Chapter I

Macrofinancial Risks

The global financial system displayed continued resilience amidst moderation in economic activity, rising policy uncertainty and elevated geopolitical tensions. Major vulnerabilities, such as elevated and rising public debt and stretched asset valuations, however, remain. Spells of high volatility in the global financial markets suggest continued uncertainty on future growth prospects.

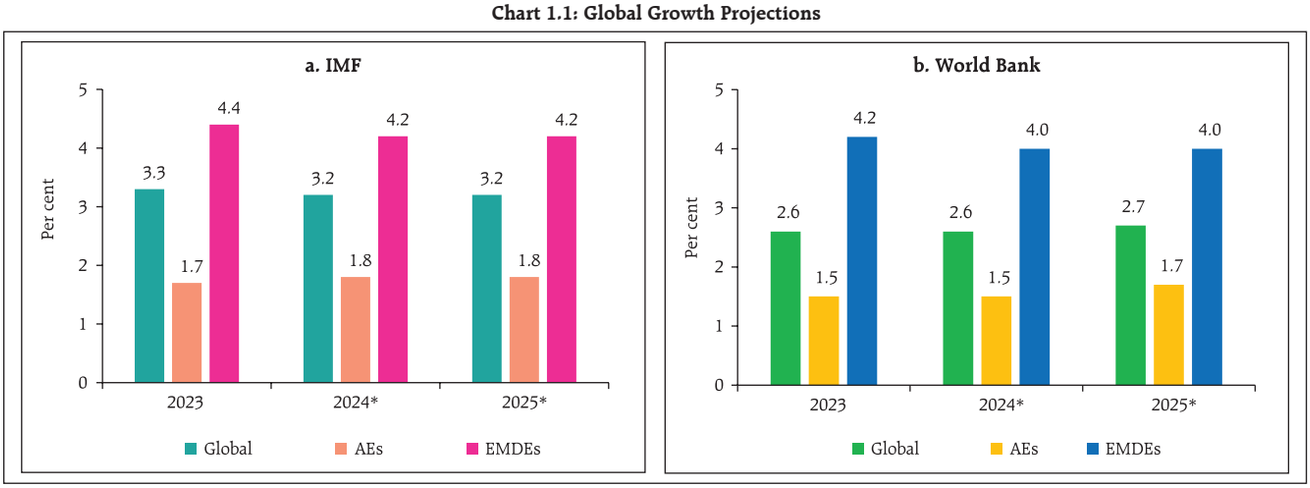
The Indian economy and the financial system remain strong and stable underpinned by sound macroeconomic fundamentals, healthy balance sheets of banks and non-banks and low volatility in financial markets despite some qualms about global spillovers.

Introduction

1.1 Since the June 2024 issue of the Financial Stability Report (FSR), receding inflation has enabled a broadening of the pivot towards easing monetary policy, barring a few outliers. So far, global economic activity and trade have remained resilient to the widening of geopolitical conflicts. Global financial markets remain on the edge and are prone to sudden bouts of volatility as policy uncertainty, including that from political spillovers, remains elevated. Vulnerability to abrupt and sharp price actions has consequently increased, as witnessed during the August 2024 episode of market turmoil involving Japanese Yen (JPY) carry trade unwinding. The global financial system has generally displayed resilience during this period of significant shifts. With financial conditions remaining accommodative, vulnerabilities are festering in the form of leveraged positions, stretched asset valuations, elevated levels of public and private debt and opaque fragilities in less regulated non-bank financial intermediaries. Global banking sector asset quality concerns due to stress in select segments such as credit cards and commercial real estate linger.

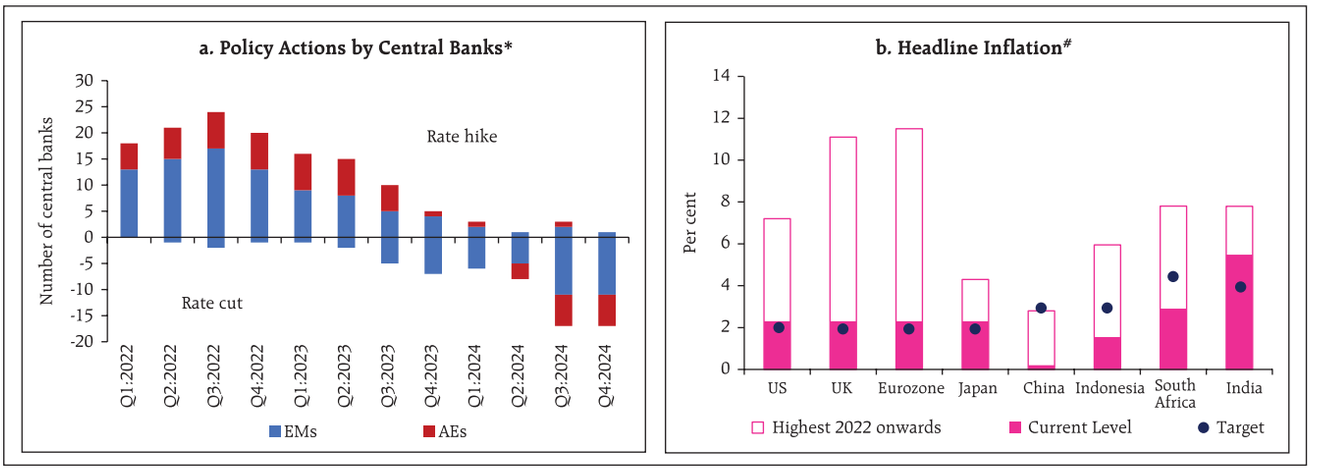
1.2 As per its latest assessment, the International Monetary Fund (IMF) projects global growth at 3.2 per cent in 2024 and 2025 (Chart 1.1 a), with emerging markets and developing economies (EMDEs) growing at a steady pace,

Chart 1.1: Global Growth Projections



Note: * Forecasts.
Sources: IMF and World Bank.

Chart 1.2: Policy Rate and Inflation



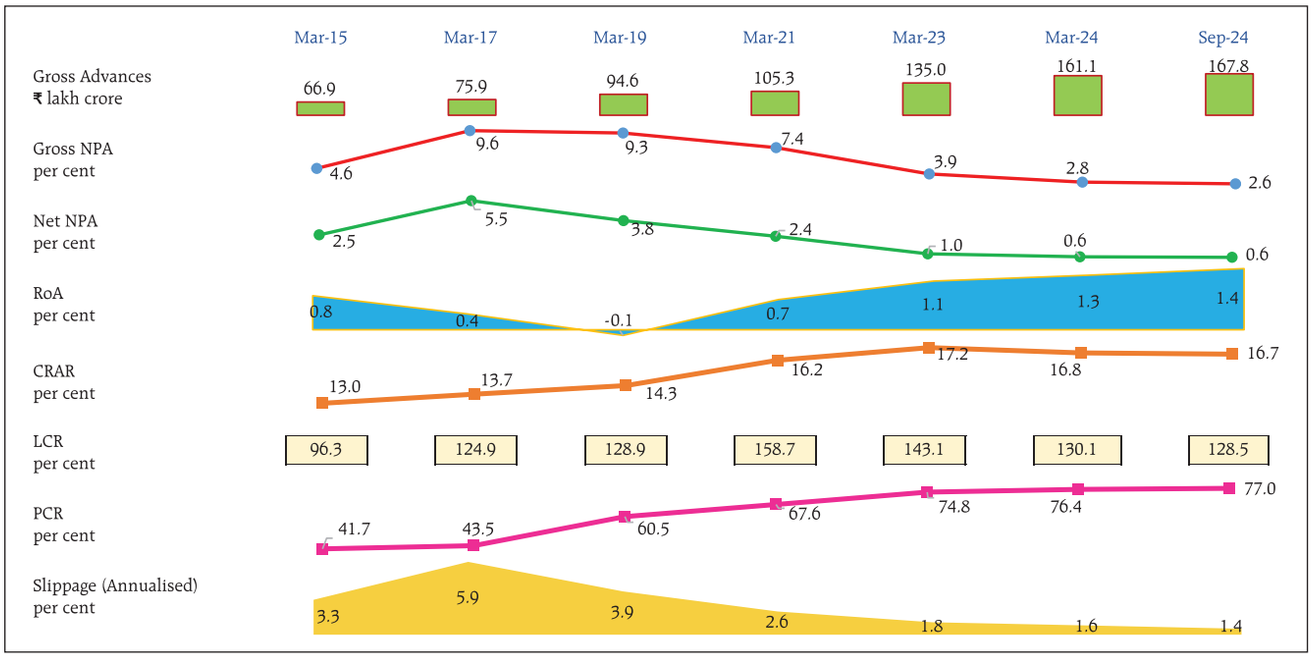
Note: (1) * Based on policy actions of 8 advanced economy central banks and 20 emerging market central banks. Positive figure denotes rate hike action and negative figure denotes rate cut action in respective quarters. Data available as on December 12, 2024.
(2) # PCE Index used for US and CPI Index used for other countries. Data available as on December 12, 2024.
Source: Bloomberg.

advanced economies (AEs) reverting or approaching potential growth, and low-income economies facing downside risks. The World Bank, on the other hand, projects global growth at 2.6 per cent and 2.7 per cent in 2024 and 2025, respectively (Chart 1.1 b).

1.3 While disinflation has progressed without significant wage pressures in spite of strong labour markets and stubborn services prices, upside risks to inflation from further escalation in geopolitical conflicts and growing economic fragmentation persist, with commodity prices and supply shocks as conduits. Moreover, expansionary fiscal policies could negate the hard-earned gains in fighting higher inflation. Consequently, central banks remain cautious about a premature easing of monetary policy stance (Chart 1.2 a and b).

1.4 In this uncertain global macroeconomic and financial environment, the Indian economy is exhibiting resilience and stability. Real gross domestic product (GDP) is projected to grow at 6.6 per cent in 2024-25 aided by revival in rural consumption, pickup in government consumption and investment and strong services exports. The underlying growth momentum remains strong and is supported by the steadfast focus of monetary policy on a durable alignment of inflation to the target. A stable financial system, bolstered by healthy balance sheets and profitability of banks and non-banks and reasonable expansion in credit, is providing support to businesses and households (Chart 1.3).

Chart 1.3: Banking Sector Soundness Indicators



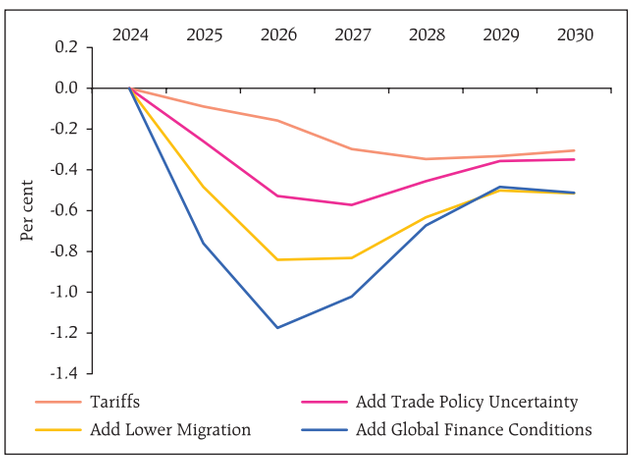
Notes: (1) Data as on December 12, 2024.
(2) Data pertains to domestic operations of SCBs (excluding SFBs).
Sources: RBI supervisory returns and staff calculations.

I.1 Global Backdrop

I.1.1 Macrofinancial Development and Outlook

1.5 Global growth remains steady, with the balance of risks to outlook tilted to the downside. Strong growth in the U.S. and stable outlook in EMDEs are positives for the world economy. Moreover, the global battle against inflation is winding down without the risk of recession. With stronger recovery in public investment in AEs and structural reforms in EMDEs, growth could accelerate. Downside risks, such as escalating geopolitical tensions, uncertainty about trade and industrial policies in the aftermath of major global elections, and potential tightening of financial conditions, however, could drag global output lower from baseline projections[1]. From a financial stability standpoint, while downside risks to economic growth could raise medium-term vulnerabilities, any abrupt tightening in financial conditions, when economic uncertainty is elevated, could heighten near-term risks (Chart 1.4).

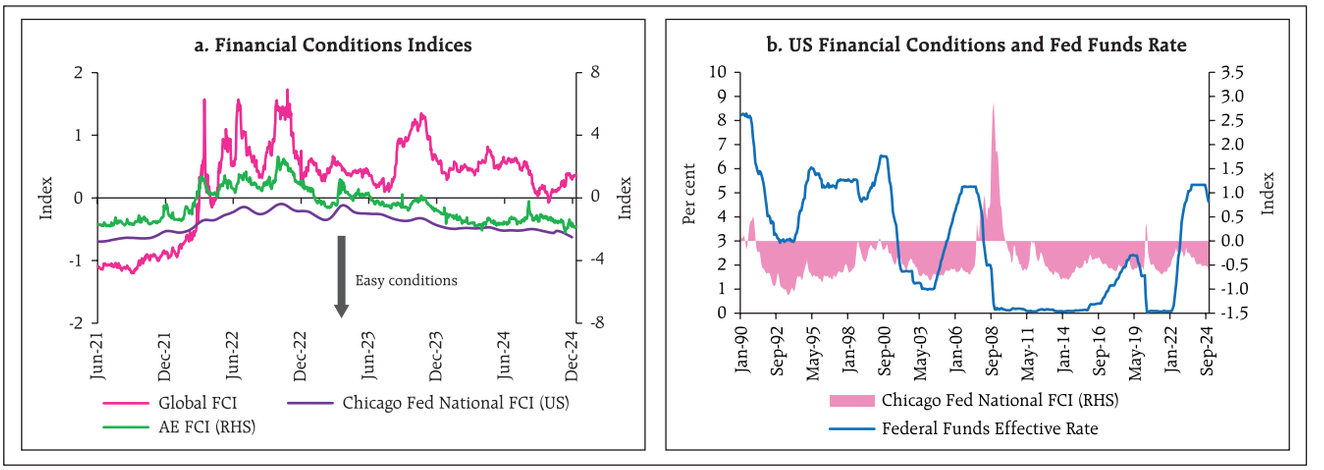
Chart 1.4: Downside Risks to Global Growth Outlook



Note: Results are shown as deviation from baseline projections.
Source: IMF.

[1] International Monetary Fund (2024), "World Economic Outlook: Policy Pivot, Rising Threats", October.

Chart 1.5: Financial Conditions



Note: Value for Global Financial Conditions Index (FCI) is derived by subtracting 100 from Goldman Sachs Global FCI. Advanced economy (AE) FCI is derived as the first principal component of US, UK and Eurozone FCIs. Individual FCIs provided by Bloomberg have been multiplied by (-1).
Sources: Bloomberg, FRED (Federal Reserve Bank of St. Louis), Goldman Sachs and RBI staff calculations.

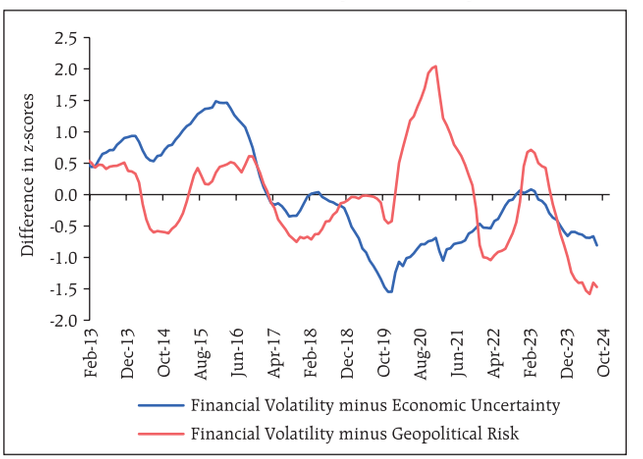
1.6 Financial market conditions, as reflected in summary indices, are moving in alignment with policy shifts. Monetary easing is, however, coinciding with accommodative financial conditions, which could fuel irrational exuberance among market participants and amplify any shock, through nonlinear reactions and fire sales (Chart 1.5 a and b).

1.7 There is a widening disconnect between uncertainty and financial market volatility, with potential macrofinancial implications (Chart 1.6). According to the IMF, one-year-ahead global real GDP growth could worsen by 1.2 percentage points if global real economic uncertainty reaches levels seen during the global financial crisis in 2008[2].

1.8 Low volatility may be engendering inaccurate assessments of risks in asset prices. Concentrated, interconnected, complex and opaque exposures in the financial system can amplify sudden shift in sentiments and trigger sell-offs and snap backs as witnessed in the market turmoil involving deleveraging of Yen carry trades in August 2024 and worldwide sell-offs.

1.9 Overall, even as near-term risks remain contained, medium-term vulnerabilities and the growing influence of new technologies in the financial sector, in addition to the potential financial stability consequences of climate and cyber risks, require close monitoring.

Chart 1.6: Uncertainty and Volatility



Note: (1) All series are 12 month moving averages of differences in z-scores from 2012 to 2024.
(2) Economic uncertainty is the index of Baker, Bloom and Davis (2016); Geopolitical Risk is the index of Caldara and Iacoviello (2022); Financial volatility is average of CBOE VIX, JPM FX volatility index, and volatility in high yield corporate bond index.
Sources: Bloomberg and RBI staff calculations.

[2] International Monetary Fund (2024), "Global Financial Stability Report: Steadying the Course: Uncertainty, Artificial Intelligence, and Financial Stability". October.

I.1.2 Global Macrofinancial Risks

1.10 Several other vulnerabilities foreshadow global financial stability. This section focuses on the following vulnerabilities that require closer monitoring: high and rising levels of public debt; asset valuations and volatility; and the impact of artificial intelligence on financial stability.

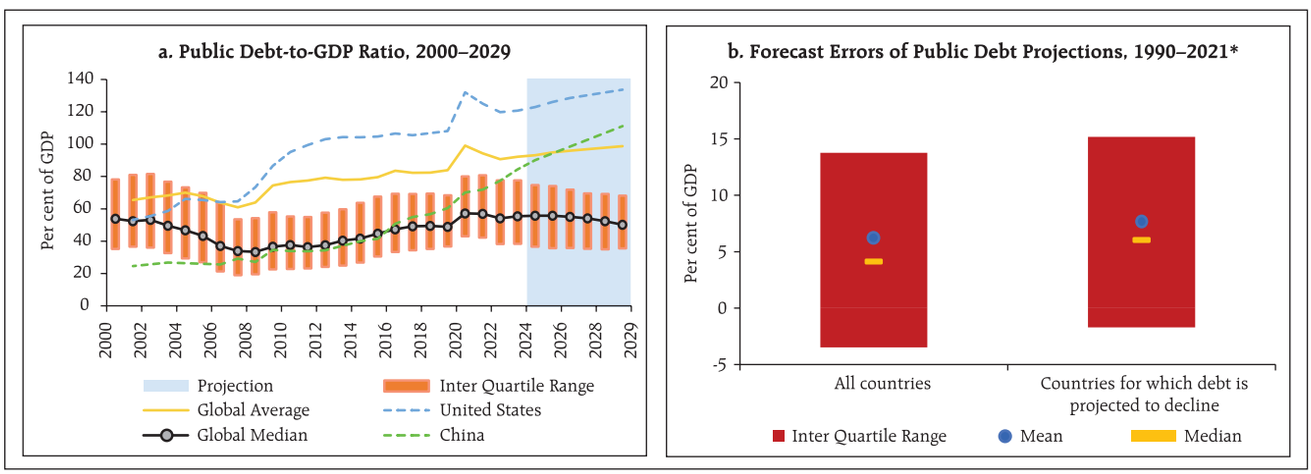
A. High and Rising Levels of Public Debt

1.11 Global public debt is projected to exceed US$ 100 trillion (*i.e.*, 93 per cent of global GDP) by the end of 2024. The world's two largest economies (*viz.*, the U.S. and China) are the main drivers of this surge which is expected to surpass 100 per cent of GDP by 2030[3] (Chart 1.7 a). Future debt levels could exceed these projections[4], given that actual debt-to-GDP ratios turned out to be higher than forecasts in the past (Chart 1.7 b). In addition, the estimates of unidentified debt[5] range between 1.0 and 1.5 per cent of GDP on an average[6].

1.12 High levels of debt, the associated interest burden and potential debt-at-risk[7] prompt concerns about debt sustainability endangering financial stability amidst structural changes such as ageing populations and healthcare needs, green transition and climate adaptation, and defence spending in the midst of elevated geopolitical tensions (Chart 1.8 a and b). Fiscal risk premia could rise sharply as a result, leading to a spike in the cost of government debt and instability in government bond markets as witnessed in the September 2022 turmoil in the UK.

1.13 Fiscal sustainability influences sovereign ratings. Among G-20 economies, there have been more downgrades than upgrades (Table 1.1).

Chart 1.7: Public Debt-to-GDP Ratio and Forecast Errors



Note: *Forecast errors are defined as the projected debt-to-GDP ratio relative to the realised outcome for each country. The bars show the interquartile range for the three-year horizon.
Source: IMF.

[3] International Monetary Fund (2024), "Fiscal Monitor: Putting a Lid on Public Debt", October.

