, bank reserves, and its Reverse Repurchases are all tapering off. Moreover, since the debt ceiling was lifted in June 2023, US Treasury issuances has increased markedly. The inventory held by primary dealers is also rising, mirroring conditions in September 2019 (Figure 1.35), which could add stress to the repo market (Anbil and others 2020).

The Fed has sufficient tools to mitigate domestic dollar funding stress. In every instance of such stress since 2019, except during the 2022 rate-hiking cycle (Figure 1.36), the Fed has intervened using a variety of measures. These include emergency repo operations, rate adjustments like interest over excess reserves and reverse repurchase agreements, Treasury purchases through Quantitative Easing, and specialized lending facilities. These notably eased the March 2023 banking crisis. Banks have used both the Fed's discount window and the new Bank Term Funding Program (BTFP), with the latter still in use, possibly due to lingering bank liquidity problems. Thus, the Fed is well-equipped to manage domestic liquidity.

Compared with the US domestic situation, **the global landscape for dollar funding may pose greater challenges.**

- Stress episodes in global funding markets have been more frequent than in the US, with prolonged high dollar funding

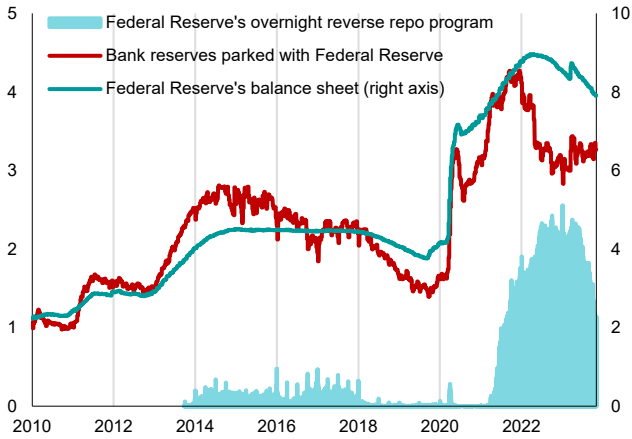
costs after the pandemic and another spike in November 2021 (Figure 1.37). While these did not trigger major financial spillovers, they suggest that global and US domestic funding conditions can diverge. For example, it took months for the global US dollar funding shortage to resolve after the COVID-19 shock of March 2020. The yen cross-currency swap was notably impacted during these stress periods.

- Market concerns have increased with regard to counterparty risks among major banks offering dollar funding, especially for lower-rated institutions. Heightened risk aversion can affect both banks and nonbank financial institutions (NBFIs) with lower credit ratings, particularly during periods of stress. Regional central banks can attempt to calm widespread stress, yet may hesitate to in supporting lower-rated entities over a desire to avoid creating moral hazard.

Within the ASEAN+3, reliance on US dollar funding is a direct result of dollar dominance in global finance. The US dollar has a dominant role in global financial markets as vehicle currency, at 88 percent of FX trading (BIS 2022); as a reserve currency comprising 59 percent of all global FX reserves (IMF COFER 2023); as a medium of exchange, at 41.7 percent of SWIFT transfers, and as a unit of account for more than 70 percent of trade invoicing outside Europe (Baxter 2023). Though the share of US dollars in some of these roles has decreased over the past couple of decades, it remains much higher than other currencies. The ASEAN+3 region is no different. Beyond these functions, reliance on the US dollar is apparent in other parts of the financial system. Entities based in ASEAN+3 economies account for 35 percent of US treasuries held outside the US and are equal to 43 percent of the FX reserves of ASEAN+3 monetary authorities as of August 2023. (Figure 1.38). Moreover, within ASEAN+3, the US dollar remains the currency of choice for the overseas businesses of banks and in corporate bond sales denominated in foreign currencies (Figures 1.39 and 1.40).

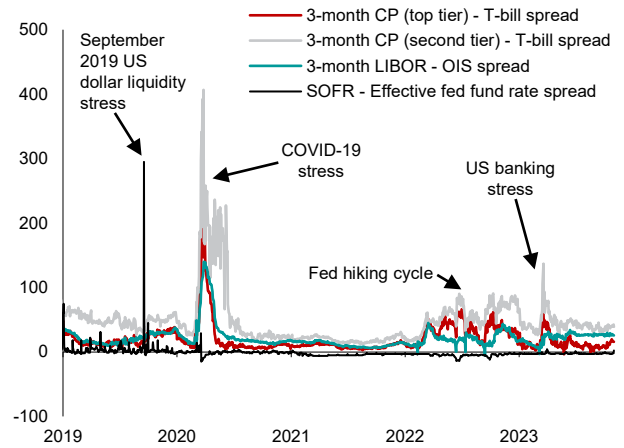
ASEAN+3 authorities have tried to address the overreliance on the US dollar, but there is still a long way to go. The authorities have **promoted the use of local currencies** in regional payment systems (Table 1.1), entered into various bilateral swap agreements (Figure 4.31 in Chapter 4), and established regional financing arrangements, which can help address US dollar liquidity shortages, balance of payment difficulties, and instil market confidence. However, progress on local currency uses has been slow as US dollar dependence is entrenched through international contracts, wide use of the US dollar in international payments for trade and financial transactions, and the deep financial markets in US dollar assets. ASEAN+3 authorities see the entrenched use of the US dollar as the biggest challenge in reducing its dominance.

Figure 1.33. US: Proxies for Surplus US Dollar Liquidity
(Trillions of US dollars)



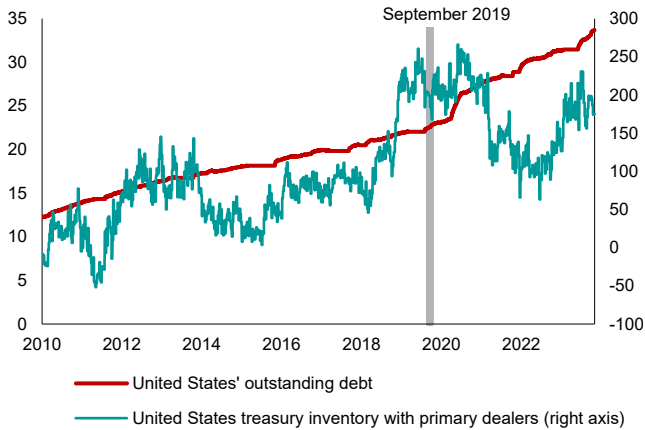
Source: Bloomberg Finance L.P.; AMRO staff calculations.
Note: Data as of 31 October 2023.

