2. Global setting and outlook

During the review period, a hawkish shift in policy stance by the BoJ and renewed concerns over a US recession triggered an unwinding of Japanese yen carry trades and global financial market sell-offs in early August. While financial markets have since stabilised and the US Fed subsequently delivered a 50-basis-point rate cut in September, the future pace of US Fed rate cuts remains uncertain as it has to strike a balance between maintaining growth momentum and containing upside risks to inflation.

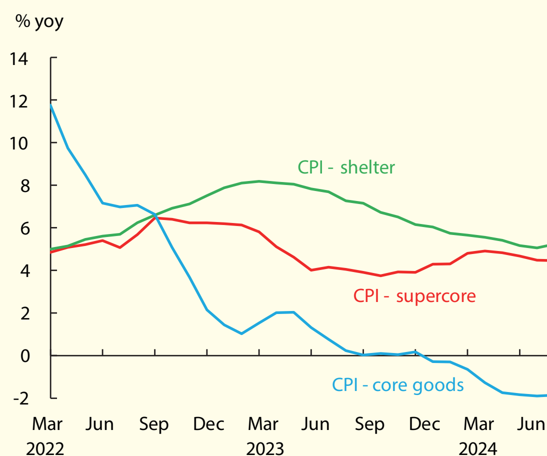
In emerging Asian economies, financial systems have demonstrated resilience despite US interest rates remaining high. Looking ahead, the still-high interest rate environment is likely to continue to pose a challenge to corporate debt-servicing capacity, while rising trade tensions may threaten the recovery of the region's exports.

In Mainland China, the overall economy grew by 5% year on year in the first half of 2024, in line with the official annual growth target, due in part to strengthened policy support. That said, the pace of the country's economic recovery has remained uneven, with solid external trade on the one hand offset by weak domestic demand and property market activities on the other. The near-term economic outlook still faces multiple challenges, such as insufficient domestic demand and an increasingly complicated geo-strategic environment (e.g. higher tariffs from the US and the European Union (EU)). Over the long term, as the economy shifts to high-quality development, the country's economic growth should be supported by the promotion of the new quality productive forces and deepening reforms, as emphasised at the Third Plenum.

2.1 External environment

Global economic growth generally held up well during the review period, although the disinflation progress in the US stalled on the back of sticky core services inflation (Chart 2.1).

Chart 2.1
US: Consumer Price Index (CPI) inflation by major component



Note: "Supercore" inflation refers to core services inflation excluding shelter.
Source: CEIC.

Since late July, uncertainties over the US Fed's monetary policy outlook have heightened further as concerns over the risk of a US recession resurfaced following the release of weaker-than-expected labour market data, and a hawkish shift in the monetary policy stance of the BoJ triggered an unwinding of Japanese yen carry trades and global financial market sell-offs.

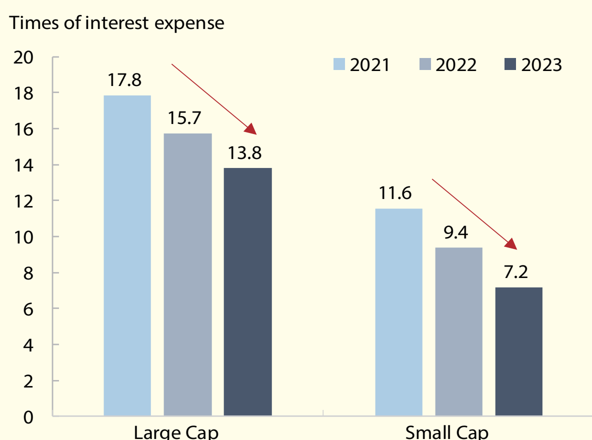
While financial market volatility has since eased, and the US Fed subsequently delivered a 50-basis-point rate cut in September, the pace of future rate cuts remains uncertain, given that the US Fed is likely to have to strike a balance between maintaining growth momentum and containing upside risks to inflation, the latter arising from the stalling of services disinflation and increased trade and fiscal policy uncertainties in the run-up to the US presidential election in November.

Moreover, the US Fed's leeway to ease monetary policy is likely to be constrained by rises in neutral interest rates in recent years in the face of structural trends such as rising levels of public debt. Still-high global interest rates are likely to pose headwinds to asset valuations, weigh on global commercial real estate (CRE) markets, and exacerbate the debt servicing burden of sovereigns and corporates. Box 1 assesses the risks of forced property liquidations and credit downgrades of global real estate investment trusts (REITs) amid the CRE market downturn.

The global financial market sell-offs in early August, driven by the unwinding of Japanese yen carry trades and concerns over a potential US recession, triggered volatility in regional currencies and equity markets. However, that volatility has been contained, and the region's financial systems have remained resilient in general. This stability has been underpinned by robust foreign exchange reserves, enhanced macro-financial policy frameworks, and strong bank capital and liquidity positions.

Looking ahead, the region faces two major risks. First, the corporate cash buffers built up during the pandemic outbreak that cushioned firms against rising financing costs, these reserves have declined over the past two years. Moreover, the interest coverage ratio of both large-cap and small-cap firms has also declined (Chart 2.2), although large-cap firms have maintained a greater debt-servicing capacity than their small-cap counterparts.