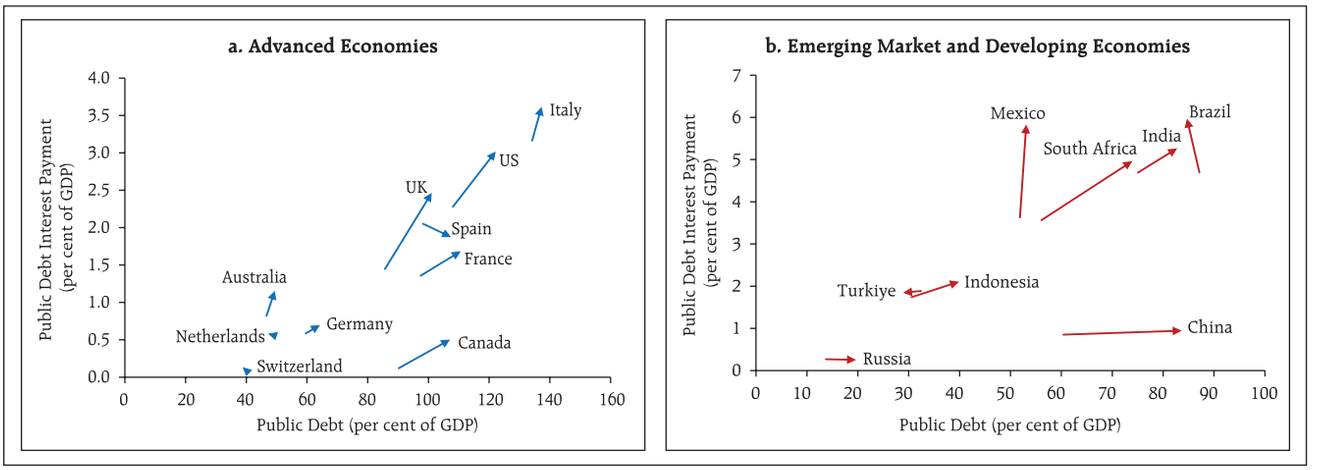
[4] International Monetary Fund (2024), "Fiscal Monitor: Putting a Lid on Public Debt", October.

[5] Unidentified debt consists of: materialisation of contingent liabilities and fiscal risks. These liabilities and risks stem largely from losses of state-owned enterprises as well as from bank recapitalisations and loan guarantees typically implemented during banking crises and periods of financial stress; Other important sources include arrears, recognition of debt from institutional changes in the perimeter of government, and extrabudgetary spending.

[6] International Monetary Fund (2024), "Fiscal Monitor: Putting a Lid on Public Debt", October.

[7] Debt-at-risk is the level of future debt in an extremely adverse scenario.

Chart 1.8: Public Debt and Interest Burden



Note: Arrow represents change between 2019 and 2023.
Source: UNCTAD.

Table 1.1: Sovereign Rating of G20 Economies

Country	2019			2024		
	Moody's	S&P	Fitch	Moody's	S&P	Fitch
Australia	Aaa	AAA	AAA	Aaa	AAA	AAA
Argentina	Caa2	CC	CC	Ca	CCC	CCC
Brazil	Ba2	BB-	BB-	Ba1	BB	BB
Canada	Aaa	AAA	AAA	Aaa	AAA	AA+
China	A1	A+	A+	A1	A+	A+
France	Aa2	AA	AA	Aa3	AA-	AA-
Germany	Aaa	AAA	AAA	Aaa	AAA	AAA
India	Baa2	BBB-	BBB-	Baa3	BBB-	BBB-
Indonesia	Baa2	BBB	BBB	Baa2	BBB	BBB
Italy	Baa3	BBB	BBB	Baa3	BBB	BBB
Japan	A1	A+	A	A1	A+	A
Mexico	A3	BBB+	BBB	Baa2	BBB	BBB-
Saudi Arabia	A1	A-	A	Aa3	A	A+
South Africa	Baa3	BB	BB+	Ba2	BB-	BB-
South Korea	Aa2	AA	AA-	Aa2	AA	AA-
Türkiye	B1	B+	BB-	B1	BB-	BB-
United Kingdom	Aa2	AA	AA	Aa3	AA	AA-
United States	Aaa	AA+	AAA	Aaa	AA+	AA+

No ratings change from 2019
Ratings downgrade from 2019
Ratings upgrade from 2019

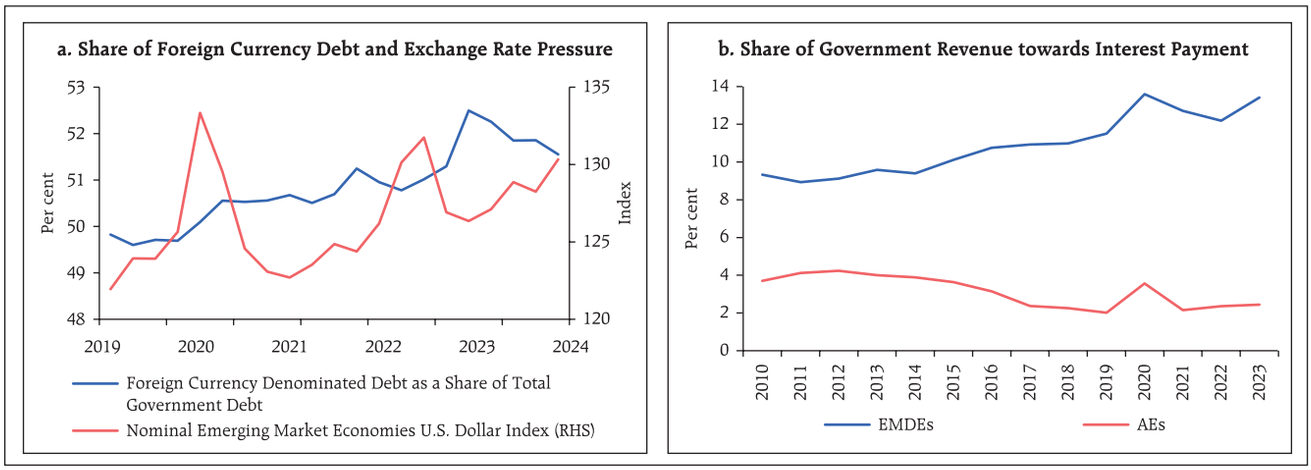
Note: Russia is not included here as its ratings for 2023 and 2024 are not available.
Source: Bloomberg.

1.14 EMDEs that have a greater share of foreign-currency denominated debt remain vulnerable to potential default. Empirical analysis shows that prior to defaulting on foreign currency debt, sovereigns typically spent about 20 per cent of general government revenues on interest payments. Moreover, during the three years prior to default, their net foreign investment positions weakened by an average of 30 percentage points to 106 per cent of GDP, often in tandem with depreciating domestic currencies[8] (Chart 1.9 a and b).

1.15 Banks' exposure to their own governments has grown in many EMDEs since the end of 2019. This has deepened the "sovereign-bank nexus" and therefore, shocks between sovereigns and banks may spread more quickly. A sharp rise in sovereign bond yields could impact bank capital by reducing the value of government securities held by them as well as expose them to funding risk in money markets due to depletion in the value of collateral used for borrowing. On the other hand, since governments often support banking sector in times

[8] S&P Global (2024), "The Early Warning Signs of Sovereign Foreign Currency Defaults", October.

Chart 1.9: Debt Vulnerabilities in EMDEs



Note: Share of foreign currency denominated debt in total government debt is based on latest data available for 25 EMDEs.
Sources: UNCTAD, Federal Reserve Economic Data and World Bank.

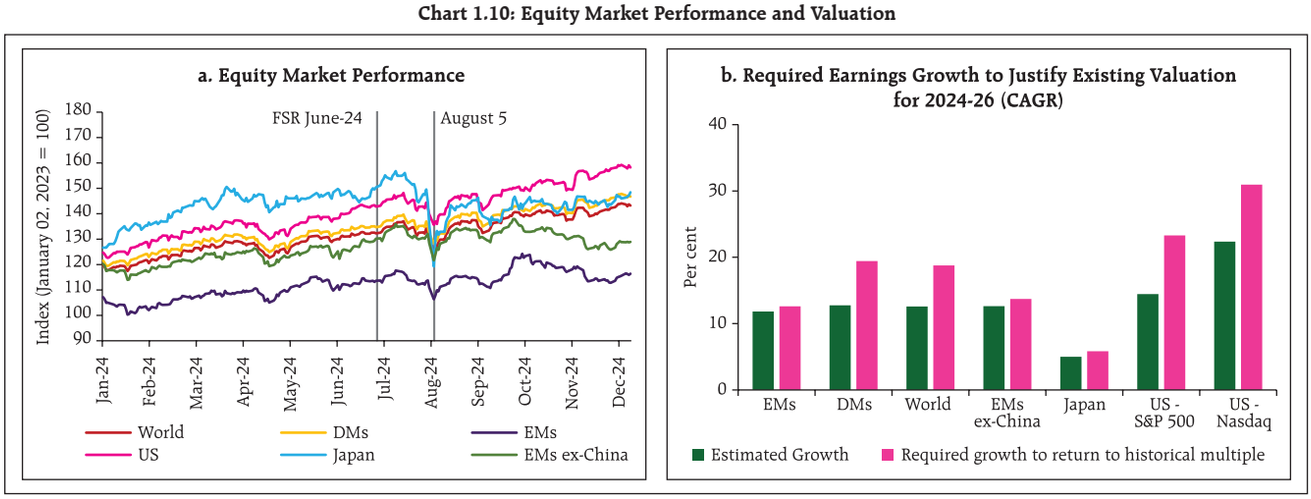
of stress to prevent bank runs, any reduction in this capacity due to limited fiscal headroom could exacerbate stress and affect banks' ability to provide credit to the real sector.

B. Asset Valuations and Volatility

1.16 Since the June 2024 FSR, global equity markets have rallied, fuelled by expectations of soft landing and lower interest rates. This has stretched equity valuations, with many stock indices trading at high price-to-earnings (P/E) ratios relative to historical levels. Moreover, in the U.S., the so-called Magnificent 7, a group of technology stocks, now forms 31 per cent of the S&P 500 Index, up from 25 per cent at the beginning of 2024. To justify current valuations and for P/E ratios to return to their historical 10-year average, earnings per share must grow at compounded annual growth rates (CAGR) between 10 and 30 per cent over the next two years (Chart 1.10 a and b).

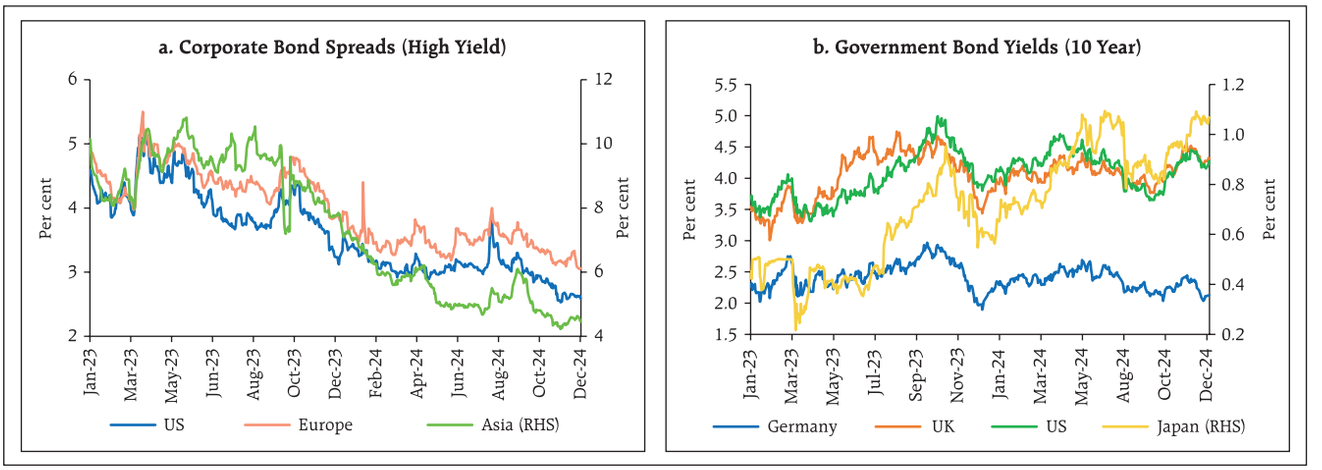
1.17 Corporate bond market valuations also remain high, with credit spreads (*viz.*, the yield difference between corporate bonds and similar-

Chart 1.10: Equity Market Performance and Valuation



Sources: Bloomberg and RBI staff calculations.

Chart 1.11: Credit Spreads and Government Bond Yields



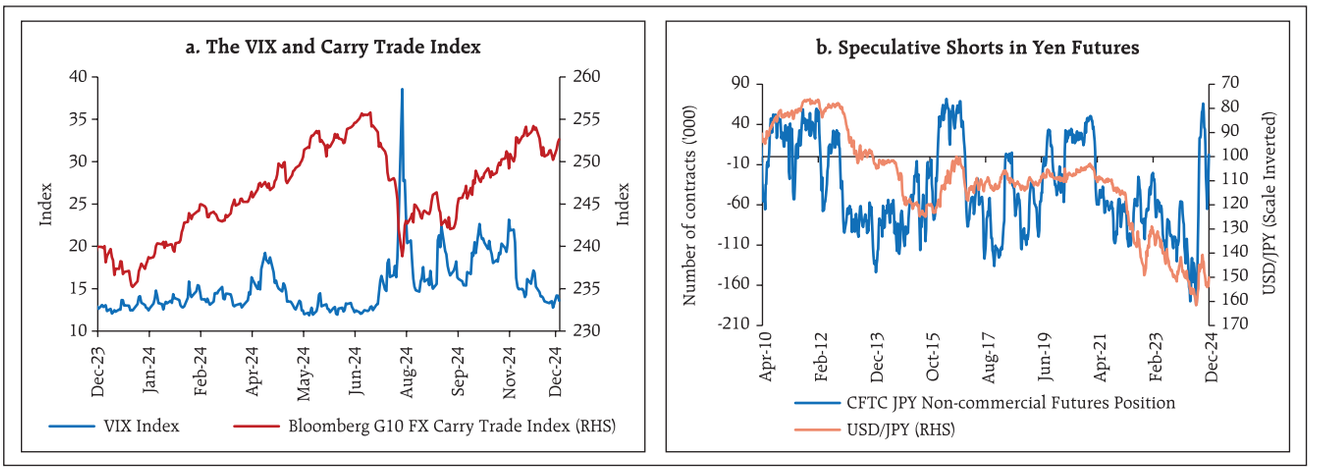
Source: Bloomberg.

maturity government bonds) narrowing to low levels relative to historical distributions. Despite monetary policy easing, sovereign bond yields have hardened in major economies on market expectation of policy shifts on tariffs and geopolitical conditions (Chart 1.11 a and b).

1.18 High equity valuations and low credit spreads could be a source of vulnerability to financial stability, especially when market expectations turn volatile as in the first week of August 2024, when global financial markets saw an unwind of leveraged carry trades, which were primarily funded using the JPY (Chart 1.12 a and b).

1.19 The ensuing decline in stock prices, widening of corporate bond spreads and spike in volatility exemplified the outsized market reaction to unexpected developments. The Chicago Board Options Exchange (CBOE) Volatility Index (VIX)[9], which is often referred to as a fear gauge in financial markets, saw its largest one-day spike

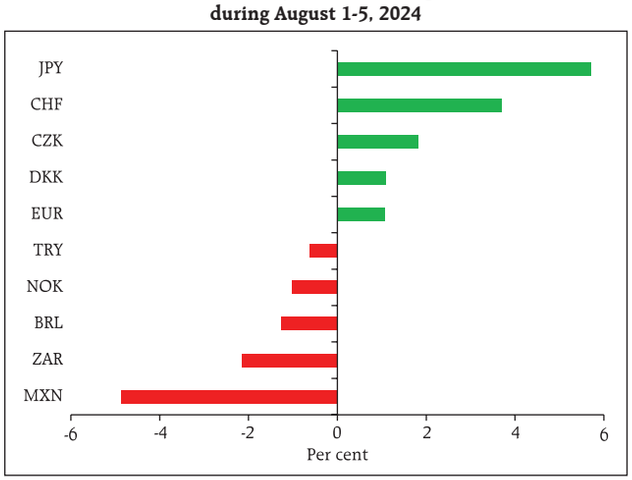
Chart 1.12: Carry Trade and Volatility



Source: Bloomberg.

[9] The VIX is constructed from the market prices of out-of-the-money (OTM) puts and calls written on the S&P500 Index.

Chart 1.13: Movement of Major Currencies against the US Dollar during August 1-5, 2024



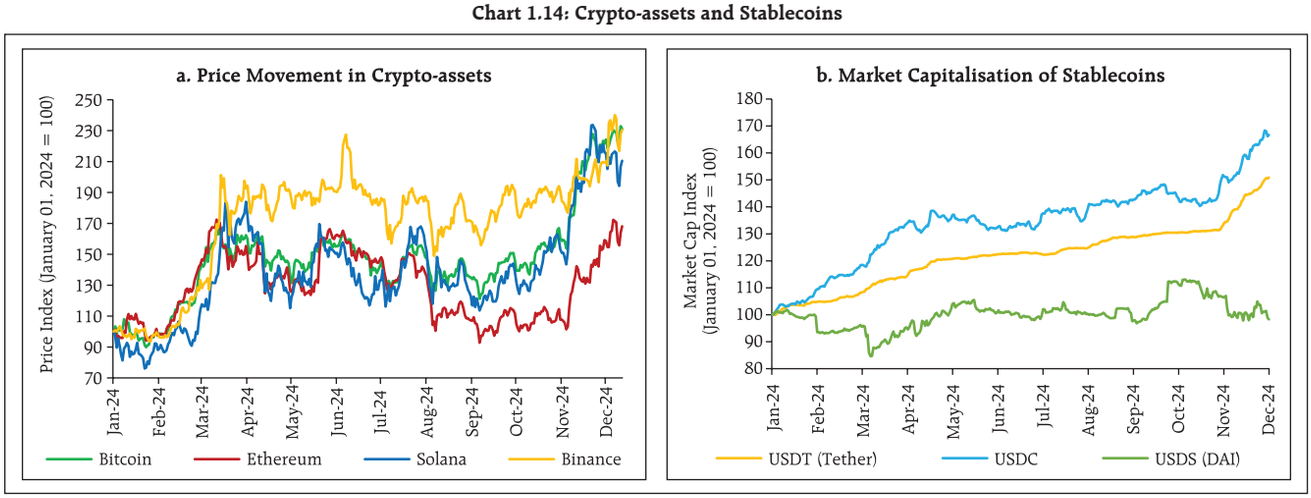
Source: Bloomberg.

ever on August 5, 2024, surpassing peaks witnessed around the GFC and the onset of the pandemic in March 2020. According to the Bank for International Settlements (BIS), roughly US$ 250 billion of these carry trades were unwound, though their exact size is difficult to estimate as they can be implemented through various on- and off-balance sheet positions[10]. The impact of the carry trade unwinding was felt on many currencies (Chart 1.13).

1.20 Crypto-assets' prices swung wildly and the rally, which faded during March-September 2024, was boosted subsequently, especially after the US election outcome (Chart 1.14 a). Bitcoin, the most prominent of them, more than doubled during this calendar year and hit a record high of US$ 108,316 on December 17, 2024. This has also fuelled market capitalisation of stablecoins (Chart 1.14 b), which are primarily used to enable lending, borrowing and trading of other digital assets and support the crypto ecosystem.

1.21 Widespread usage of crypto-assets and stablecoins has consequences for macroeconomic and financial stability. As highlighted in the IMF-FSB synthesis paper[11], it could reduce the effectiveness of monetary policy, worsen fiscal risks, circumvent capital flow management measures, divert resources available for financing the real economy and threaten global financial stability. Even though the size of crypto-asset markets remains small, their continued growth and increasing linkages with the traditional financial system could pose systemic risks. Stablecoins also present potential run risks.

Chart 1.14: Crypto-assets and Stablecoins



Source: Bloomberg.

[10] Aquilina, Matteo, Lombardi, Marco, Schrimpf, Andreas and Sushko, Vladyslav (2024), "The market turbulence and carry trade unwind of August 2024", BIS Bulletin No 90, August.

[11] IMF-FSB (2023), "IMF-FSB Synthesis Paper: Policies for Crypto-Assets", September.

1.22 Another new and rapidly growing financial innovation is tokenisation, which refers to the process of creating digital representations - known as tokens - of real-world assets using technologies such as distributed ledger technology (DLT). Tokenisation of financial assets – bank deposits, money market funds' shares, repos, and government securities – is rising. Given that it is still in its infancy, financial stability concerns of tokenisation of assets are currently limited. Nonetheless, it has the potential to deepen the interconnectedness between the traditional financial system and the decentralised financial (DeFi) system, including the crypto-assets ecosystem[12], and cause spillovers to broader financial system. DLT-based tokenisation can expose several financial stability vulnerabilities, including liquidity and maturity mismatches, leverage, asset price and quality, interconnectedness, and operational fragilities[13].

C. Impact of Artificial Intelligence

1.23 Artificial intelligence (AI) is rapidly changing many aspects of human life. The emergence of generative AI has significant implications for the financial system. Financial institutions have long employed various forms of AI such as rule-based models and machine learning (ML). The advent of generative AI models, however, would be transformative as they have unique features that can adapt and learn independently and at speed[14], produce a range of responses in many formats rather than being restricted to a specific set of possible responses, and in some use cases match or exceed human capabilities[15].

1.24 Constantly evolving AI technology offers benefits to financial firms through its ability to process large and unstructured data, scalability, and adaptability, which could result in efficiency gains and cost savings in many areas such as quantitative analysis, risk management, operational processes, customer interaction and cyber security. Alongside these benefits, they are also prone to increased risks in terms of bias and hallucination[16], misuse, overreliance on common models, faulty predictions, data quality issues, and third-party dependence[17]. Model risk would be a major hazard for financial firms that use AI tools. A key challenge with AI models is their lack of explainability or the so-called 'black box problem' due to the difficulty in explaining how these complex models are making decisions even as they achieve more accurate predictions[18]. Since AI depends heavily on the data that it is trained on, the inability to explain how these systems work could result in models using biased or less related data. These issues are particularly pertinent in the financial sector, especially in the banking industry, in which adoption of AI is rapidly growing (Chart 1.15 a and b).