Figure 1.34. US: Selected Interest Rate Spreads
(Basis points)



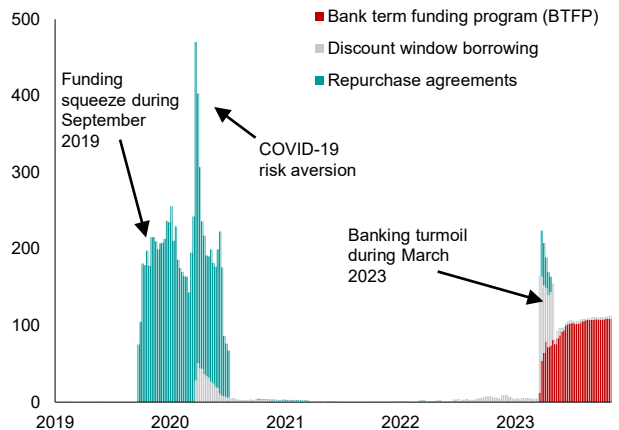
Source: Bloomberg Finance L.P.; AMRO staff calculations.
Note: CP = commercial paper; LIBOR = London interbank offer rate; SOFR = Secured overnight financing rate; T-bill = treasury bill. Data as of 31 October 2023.

Figure 1.35. US: Outstanding Public Debt and US Treasury Inventory with Primary Dealers
(Trillions of US dollars; billions of US dollars)



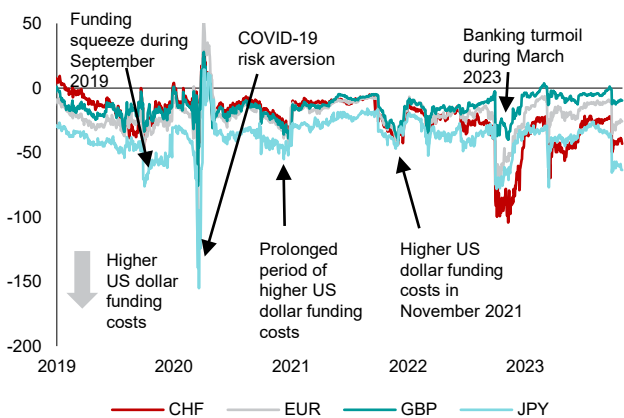
Source: Bloomberg Finance L.P.; AMRO staff calculations.
Note: Data as of 31 October 2023.

Figure 1.36. US: Selected Liquidity Facilities Provided by the Fed since 2019
(Billions of US dollars)



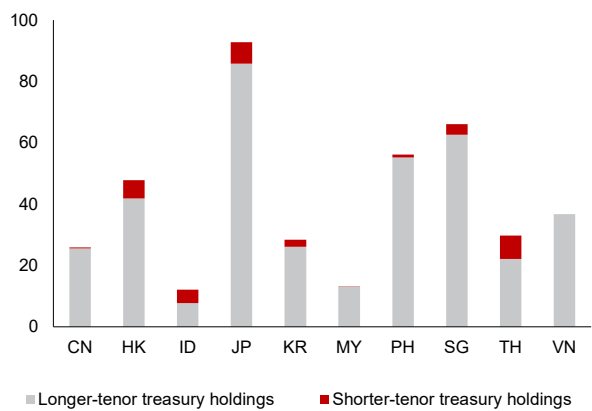
Source: Bloomberg Finance L.P.; Haver Analytics; AMRO staff calculations.
Note: Data as of 31 October 2023.

Figure 1.37. Selected Major Currencies: Cross Currency Swaps
(Basis points)



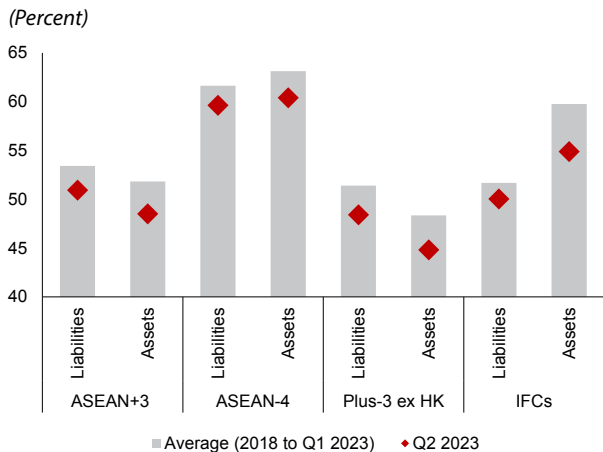
Source: Bloomberg Finance L.P.; Haver Analytics; AMRO staff calculations. CHF = Swiss franc; EUR = euro; GBP = Pound sterling; JPY = Japanese yen. Data as of 30 October 2023.

Figure 1.38. Selected ASEAN+3: US Treasuries Held by Entities based in ASEAN+3
(Percent of foreign reserves)



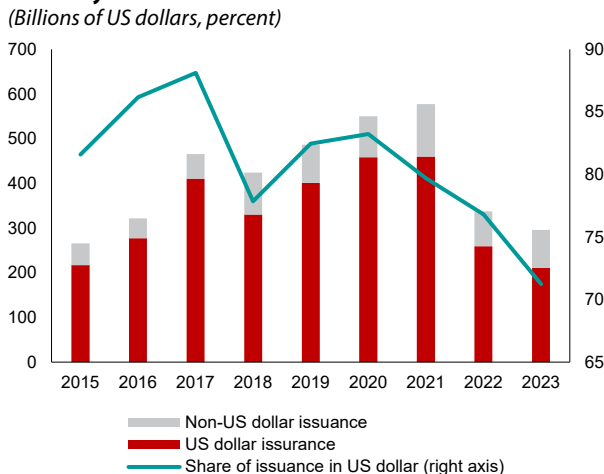
Source: Bloomberg Finance L.P.; Haver Analytics; AMRO staff calculations.
Note: CN = China; HK = Hong Kong; ID = Indonesia; JP = Japan; KR = Korea; MY = Malaysia; PH = Philippines; SG = Singapore; TH = Thailand; VN = Vietnam. Data as of August 2023.

Figure 1.39. ASEAN+3: Share of US Dollars in External Assets and Liabilities of Banks (Percent)



Source: Bloomberg Finance L.P.; Haver Analytics; AMRO staff calculations.
 Note: ASEAN-4 = Indonesia, Malaysia, Philippines and Thailand; Plus-3 ex HK = China, Japan and Korea; International financial centers (IFCs) = Hong Kong (HK) and Singapore.

Figure 1.40. ASEAN+3: Share of US Dollars in Foreign Currency Bond Issuances (Billions of US dollars, percent)



Source: Cbonds; AMRO staff calculations.
 Note: Data for 2023 as of 31 October.