Chart 2.2
Emerging Asia: Interest coverage ratio of non-financial listed firms



Note: The bars show the median of the interest coverage ratio of each type of firms in the year. The interest coverage ratio is calculated by the formula: EBITDA/Interest Expense. Large-cap firms are defined as firms with market capitalisation exceeding US$ 1,000 million in mid-May 2024; small-cap firms are those with market capitalisation below US$ 1,000 million. The same set of firms (2,593 large cap firms and 9,396 small cap firms) from 11 APAC economies have been used in the calculation for all years.

Sources: S&P Capital IQ and HKMA staff calculation.

Second, uncertainties surrounding the upcoming US presidential election and other geopolitical events pose risks to the region's export performance. Furthermore, geopolitical conflicts may disrupt GVCs, causing sudden price spikes and complicating efforts to bring global inflation back on target. Further down the road, rising geopolitical fragmentation may lead to further reconfiguration of global trade patterns and GVCs.

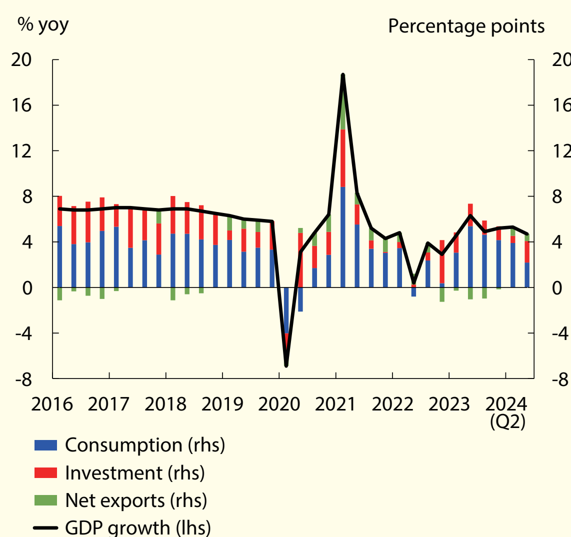
Over the longer term, the region faces challenges from climate change. The region will need to continue its efforts on greening its GVCs, given its high participation in GVCs and their contribution to carbon emissions.[1] Box 2 explores how GVCs have the potential to serve as a conduit for improving the environmental, social and governance (ESG) practices of firms engaged in them.

2.2 Mainland China

Economic performance and policy responses

Bolstered by stronger fiscal support from the Central Government and better co-ordination of fiscal and monetary policies[2], the Mainland China economy grew by 5% year on year in the first half of 2024, keeping pace with the official annual growth target of around 5%. However, Mainland China's year-on-year real gross domestic product (GDP) growth moderated to 4.7% in the second quarter from 5.3% in the first quarter (Chart 2.3).[3] In addition, its economic recovery remained uneven, with solid external trade on the one hand offset by weak domestic demand and property market activities on the other.

Chart 2.3
Mainland China: Contribution to GDP growth by demand component



Sources: CEIC and HKMA staff estimates.

[1] See ADB (2024) "Asia Economic Integration Report".

[2] Supportive fiscal policy includes large-scale equipment renewal, a trade-in programme for selected consumer goods, and the issuance of ultra-long-term Central Government special bonds (RMB1 trillion issuance for 2024). On the monetary front, the People's Bank of China (PBoC) cut the required reserve ratio (RRR) by 50 basis points on 5 February, and the five-year loan prime rate (LPR) was lowered by 25 basis points to 3.95% on 20 February.

[3] On a quarter-on-quarter seasonally-adjusted basis, real GDP growth also slowed from 1.6% in the first quarter to 0.7% in the second quarter.

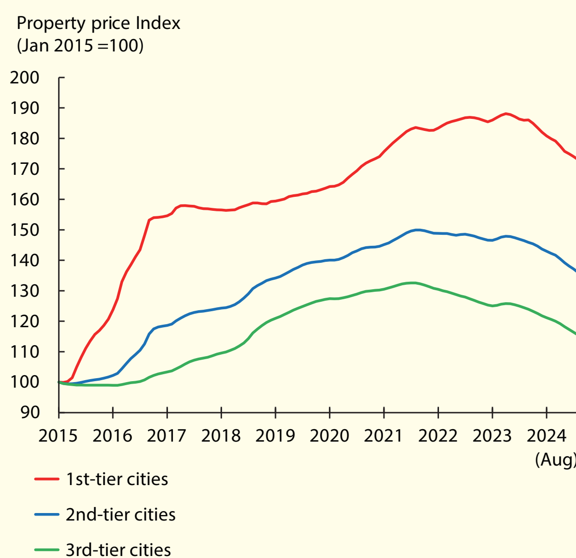
In the short run, Mainland China's economic recovery is expected to continue, helped by accommodative policies and enhanced policy frameworks.[4] That said, the near-term growth outlook still faces multiple headwinds due to insufficient domestic demand and a complicated geo-strategic environment (for example, higher tariffs from the US and the EU[5], and high trade policy uncertainty after the US presidential election). Over the long term, as the economy shifts to high-quality development, economic growth should be supported by the deepening reforms announced at the Third Plenum, which include advancing new urbanisation with *hukou* and land reforms, improving social welfare and the safety net, rebalancing central and local governments' spending responsibilities and revenue sharing, and promoting new quality productive forces.