1.25 The evolution and adoption of AI poses several risks to financial stability. First, interconnectedness could become enhanced through overreliance on shared technology, service providers and infrastructure. In particular, there is a high risk of market concentration both within the financial industry as well as critical third-party service providers of cloud and AI services

[12] International Monetary Fund (2024), "Global Financial Stability Report: Steadying the Course: Uncertainty, Artificial Intelligence, and Financial Stability", October.

[13] Financial Stability Board (2024): "The Financial Stability Implications of Tokenisation", October.

[14] Breeden, Sarah (2024), "Engaging with the machine: AI and financial stability", Bank of England, October.

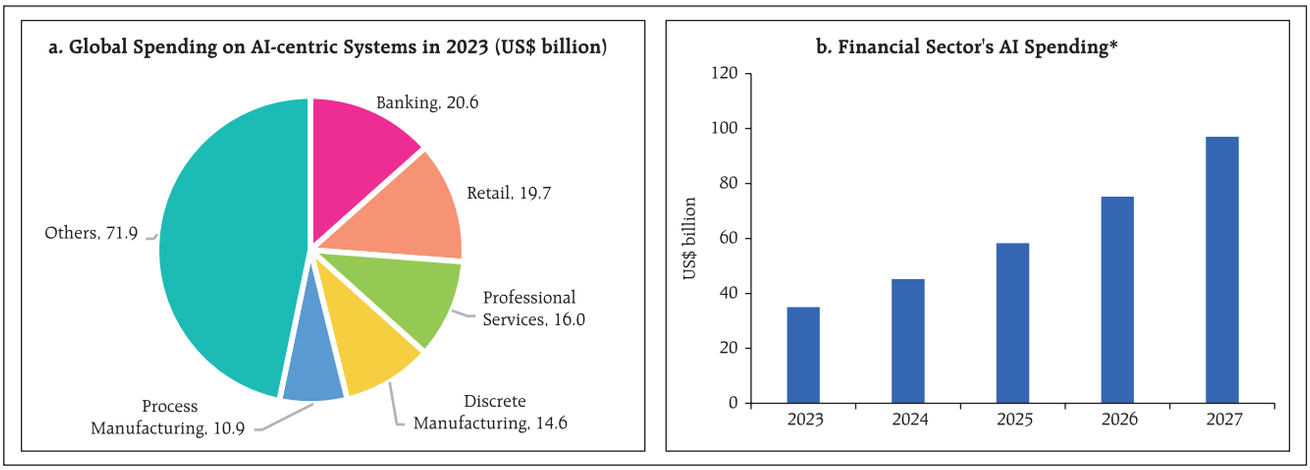
[15] Liang, Nellie (2024), "Remarks on Artificial Intelligence in Finance", Financial Stability Board, June.

[16] Hallucination refers to presenting false or misleading information as facts.

[17] European Central Bank (2024), "Financial Stability Review - The rise of artificial intelligence: benefits and risks for financial stability", May.

[18] Araujo, Douglas, Doerr, Sebastian, Gambacorta, Leonardo, Tissot, Bruno (2024), "Artificial intelligence in central banking", BIS Bulletin No 84, January.

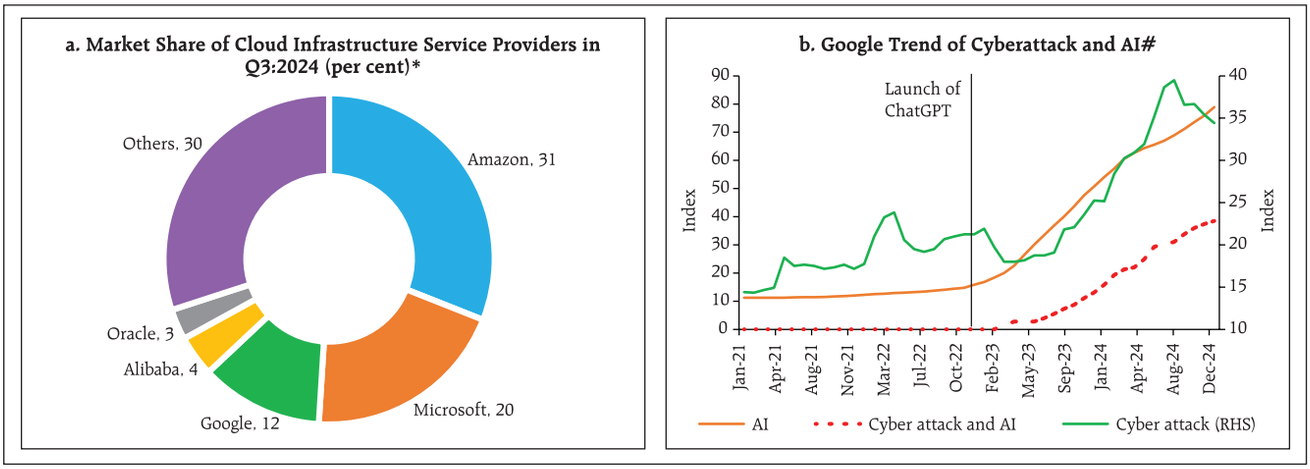
Chart 1.15: Global Spending on Artificial Intelligence



Note: * Forecasts from 2024 to 2027.
Sources: IMF, IDC and Statista.

(Chart 1.16 a). Second, the threat of cyber risk turning into a financial stability risk is high as AI could aid cyber attackers through sophisticated phishing attacks such as creation of deepfakes using generative AI. With widespread availability of AI services such as ChatGPT, there has been a growing concern that these services are being used for cyberattacks (Chart 1.16 b). Third, according to the IMF, the increased adoption of AI in capital markets can create additional risks related to increased market speed and volatility under stress, especially when trading strategies using AI become highly correlated. Specifically, if such trades are funded through leverage, any shock could amplify market stress through fire sales and feedback loops. Moreover, AI may encourage migration of more activities to NBFIs, increasing systemic opacity[19]. Fourth, if technological penetration and market and vendor concentration are high, transition of risk from individual firms to the financial system

Chart 1.16: Market Concentration and Cyber Attacks



Note: (1) * Includes platform as a service, infrastructure as a service and hosted private cloud services
(2) # Index represents 12-month moving average of search interest relative to the highest point since 2004 for worldwide google search of 'AI', 'Cyber attack' and 'Cyber attack and AI'. Data accessed on December 12, 2024.
Sources: Statista, Synergy Research Group and Google Trends.

[19] International Monetary Fund (2024), "Global Financial Stability Report - Steadying the Course: Uncertainty, Artificial Intelligence, and Financial Stability", October.

could be nonlinear and portend systemic risk[20]. Standard setting bodies and national regulators and supervisors should, therefore, take a balanced approach to reap the benefits of AI while safeguarding the financial system. They must update their skills and tools as well as proactively adapt their frameworks to identify and mitigate emerging risks from this rapidly evolving technology.

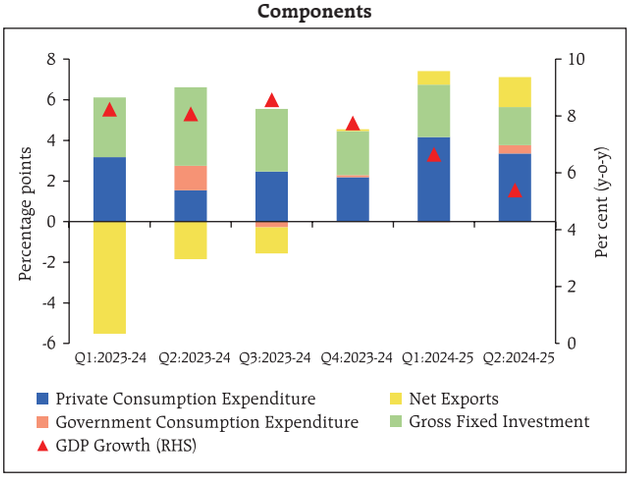
I.2 Domestic Macrofinancial Risks

1.26 India remains the fastest growing major economy of the world, with strong investment and public consumption underpinning economic performance[21]. The domestic financial system is fortified by healthy balance sheets of banks and non-banking financial companies (NBFCs), and relatively low volatility in financial markets.

I.2.1 Domestic Growth and Inflation

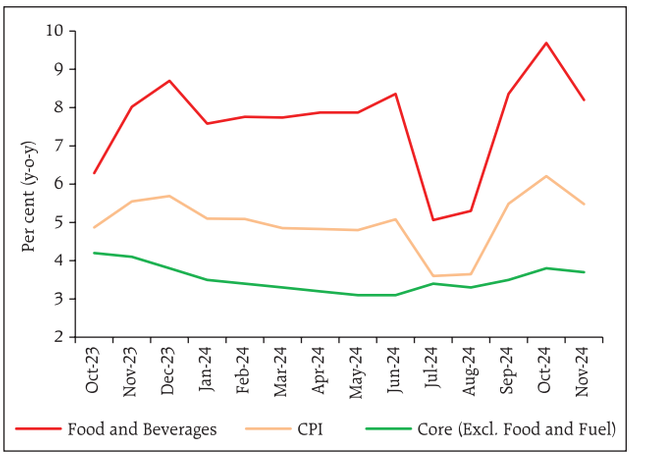
1.27 During H1:2024-25, real GDP growth (y-o-y) moderated to 6.0 per cent from 8.2 per cent and 8.1 per cent growth recorded during H1 and H2 of 2023-24, respectively. Despite this recent deceleration, structural growth drivers remain intact. Real GDP growth is expected to recover in Q3 and Q4 of 2024-25 supported by pick up in domestic drivers, mainly public consumption and investment, strong service exports and easy financial conditions (Chart 1.17).

Chart 1.17: GDP Growth and Weighted Contribution of Components



Sources: National Statistical Office (NSO) and RBI staff calculations.

Chart 1.18: Inflation



Sources: National Statistical Office (NSO) and RBI staff calculations.

1.28 On the downside, the softness in industrial activity, especially in the manufacturing sector, moderation in urban demand, global spillovers and protective trade and industrial policies pose risks to the outlook.

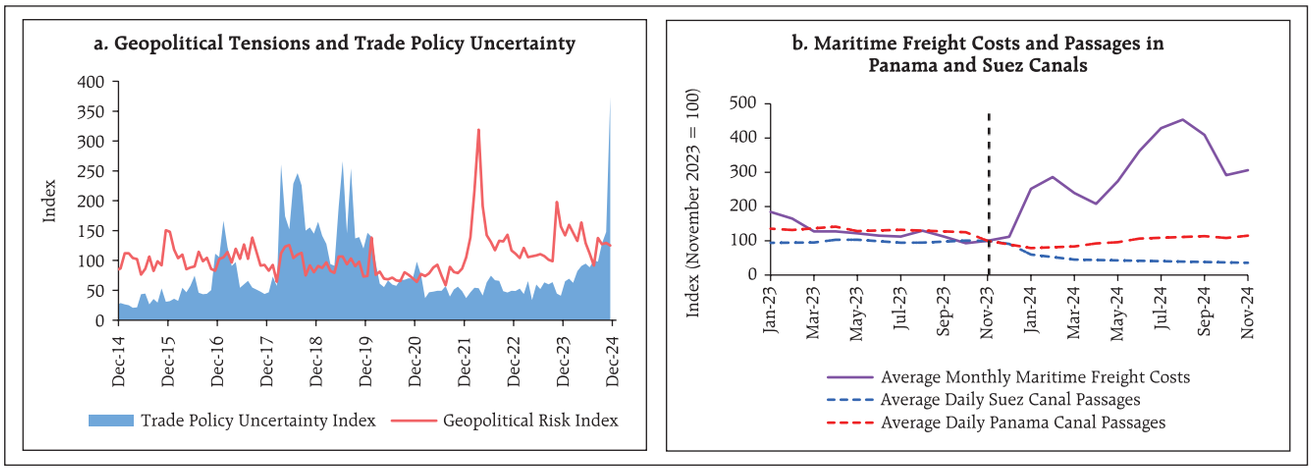
1.29 After its descent to sub-target levels in July and August 2024, consumer price index (CPI) inflation changed course on the back of a rise in food prices and rose beyond the upper tolerance level to 6.2 per cent in October 2024. Subsequently, with some softening of food prices and favourable base effect, CPI inflation came down to 5.5 per cent in November 2024. Meanwhile, core CPI inflation (*i.e.*, CPI excluding food and fuel) rose by 64 basis points (bps) since May 2024 to 3.7 per cent in November 2024 (Chart 1.18).

1.30 Going forward, the disinflationary effect of a bumper *kharif* harvest and the *rabi* crop prospects are expected to soften prices of foodgrains. On the flipside, the rising frequency of extreme weather events (*e.g.*, heat waves and unseasonal rains) continue to pose risks for food inflation dynamics. Persisting geopolitical conflicts and geo-economic fragmentation can also impose upside pressures on global supply chain and commodity prices (Chart 1.19 a and b).

[20] European Central Bank (2024), "Financial Stability Review - The rise of artificial intelligence: benefits and risks for financial stability", May.

[21] International Monetary Fund (2024), "Regional Economic Outlook: Asia and Pacific - Resilient Growth but Higher Risks", November.

Chart 1.19: Uncertainties in Global Trade

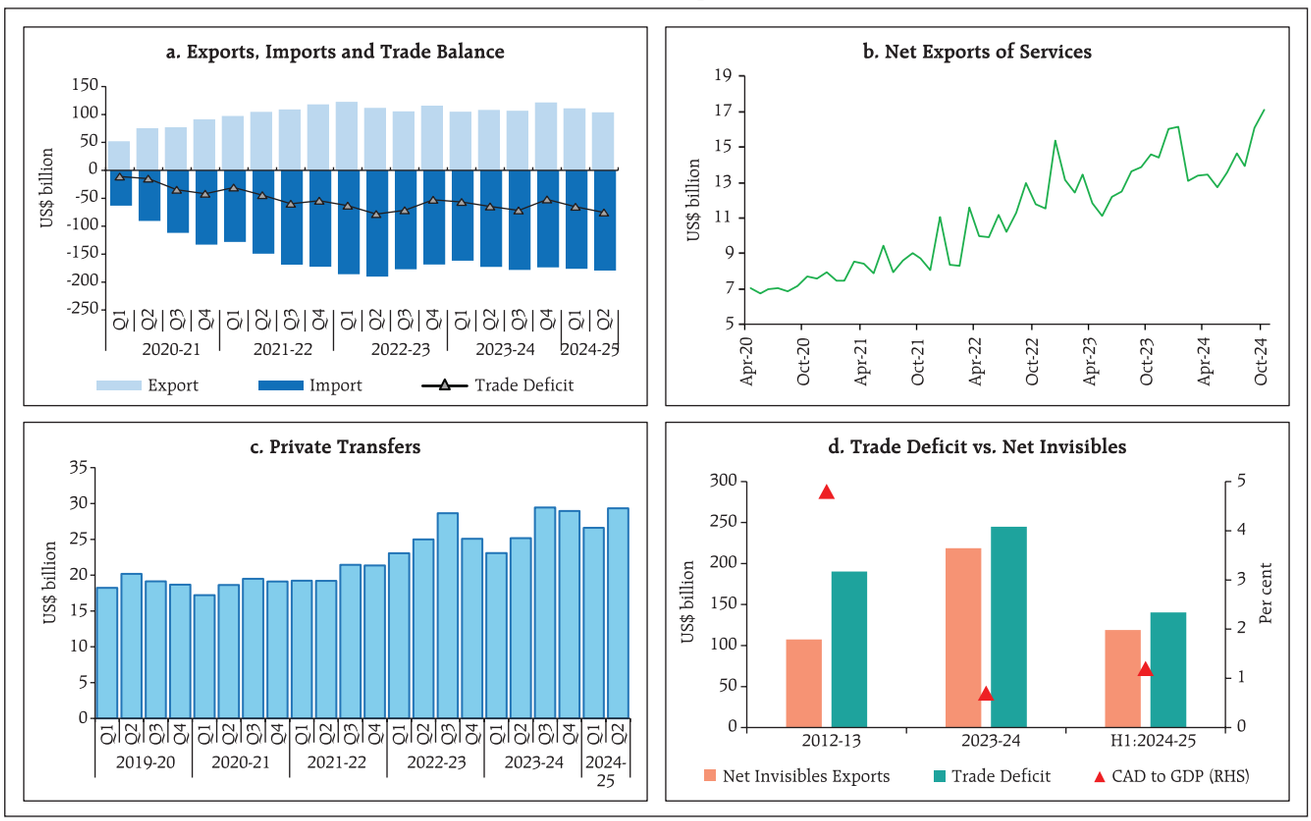


Sources: Refinitiv, IMF Port Watch, Caldara and Iacoviello (2022) and Caldara, Iacoviello, Molligo, Prestipino and Raffo (2020).

I.2.2 External Sector

1.31 Merchandise exports recorded growth of 2.2 per cent (y-o-y) during April-November 2024, whereas merchandise imports rose by 8.3 per cent, led by demand for gold, petroleum, crude and products, and electronic goods. Accordingly, trade deficit increased to US$ 202.4 billion during this period from US$ 171.0 billion a year ago. With the sustained buoyancy in services exports and remittances, widening of the merchandise trade deficit was partly offset, resulting in a current account deficit of 1.2 per cent of GDP in H1:2024-25 (Chart 1.20 a, b, c and d).

Chart 1.20: Trade Deficit, Service Exports and Private Transfers



Sources: Directorate General of Commercial Intelligence & Statistics (DGCI&S) and RBI.

1.32 In the financial account, net foreign direct investment (FDI) inflows moderated y-o-y, while strong foreign portfolio investment (FPI) inflows in the first half of 2024-25 were offset by large outflows subsequently. Overall, net FPI inflow stood at US$ 12.7 billion during 2024-25 so far (up to December 12, 2024), with net debt flows benefiting from India's inclusion in multiple global bond indices. Both external commercial borrowings (ECBs) and non-resident deposit inflows were higher than a year ago (Table 1.2). Overall, capital flows exceeded the current account deficit (CAD) and contributed to accretion to foreign exchange reserves (Chart 1.21). As on December 20, 2024, India's foreign exchange reserves of US$ 644.4 billion are the fourth largest in the world.

1.33 Indicators of external sector sustainability showed improvement: foreign exchange reserves covered 99 per cent of the country's external debt or nearly one year of merchandise imports as at end-September 2024. Moreover, around two-thirds of ECBs remain hedged (Table 1.3). Other metrics, such as external debt to GDP, short-term debt[22] to total external debt and the net international investment position (IIP) also indicated external sector resilience (Chart 1.22).

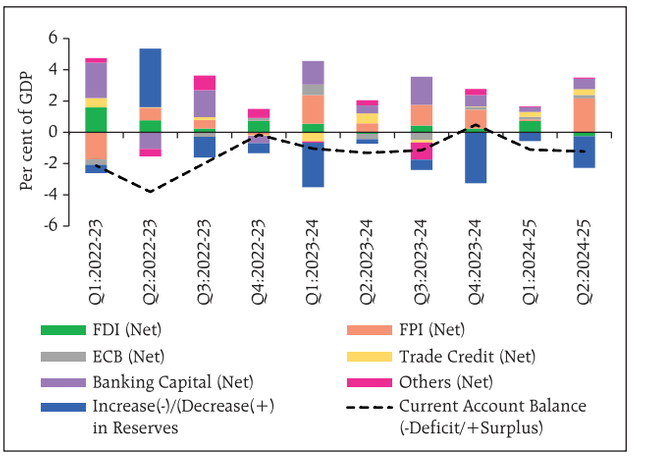
Table 1.2: Capital Flows (US$ billion)

Component	Financial Year so far			Financial Year	
	Period	2024-25	2023-24	2023-24	2022-23
FDI (net)	April-October	2.1	7.7	10.1	28.0
FPI (net)	April-December	12.7	26.0	44.6	-4.8
ECB (net)	April-October	9.2	2.8	3.6	-4.1
Non-resident Deposits (net)	April-October	11.9	6.1	14.7	9.0

Note: Data on FPI to India for financial year so far (December 12, 2024) and corresponding period previous year have been sourced from NSDL, whereas data for 2023-24 and 2022-23 are based on balance of payments (BoP) statistics. ECB (net) comprises external commercial borrowings to India.
Sources: RBI and NSDL.

[22] With original maturity of up to one year.

Chart 1.21: Balance of Payments



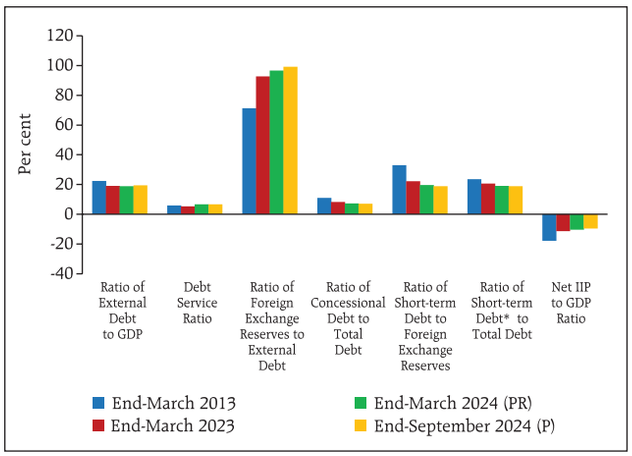
Note: 'Others' includes external assistance, rupee debt service, other capital and errors and omissions.
Source: RBI.