Table 1.1. ASEAN+3: Local Currency Promotion Schemes

Objectives	Modalities	Schemes
Providing flexibility in local currency transactions	Relaxing FX regulations for local currency transactions to lower transaction and regulatory costs, such as by waiving documentation requirements	<ul style="list-style-type: none"> The Local Currency settlement Framework Use of Appointed Cross Currency Dealers
Ensuring liquidity of local currencies	Liquidity support/backstop facilities	<ul style="list-style-type: none"> Bilateral Swap Arrangements
Reducing conversion costs	Direct exchange rate quotation between local currencies to enhance price discovery and competition among banks	<ul style="list-style-type: none"> Direct quotation
Enhancing the convenience of using local currencies	Cross-border payment connectivity and system interoperability	<ul style="list-style-type: none"> Payment system linkages Unified QR code payments

Source: National authorities; ASEAN+3 Finance Process Study Group 1 (2020)

Technological advancements present new opportunities and challenges

While technology has greatly improved financial system efficiency, it also creates new challenges for policymakers. Innovations have notably reduced transaction costs, sped up processes, and expanded financial access, all while making the system more resilient and transparent (AMRO 2023c). However, these advances introduce vulnerabilities. For example, the rapidity and ease of transactions allowed depositors in Silicon Valley Bank to withdraw over USD40 billion in a single day on 9 March, 2023, with an additional USD100 billion expected the following day, leading to its immediate closure (Federal Reserve 2023). Signature Bank suffered a dramatic loss of 20 percent of deposits in one day (Reyes 2023).

New communication channels can fuel financial contagion. While the unprecedented pace of deposit outflow allowed

bank runs to happen, social media platforms were significant in spreading panic among depositors. Shares of the top trending banks on Twitter (now known as X) declined the most and those banks saw most outflows in the first quarter of 2023 (Cookson and others 2023). The social media site Reddit also played a part in the short squeeze of the so-called meme stocks like Gamestop and AMC Entertainment in January 2021 (Costola and others 2021). This short squeeze caused unwarranted volatility in broader markets.

The rising popularity of digital assets as an alternative asset class could threaten financial stability in the coming years. While spillovers to the real economy have been limited, the linkages have strengthened over the years. Digital assets will have increased influence on financial markets and on the financial system (Box 1.4).

Box 1.4:

Cryptocurrencies and Banking Sector Connectedness

The crypto ecosystem, which comprises cryptocurrencies, crypto platforms, stable coins, and smart contracts, has grown rapidly since its inception in 2009 (BIS 2023). Crypto holds the promise of improving the efficiency of the financial system by reducing transaction costs, streamlining settlement and record-keeping, decentralizing financial transactions, and deepening financial inclusion. However, there are serious concerns that realization of risks in the crypto ecosystem could spill over to the traditional finance. These risks are related to structural flaws in the ecosystem, such as fragmentation and congestion of validation processes that make it vulnerable to manipulation and runs (IMF 2022, BIS 2023).

Idiosyncratic shocks can spread widely and quickly in the crypto universe and, as its integration with the financial system continues, may lead to systemic risks. The Crypto Winter¹ spread widely as crypto firms faced a run by the users given that they are not backed by a lender of last resort (Brainard 2022). The failures did not have major repercussions outside of crypto. However, crypto firms are expanding into lending and borrowing services while banks gradually increase their cryptocurrency holdings driven by growing demand from clients. Banks' involvement in crypto activities is modest at present but could scale up rapidly (Auer and others 2022).

Limited understanding of the linkages and connections between the crypto ecosystem and the financial system could impair proper macroprudential management of crypto risks. Connections between the two systems could quickly evolve, mirroring mainly innovations and technological developments. Without a clear picture of the sources of risk and what firms or markets might be affected, it is difficult if not impossible to assess nascent threats, identify systemically important firms, review and broaden the perimeter of regulation, and design and implement adequate regulatory and supervisory frameworks.

Dynamic connectedness² between cryptocurrencies and global systemically important banks (G-SIBs) confirm the views of policy makers and markets that the traditional

financial system and the crypto ecosystem have been mostly insulated from each other to date. The total connectedness, or spillovers, from cryptocurrencies to the G-SIB system is calculated as the sum of the cryptocurrencies' connectedness measures to each of the G-SIBs and normalized to values such that a value of 1 if the cryptocurrencies fully explain the forecast variance of the G-SIBs, and 0 if they explain none of it (Figure 1.4.1). Connectedness has been relatively small, seldom exceeding 4 percent when averaged across all G-SIBs. Periods during which connectedness peaked, though remaining significantly small, tend to coincide with periods of high market distress, such as the months preceding Brexit and the start of the COVID-19 pandemic in early 2020.

Connectedness measures show that the G-SIBs, on aggregate, have a larger impact on cryptocurrencies than the other way around. As a sector, the total connectedness from G-SIBs, on each cryptocurrency, Bitcoin and Ethereum, could take values of [0,1] (Figure 1.4.2), with the value 1 reached when all the G-SIBs combined fully explain the forecast variance of the cryptocurrencies. G-SIBs exert strong influence on cryptocurrencies and in several episodes, explain as much as 80 percent of the forecast variance of each cryptocurrency. The G-SIBs' connectedness dynamic is very similar to that of cryptocurrencies' connectedness. Both connectedness measures point to a sharp decoupling between G-SIBs and cryptocurrencies in early 2023, following the Crypto Winter.

The G-SIB system has been mostly connected within itself but substantial spillovers could occur from a single bank to cryptocurrencies. Maximum connectedness to a cryptocurrency during the sample period averaged less than 5 percent but in certain cases, such as in late 2015, exceeded 30 percent. G-SIB connectedness to cryptocurrencies (Figure 1.4.3), is driven mainly by connectedness from multiple G-SIBs to cryptocurrencies. Maximum connectedness between a pair of individual G-SIBs could range between 0.07 and 0.30, with an average value of 0.20 over the study sample. During 2015–23, US-based G-SIBs, followed by European G-SIBs, were the major sources of spillovers.

This box is authored by Jorge A. Chan-Lau with inputs from Toàn Long Quách and a review by Li Lian Ong.

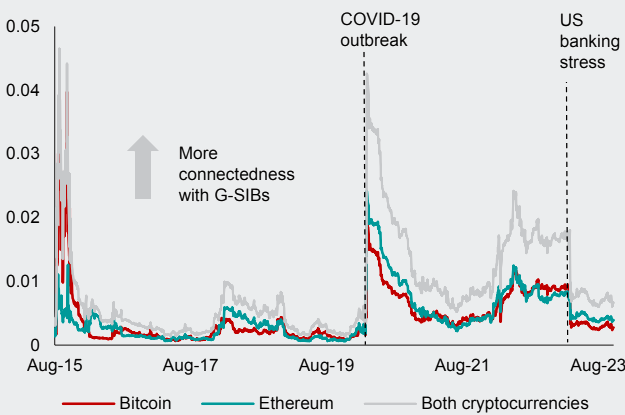
¹ Failures of several stable coins and crypto firms in 2022 and 2023

² We examine the dynamic connectedness between cryptocurrencies and global systemically important banks using the time-varying parameter VAR (TVP-VAR) approach of Antonakakis, Chatziantoniou and Gabauer (2020), referred henceforth as ACG, to a sample that includes the two main crypto currencies, Bitcoin and Ethereum and 29 publicly listed global systemically important banks (G-SIBs) as designated by the Financial Stability Board (2022). The ACG approach is applied using daily log-returns of the cryptocurrencies and the G-SIB equity prices over the period 10 August 2015 to 16 June 2023. The TVP-VAR connectedness measures are calculated from a 1-day lag TVP-VAR assuming a 20-day forecast horizon. Results are not significantly different for other forecast horizons.