Headline CPI inflation was positive but remained soft for most of the first eight months of 2024, with the earlier drag caused by food prices easing somewhat and non-food inflation staying moderate. Excluding food and energy, core CPI inflation averaged 0.6% from January to August. At its Monetary Policy Meeting, the People's Bank of China (PBoC) reiterated its support for a moderate pickup in prices. Meanwhile, the headline unemployment rate was largely stable at around 5%, with the rates for the 16–24 and 25–29 age groups declining between March and June before picking up in July and August due to the traditional graduation season.

Asset and credit markets

In the first eight months of 2024, the housing market remained sluggish. Residential property prices recorded continued sequential declines across all city tiers (Chart 2.4). Housing market activities also stayed weak, with notable year-on-year decreases in sales, investment and land sales revenue (Chart 2.5).

Chart 2.4
Mainland China: Residential property prices by tier of cities



Sources: CEIC and HKMA staff estimates.

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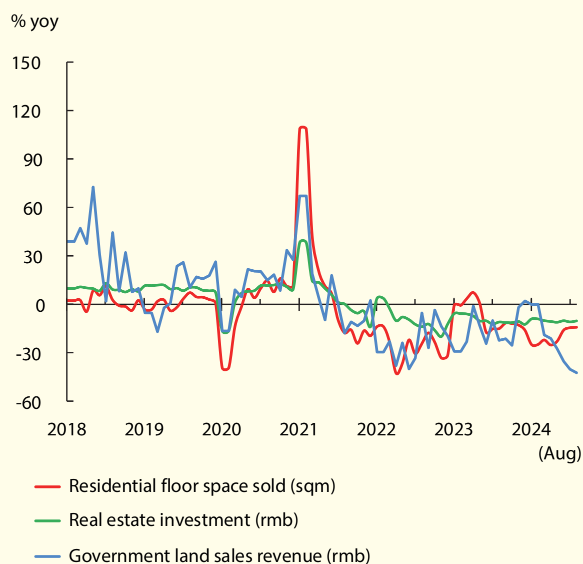
4 For example, in early July, the PBoC refined its monetary policy framework by (i) announcing its intention to borrow government bonds from some open market traders and sell them on the secondary market, and (ii) setting up new open market operation tools (i.e. overnight temporary repos at 20 basis points below the seven-day reverse repo rate and overnight temporary reverse repos at 50 basis points above the seven-day reverse repo rate) to give the PBoC greater control over short-term rates and pave the way for a narrower interest rate corridor. The seven-day reverse repo rate, one-year and five-year LPRs as well as the Standing Lending Facility rate were all lowered by 10 basis points on 22 July, while the one-year Medium-term Lending Facility (MLF) rate was reduced by 20 basis points on 25 July and another 30 basis points on 25 September. The authorities announced 20 measures to boost consumption, and will allocate RMB300 billion in ultra-long-term government bonds to support the equipment upgrades and consumer goods trade-ins. On 24 September, the PBoC announced that it will lower the RRR by 0.5 percentage points and cut the seven-day reverse repo rate by 20 basis points to 1.5% in the near term. The interest rate on LPRs is expected to decline by 20–25 basis points.

5 The direct, near-term effects of the new tariff hikes on Mainland China's merchandise exports and GDP are expected to be manageable, partly due to (i) the small share of the tariffed goods in Mainland China's total exports and (ii) potential supply chain and export market diversification.

Chart 2.5
Mainland China: Property market activities



Sources: CEIC and HKMA staff estimates.

In response, the authorities shifted the policy focus towards reducing housing inventory at the April 2024 Politburo Meeting. This was followed by a series of fresh supporting measures, which included (i) top-down guidance for local governments to purchase existing inventory for social housing; (ii) introduction of a PBoC relending facility for destocking; (iii) a cut in minimum down payment ratios to record lows; and (iv) the removal of the mortgage interest rate floor. On 24 September, the PBoC announced a support package that included an average 50-basis-point reduction on interest rates for existing mortgages and a unification of the minimum down payment ratios for first and second homes, with the nationwide ratio for second homes to be reduced from 25% to 15%. Looking ahead, driven by the changes in the development stage of the real estate sector, the housing market will shift from fast-speed, high-leverage development to steady, healthy and high-quality development.[6]

In the banking sector, overall risk remained under control, with average non-performing loan (NPL) ratios hovering at manageable low levels (Table 2.A). Moreover, the provision coverage ratio of large Mainland banks stayed well above the regulatory requirement (253.8% in June 2024). The PBoC has tightened inspections of the long-dated bond investment strategies of some smaller banks amid a bond rally, in order to contain risks relating to interest rates and duration mismatches should yields rise unexpectedly.