Table 1.3: Hedging Status of ECB Loans - September 2024

Description	Amount (US$ million)
A. ECB – Total outstanding	1,90,397
B. ECB – INR denominated	15,332
C. ECB – FDI Companies' borrowings from foreign parent	32,474
of which:	
(a) INR denominated	12,357
(b) FCY denominated	20,117
D. ECB – Non-Rupee and non-FDI [= A-B-C(b)]	1,54,948
of which:	
(a) Public sector companies	57,365
(b) Private companies and others	97,583
E. Hedging details of non-Rupee non-FDI ECBs (*i.e.*, D above)	
1. Hedging declared on registration from April 2019	67,381
of which:	
(a) Public sector companies	11,879
(b) Private companies and others	55,502
2. Other past loans reported hedged by borrowers	22,079
of which:	
(c) Public sector companies	11,131
(d) Private companies and others	10,948
F. ECB – unhedged {D-(E1+E2)}	65,488
G. Percentage share of unhedged ECB {(F)/(A)*100}	34.4
Memo Item:	
Natural Hedge Under Item F	2,905
G# Percentage share of unhedged ECB {(F-Memo Item)/(A)*100}	32.9

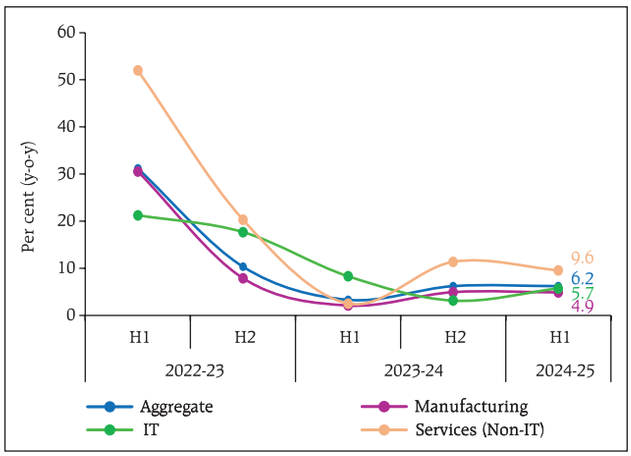
Note: (1) # After adjusting for natural hedge.
(2) Many of the loans under items (C) and (E) also have natural hedge
Source: RBI.

Chart 1.22: External Vulnerability Indicators



Note: *Original Maturity; P: Provisional; PR: Partially Revised.
Sources: RBI and Ministry of Finance.

Chart 1.23: Sales Growth of Listed Private NFCs



Note: Based on 2,839 listed private non-financial companies in H1:2024-25.
Sources: Capitaline and RBI staff calculations.

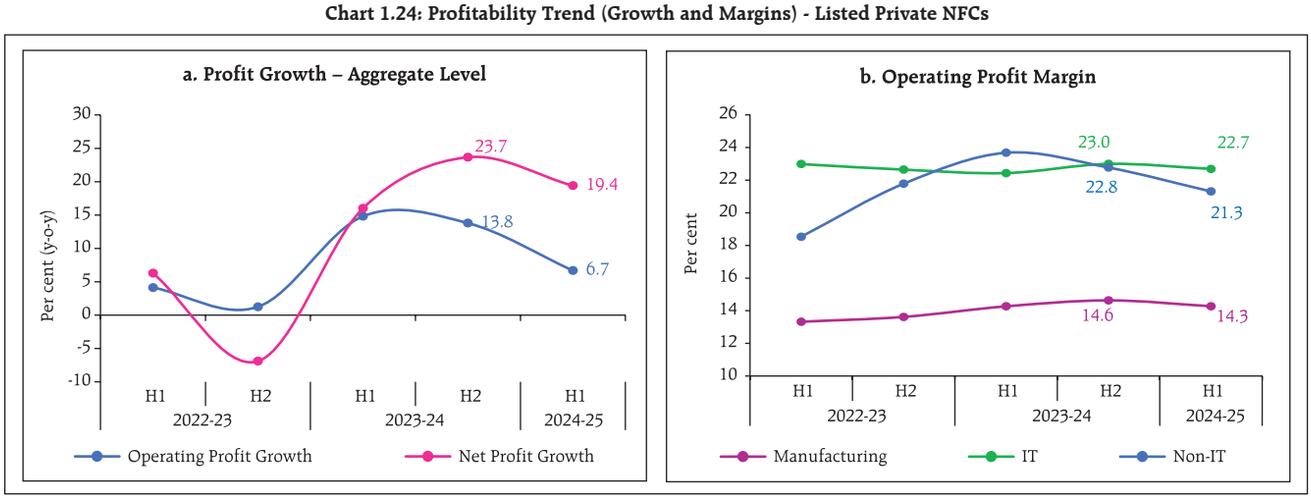
I.2.3 Corporate Sector

1.34 The overall performance of listed private non-financial companies (NFCs) has remained steady this year so far: sales growth (y-o-y) remained stable at 6.2 per cent in H1:2024-25 same as in H2:2023-24. Sales growth of manufacturing companies remained unchanged at 4.9 per cent during H1:2024-25, while for IT and non-IT services sectors, sales rose by 5.7 per cent and 9.6 per cent, respectively (Chart 1.23).

1.35 With rising staff and input costs, operating profit growth (y-o-y) of manufacturing companies moderated to 4.3 per cent during H1:2024-25. As a result, operating profit margin moderated on sequential basis. Within the services sector, operating profit margins moderated during H1:2024-25 for both IT and non-IT services companies, however, they continued to remain at elevated level (Chart 1.24 a and b).

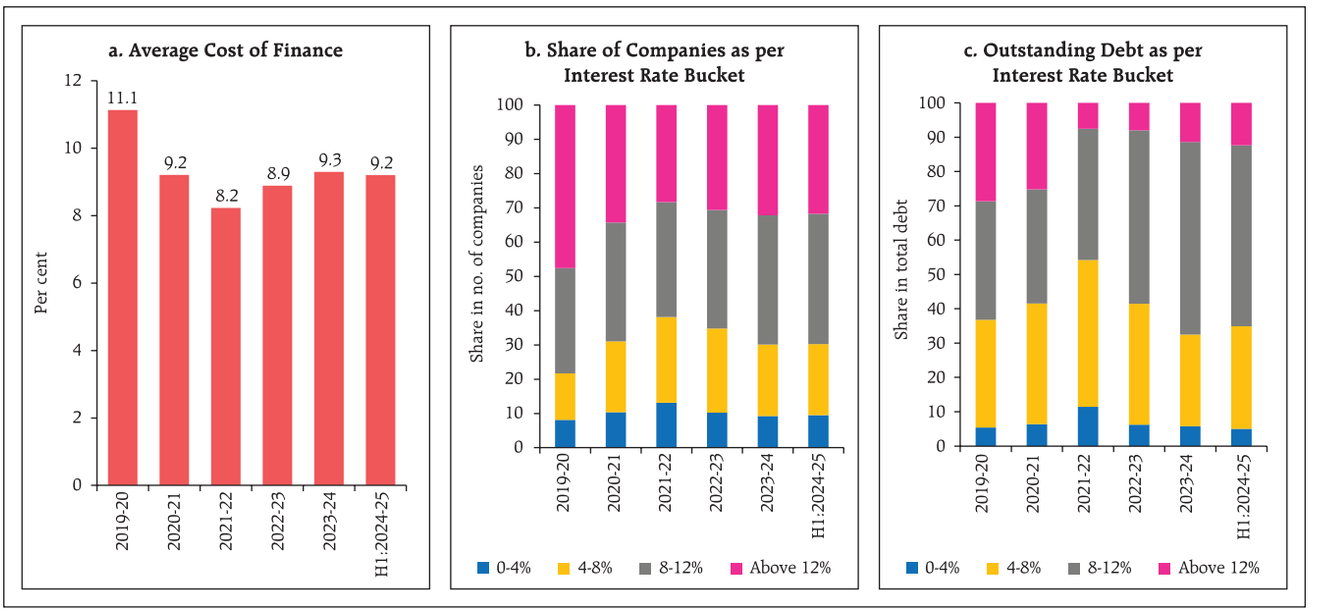
1.36 The average cost of finance for listed private non-financial companies, as measured by the ratio of interest expenses to average of total borrowings from all sources, has risen since March 2022 to 9.2 per cent in September 2024. The distribution of companies and their borrowings according to the

Chart 1.24: Profitability Trend (Growth and Margins) - Listed Private NFCs



Note: Based on 2,839 listed private non-financial companies in H1:2024-25.
Sources: Capitaline and RBI staff calculations.

Chart 1.25: Financing of Listed Private Non-Financial Companies

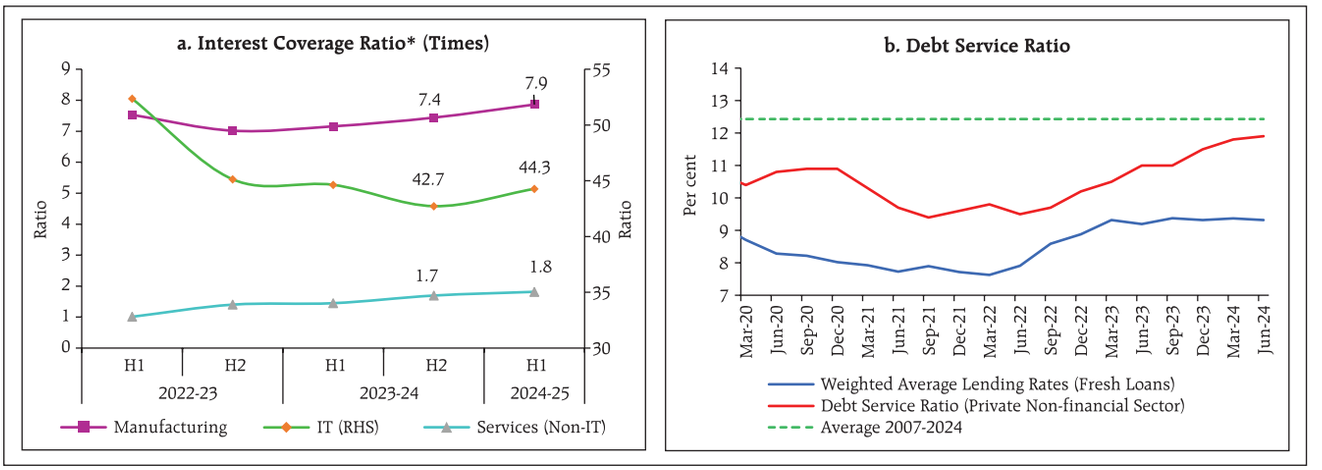


Note: Based on half-yearly balance sheets of 3,618 listed private non-financial companies in H1:2024-25.
Sources: Capitaline and RBI staff calculations.

cost of finance indicates a shift to higher interest rate buckets among companies as well as in their borrowing profiles (Chart 1.25 a, b and c).

1.37 With lower rise in interest cost relative to earnings before interest and taxes, listed private NFCs' debt serviceability[23] improved during H1:2024-25 in all major sectors (Chart 1.26 a). Their debt service ratios[24] remain below average for the period 2007-2024 (Chart 1.26 b).

Chart 1.26: Debt Serviceability of NFCs

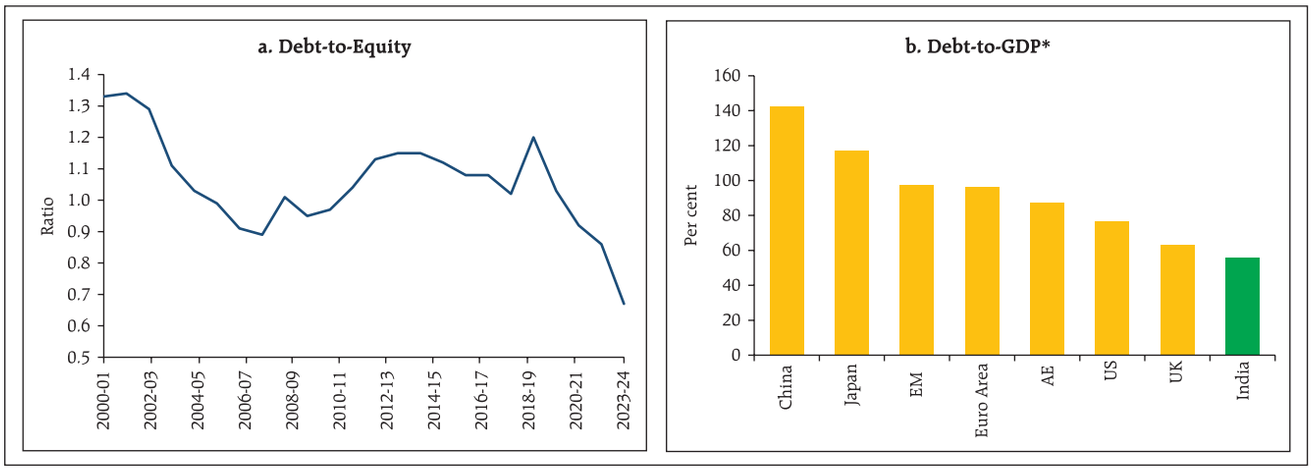


Note: * Based on 2,839 listed private non-financial companies in H1:2024-25.
Sources: Capitaline, BIS and RBI staff calculations

[23] Debt serviceability, as measured by interest coverage ratio (ICR), is defined as the ratio of earnings before interest and taxes (EBIT) to interest expenses.

[24] The debt service ratio (DSR) is defined as the ratio of interest payments plus amortisations to income. As such, the DSR provides a flow-to-flow comparison – the flow of debt service payments divided by the flow of income and as such reflects the share of income used to service debt.

Chart 1.27: NFCs – Debt-to-Equity and Debt-to-GDP Ratios



Note: * Data as on June 30, 2024
Sources: CMIE and BIS.

1.38 At a broader level, the debt-to-equity ratio of NFCs has been steadily declining since 2018-19. India's corporate debt-to-GDP ratio remains low when compared with that of AE and EME peers (Chart 1.27 a and b).

I.2.4 Government Finance

1.39 In the post-pandemic period, India's public finances have been underpinned by a steadfast commitment to fiscal consolidation. As per the provisional accounts (PA) of the central government for 2023-24, the gross fiscal deficit (GFD) was contained at 5.6 per cent (of GDP at current market prices), lower than the budget estimates (BE) of 5.9 per cent. It is projected to go down further to 4.9 per cent in 2024-25 (BE). This improvement in the fiscal position of the central government is primarily due to broad-based growth in revenue receipts. During April-October 2024, the GFD stood at 46.5 per cent of BE *vis-à-vis* 45.0 per cent in the corresponding period last year. Other major deficit indicators (*viz.*, gross primary deficit and revenue deficit) are budgeted to record an improvement during 2024-25 (Table 1.4).

Table 1.4: Central Government Finances - Key Deficit Indicators

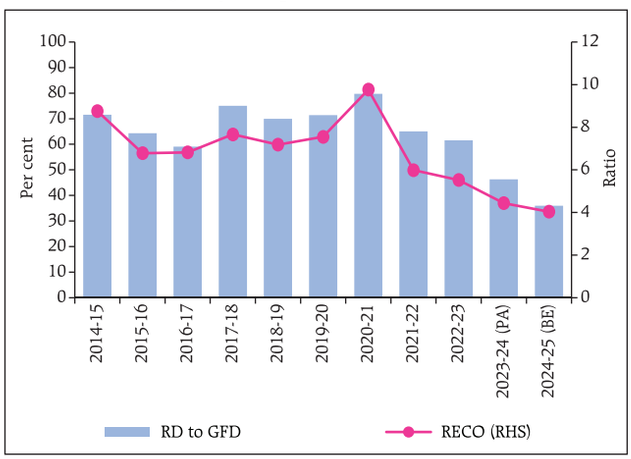
(Per cent of GDP)

Items	2020-21	2021-22	2022-23	2023-24 (PA)	2024-25 (BE)
1. Fiscal Deficit	9.2	6.7	6.4	5.6	4.9
2. Revenue Deficit	7.3	4.4	4.0	2.6	1.8
3. Gross Primary Deficit	5.7	3.3	3.0	2.0	1.4

Note: PA - Provisional Accounts; BE - Budget Estimates.
Sources: Controller General of Accounts (CGA) and Union budget documents.

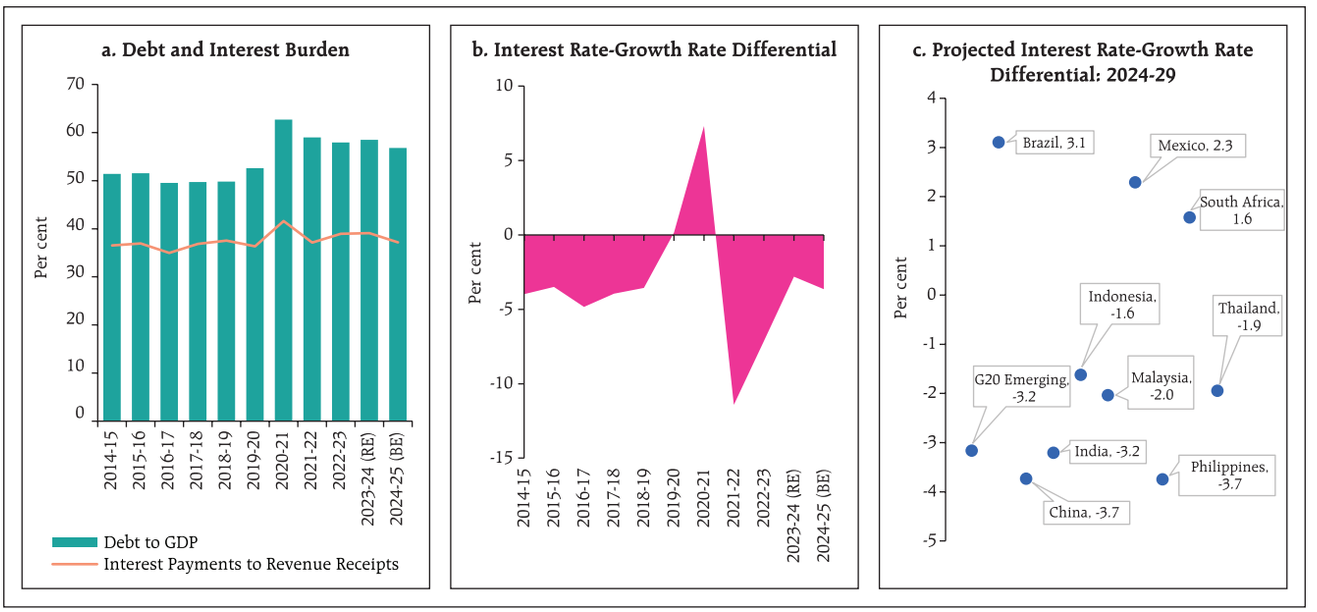
1.40 The focus on capital expenditure to support investment and economic growth has resulted in a consistent improvement in the quality of expenditure (Chart 1.28). Capital outlay (*i.e.*, capital expenditure excluding loans and advances) is

Chart 1.28: Quality of Expenditure – Central Government



Note: PA- Provisional Accounts; BE- Budget Estimates; RD – Revenue Deficit; GFD – Gross Fiscal Deficit.
Sources: CGA; and Union budget documents.

Chart 1.29: Debt Sustainability – Central Government



Note: RE: Revised Estimates; BE: Budget Estimates.
Sources: Union budget documents, IMF and RBI staff estimates.

projected to increase by 16.7 per cent during 2024-25 (BE), taking its share in borrowings to 56.9 per cent. Revenue expenditure is estimated to record a relatively modest rise of 6.2 per cent. As a result, the revenue expenditure to capital outlay ratio (RECO) is projected to fall to an all-time low of 4.0 during 2024-25 (BE).

1.41 Capital expenditure and capital outlay of the union government contracted (y-o-y) by 35.0 per cent and 35.4 per cent, respectively, during Q1:2024-25, largely due to the model code of conduct being in force during the general elections. Subsequently, however, capital expenditure and capital outlay grew by 10.3 per cent and 14.6 per cent (y-o-y), respectively, in Q2:2024-25.

1.42 The ratio of central government debt to GDP, which peaked at 62.7 per cent in 2020-21 due to public policy measures to mitigate the impact of the COVID-19 pandemic, has been moderating subsequently and is estimated at 56.8 per cent in 2024-25 (BE). The ratio of interest payment to revenue receipts is also budgeted to decline to 37.2 per cent from 39.1 per cent in 2023-24 (RE). Improving debt dynamics alongside a favourable interest rate-growth rate differential (r-g) augurs well for fiscal sustainability (Chart 1.29 a, b and c).

1.43 States' consolidated GFD stood at 2.9 per cent of GDP in 2023-24 (PA), which was well within the Centre's prescribed limit of 3.5 per cent. States have projected their revenue deficit to remain unchanged at 0.2 per cent (of GDP at market prices) and their consolidated fiscal deficit to rise marginally to 3.2 per cent in 2024-25 (BE) (Table 1.5).