Weak connections between the crypto ecosystem and the G-SIB system suggest room for strengthening the regulatory framework before both systems integrate. Recent banking system turmoil, driven in part by policy rate hikes, calls for reevaluating the effectiveness of some regulatory measures and practices put in place after the global financial crisis of 2008-09. Meanwhile, staff at the Bank for International Settlements recommend options to address crypto risks and potential spillovers to the traditional financial system. These include banning specific activities, isolating crypto from traditional financial systems, and regulating crypto activities in a similar way

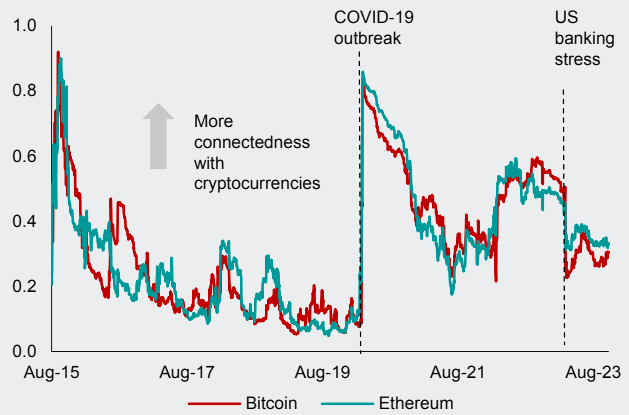
to traditional financial activities (Aquilina and others 2023). Likewise, International Monetary Fund recommends to reduce macro risks by safeguarding the primacy of sovereign currencies over cryptocurrencies, not granting crypto assets legal tender status, and enacting tax policies that treat crypto assets without ambiguity (Adrian and others 2023).³ Furthermore, the regulatory framework also needs to keep pace with technical advances in the crypto ecosystem as they could create significant vulnerabilities, particularly around decentralized finance and its applications, including for central bank digital assets (Capponi and others 2022; Chen and others 2022).

Figure 1.4.1. Cryptocurrencies Connectedness to G-SIBs
(Index, range between 0 to 1, with 1 indicating the maximum connectedness)



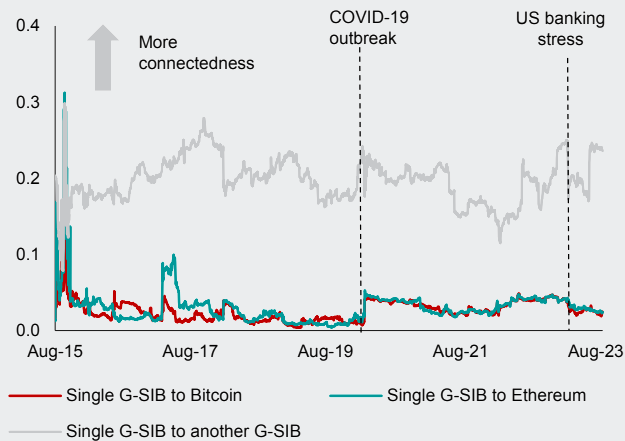
Source: CoinGecko; Bloomberg Finance L.P.; AMRO staff calculations.
Note: Data as of 31 October 2023.

Figure 1.4.2. G-SIBs Connectedness to Cryptocurrencies
(Index, range between 0 to 1, with 1 indicating the maximum connectedness)



Source: CoinGecko; Bloomberg Finance L.P.; AMRO staff calculations.
Note: Data as of 31 October 2023.

Figure 1.4.3. Single G-SIBs Maximum Connectedness to Cryptocurrencies and Another G-SIB
(Index, range between 0 to 1, with 1 indicating the maximum connectedness)



Source: CoinGecko; Bloomberg Finance L.P.; AMRO staff calculations.
Note: Data as of 31 October 2023.

³ For a summary of official initiatives on crypto regulation, see the online appendix to Aquilina, Frost and Schrimpf (2023).

III. Policy Discussion

"Not how well you see in clear weather but how well you see in foggy weather that determines how better you are than others!"

Mehmet Murat İldan, novelist

Central banks should continue to prioritise price stability, carefully calibrating their policy paths based on domestic and external conditions. Despite market expectations that the Fed's tightening phase is near an end, the risk remains that unanticipated inflation shocks could compel the Fed to raise and maintain higher policy rates longer than expected. Given the varied impacts of the Fed's actions on ASEAN+3 economies (Box 1.5), central banks must calibrate their policies according to domestic circumstances:

- For economies that still have high inflation and robust growth, especially those with sticky core inflation, maintaining the current tight policy stance is prudent for bringing inflation down durably to the official target while preserving the policy buffer against future shocks.
- For economies with faltering growth momentum and a relatively benign inflation outlook, a shift in monetary policy stance to support economic growth may be warranted.
- For economies facing a delicate trade-off between inflation control and growth support, additional policy measures may be needed. In such cases, monetary policy should be used to contain inflation and support growth in coordination with other non-monetary measures, such as macroprudential policies, supply side measures, or fiscal policies.⁶

As liquidity stress could continue to surface in both bank and nonbank financial sectors, monetary authorities should stand ready to provide liquidity support when needed. While banks in the region are generally sound given their strong capital buffers and ample liquidity, some smaller and regional banks could still be hit by liquidity pressure. Central banks therefore should ensure regular liquidity facilities are available⁷. Nonbanks could face higher liquidity stresses than banks due to their higher leverage and vulnerability to liquidity and maturity mismatches. An example is the run on a branch of a nonbank financial institution in Korea in June 2023 due to a rise in nonperforming loans tied to real estate projects. Given the growing role of NBFIs in credit and liquidity provision, and dollar funding in the region (Chapter 4), authorities may need to

strengthen NBFIs regulatory, supervisory, and risk management frameworks. In a systemic crisis where these lines of defense prove to be insufficient, authorities should be prepared to provide temporary liquidity support to NBFIs in distress during monetary tightening to avoid spillovers to other financial institutions and maintain the orderly function of money markets⁸. This should be done through carefully designed credit lines that avoid encouraging moral hazard.