Table 2.A
Mainland China: Non-performing loan (NPL) ratio by bank type

NPL ratio (%)	Jun 2023	Dec 2023	Jun 2024
State-owned commercial banks	1.29	1.26	1.24
Joint-stock commercial banks	1.29	1.26	1.25
City commercial banks	1.90	1.75	1.77
Rural commercial banks	3.25	3.34	3.14

Source: CEIC.

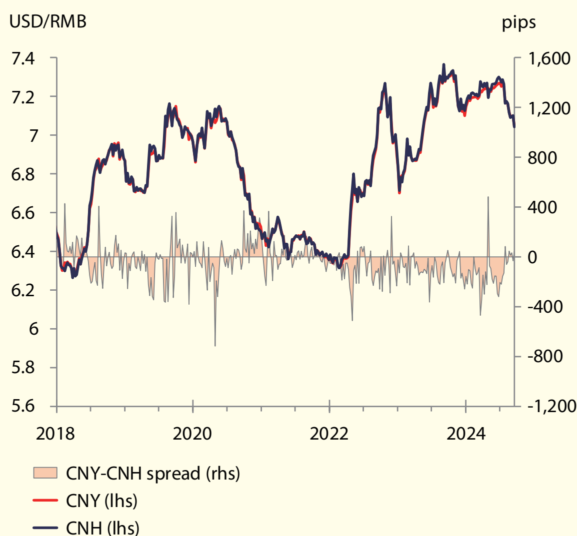
Exchange rate and fund flow indicators

In the first seven months of 2024, both the onshore (CNY) and offshore (CNH) renminbi softened against the US dollar (Chart 2.6), in part due to the "high-for-longer" US interest rate environment and the broad strengthening of the US dollar. More recently, the CNY strengthened notably, partly reflecting the unwinding of Japanese yen carry trades and the US interest rate cut. Meanwhile, the PBoC reiterated that it will maintain the basic stability of renminbi exchange rates. As to fund flows, the onshore Mainland bond market continued to record notable inflows under different schemes, with larger holdings by foreign investors (Table 2.B). The Northbound Stock Connect saw net inflows from February to May alongside a rally in the Mainland equity market[7], but reverted to net outflows in June and July.

[6] At the Third Plenum, the authorities stressed that they will (i) increase government-subsidised housing; (ii) give local governments more autonomy on housing policy; (iii) reform the property development financing and presale model; and (iv) improve the property taxation system.

[7] Equity market confidence was likely bolstered by several factors, including (i) the introduction of the new "Nine-point Guidelines" of capital market regulations in April, which strengthened initial public offering issuance supervision, boosted dividend payouts and tightened restrictions on share reductions by controlling shareholders; (ii) Exchange-Traded Fund inflows from China's state-backed funds; and (iii) foreign investors covering their underweight allocation in China or buying on cheap valuations.

Chart 2.6
Mainland China: Onshore and offshore renminbi exchange rates against the US dollar



Sources: Bloomberg and HKMA staff estimates.

Table 2.B
Mainland China: Foreign fund flow indicators

(RMB bn)	2023	H1 2024	Apr 2024	May 2024	Jun 2024	Jul 2024
Northbound Stock Connect	44	39	6	9	–44	–17
Northbound Bond Connect	388	424	42	78	58	72
CIBM Direct and QFI	1147	676	85	153	94	156
Change in foreign holdings in the interbank market	282	640	51	172	88	148

Notes: Fund flows are measured by net buying flows for the Northbound Stock Connect, the Northbound Bond Connect and the CIBM Direct and QFI. "CIBM Direct and QFI" refers to the China Interbank Bond Market Direct Scheme and the Qualified Foreign Investor Scheme.

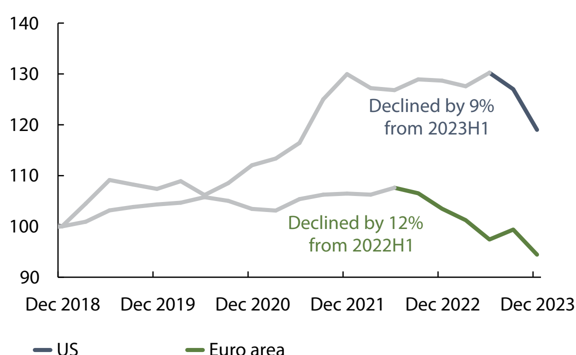
Sources: Wind, CFETS and HKMA staff estimates.

Box 1
Assessing the risks of forced property liquidations and credit downgrades of real estate investment trusts in a commercial property market downturn: A stress-testing approach

Introduction[8]

Global CRE values have faced pressures (Chart B1.1) in the face of high interest rates and structural changes such as shifts towards remote working and e-commerce, especially for office and retail spaces. This has inevitably raised concerns about the financial implications for CRE investors. One key concern is the impact on REITs, as their assets accounted for around a quarter of the global CRE held by institutional investors (MSCI, 2024).[9]

Chart B1.1
Average CRE asset values in major economies (Levels at the end of 2018 = 100)



Notes:
1. Each curve represents the level of average CRE asset values against the level at the end of 2018 (= 100) in the given region from 2018 to 2023, with the solid coloured portion indicating the declining trend from the most recent peak.
2. The text indicates the average percentage decline in CRE asset values to the end of 2023 from the most recent peak in the given region.
3. The chart covers the US and the euro area. As for Asia-Pacific (APAC), the International Monetary Fund (IMF) (2024) has indicated that CRE asset values in the region declined by around 3% in 2023.