1.44 States' outstanding liabilities, which peaked at 31.0 per cent of GDP in March 2021, declined subsequently with fiscal consolidation and are budgeted at 28.8 per cent of GDP by end-March 2025. The medium-term objective is to bring it down to the

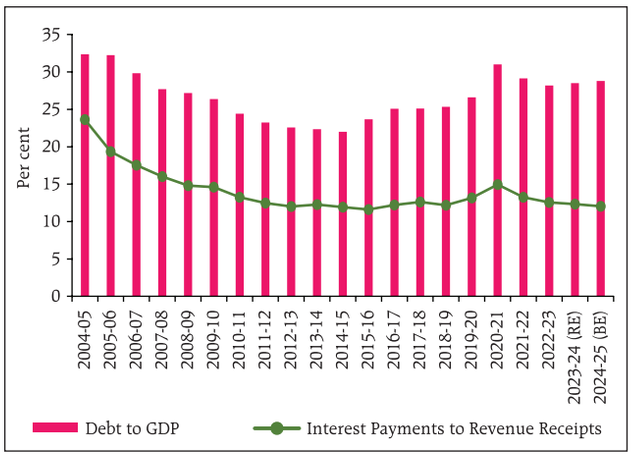
Table 1.5: State Governments - Key Deficit Indicators

(per cent of GDP)

Deficit Indicators	2021-22	2022-23	2023-24 (PA)	2024-25 (BE)
Revenue Deficit	0.4	0.2	0.2	0.2
Gross Fiscal Deficit	2.8	2.7	2.9	3.2
Primary Deficit	1.0	1.0	1.4	1.5

Note: PA: Provisional Accounts; BE: Budget Estimates.
Sources: Budget document of States and CAG.

Chart 1.30: Debt and Interest Burden - State Governments



Note: RE: Revised Estimates; BE: Budget Estimates.
Sources: Budget document of States and CAG.

20 per cent threshold recommended by the Fiscal Responsibility and Budget Management (FRBM) Review Committee (2018). States' debt servicing cost has been on a declining trend since 2020-21 (Chart 1.30). Notwithstanding the overall gains in consolidating state finances, a few larger states have ratios of debt to gross state domestic product (GSDP) exceeding 35 per cent, with implications for their developmental and capital expenditure capacities as well as debt servicing headroom in the medium to long term.

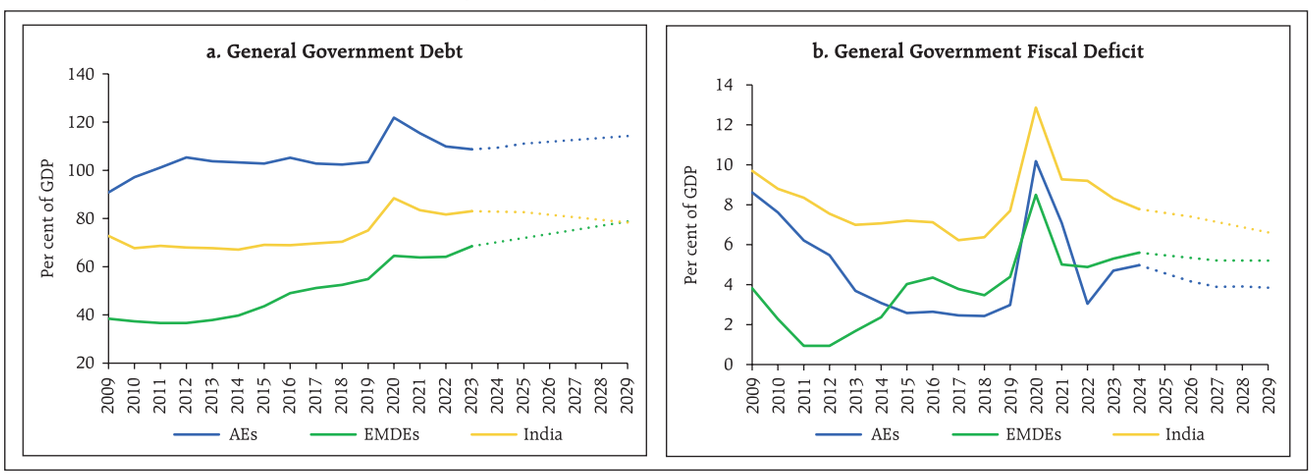
1.45 India's general government debt and fiscal deficit remain higher than those of the peer EMDEs (Chart 1.31 a and b). Supported by ongoing fiscal consolidation, however, they are expected to decline over the medium term and trend towards the EMDE average.

I.2.5 Household Finance

1.46 At 42.9 per cent of GDP (at current market prices) in June 2024, India's household debt is relatively low compared to other EMEs, however, it has increased over the past three years (Chart 1.32 a). Even as household debt is on a rising trend, the increase is driven by a growing number of borrowers rather than an increase in average indebtedness (Chart 1.32 b).

1.47 Borrowing by individuals[25] in the household sector constituted around 91 per cent[26] of the stock of household financial liabilities as at end- March 2024.

Chart 1.31: India, AEs and EMDEs – Debt and Fiscal Deficit

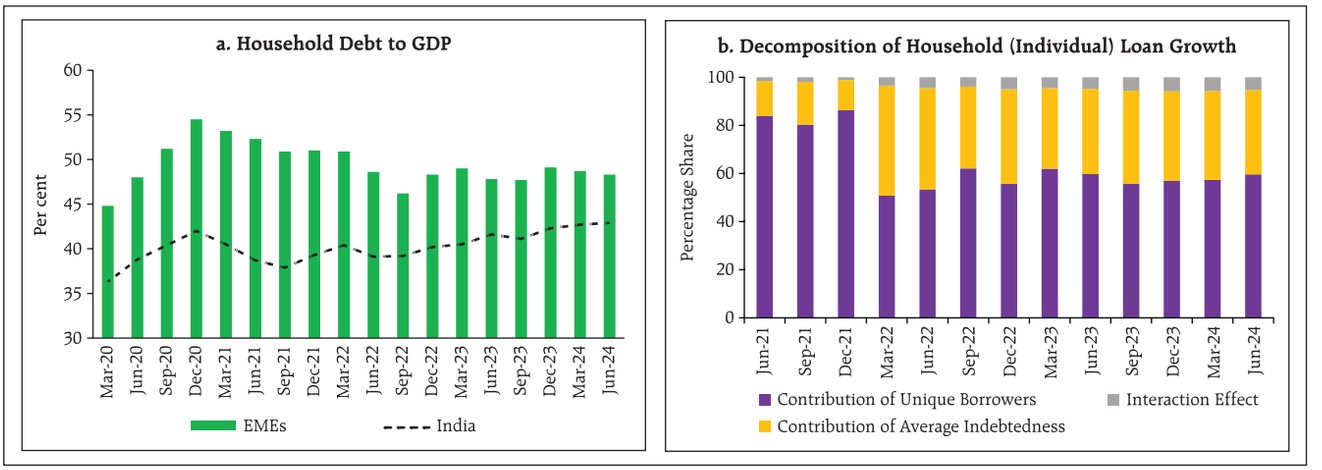


Note: Dotted lines represent forecasts.
Source: IMF.

[25] Excludes loans to other segments of the household sectors {*viz.*, microfinance, household-others, proprietary firms, partnerships concerns, Hindu undivided families (HUF), partnership firms, joint liability groups, non-government organisations (NGOs) and trusts}.

[26] Based on consumer bureau reporting.

Chart 1.32: Household Debt and Decomposition



Note: Unique borrowers are defined as distinct borrowers who have at least one loan account (irrespective of the product) outstanding at the end of respective period (including new to credit borrowers).

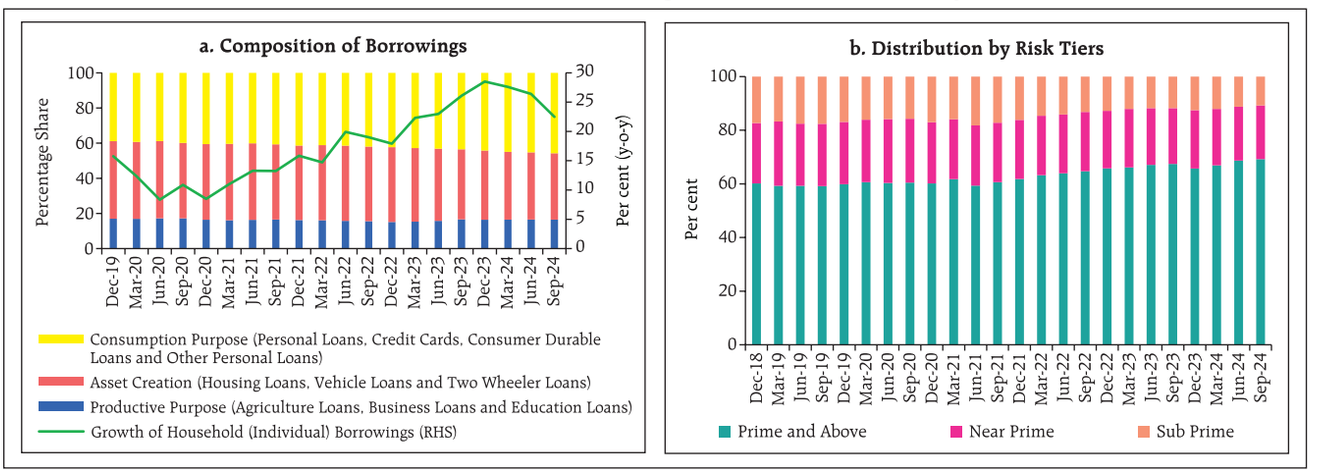
Sources: BIS, TransUnion CIBIL and RBI staff calculations.

Disaggregated analysis of the nature of individuals' borrowings shows that loans are primarily used for consumption (personal loans, credit cards, consumer durable loans and other personal loans), asset creation (mortgage loans and vehicle loans and two-wheeler loans) and for productive purposes (agriculture loans, business loans and education loans) (Chart 1.33 a). Notably, close to two-thirds of the portfolio is of prime and above credit quality (Chart 1.33 b).

1.48 Borrower-type analysis revealed that sub-prime borrowers availed loans primarily for consumption purpose, whereas super-prime borrowers used debt for asset creation, especially housing (Chart 1.34 a and b).

1.49 Per capita debt of individual borrowers[27] has increased sharply for super-prime borrowers in the recent period, while it has remained stable for other risk tiers. From a debt-servicing capacity perspective, the rise in per capita debt only among

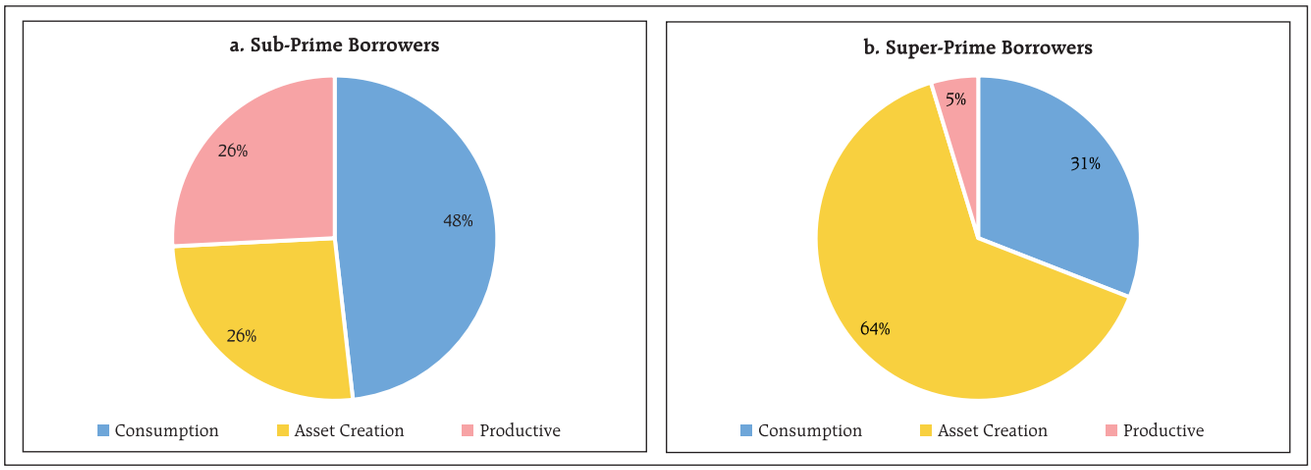
Chart 1.33: Household (Individual) Borrowings from Financial Institutions (by Amount)



Sources: TransUnion CIBIL and RBI staff calculations.

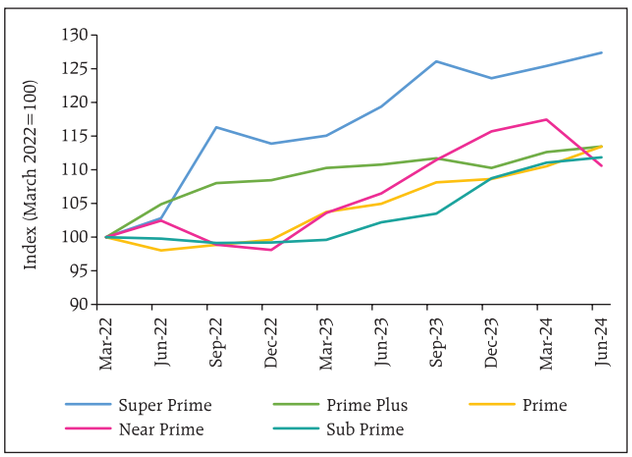
[27] Debt outstanding divided by number of live unique borrowers at the end of each period.

Chart 1.34: Distribution of Debt by Borrower Category (September 2024)



Sources: TransUnion CIBIL and RBI staff calculations.

Chart 1.35: Per Capita Debt of Household (Individual) Borrowers



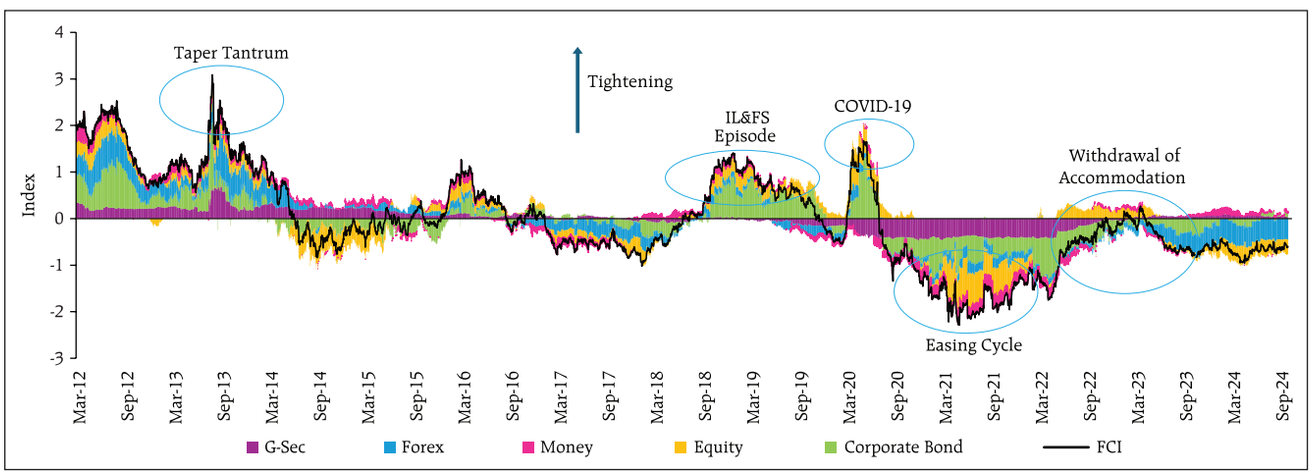
Sources: TransUnion CIBIL and RBI staff calculations.

highly rated borrowers and use of debt for asset creation are credit positive and financial stability enhancing (Chart 1.35).

I.2.6 Financial Markets

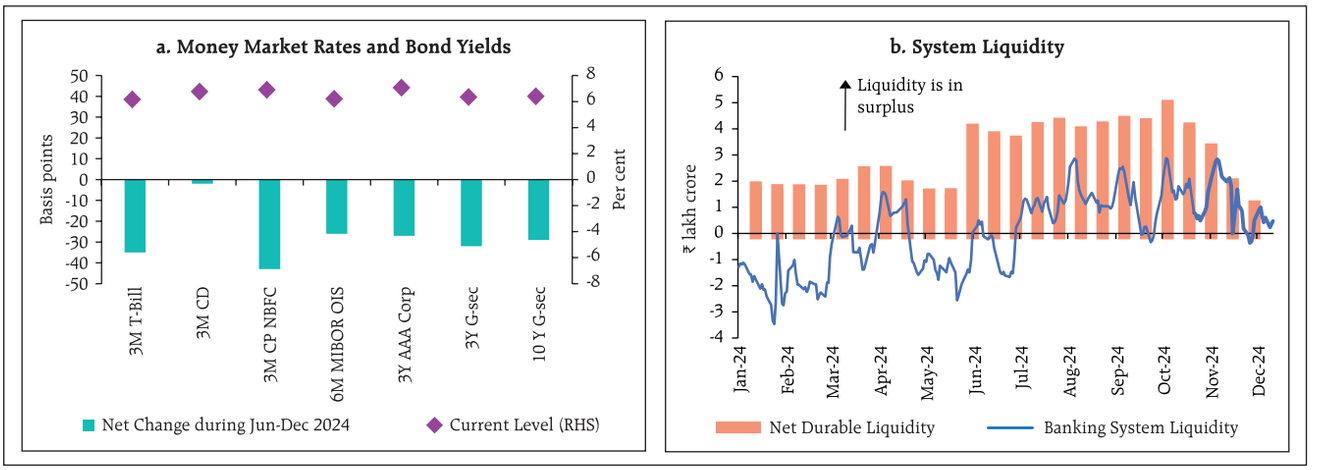
1.50 Since the June 2024 issue of the FSR, financial conditions have eased further on the back of improvement in system liquidity and the shift in monetary policy stance to neutral. This was reflected in the softening of short-term money market rates as well as yields on government securities and corporate bonds (Chart 1.36 and 1.37 a and b).

Chart 1.36: Financial Conditions Index - India



Note: For details, refer to Box IV.2 of the Monetary Policy Report (October 2024).
Source: RBI staff calculations.

Chart 1.37: Money Market Rates, Bond Yields and System Liquidity



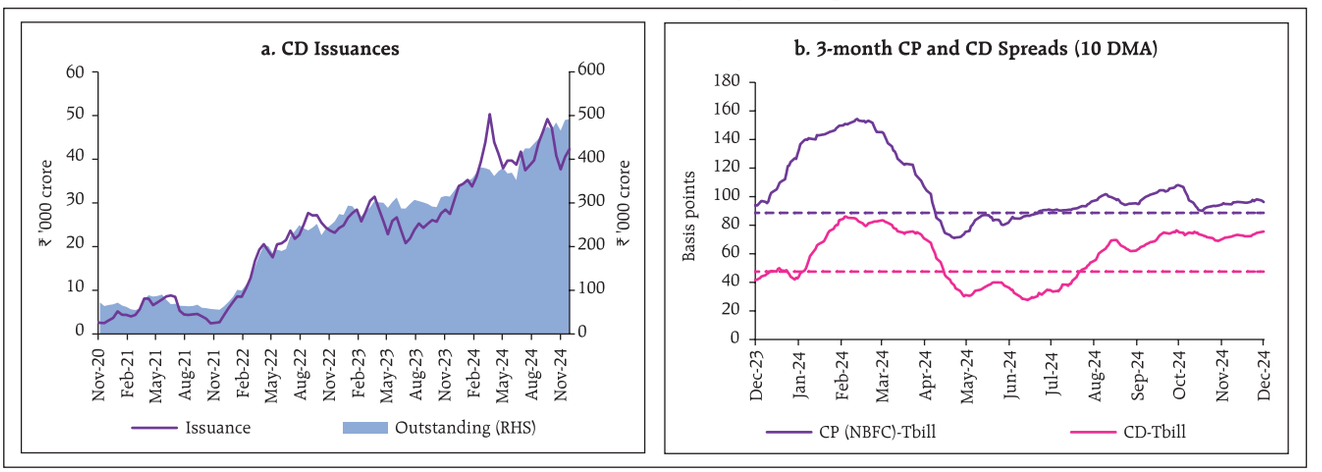
Note: Data as on December 11, 2024.
Source: Bloomberg.

1.51 Banks increasingly relied on issuance of certificates of deposits (CDs) and NBFCs took recourse to issuances of commercial paper (CP) to close their funding gaps. As a result, money market spreads have risen since mid-2024 (Chart 1.38 a and b).

1.52 The sovereign yield curve bull steepened (*i.e.*, short-term rates fell faster than long-term rates), supported by the improvement in system liquidity and change in monetary policy stance. Consequently, the term spread in the G-sec market (*viz.*, 10-year bonds minus 91-day Treasury Bills) rose marginally and averaged 27 bps during July-December (up to December 11, 2024) *vis-à-vis* 18 bps during January-June 2024 (Chart 1.39 a and b).