Monetary and financial stability can be compatible at the current juncture. While fighting inflation remains a priority, especially for economies adopting an inflation-targeting regime, central banks should also persist with efforts to preserve financial stability. For instance, financial conditions can be eased to mitigate liquidity stress effectively while maintaining a restrictive policy rate. Some cases illustrate this point. The Bank of Korea, together with other authorities, provided liquidity lines to security companies during rate hikes cycle amid market turmoil in late 2022. In the Philippines, Bangko Sentral ng Pilipinas cut the reserve requirement ratio to ease liquidity conditions on alternative modes of compliance with reserve requirements by June 2023⁹ but kept the policy rate unchanged in June 2023. When the trade-off between price and financial stability is harder, concerted efforts involving fiscal and prudential measures from other authorities may be needed to allow central banks to focus on inflation control. Careful and proactive communication with markets is paramount in this process to avoid any misunderstanding.

ASEAN+3 central banks should continue to be ready to provide temporary US dollar liquidity support to financial markets during times of stress. Japan is the only regional economy to have a permanent swap line with the Fed. However, during the pandemic US dollar funding squeeze, the Fed introduced emergency swap lines and the Foreign and International Monetary Authorities (FIMA) Repo Facility to alleviate stress in global markets. Backed by these, monetary authorities in Japan (using permanent swap line), Hong Kong (FIMA facility) Korea, and Singapore (using emergency swap lines) introduced US dollar liquidity facilities to give dollar liquidity assistance to banks. While the emergency facilities have since closed,

⁶ Although the biggest burden of fighting inflation falls on monetary policy, other non-monetary measures can also provide some support. In the ASEAN+3 region, both price and income support measures were used to hold down inflation so that monetary policy could remain accommodative. Such measures continue to be used selectively and are targeted at those who are most affected while keeping an eye on the fiscal costs (Hong and others 2023).

⁷ A case in point was the National Bank of Cambodia which introduced a marginal lending facility (MLF), as an element of ceiling rate in an interest rate corridor system, in September 2021 to provide short-term Cambodian riel liquidity to banks and microfinance institutions in emergency situation to carry out their business operations.

⁸ As an example, the Bank of Korea announced to extend its liquidity lines to nonbank financial institutions in July 2023.

⁹ Please refer to BSP Press Release on "BSP Reduces" Reserve Requirements" for further information. <https://www.bsp.gov.ph/SitePages/MediaAndResearch/MediaDisp.aspx?ItemId=6743>

the FIMA is now a standing facility. Most ASEAN+3 central banks have generally built sufficient FX reserves, largely in US Treasuries, which can be used to access the FIMA facility. Regional authorities can step into funding markets to provide temporary liquidity support to avoid disorder when financial stress is broad-based. Managing US dollar funding is easier for monetary authorities with larger FX reserves and holdings of US Treasury securities. Other central banks may need to rely on alternative sources of liquidity such as from the Chiang Mai Initiative multicurrency swap arrangement and the International Monetary Fund.

Reducing dependence on the US dollar will be a multiyear initiative requiring close cooperation among regional authorities. This would require coordinated policy action, especially in fostering intraregional trade and investment to increase natural demand for local currencies, resolving policy inconsistencies that hinder local currency internationalization, and developing financial and payment infrastructure in the region. That said, currency internationalization comes with potential economic risks, including more volatile capital flows and currency values, that could make the domestic financial system more vulnerable to capital flow volatility.

Keeping up with changes in the financial technology landscape is crucial for ASEAN+3 authorities as the region is at the forefront of financial innovation. Fast and convenient payment systems, digital banking applications, and cross border linkages can be a risk to financial stability, as shown by the recent digital bank run in the US. Traditional safeguards such as liquidity backstops and deposit insurance are essential. However, prompt, effective communication is equally vital. For instance, when Credit Suisse's Additional Tier 1 (AT1) bonds were written off, the stress of this event on the market was lifted when regional authorities quickly clarified that AT1 securities would take precedence over equity. Finally, authorities are also making strides in regulating digital assets, successfully preventing spillovers to the real economy.

Finally, over the medium term, the green economy transition will have implications for financial stability. A transition toward sustainability in finance can improve the management of various risks to the financial system by diversifying portfolios, improving risk assessment, and helping borrowers manage transition risks. Authorities in ASEAN+3 can promote the green finance market by improving lending standards, developing transition finance markets, and strengthening information disclosure, and capacity development (Box 1.6).

Box 1.5:

Impacts of Federal Reserve Policy Tightening on the ASEAN+3 Economies

To simulate the impacts of the Fed's policy rate tightening on GDP, inflation, and capital flows in the ASEAN+3, the AMRO Global Macro-Financial (DSGE) Model (Tang 2022) is employed.¹ The cumulative policy rate hikes of the Fed and regional central banks in the current (2022–23) and previous (2016–18) tightening cycles² are modelled as exogenous shocks (del Rosario and others 2022; Tang and Jiang 2023). Most regional central banks followed the Fed's policy tightening, but at a varied pace. In our estimates, we consider counterfactuals that assume no policy hikes by regional central banks, which differentiates impacts arising from the Fed and domestic central banks.

The Fed's policy tightening transmits to the region through a few key channels (Caldara and others 2022). The central bank's tightening could widen the interest rate gap and weigh on the exchange rate, leading to local currency depreciation against the US dollar. While weaker currencies would be conducive to exports and GDP growth, they could increase imported prices and add domestic inflationary pressure. Tighter financial conditions in the US would reduce aggregate demand and suppress exports from the region into the US. Moreover, a stronger dollar, higher US bond yields, and weakening investor sentiment could prompt capital outflows³ that would tighten domestic financial conditions, shrinking GDP and lowering inflation.

The relative strength of the overall transmission from the Fed's policy tightening varies among regional economies, reflecting their different economic structures. Facing spillovers from the Fed's policy tightening, domestic central banks decided their optimal responses, weighing domestic policy objectives and external effects.

Unsurprisingly, across policy tightening cycles, model estimates generally show larger impacts on GDP, inflation, and capital flows in the 2022-23 policy tightening cycle compared with 2016–18, given the current aggressive pace of policy tightening (Figure 1.5.1). Across economies, those

that raised policy rates in a manner synchronized with the Fed would have deeper GDP losses and more likely to experience smaller imported inflation and capital outflows when comparing the counterfactuals that factor in Fed hikes, absent increased policy rates in the region.

GDP losses ranged from 0.3 percent (China and Japan) to 2.4 percent (Korea and the Philippines) with both Fed's and domestic policy changes during the 2022–23 cycle, as Korea and the Philippines generally followed the Fed more closely while China and Japan lost little GDP. It is partly because their monetary policy stance diverged from other economies and remained accommodative of GDP growth while inflation pressures were comparatively limited. In the counterfactual cases of only Fed hikes, growth losses are skewed more to the downside in the 2022–23 cycle although median impacts were similar in both tightening cycles.