Sources: Bank for International Settlements (BIS) (2024) and HKMA staff estimates.

REITs could also potentially amplify the downturn of the CRE market, as they are typically subject to leverage limits (usually at or below 60% of total assets) as required by debt covenants or credit rating agencies.[10] With the market downturn continuing to drive up their leverage ratios, REITs could be forced to deleverage by selling their CRE assets at steep discounts to avoid triggering the leverage limits. Such deleveraging, if realised on a large scale, could deepen the CRE market downturn, with ramifications for the wider financial system.

This box describes a stress test conducted to assess this issue. The test estimated the impacts on the property sales volume and credit ratings of global REITs if CRE market values were to fall by 10% (mild scenario) to 40% (severe scenario)[11] from the end of 2023. The stress-testing framework and results are presented in the next sections.

Stress-testing framework

Our sample, retrieved from S&P Capital IQ and Bloomberg, encompasses 600 global REITs specialising in the office, retail, industrial, or diversified sectors, which are at the epicentre of the ongoing CRE downturn.[12] We conducted the stress-testing exercise in three steps:

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8 For details, see Leung et al.: "Assessing the risks of forced property liquidations and credit downgrades of real estate investment trusts in a commercial property market downturn: A stress-testing approach", *HKMA Research Memorandum* 2024/07.

9 In addition, the combined CRE transaction volume of global REITs amounted to at least an estimated 18% of the market aggregate in 2023 (CBRE, 2024).

10 For details, see Lai (2023) of S&P Global Ratings, Frankel (2014) of Moody's and Olazabal et. al. (2012) of PIMCO.

11 The severe scenario is comparable to the maximum annual decline in CRE asset values in the reporting jurisdictions from 1993 to 2023, where data are available, based on data from BIS (2024).

12 The sampled REITs accounted for about 76% of the total REIT population at the end of 2023.

i. *Projection of leverage increase:* We projected the increase in leverage measured by the debt-to-asset ratio (DAR) for each sampled REIT under scenarios in which CRE asset values declined by 10% to 40% from the end of 2023;

ii. *Estimation of the impacts of leverage increase:* We quantified the average impacts of each percentage point (ppt) increase in the DAR on the REITs' property sales volume and credit ratings using fixed effect regression models.[13] These effects were found to be more significant if the DAR exceeded the 60% threshold; and

iii. *Simulation of property sales and credit ratings:* By integrating (i) the projected changes in the DAR with (ii) the estimated effects of the DAR on property sales volume and credit ratings, we simulated the respective changes in the property sales and credit ratings of REITs in the year following the scenarios.

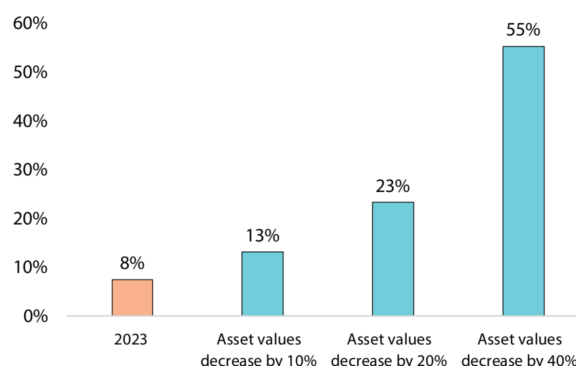
Stress-testing results

This section presents the stress-testing results on changes in (1) the DAR, (2) the property sales volume, and (3) the credit ratings of REITs under the scenarios.

1) To what extent would the DAR of REITs increase under the scenarios?

Our results projected an increase in the DAR of REITs under the scenarios, with the median DAR level ranging from 44% to 67%, compared to 40% at the end of 2023. Consequently, from 13% to 55% of the REITs would violate the usual debt covenants under the scenarios, up from 8% at the end of 2023 (Chart B1.2).

Chart B1.2
Share of REITs in breach of the leverage limits required in the usual debt covenants



Note: Each bar represents the share of the sampled REITs whose DAR crossed the 60% threshold under the given scenario, expressed as a percentage of the total number of the sampled REITs.

Sources: S&P Capital IQ and HKMA staff estimates.