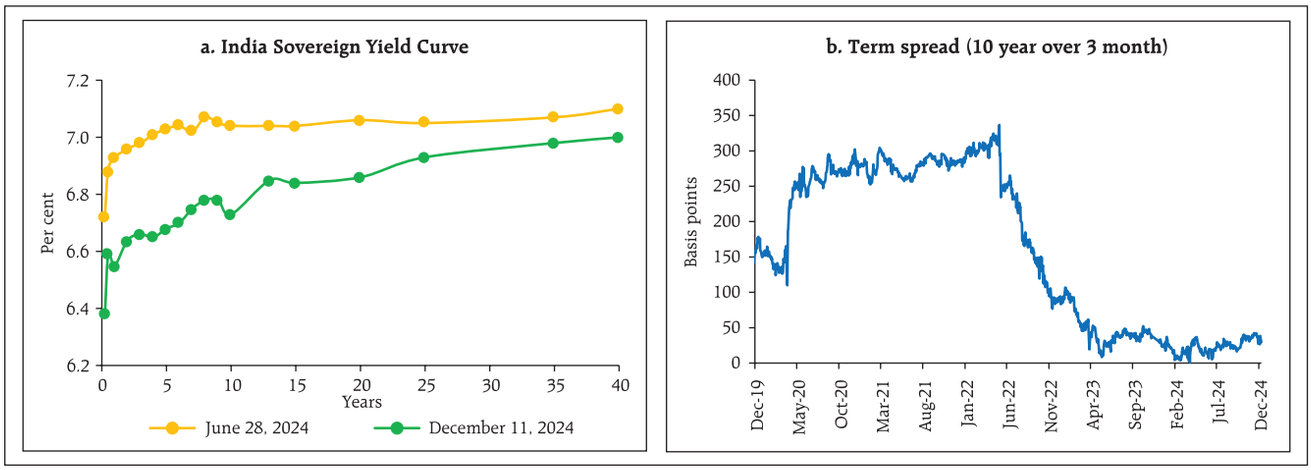
1.53 In the corporate bond market, NBFCs remained the largest issuers, with private placement being the preferred mode for bonds listed on recognised exchanges. Amidst moderation in direct funding from banks, NBFCs attempted to diversify their funding sources through higher issuance of listed non-convertible debentures (NCDs). Banks and corporates together subscribed to nearly two-thirds

Chart 1.38: CD Issuances and Money Market Spreads



Notes: (1) Issuances are rolling average of past 8 fortnights.
(2) Dotted lines indicate average spread from January 01, 2022 to December 11, 2024.
(3) DMA – Daily moving average.
Source: Refinitiv.

Chart 1.39: Sovereign Yield Curve and Term Spread

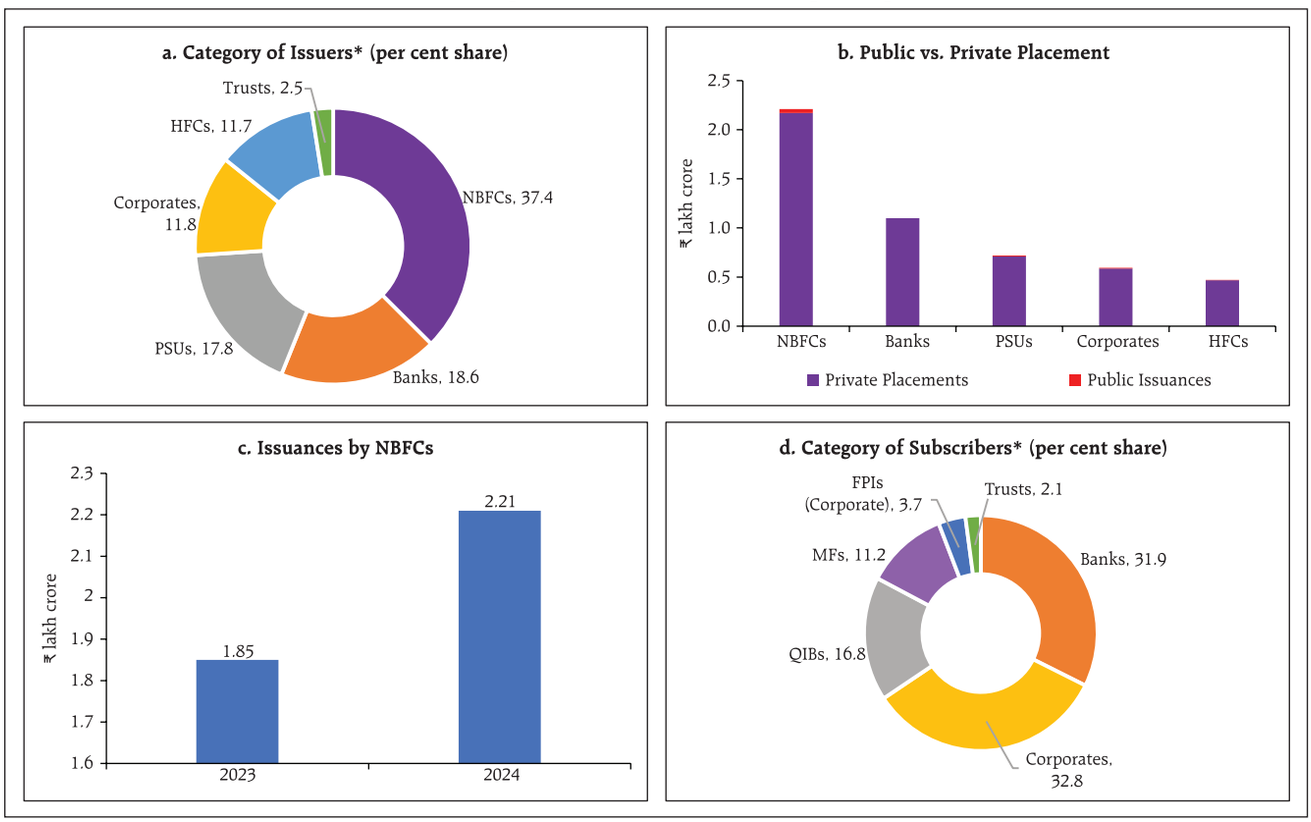


Sources: FBIL and Bloomberg.

of listed corporate bond issuances during 2024-25 (Chart 1.40 a, b, c and d).

1.54 Corporate bond spreads have shown a mixed trend across rating categories. Spreads have widened for AA category since June 2024 even as select lower rated borrowers (below AA) have been able to attract competitive pricing in primary market issuances. Median spreads of NCDs have been higher in 2024

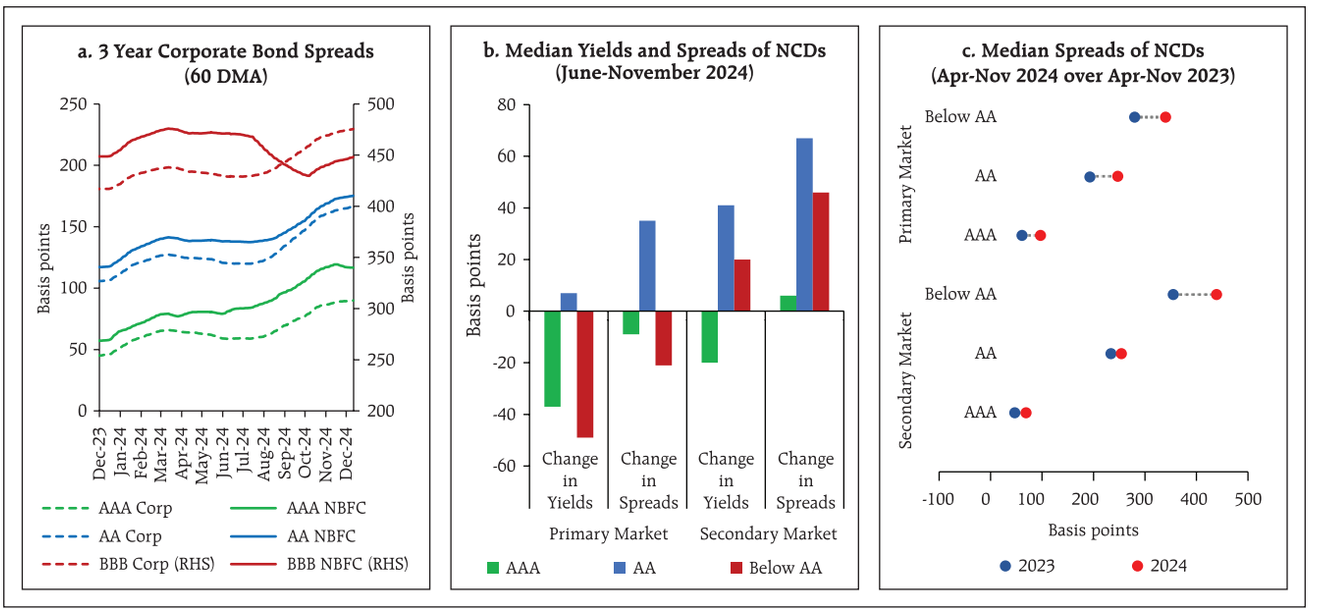
Chart 1.40: Listed Corporate Bond Issuance and Subscription (Apr-Nov 2024)



Notes: (1) * May not add upto 100 per cent as minor categories are not shown.
(2) QIBs: Qualified Institutional Buyers; MFs: Mutual funds; HFCs: Housing Finance Companies.

Sources: NSDL and CDSL.

Chart 1.41: Corporate Bond Spreads



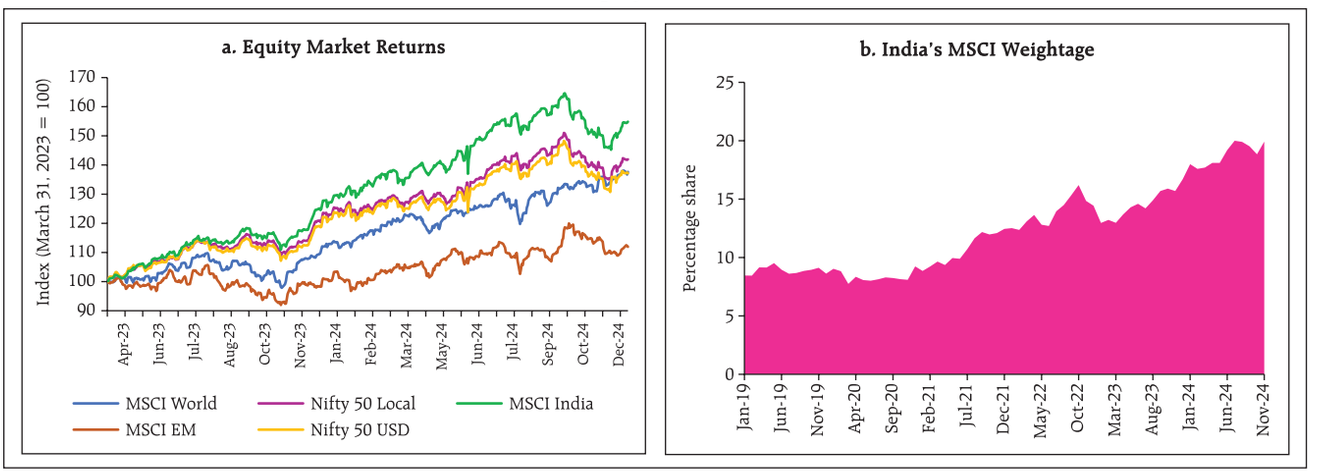
Sources: Bloomberg, NSDL and CDSL.

than a year ago, largely due to the sharper fall in G-sec yields of comparable maturity (Chart 1.41 a, b and c).

1.55 The Indian equity market, which rose to record highs in late-September 2024, has witnessed correction due to deceleration in the pace of corporate earnings and concerns about market valuation. It has, however, outperformed emerging market peers in 2024 so far, with the MSCI India Index recording a return of 19.5 per cent compared to 8.3 per cent for MSCI Emerging Markets Index (MSCI-EMI) as on December 12, 2024. This has led to increase in India's weightage in the MSCI-EMI from 9.2 per cent in March 2019 to 19.9 per cent in November 2024 (Chart 1.42 a and b).

1.56 Midcap, smallcap and microcap stocks yielded returns of over 30 per cent even as the broader Nifty 50 Index posted annualised returns of 17 per cent (Table 1.6). A decomposition of equity returns using a standard discounted cash flow model

Chart 1.42: Equity Market Performance



Sources: Refinitiv, NSE, MSCI, Bloomberg and RBI staff calculations.

Table 1.6: Returns of Nifty Benchmark Indices

(per cent)

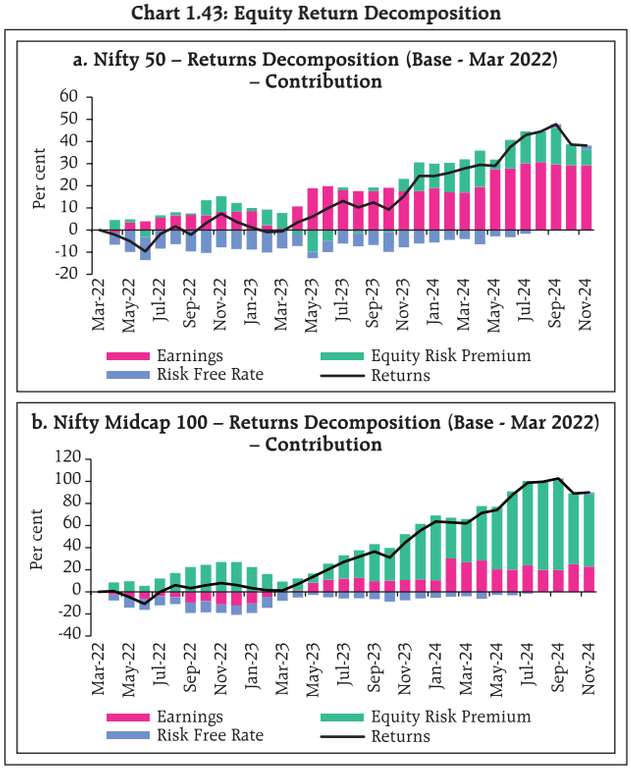
CAGR	Nifty 50	Nifty 100	Nifty Midcap 150	Nifty Smallcap 250	Nifty Microcap 250
1-year	17	21	32	35	44
2-years	15	17	33	37	51
3-years	12	13	23	24	36

Note: CAGR as on December 12, 2024.
Source: NSE.

suggests that higher risk appetite, as reflected in the equity risk premium, has been the major driver of the Nifty Midcap 100 Index in contrast to the Nifty 50 Index, which is supported by earnings growth (Chart 1.43 a and b).

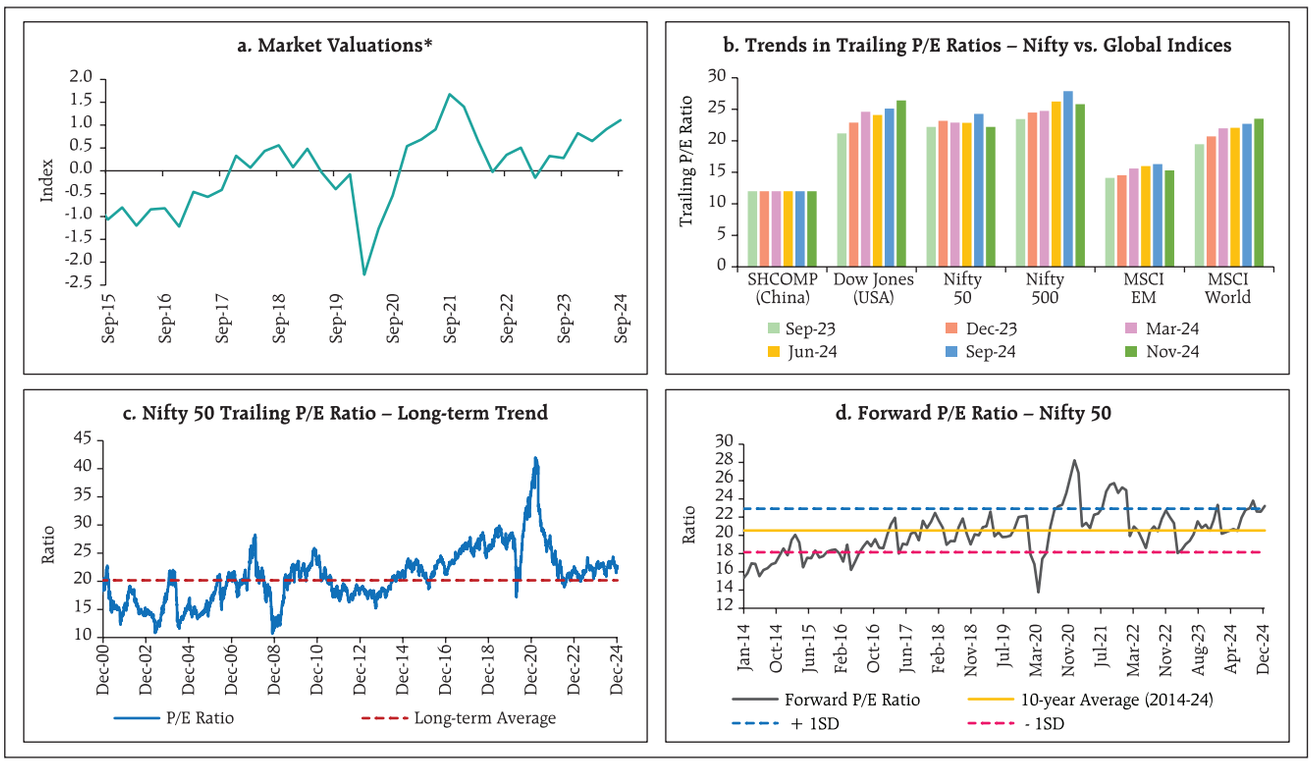
1.57 Despite the recent correction, equity valuations remain elevated across metrics, such as trailing and forward price-to-earnings (P/E) ratios, market capitalisation-to-GDP and earnings yield (Chart 1.44 a, b, c and d).

Chart 1.43: Equity Return Decomposition



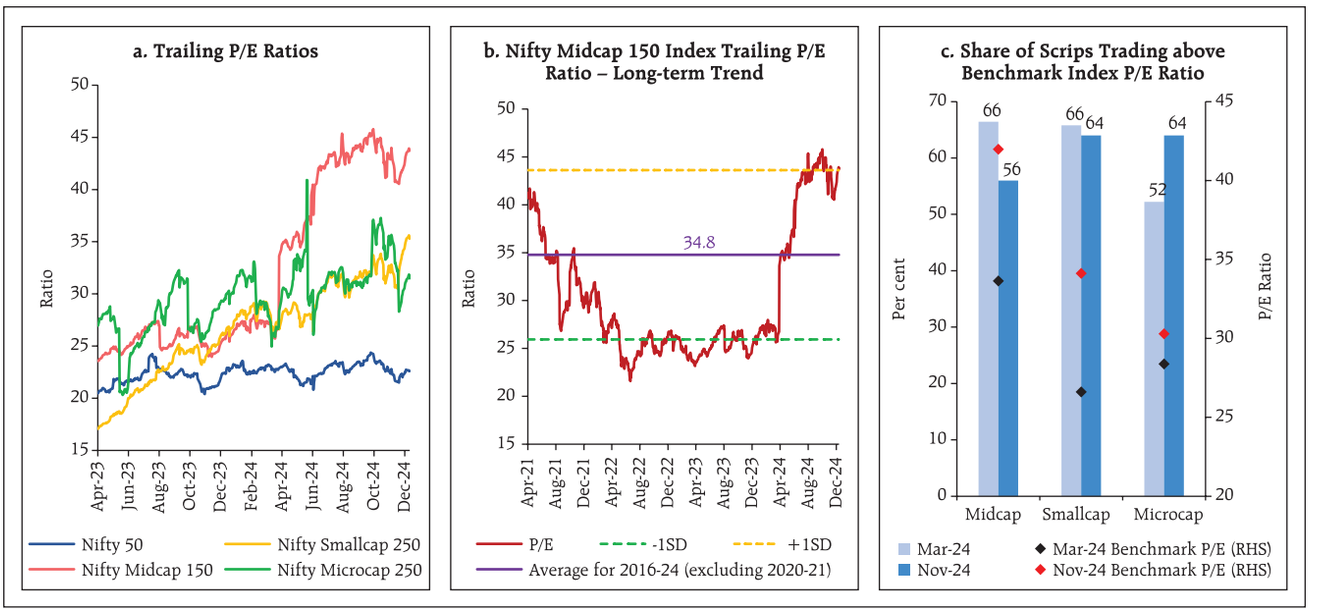
Sources: Bloomberg and RBI staff calculations

Chart 1.44: Broader Equity Market Valuations



Note: * Arithmetic mean of standardised price-to-book, Market Capitalisation-to-GDP, 10-year G-sec yield over Sensex Earnings Yield and Price-to-Earnings ratios. GDP data up to September 2024.
Sources: Refinitiv, NSE, MSCI, Bloomberg and RBI staff calculations.

Chart 1.45: Midcap, Smallcap and Microcap Valuation

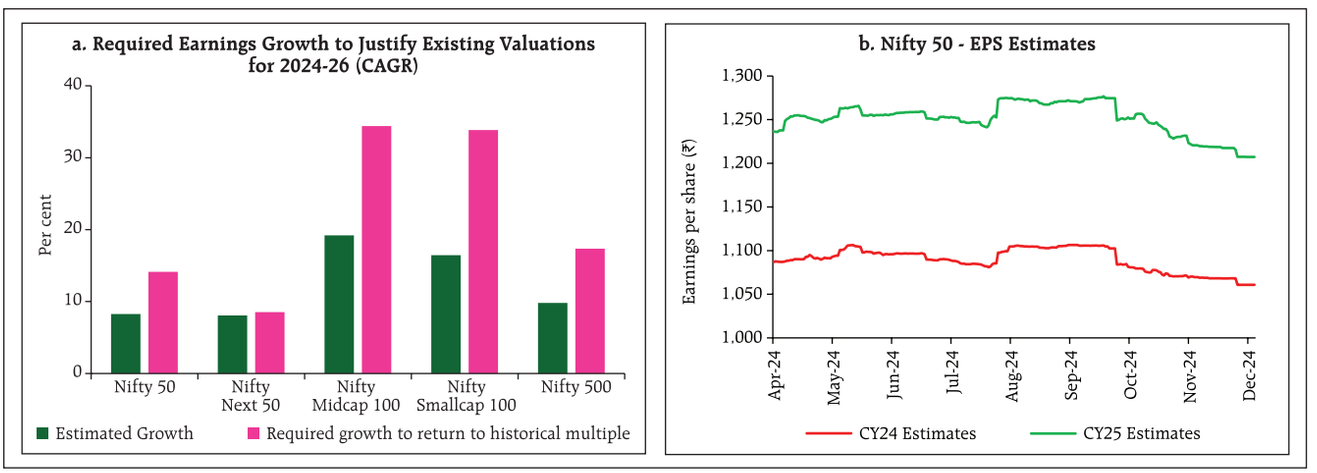


Sources: SEBI, NSE, Bloomberg and RBI staff calculations.