Impacts on regional inflation from the Fed's and regional central banks' policy tightening are largely in the range of 1.0–2.5 percent. In counterfactuals with Fed hikes and no accompanying hikes in the region to narrow interest rate differentials, higher imported prices through the exchange rate channel would intensify inflationary pressures. Such effects would be more evident in the 2022–23 cycle than the counterfactual scenario in the 2016–18 cycle as a result of the surge in global commodity prices in 2022–23.

Regional central banks' policy hikes alongside the Fed helped mitigate pressure on capital outflows. Rising domestic interest rates helped to narrow interest rate differentials between the US and regional economies. In our estimates, regional central bank policy tightening in the region stemmed capital outflows and came with an upward shift of 0.1 percent of GDP in the 2022–23 cycle. The Philippines was an exception, with aggressive policy rate hikes estimated to have spurred capital inflows.

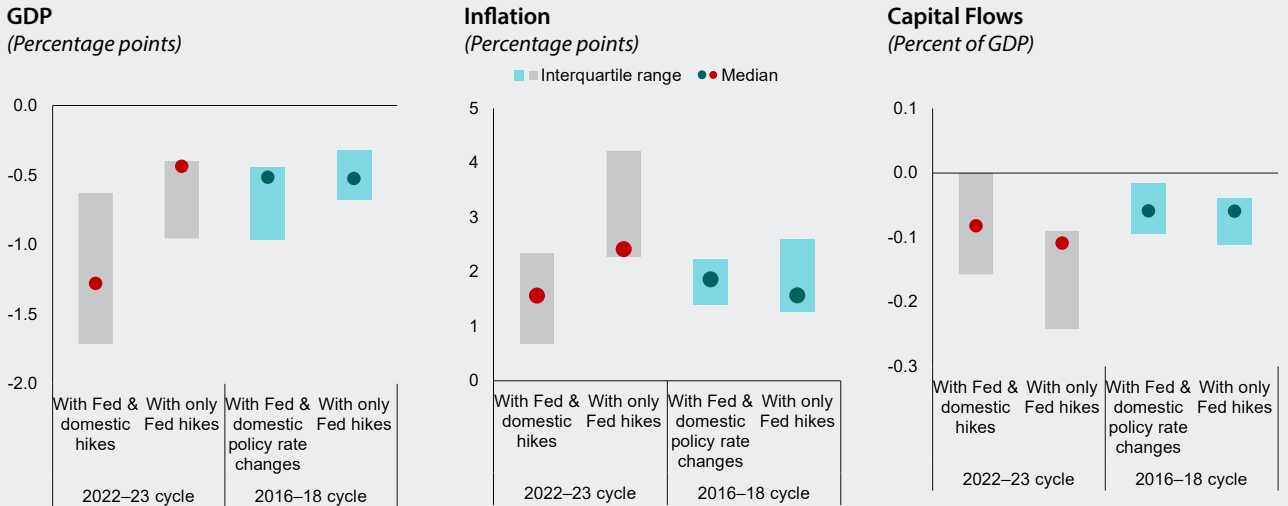
The authors of this box are Alex Liyang Tang and Kimi Xu Jiang.

¹ The analysis includes China, Japan, Korea, Indonesia, Malaysia, the Philippines, Thailand and Vietnam, based on data as of August 31, 2023.

² 2022–23 policy tightening cycle in this analysis started with the first quarter of 2022 and ended at the data cut-off of the second quarter of 2023, during which the Fed raised policy rates by 5 percentage points over about 18 months, and most regional economies closely followed. The 2016–18 cycle in this analysis started from the third quarter of 2016 (the first hike was in the fourth quarter of 2015 but with a three-quarter pause afterward) and ended at the fourth quarter of 2018. The Fed raised policy rates by 2 percentage points over two and half years. However, some regional economies were still in the process of rate cuts, especially in the early phase of the Fed's tightening.

³ For more details about the model set-up and main transmission mechanisms, refer to Tang (2022).

Figure 1.5.1. Selected ASEAN+3: Impacts from US Fed’s Policy Tightening on GDP, Inflation and Capital Flows



Source: National authorities and IMF via Haver Analytics and CEIC; OECD; AMRO staff calculations.
 Note: Relative to original path without further Fed’s and domestic rate hikes from the start of the 2022–23 or 2016–18 hiking cycles. Selected ASEAN+3 include China, Japan, Korea, Indonesia, Malaysia, the Philippines, Thailand and Vietnam.

Box 1.6:

The Impact of Green Lending on Financial Risk

Green lending, also known as sustainable or responsible lending, provides loans to projects, businesses, and individuals to fund low-carbon assets and projects, or the transition toward them. In its simplest definition, green finance products are debt and/or equity instruments or services that direct investment capital to one or more objectives around ensuring a better environmental outcome. Green finance instruments can help towards mitigating climate change, improving climate change resilience, or helping with adaptation to climate change. Other environmental aspects that green finance can facilitate include:

- Renewable energy and energy efficiency
- Pollution prevention and control
- Biodiversity conservation
- Circular economy initiatives
- Sustainable use of natural resources and land

Green lending positively impacts financial risk in several ways. First, it mitigates environmental risks by funding projects that align with sustainability goals, so reducing potential disruptions from regulatory changes or public protests. Second, it diversifies risk by investing in projects less tied to fossil fuels, which helps to minimize the threat of stranded assets in a low-carbon economy. Third, lending to sustainable projects helps manage transition risks arising from shifts in policy, technology, and consumer preferences, which promotes long-term economic stability. Fourth, the practice encourages more comprehensive risk assessments, incorporating environmental, social, and governance (ESG) factors for making better-informed lending decisions. Lastly, it mitigates reputational risks by appealing to environmentally conscious customers.

Two major forms of green lending are through public-private partnerships (PPPs) and blended finance mechanisms. Given the well-publicized nature of the

huge financing gap¹ in the transition to a low-carbon economy, governments inevitably will require private sector participation. In this regard, there have certainly been some positive developments in the region with a number of green PPP projects being financed, as well as initiatives to increase the take-up of such projects across the financial sector.² In addition to PPP instruments, Blended Finance can be defined as a structuring approach that allows organizations with different objectives to invest alongside each other, while achieving their own objectives, be it either financial return, social impact, or a combination of both. An important example of blended finance being utilised in the region is the Energy Transition Mechanism (ETM) of the Asian Development Bank. This aims to finance country specific funds needed to retire coal power assets on an earlier timeline compared to their initially expected asset life. However, the sector still faces multiple challenges including: a lack of commercial viability of many green PPP and blended finance projects; a shortage of tailored risk mitigation instruments such as insurance and guarantees to offset the additional risk; difficulties in institutional coordination; and challenges associated with navigating between the public and private sectors. In addition, policy structures and frameworks still remain of critical importance in order to facilitate such partnerships, albeit several initiatives are already underway in this regard.³

To strengthen the green finance market in the ASEAN+3 region, several key actions are essential. First, unified regional standards for defining "green" are needed to ensure consistency across credit markets, insurance, and other financial sectors, thereby mitigating the risk of greenwashing. Whilst the ASEAN Taxonomy on Sustainable Finance is a key factor in ensuring convergence along this path, a number of 'climate arbitrage' opportunities remain across the region. Second, policy frameworks and standards should be developed to support and track transition finance, facilitating the move from high to low-carbon economies.