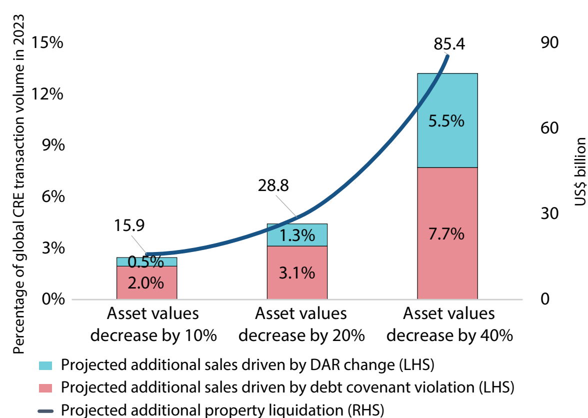
Such deviations from the usual debt covenants were relatively widespread in certain listing regions or investment sectors. Given their higher leverage levels at the end of 2023, Americas-listed, and retail and office REITs would be more prone to leverage breaches than APAC-listed REITs and industrial REITs under the scenarios. This could put REITs in these listing regions and investment sectors at greater risks of forced property liquidations and credit downgrades.

2) To what extent would REITs sell off assets under the scenarios?

Given the significant increase in the DAR and the proportion of REITs violating the usual debt covenants, our exercise simulated a notable level of additional property sales by REITs under the scenarios, equivalent to 2.5% to 13.2% of the CRE transaction volume in 2023 (Chart B1.3). Most of the additional sales were contributed by REITs violating the debt covenants (orange portions, Chart B1.3), reflecting pressures on highly-leveraged REITs to deleverage by liquidating assets.

[13] For the regression models and results, see the *HKMA Research Memorandum*.

Chart B1.3
Simulated increase in REITs' property sales volume



Notes:
1. The curve represents the simulated increase in the sampled REITs' property sales (in US$ billion) over one year following the given scenario.
2. Each bar indicates the simulated increase in the sampled REITs' property sales over one year following the given scenario, expressed as a percentage of the global CRE transaction volume in 2023 (CBRE, 2024).

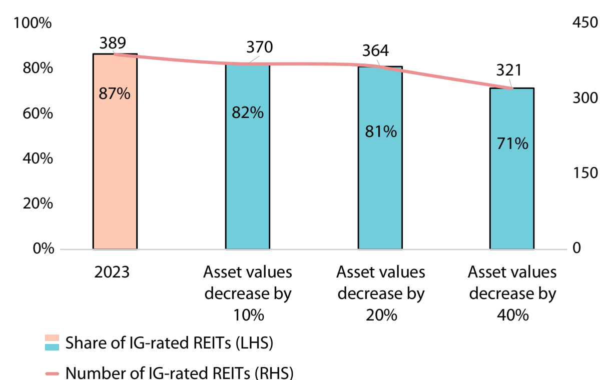
Sources: S&P Capital IQ, CBRE (2024) and HKMA staff estimates.

Additionally, the variation in DAR of REITs across listing regions and investment sectors was responsible for regional and sectorial differences in property sales. By listing region, the Americas-listed REITs were projected to be the primary contributors of property sales in any scenario, accounting for 60% to 88% of the simulated total. By investment sector, industrial REITs, the least leveraged among all REIT sectors in the sample, were estimated to sell the smallest volume of properties compared to other REIT sectors.

3) How many REITs would be downgraded under the scenarios?

Our results also projected that a significant proportion of REITs would lose their investment-grade (IG) status due to the increase in their DAR under the scenarios, with the share of IG-rated REITs declining from 87% at the end of 2023 to an estimated 71% to 82% over a year (Chart B1.4). Such credit downgrades could have profound spill-over effects. Financial institutions with a large exposure to REITs could suffer direct losses as a result of depressed security values. Banks, the largest debt holders of REITs, would face heightened default risks if REITs' credit ratings deteriorate. In case of a widespread default, the linkage between the banking and real estate sectors could trigger a credit crunch, severely impacting the financial system.

Chart B1.4
Number and share of IG-rated REITs



Notes:
1. The curve represents the number of IG-rated REITs in the sample across the given scenarios.
2. Each bar represents the share of IG-rated REITs in the sample across the given scenarios, expressed as a percentage of the total number of the sampled REITs.
3. This chart uses a subset of the sampled REITs as credit ratings are not available for the remainder.

Sources: Bloomberg and HKMA staff estimates.

Similarly, the risks of credit downgrades varied significantly across listing regions and investment sectors. By listing region, the share of IG-rated Americas-listed REITs would decline by 19 ppts to 55% in the severe scenario, down from 74% at the end of 2023. By contrast, APAC-listed REITs would experience a more modest decline of at most 8 ppts. By investment sector, industrial REITs would be the least likely to lose their IG ratings compared to other REIT sectors.

Conclusion and implications

In conclusion, the stress test showed that REITs would face elevated leverage and significant risks of forced property liquidations and credit downgrades under certain scenarios. It also pointed to significant regional and sectoral variations, with Americans-listed, retail and office REITs being more vulnerable to leverage breaches, forced liquidations and credit downgrades compared to APAC-listed and industrial REITs.

In the near future, the global CRE market may continue to face challenges given uncertain interest rate paths and weak demand for office and retail spaces. From a financial stability perspective, it is crucial to closely monitor CRE investors' responses to the development of the CRE market, particularly their potential amplification of pressure on the CRE market due to deleveraging. The spillover risks to the broader financial system, such as banks, should also be assessed, especially for those institutions exposed to the relatively vulnerable REIT segments identified in this stress-testing exercise.