1.58 Stretched valuations are more prominent in midcap and smallcap stocks. Notably, the Nifty Midcap 150 Index was trading at P/E ratios close to 43.7 in mid-December 2024 compared to its long-term average of 34.8 (Chart 1.45 a and b). Moreover, despite a sharp increase in the benchmark P/E ratio from 34 in March 2024 to 42 in November 2024, 56 per cent of stocks in the Nifty Midcap 150 Index were trading higher than the benchmark P/E. Similarly, 64 per cent of both smallcap and microcap scrips traded with a P/E ratio above their respective benchmark P/E ratios (Chart 1.45 c).

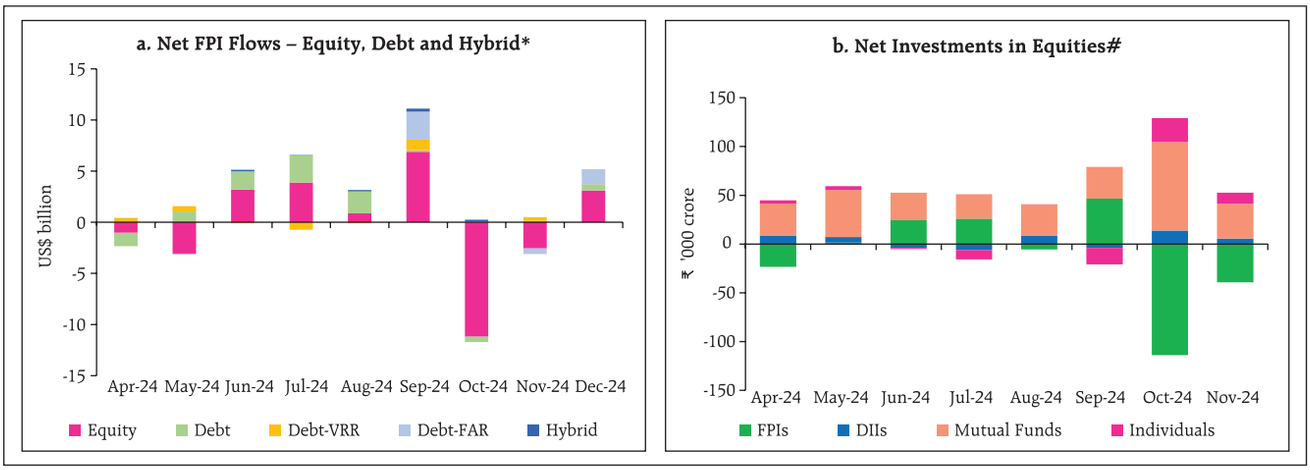
1.59 To justify the current valuations for all indices, the required earnings growth should exceed the expected earnings growth to forestall a large and abrupt market correction. Q2:2024-25 corporate results, however, indicate a slowdown in earnings as reflected in earnings per share (EPS) estimates (Chart 1.46 a and b).

Chart 1.46: Earnings and Valuations



Sources: Bloomberg and RBI staff calculations

Chart 1.47: Trends in Net Investments



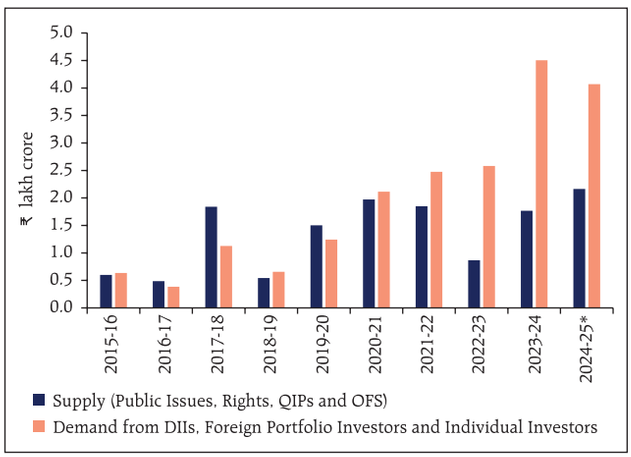
Note: (1) * Data up to December 12, 2024; The format of data reporting by NSDL for FPI flows has changed with effect from September 2024. As a result, figures from September 2024 onwards in the chart exclude flows to mutual funds and AIFs and include flows to Debt-FAR.
(2) # DIIs – Domestic institutional investors.
Sources: NSDL, NSE, BSE and SEBI.

1.60 Foreign portfolio investors sold equities worth US$ 11.2 billion in October 2024, marking the highest recorded FPI monthly outflow. In contrast, domestic investors (institutional investors, mutual funds and individuals combined) remained net buyers of equities for the eleventh consecutive month as well as in 15 of the last 16 months. Foreign portfolio investors were, however, net buyers in the debt market (Chart 1.47 a and b).

1.61 Strong demand for equities, especially from domestic investors, has outpaced supply of primary market issuance through public issues {initial public offerings (IPOs) and follow-on public offerings (FPOs)}, qualified institutional placements (QIPs) and offer-for-sale (OFS) since the pandemic (Chart 1.48).

1.62 The demand-supply mismatch in securities indicates investors' preference for short-term returns through secondary market investments over long-term capital formation. This is reflected in the unprecedented growth in the total number of demat accounts held by individual investors, which rose from four crore at the end of 2019-2020 to fifteen crore in as at end-March 2024. A study conducted by the Securities and Exchange Board of India (SEBI)[28] to analyse trends in intraday trading by individual investors before and after the COVID-19 outbreak found that the number of individuals trading intraday in the equity cash segment has increased by close to five times, from 15 lakh in 2018-19 to 69 lakh in 2022-23, and the share of young intraday traders (aged less than 30 years) has grown to 48 per

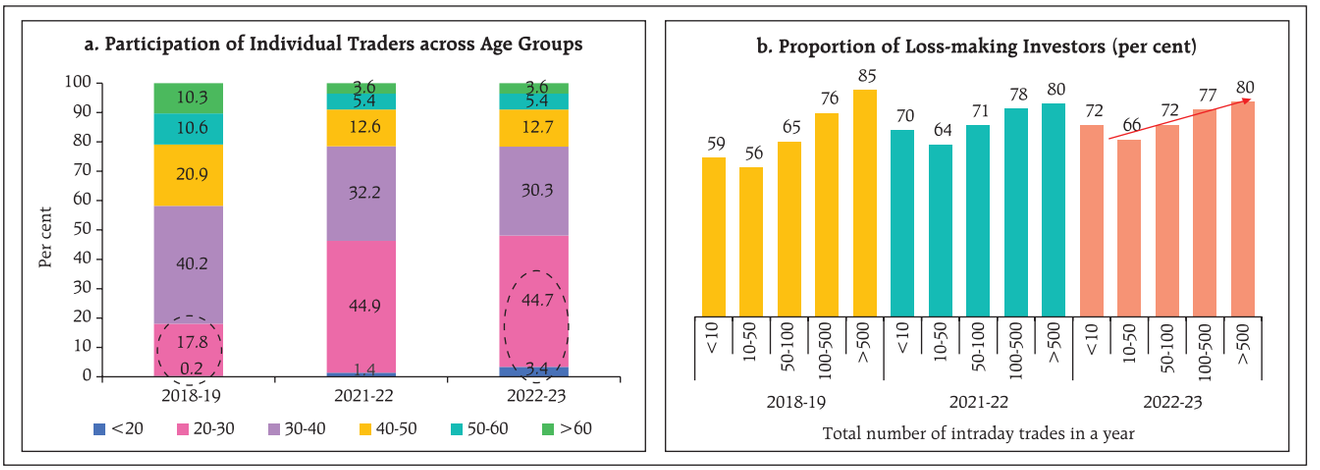
Chart 1.48: Demand for and Supply of Equities



Note: * Data up to October 2024; Foreign Portfolio Investors demand data includes both primary and secondary market investments but for DIIs and Individual investors, only secondary market investments are presented. DIIs includes Banks, Development Financial Institutions, Insurances, New Pension Schemes and MFs.
Sources: SEBI, NSE, BSE, Capitaline, Bloomberg and RBI staff calculations.

[28] SEBI (2024), "Analysis of Intraday Trading by Individuals in Equity Cash Segment", July.

Chart 1.49: Intraday Trading by Individuals in Equity Cash Segment



Source: SEBI.

cent from 18 per cent. Notably, a substantial share of traders has incurred losses and the proportion of loss-making investors rose in tandem with frequency of trading (Chart 1.49 a and b).

1.63 An analysis of investor behaviour in Main Board IPOs by the SEBI[29] corroborated this investment pattern, with individual investors engaging in 'flipping' behaviour, selling 50 per cent of shares allotted to them by value within a week of listing. Moreover, investors exhibited greater propensity to sell IPO shares that posted positive listing gains as compared to those that listed at a loss. Individual investors offloaded more than two-thirds of shares that gave a return of more than 20 per cent within a week.

1.64 Activity in the equity derivatives segment remained strong. As at end-September 2024, there was an increase of 59 per cent (y-o-y) in the turnover in futures contracts and 25 per cent in the options segment (notional turnover). Despite a sizeable share of individual investors making losses, turnover contributed by them in the futures and options (F&O) segment rose by 118 per cent to ₹4,107 lakh crore between September 2022 and September 2024. In a follow-up to the study[30] published in January 2023 by the SEBI, which found that 89 per cent of individual equity F&O traders lost money in 2021-22, the SEBI published another study[31] in September 2024, that showed the aggregate losses of individual traders exceeded ₹1.8 lakh crore over the three-year period between 2021-22 and 2023-24. Moreover, 93 per cent of over 1.13 crore individual F&O traders incurred average losses of around ₹2 lakh per trader. On the other hand, proprietary traders and foreign portfolio investors with sophisticated trading knowledge registered significant profits. The study also revealed that the proportion of young traders (below 30 years) in the F&O segment rose from 31 per cent to 43 per cent during this period. Over 75 per cent of individual F&O traders in 2023-24 had declared an annual income of less than ₹5 lakh and more than three-fourths of loss-making traders

[29] SEBI (2024), "Analysis of Investor Behavior in Initial Public Offerings (IPOs)", September.

[30] SEBI (2023), "Analysis of Profit and Loss of Individual Traders dealing in Equity F&O Segment", January.

[31] SEBI (2024), "Analysis of Profits & Losses in the Equity Derivatives Segment (FY22-FY24)", September.

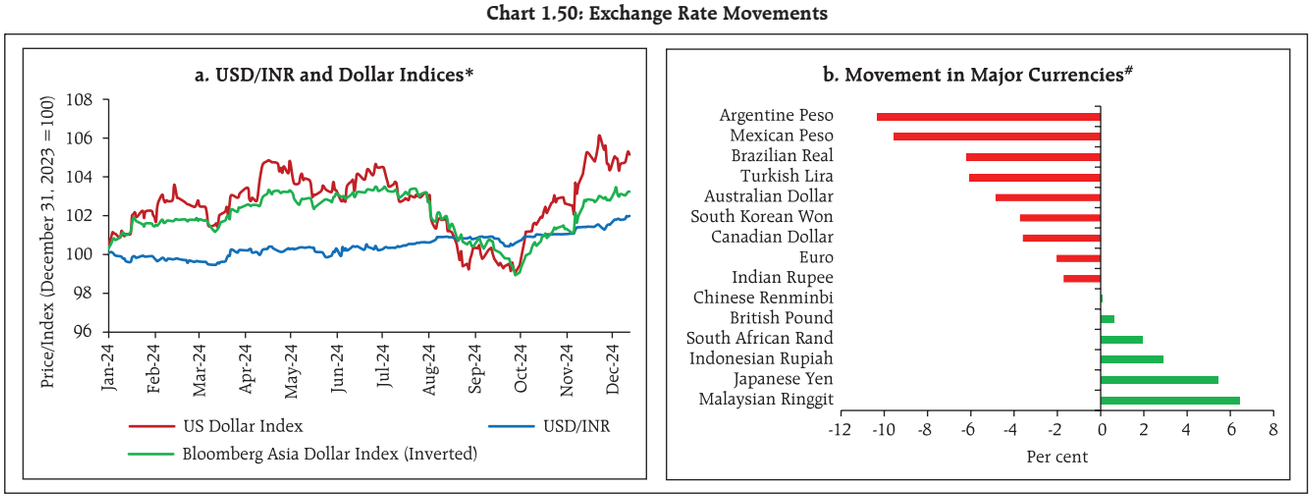
continued trading in F&O market despite making losses in consecutive years. Accordingly, in October 2024, the SEBI took several measures to strengthen the equity index derivatives market for increased investor protection and market stability.

1.65 An emerging area of concern relates to IPOs of small and medium enterprises (SMEs). There has been a sharp increase in demand for SME IPOs, with several IPOs oversubscribed 100 times or more on account of rising participation from retail investors. In many cases, there appears to be no direct correlation between company fundamentals and the sharp rise in stock prices of SMEs. The SEBI has observed that some SME companies and/or their promoters engaged in practices that present an overly optimistic or unrealistic view of their operations following their listing on exchanges, which are often followed by corporate actions, such as bonus issues, stock splits, preferential allotments and similar measures, to influence stock prices. Accordingly, the SEBI has issued orders against certain entities engaging in such activities and also issued advisory urging investors to remain vigilant and cautious when considering investments in SME securities.

1.66 Amidst periods of volatility in international foreign currency markets and the strengthening of the US dollar relative to other currencies, the domestic foreign exchange market has stayed steady, supporting overall macroeconomic stability. The Indian Rupee (INR) remains one of the most stable currencies among emerging market currencies (Chart 1.50 a and b).

1.67 Several indicators, such as the real effective exchange rate (REER), the exchange market pressure (EMP) index[32], implied volatility derived from option prices and onshore-offshore spreads also

Chart 1.50: Exchange Rate Movements



Note: (1) * Bloomberg Asia Dollar Index (Inverted) aims to replicate the performance of USD against nine Asian currencies.
(2) # Change between end-June 2024 and December 12, 2024.

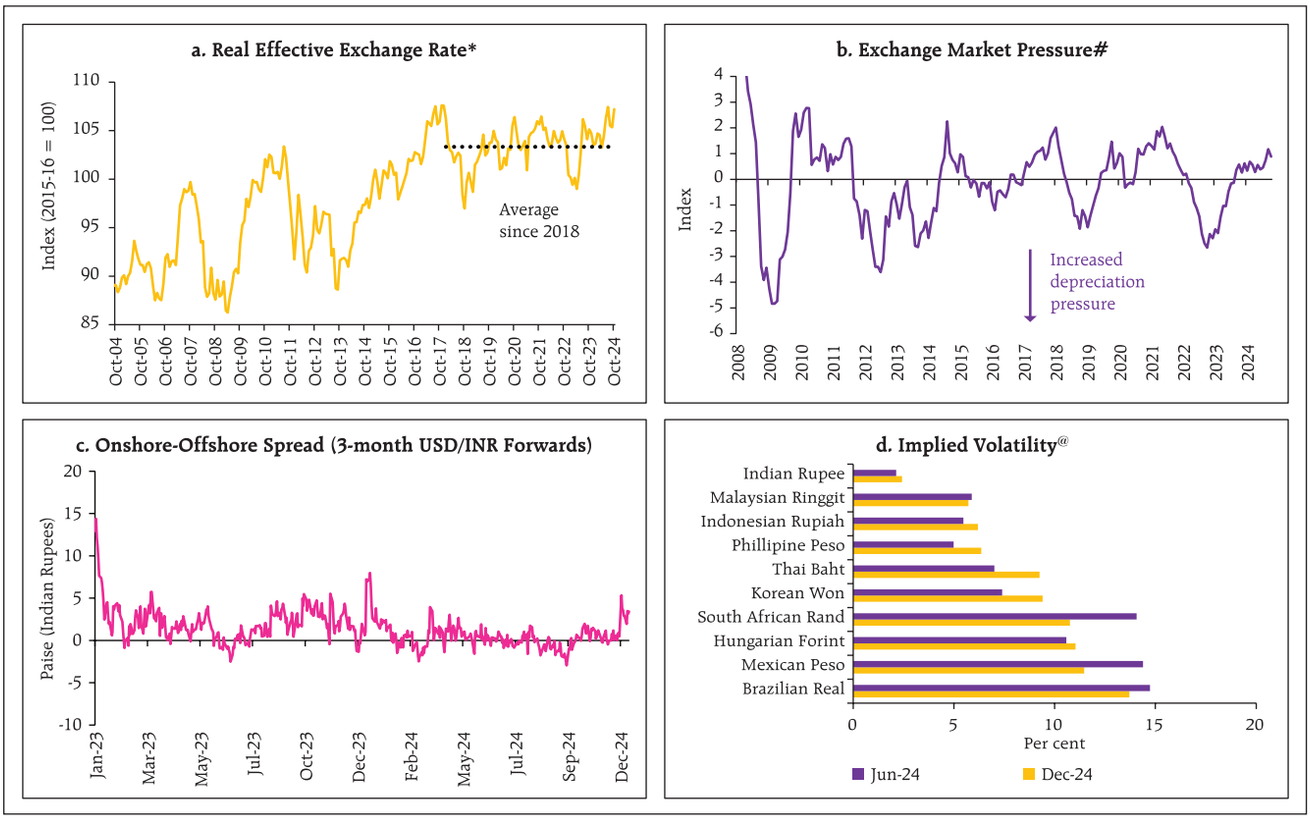
Sources: Bloomberg, RBI and staff calculations.

[32] EMP index is used to measure external pressures on the currency and is constructed as a weighted average of exchange rate movements and changes in forex reserves.

$$EMP_t = \frac{1}{\sigma_{\Delta e_t}} \Delta e_t + \frac{1}{\sigma_{\Delta r_t}} \Delta r_t$$

where Δe_t is the y-o-y percentage change in exchange rate relative to the U.S. Dollar at time t, and Δr_t is the y-o-y percentage change of foreign exchange reserves at time t as a fraction of the monetary base (M3). $\sigma_{\Delta e_t}$ and $\sigma_{\Delta r_t}$ are the historical standard deviations of the two variables, respectively. For more details, see Appendix 3.1 of IMF World Economic Outlook April 2007.

Chart 1.51: Exchange Rate Stability Indicators



Notes: (1) * Trade weighted REER index is based on 40 currency basket (monthly average)
(2) # The EMP index uses standardised changes in exchange rates and forex reserves to measure the net pressure on an exchange rate. Negative numbers indicate increased depreciation pressure.
(3) @ Implied volatility is derived from At-the-Money 1-month Option prices. Data as on December 12, 2024.

Sources: Bloomberg and RBI staff calculations.

underscore the stability of the USD-INR exchange rate (Chart 1.51 a, b, c and d).

1.68 Global developments constitute a major channel for spillovers in EMEs affecting financial conditions, broader financial system and the economy. Vulnerability to external shocks have risen even as financial integration has increased. Thus, the resilience of EMEs is tested time and again in episodes involving global financial turmoil with the degree of impact determined by the extent of transmission of spillovers (Box 1.1).

Box 1.1 - Transmission of Global Spillovers to Domestic Financial Conditions

Monetary policy decisions in systemic advanced economies have a spillover effect on emerging market economies through their impact on bond yields, equity prices, capital flows, and exchange rate movements (IMF, 2015). Accordingly, risks from global spillovers to domestic financial stability remain a key concern.

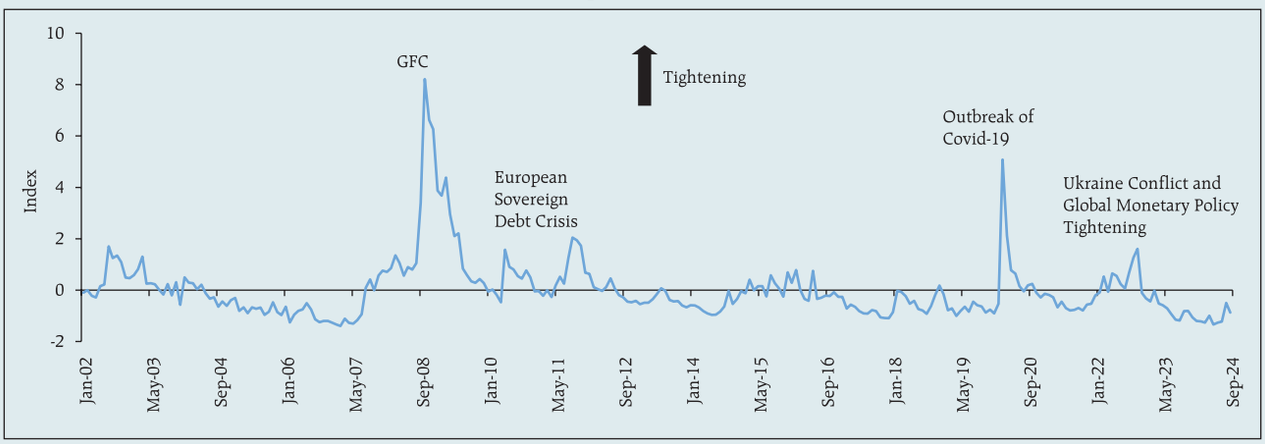
In order to assess the impact of global spillovers on domestic financial conditions, a two-step procedure is adopted. First, a global spillover index is constructed by using a set of financial variables based on a Dynamic Factor Model[33] (Patra *et al.*, 2016). The global spillover index traces all major events that capture adverse global macro-financial developments, including wars and COVID-19 (Chart 1). The dynamic correlations show greater sensitivity to certain components of the domestic financial conditions index (FCI)[34] such as equity and foreign exchange markets. The equity market shows the strongest correlation with the global spillover index, indicating its central role in transmitting global spillovers to domestic financial conditions (Table 1).