This author of this box is Aziz Durrani.

¹ The Asian Development Bank estimated in 2016 that countries in Asia have to invest around USD1.5 trillion annually from 2016 to 2030 to meet the Sustainable Development Goals. Of this, around USD434 billion was forecast to be needed annually for clean energy and climate projects (Tian and others 2021).

² In Malaysia, for example, the Joint Committee on Climate Change (JC3), co-chaired by Bank Negara Malaysia and the Securities Commission, facilitates collaborative efforts among various stakeholders in the financial sector. JC3 encompasses several sub-committees, covering various aspects of climate resilience, including risk management, governance and disclosure, products and innovation, engagement and capacity building, bridging data gaps and a focus group on small and medium sized enterprises. PPP components are embedded within subcommittees' work, enabling the exploration of PPP solutions for climate-related projects, such as greening the value chain which helps support SMEs supply chain to start measuring and reporting their greenhouse gas emissions.

³ The ASEAN taxonomy for Sustainable Finance is one example. It aims to harmonize and standardize the assessment and classification of sustainable activities at the regional level. Such frameworks not only identify suitable projects but also encourage enhanced governance, disclosure, and the efficient allocation of capital. The taxonomy was originally published in November 2021, with a second version published in March 2023. Another example is Bank Negara Malaysia publication of the Climate Change and Principle-Based Taxonomy (CCPT). The CCPT is a framework for financial institutions to assess and categorise economic activities according to the extent to which their activities meet climate objectives and promote the transition to a low-carbon and climate-resilient economy. In keeping with the objective to support an orderly transition, the taxonomy recognises remediation measures and introduces a progressive system of transition categories to acknowledge concrete efforts and commitments by businesses to adopt sustainable practices at the regional level.

Third, central banks and regulators should establish mandatory standardized environmental disclosures to enhance market transparency. Towards this end, the newly introduced Sustainability Disclosure Standards issued by the International Sustainability Standard Board provide a clear path for authorities to apply.⁴ This should also ensure that green bond issuers are transparent in their environmental assessments. Lastly, to close the skills gap in this rapidly growing sector, regional authorities should promote and seek opportunities for specialized training in green finance and climate-related governance and risk management for their own staff, as well as, encouraging financial institutions to do the same.

Green lending can improve a bank's credit quality by fostering sustainability, diversifying risk, and strengthening risk assessments. Despite these advantages, green lending is challenging given that the evaluation of innovative projects is complicated and that regulatory non-compliance is a risk due to changing standards. Effective implementation hinges

on rigorous due diligence, skill development, close portfolio tracking, and guarding against greenwashing. When green lending is skilfully integrated into a bank's risk management approach, it can make a valuable contribution to credit quality.

Despite grappling with high inflation, rising interest rates, and other economic challenges, ASEAN+3 economies should not roll back their green finance and climate risk initiatives. Doing so could do long-term damage to growth and financial stability. Authorities in the region must enforce stronger guidelines, goals, and penalties to promote green lending and integrate climate risk management into financial institutions, whilst considering the implications and potential unintended consequences of transitioning to a low-carbon economy on small businesses, particularly micro, small and medium sized enterprises. Not only does this support the region's orderly transition to a low-carbon economy, it also safeguards financial stability and energy security.

⁴ <https://www.ifrs.org/projects/completed-projects/2023/general-sustainability-related-disclosures/>

References

- Adrian, Tobias, Dong He, Arif Ismail, and Marina Moretti. 2023. "Crypto Needs Comprehensive Policies to Protect Economies and Investors." IMF Blog. International Monetary Fund, Washington DC, 18 July. <https://www.imf.org/en/Blogs/Articles/2023/07/18/crypto-needs-comprehensive-policies-to-protect-economies-and-investors>
- Anbil, Sriya, Alyssa Anderson, and Zenyne Senyuz. 2020. "What Happened in Money Markets in September 2019?" FEDS Notes, Board of Governors of the Federal Reserve System, US Federal Reserve, Washington, DC, 27 February. <https://www.federalreserve.gov/econres/notes/feds-notes/what-happened-in-money-markets-in-september-2019-20200227.html>
- Aquilina, Matteo, Jon Frost, and Andreas Schrimpf. 2023. "Addressing the Risks in Crypto: Laying Out the Options." BIS Bulletin 66, Basel. <https://www.bis.org/publ/bisbull66.htm>
- ASEAN+3 Finance Process Study Group 1. 2020. "Local Currency Usage Promotion in ASEAN+3" (Confidential). ASEAN+3 Finance Process, July.
- ASEAN+3 Macroeconomic Research Office (AMRO). 2023a. *Quarterly Update of the ASEAN+3 Regional Economic Outlook*. Singapore, July. <https://amro-asia.org/quarterly-update-of-the-asean3-regional-economic-outlook-areo-july-2023/>
- ASEAN+3 Macroeconomic Research Office (AMRO). 2023b. "Macroeconomic Prospects and Challenges." Chapter 1. *ASEAN+3 Regional Economic Outlook 2023*. Singapore, April. <https://amro-asia.org/asean3-regional-economic-outlook-areo-2023/>
- ASEAN+3 Macroeconomic Research Office (AMRO). 2023c. "Opportunities and Challenges of Financial Digitalization: A New Perspective on ASEAN+3 Regional Financial Cooperation." AMRO Policy Position Paper. Singapore, May. <https://amro-asia.org/opportunities-and-challenges-of-financial-digitalization-a-new-perspective-on-asean3-regional-financial-cooperation/>
- Auer, Raphael, Marc Farag, Ulf Lewrick, Lovrenc Orazem, and Makurs Zoss. 2022. "Banking in the Shadow of Bitcoin? The Institutional Adoption of Cryptocurrencies." BIS Working Paper 1013, Bank for International Settlements, Basel, May. <https://www.bis.org/publ/work1013.htm>
- Azhar, Saeed, and Matt Tracy. 2023. Analysis: Small US Banks Imperiled by Big Office Loans." Reuters, 25 March. <https://www.reuters.com/business/finance/small-us-banks-imperiled-by-big-office-loans-2023-03-24/>
- Bank for International Settlements (BIS). 2022. "Triennial Central Bank Survey of Foreign Exchange and Over-the-counter (OTC) Derivatives Markets in 2022." BIS Survey and Statistics, Basel, 27 October. <https://www.bis.org/statistics/rpfx22.htm>
- Bank for International Settlements (BIS). 2023. "The Crypto Ecosystem: Key Elements and Risks." Report submitted to the G20 Finance Ministers and Central Bank Governors, Basel, 11 July. <https://www.bis.org/publ/othp72.htm>
- Baxter, Christopher K. 2023. "Is the US dollar's Dominance under Threat?" Morgan Stanley blog. Wealth Management. 9 May. <https://www.morganstanley.com/ideas/dollar-currency-2023>
- Brainard, Lael. 2022. "Crypto-Assets and Decentralized Finance through a Financial Stability Lens." Speech at the Bank of England Conference, 8 July. <https://www.bis.org/review/r220708e.htm>
- Caldara, Dario, Francesco Ferrante, and Albert Queralto. 2022. "International Spillovers of Tighter Monetary Policy." FEDS Notes. Board of Governors of the Federal Reserve System. US Federal Reserve, Washington DC, 22 December. <https://www.federalreserve.gov/econres/notes/feds-notes/international-spillovers-of-tighter-monetary-policy-20221222.html>
- Capponi, Agostino, Nathan Kaplan, and Asani Sarkar. 2022. "Can Decentralized Finance Provide More Protection for Crypto Investors?" Liberty Street Economics blog, Federal Reserve Bank of New York, 21 December. <https://libertystreeteconomics.newyorkfed.org/2022/12/can-decentralized-finance-provide-more-protection-for-crypto-investors/>
- Chen, Yourong, Hao Chen, Yang Zhang, Meng Han, Madhuri Siddula and Zhipeng Cai. 2022. "A Survey on Blockchain Systems: Attacks, Defenses, and Privacy Preservation." High-Confidence Computing 2(2): 100048, June. <https://www.sciencedirect.com/science/article/pii/S2667295221000386>
- Cookson, J. Anthony, Corbin Fox, Javier Gil-Bazo, Juan Felipe Imbet and Christoph Schiller. 2023. "Social Media as A Bank Run Catalyst." Université Paris-Dauphine Research Paper 4422754, Paris, 18 April. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4422754#
- Costola, Michele, Matteo Iacopini, and Carlo Romano Marcello Alessandro Santagiustina. 2021. "On the 'Momentum' of Meme Stocks." *Economics Letters* 207(2): 110021, August. https://www.researchgate.net/publication/353713319_On_the_momentum_of_meme_stocks