Finally, as our stress test primarily focuses on the impact of REITs' leverage on financial stability, it may not capture all the factors influencing a REIT's decision to retain or sell its property portfolio or affecting its credit rating. For instance, REITs may look to mitigate pressures to deleverage by raising funding through secondary public offerings rather than asset sales. Also, some REITs may choose to sell assets in order to fund future investment opportunities rather than to repay debt. While various robustness tests have been conducted on our estimations, readers should interpret our results with caution due to these limitations.

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Box 2
Examining the ripple effect of corporate ESG performance along global value chains

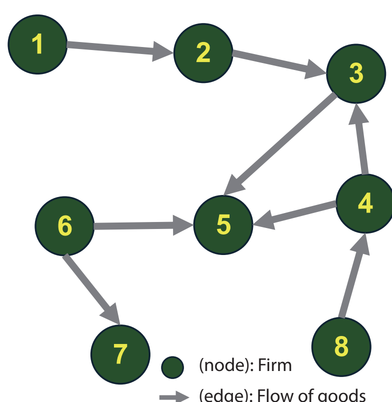
Introduction

Recent studies suggest that there exists positive spillover effects of environmental, social, and governance (ESG) practices from customers to suppliers, as well as among peer firms along global value chains (GVCs).[14] Additionally, sustainable finance has emerged as a significant catalyst for enhancing firms' ESG performance. In this box we explore the synergistic effects of GVC participation and access to sustainable finance on the ESG performance of firms, and draws some implications for green transition initiatives.

Data and Methodology

Network analysis techniques are well suited for studying GVC networks, as they offer a comprehensive overview and provide meaningful metrics for regression analysis. In a directed GVC network, each node represents a firm, and each edge with an arrow represents a trade relationship and the direction of goods flow. For example, in Chart B2.1, Firm 2 is a customer of Firm 1 and a supplier of Firm 3.

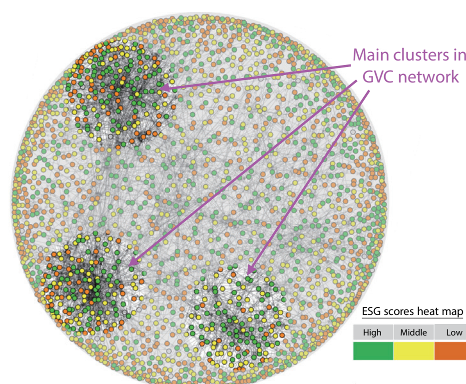
Chart B2.1
Example of a directed GVC network diagram



[14] See Tang et al. (2023), "The spillover effect of customers' ESG to suppliers." *Pacific-Basin Finance Journal*, 78, 101947 and Li et al. (2023), "How do ESG affect the spillover of green innovation among peer firms? Mechanism discussion and performance study" *Journal of Business Research*, 158, 113648

To visualise the relationship between firms' GVC participation and their corresponding ESG performance, Chart B2.2 presents a GVC network in 2021.[15] The nodes are coloured based on the firms' ESG score levels: high (green), middle (yellow), and low (orange). We observe that the share of green nodes in the key GVC participation clusters (i.e. the groups of nodes with a high density of edge connections, indicated by the lilac arrows) is apparently higher than across the rest of the network. This observation suggests a possible positive relationship between a firm's GVC participation and its ESG performance.

Chart B2.2
GVC networks and ESG performance in 2021



Sources: Capital IQ, Trucost and HKMA staff estimates.

Empirical findings

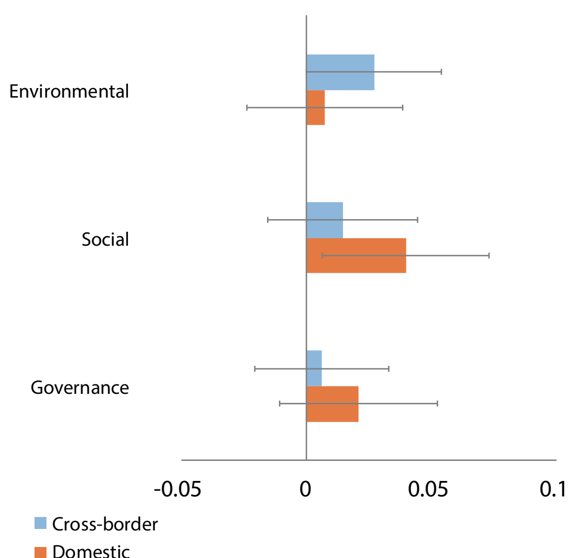
1. ESG ripple effects along cross-border and domestic value chains

We examined the transmission of ESG practices along GVCs by conducting a firm-level panel data regression between 2020 and 2022. Specifically, we regressed changes in the sub-components of suppliers' ESG scores — environmental (E), social (S), and governance (G)

[15] The network chart is derived from snapshots of global customer-supplier relationships provided by S&P Capital IQ and ESG scores from Trucost.

— against changes in the average sub-component ESG score of their industry, changes in their customer's sub-component ESG score, the balance of market power in a customer-supplier relationship (represented by standardised degree centrality differentials) and a set of control variables.[16] To uncover how the ESG ripple effect differs between cross-border and domestic value chains[17] , we divided our customer-supplier pairs into two subsamples for regression. Chart B2.3 highlights the regression coefficients associated with customers' ESG sub-components for both types of value chains.

Chart B2.3
Estimated coefficients of customer's sub-component ESG scores



Note: The error bars represent a 95% confidence interval of the estimates.
Source: HKMA staff estimates.

We found that the environmental performance of suppliers was positively influenced by the cross-border environmental practices of their customers, as indicated in Chart B2.3. This aligns with the fact that environmental issues, such as raw material sourcing and carbon footprints, are important considerations in cross-border value chains. Moreover, environmental regulations vary across regions, and customer firms may need to implement the highest standard of environmental protocols across value chain borders. This creates an opportunity for suppliers, particularly those located in regions with loose regulations, to improve their environmental performance.

On the other hand, within domestic value chains, the social performance of customers tended to have a spillover effect on that of their suppliers, as indicated by the positive and significant coefficient in Chart B2.3. Many social issues, such as labour rights and work safety, are often location-specific and sensitive to cultural norms. The discrediting of social issues can damage the reputation of the firms involved in the domestic economy.

2. Impact of sustainable financing throughout a GVC network

Sustainable financing (e.g. ESG bonds) is an innovative financial instrument that incentivises firms to expedite their transition to green and sustainable practices. To bolster ESG performance, ESG bond issuers may impose a higher ESG standard on their suppliers, placing pressure on upstream firms to enhance their ESG practices[18] and thereby generating a positive ripple effect throughout the GVC network.

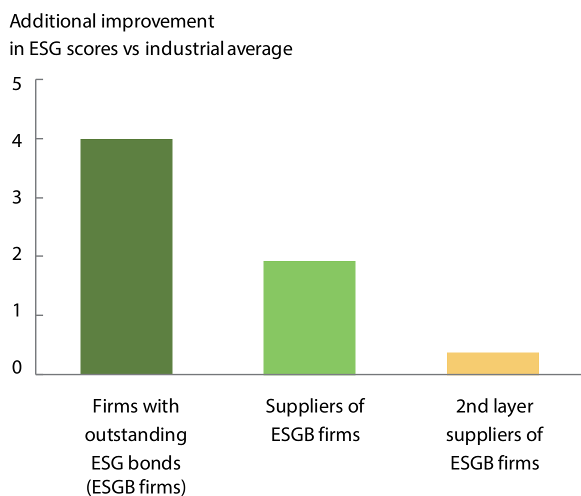
[16] Details of the methodology and estimation results can be found in Yip and Wong (2024), "Examining the ripple effect of corporates' ESG performance along the global supply chain", *HKMA Research Memorandum 06/2024*.

[17] Specifically, a value chain relationship is considered as domestic when the headquarters of both supplier and customer are within the same jurisdiction; otherwise, it is considered a cross-border value chain relationship.

[18] We extended the baseline model by introducing a dummy variable of ESG bond outstanding issuance. The result showed that customers with ESG bond financing have an additional positive influence on suppliers' ESG practices. Details of the result can be found in Yip and Wong (2024), "Examining the ripple effect of corporates' ESG performance along the global supply chain", *HKMA Research Memorandum 06/2024*.

To show the positive ripple effect of sustainable finance, Chart B2.4 tracks the changes in ESG scores for ESG bond issuers, their suppliers and a second layer of suppliers. Compared with the industrial average, GVC-linked firms exposed to ESG bond financing, on average, show greater improvements in ESG performance. This provides evidence that ESG bond financing can extensively enhance other firms' ESG practices, particularly those of GVC-linked firms that are unable to access sustainable finance.

Chart B2.4
Improvement in ESG performance of firms with ESG bond financing exposure



Source: HKMA staff estimates.

Implications for central banks

Our findings suggest that expanding the availability of sustainable finance to include downstream firms within GVCs (i.e. customers) could amplify the positive ESG ripple effects. Central banks could foster these ESG ripple effects by taking initiatives to promote more inclusive sustainable finance being made available for firms participating in GVCs. In particular, policymakers could encourage large corporates to issue ESG bonds and broadening the reach of sustainable financing.[19] As small and medium-sized enterprises (SMEs) usually face greater challenges in accessing sustainable finance, central banks can also facilitate the efforts of financial institutions to set up data platforms for seamlessly accessing SMEs' customer information.[20] Financial institutions can leverage such customer information (e.g. company names, sales revenue and ESG scores) as complementary information for sustainability assessment, and design suitable financial products (e.g. loans or credit lines) for eligible SMEs.

[19] In Hong Kong, the Government has launched the Green and Sustainable Finance Grant Scheme in 2021, designed to facilitate eligible firms to issue ESG bonds in Hong Kong.

[20] An example is the Commercial Data Interchange launched by the HKMA in 2022.