- Del Rosario, Diana, Laura Grace Gabriella, Li Lian Ong, Prashant Pande, Alex Liyang Tang, and Toàn Long Quách. 2022. "The (US Fed) Hawks versus the (ASEAN+3) Mighty Ducks?" AMRO Analytical Note (Confidential). ASEAN+3 Macroeconomic Research Office, Singapore, 27 October.
- Durrani, Aziz. 2022. "Resetting Southeast Asia's Climate Agenda." AMRO blog. ASEAN+3 Macroeconomic Research Office, Singapore, 28 October. <https://amro-asia.org/resetting-southeast-asias-climate-agenda/>
- Federal Reserve. 2023. "Review of the Federal Reserve's Supervision and Regulation of Silicon Valley Bank." Publications. Board of Governors of the Federal Reserve System. US Federal Reserve, Washington D.C., 28 April. <https://www.federalreserve.gov/publications/review-of-the-federal-reserves-supervision-and-regulation-of-silicon-valley-bank.htm>
- Financial Stability Board. 2022. *2022 List of Global Systemically Important Banks (G-SIBs)*. 21 November. <https://www.fsb.org/2022/11/2022-list-of-global-systemically-important-banks-g-sibs/>
- Hennig, Tristan, Plamen K lossifov, and Richard Varghese. 2023. "Predicting Financial Crises: The Role of Asset Prices." IMF Working Paper 2023/157, International Monetary Fund. Washington, DC, 4 August. <https://www.imf.org/en/Publications/WP/Issues/2023/08/03/Predicting-Financial-Crises-The-Role-of-Asset-Prices-536491>
- Hong, Seung Hyun, Byunghoon Nam, Adriansyah, Ravisara Hataiseree, and Abigail. 2023. "ASEAN+3 Fiscal Developments, Outlook, and Policy Considerations." Policy Perspectives Paper 23-01, 22 May. <https://amro-asia.org/asean3-fiscal-developments-outlook-and-policy-considerations/>
- International Monetary Fund (IMF). 2022. "The Rapid Growth of Fintech: Vulnerabilities and Challenges for Financial Stability." Chapter 3 in *Global Financial Stability Report*, Washington DC, April. <https://www.imf.org/en/Publications/GFSR/Issues/2022/04/19/global-financial-stability-report-april-2022>
- International Monetary Fund (IMF). 2023. Currency Composition of Official Foreign Exchange Reserves (COFER) Database. IMF Macroeconomic and Financial Data. Washington DC, 30 June. <https://data.imf.org/?sk=e6a5f467-c14b-4aa8-9f6d-5a09ec4e62a4>
- Jadhav, Rajendra. 2023. "Rice to Get Costlier as Weather, India's Farm Perks Threaten Supply." Reuters, 6 July. <https://www.reuters.com/markets/commodities/rice-get-costlier-weather-indias-farm-perks-threaten-supply-2023-07-06/>
- Reyes, Max. 2023. "Signature Bank Was Seized after Leaders Caused 'Crisis of Confidence.'" Bloomberg News, 15 March. <https://www.bloomberg.com/news/articles/2023-03-14/signature-was-seized-after-leaders-caused-crisis-of-confidence?sref=BPMQ98P3>
- Tan, Anthony Chia Kiat. 2023. "Monetary Policy Frameworks in ASEAN+3." Box 1.6, Chapter 1 in *ASEAN+3 Regional Economic Outlook 2023*. Singapore, April. <https://amro-asia.org/asean3-regional-economic-outlook-areo-2023/>
- Tang, Alex Liyang. 2022. "Introduction to the Large-scale AMRO Global Macro-financial (DSGE) Model." AMRO Working Paper 22-05. ASEAN+3 Macroeconomic Research Office, Singapore, 19 July. <https://www.amro-asia.org/introduction-to-the-large-scale-amro-global-macro-financial-dsge-model/>
- Tang, Alex Liyang, and Kimi Xu Jiang. 2023. "Impact of Fed Hikes on Korea and BOK's Optimal Policy Response." Selected Issue 3, in *2022 Annual Consultation Report on Korea*. ASEAN+3 Macroeconomic Research Office, Singapore, 4 April. <https://www.amro-asia.org/amros-2022-annual-consultation-report-on-korea/>
- Tian, Shu, Donghyun Park, Yothin Jinjarak, Cynthia Castillejos Petalcorin, and Mai Lin C. Villaruel. 2021. "Filling the Finance Gap for a Green and Inclusive Recovery." ADB blog. Asian Development Bank, Manila. 10 June. <https://blogs.adb.org/blog/filling-finance-gap-green-and-inclusive-recovery-2>