Table 1: Dynamic Correlation between FCI, Sub-components of FCI and Global Spillover Index

	Lead in Global Spillover Index (t = months)			
	0	**1**	**2**	**3**
FCI	0.23	0.26	0.24	0.16
Sovereign Risk	-0.14	-0.16	-0.16	-0.15
Risk Premium	0.09	0.17	0.16	0.02
Foreign Exchange Market	0.33	0.32	0.29	0.27
Equity Market	0.46	0.47	0.42	0.36
Money Market	0.01	0.02	0.02	-0.06

Sources: Bloomberg and RBI staff calculations.

Chart 1: Global Spillover Index (Standardised)



Sources: Bloomberg and RBI staff calculations.

(Contd.)

[33] Global Spillover Index (VIX, US Dollar Index, term premium, risk premium and LIBOR-OIS spread) has been constructed using the DFM methodology. Global Spillover Index utilises the 3-month LIBOR-OIS spread up to June 2023 and transitions to the 3-month SOFR-OIS spread from July 2023 onwards. It is assumed that each standardised variable $Y_{t,i}$ can be decomposed into an unobserved common component F_t and a disturbance term $\epsilon_{t,i}$ This relationship can be mathematically represented as follows:

$Y_{t,i} = \gamma_i * F_t + \epsilon_{t,i}$ (Factor Loadings)

$F_t = \beta * F_{t-1} + \omega_t$ (auto-correlated factors)

$\varepsilon_{t,i} = \alpha * \varepsilon_{t-1,i} + \delta_{t,i}$ (auto correlated errors)

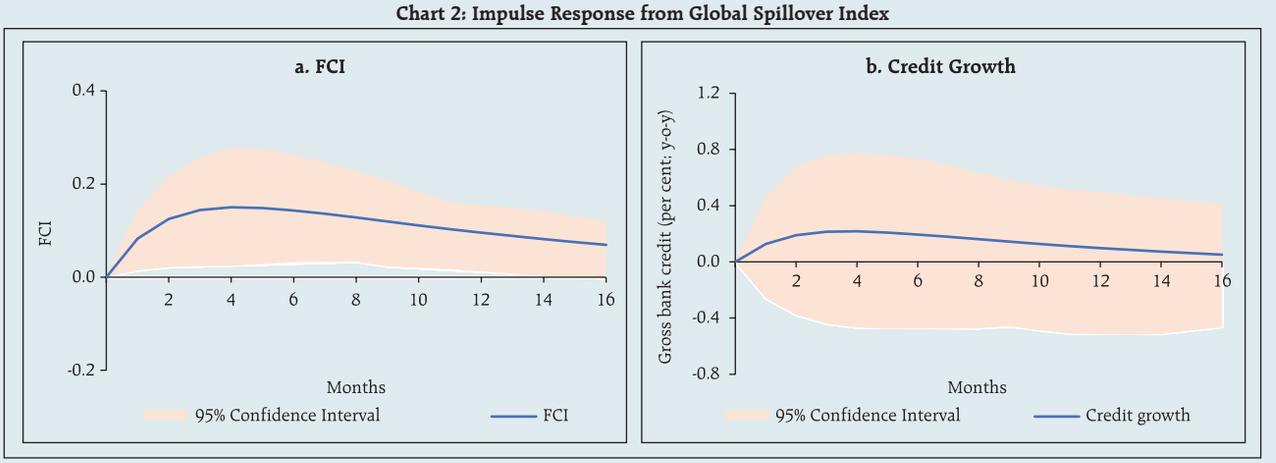
F_t is a vector of common factors that follows a VAR(p) process; γ_i is the factor loading of F_t, showing the relevance of each variable $Y_{t,i}$ in the Spillover Index and $\varepsilon_{t,i}$ represents idiosyncratic shocks specific to the ith variable at time 't'. The parameters are obtained by maximum likelihood estimation using Kalman filter.

[34] FCI for India is estimated using twenty financial market indicators, with chosen indicators representing five market segments, namely (i) the money market; (ii) the G-sec market; (iii) the corporate bond market; (iv) the forex market; and (v) the equity market. For details, refer Box IV.2 of the Monetary Policy Report (October 2024).

Second, a three-variable Vector Autoregression (VAR) model is used to assess the impact of the global spillover index on domestic financial conditions and bank credit growth. The impulse response function (IRF) plot for the FCI (Chart 2 a) demonstrates a statistically significant response to spillover shocks, although the magnitude of the impact remains moderate and is seen primarily in equity and foreign exchange markets.

In contrast to financial conditions, the IRF for credit growth (Chart 2 b) reveals an insignificant response to spillover shocks, suggesting global spillovers have little impact on the bank lending channel.

Chart 2: Impulse Response from Global Spillover Index



Sources: Bloomberg and RBI staff calculations.

References:

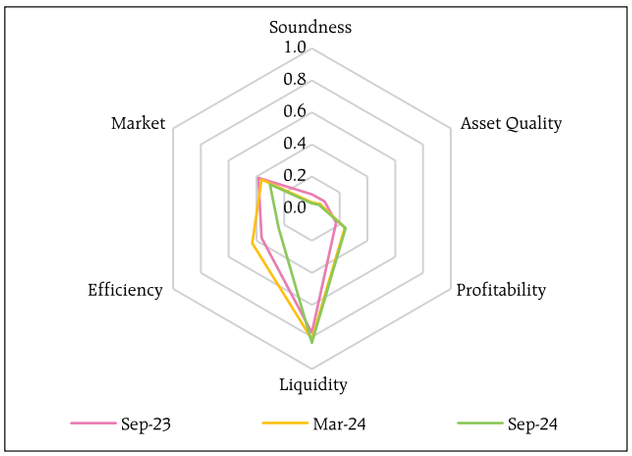
1. International Monetary Fund (2015), "2015 Spillover Report", December.
2. Patra, M. D., Pattanaik, S., John, J., Behera, H. K. (2016), "Monetary policy transmission in India: Do global spillovers matter?", *Reserve Bank of India Occasional Papers*, 37(1), 1-34.

I.2.7 Banking Stability Indicator

1.69 The banking stability indicator (BSI)[35], which provides an assessment of the resilience of the domestic banking system, showed further improvement during H1:2024-25. While stronger capital buffers boosted the soundness dimension, declining NPAs and improved provisioning bolstered asset quality. Despite improvement in return on assets (RoA) and earnings before provisions and taxes, the profitability dimension remained unchanged, weighed down by a sequential decline in the net interest margin (NIM) abetted by shift of deposits to higher interest rate buckets. The efficiency dimension strengthened, with reduction in cost-to-income ratio as well as staff cost. The market dimension of the BSI also improved due to a fall in risk weighted assets (RWAs) for market risk. A decline in the liquidity coverage ratio (LCR) and the liquid asset ratio weakened the liquidity dimension, although banks have sufficient liquidity buffers relative to the regulatory minimum (Chart 1.52).

[35] The BSI has been revised from this issue of the FSR. Methodology and variables used for compiling each BSI dimension are provided in Annex 2.

Chart 1.52: Banking Stability Map



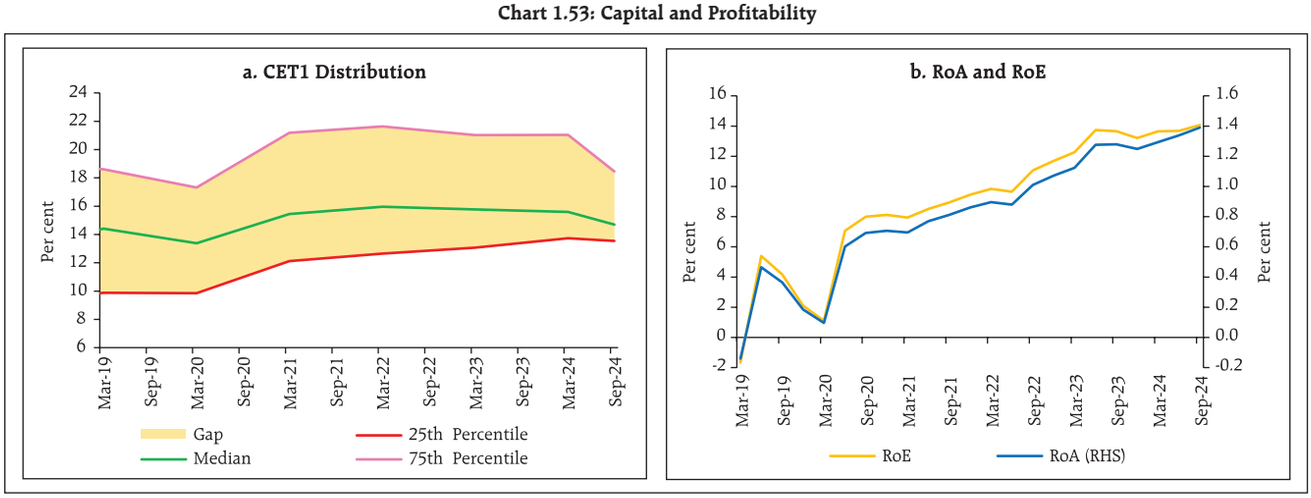
Note: Away from the centre indicates increase in risk.
Sources: RBI supervisory returns and staff calculations.

I.2.8 Banking System[36]

1.70 The resilience of the domestic banking system has been bolstered by robust capital buffers, strong earnings and sustained improvement in asset quality. The common equity tier 1 (CET1) ratio, which represents the highest quality of regulatory capital, stood at 14.0 per cent, well above the regulatory requirement of 8 per cent (including the capital conservation buffer). The banks' net interest margins (NIM) and profitability also remained solid. Consequently, their returns on assets (RoA) and returns on equity (RoE) rose to 1.4 per cent and 14.1 per cent, respectively, in September 2024 (Chart 1.53 a and b).

1.71 Buoyed by falling slippages, higher write-offs and steady credit demand, the gross non-performing assets (GNPA) ratio[37] of scheduled commercial banks (SCBs) fell to a multi-year low of 2.6 per cent. Alongside, net non-performing assets (NNPA) ratio declined to 0.6 per cent, aided by strong provisioning. Additionally, the special mention accounts – 2 (SMA-2) ratio[38], which is a lead indicator of asset quality, is also displaying low potential impairment (Chart 1.54 a, b and c).

Chart 1.53: Capital and Profitability



Source: RBI supervisory returns.

[36] The analyses done in this section are based on domestic operations of SCBs (excluding SFBs), unless otherwise stated.

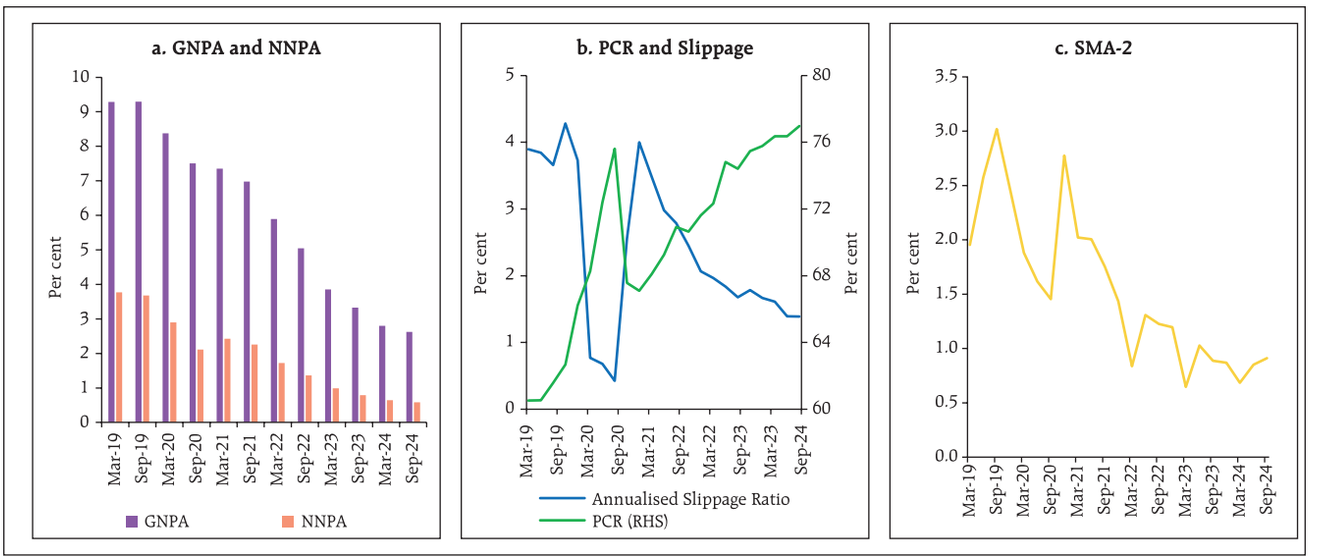
[37] GNPA ratio is the share of gross non-performing assets in gross loans and advances.

[38] Special mention account (SMA) is defined as:

a) For loans with revolving facilities (e.g. cash credit/ overdraft): if outstanding balance remains continuously more than the sanctioned limit or drawing power, whichever is lower, for a period of 31-60 days - SMA-1; 61-90 days - SMA-2.

b) For loans other than revolving facilities: if principal or interest payment or any other amount wholly or partly overdue remains outstanding up to 30 days - SMA-0; 31-60 days - SMA-1; 61-90 days - SMA-2.

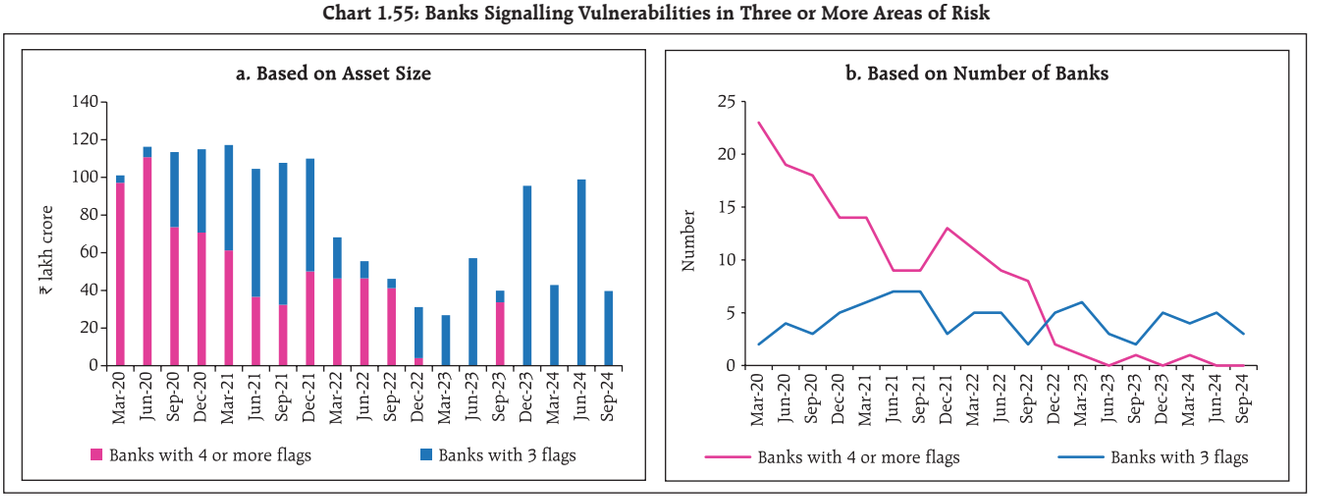
Chart 1.54: Asset Quality



Source: RBI supervisory returns.

1.72 While the banking sector is assessed to be broadly resilient, a few banks are found vulnerable, when measured under the key risk indicators (KRIs)[39] framework. Outlier banks are flagged when they are found to be deficient across multiple risk indicators (11 risk indicators[40] over five risk dimensions). At the beginning of the current decade, three-fourths out of 33 public and private sector banks analysed under the KRI framework were found deficient in three or more KRIs. In terms of asset size, this represented two-thirds. In September 2024, however, only three banks forming 15 per cent of total banking system assets have been found to be deficient in three KRIs and none are flagged deficient in more than three KRIs (Chart 1.55 a and b).

Chart 1.55: Banks Signalling Vulnerabilities in Three or More Areas of Risk

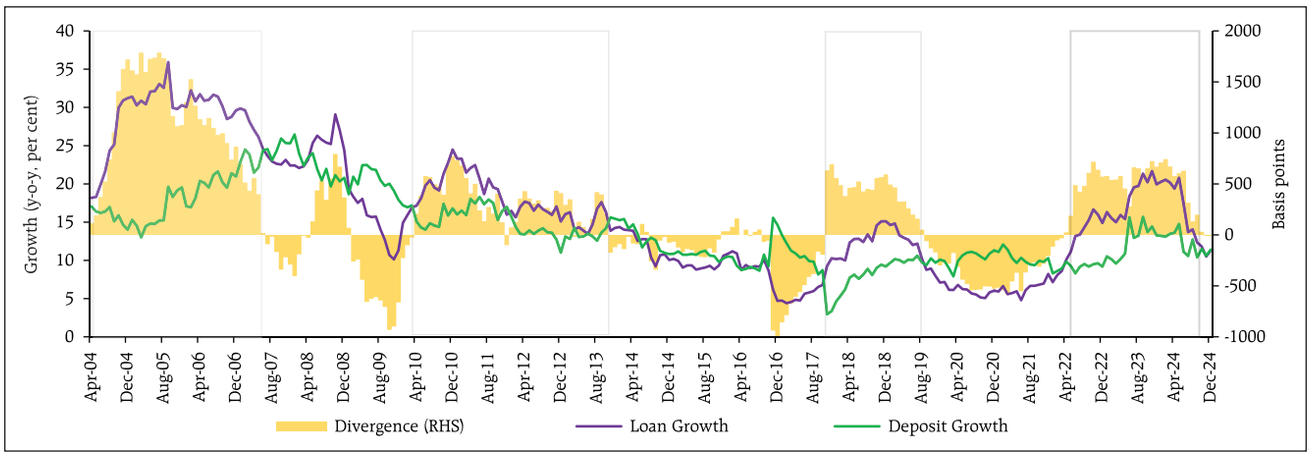


Sources: CMIE, RBI supervisory returns and staff calculations.

[39] KRI framework developed by the IMF measures vulnerability of banks by integrating the CAMELS supervisory framework with market-based metrics and flags institutions based on specified thresholds that vary by jurisdictions. For more details, refer to Chapter 2 of Global Financial Stability Report (October 2023); https://www.imf.org/en/Publications/GFSR/Issues/2023/10/10/global-financial-stability-report-october-2023.

[40] Out of the 12 indicators prescribed by the IMF, all indicators, except dividend growth forecast, have been used for this analysis. The KRI thresholds are those prescribed for Asia.

Chart 1.56: Loan-Deposit Divergence – Long Term Dynamics

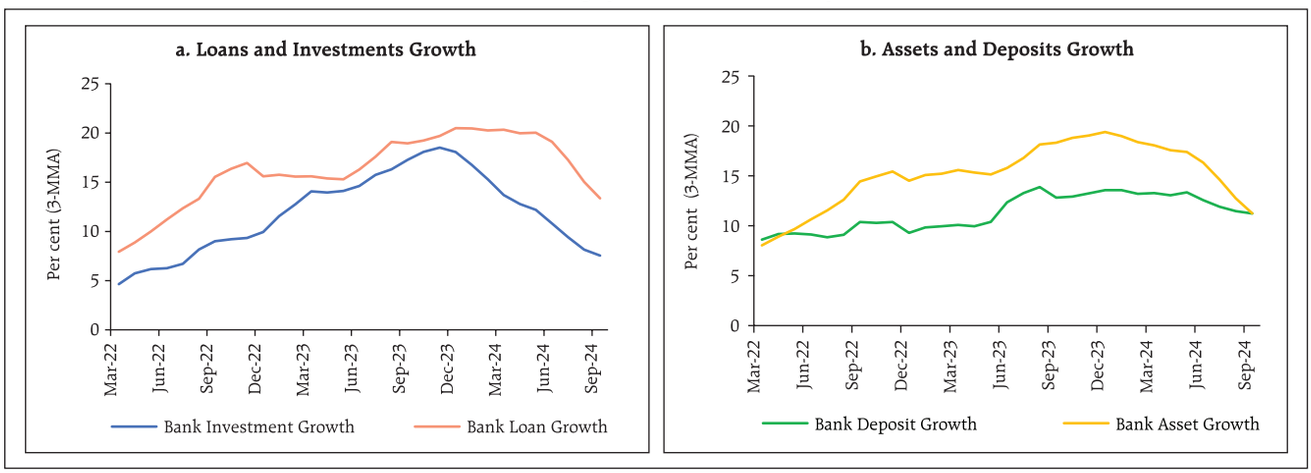


Note: (1) Updated till December 13, 2024. Data for November and December updated from Weekly Statistical Supplement (WSS).
(2) Credit growth includes the impact of merger of a non-bank with a bank.
Sources: RBI and staff calculations.

1.73 Growth in bank loans and deposits moderated during H1:2024-25 and the wedge between them narrowed further. As noted in the June 2024 issue of the FSR, there have been multiple episodes of gaps between loan and deposit growth (ranging from 2 to 4 years), but there has been eventual convergence (Chart 1.56).

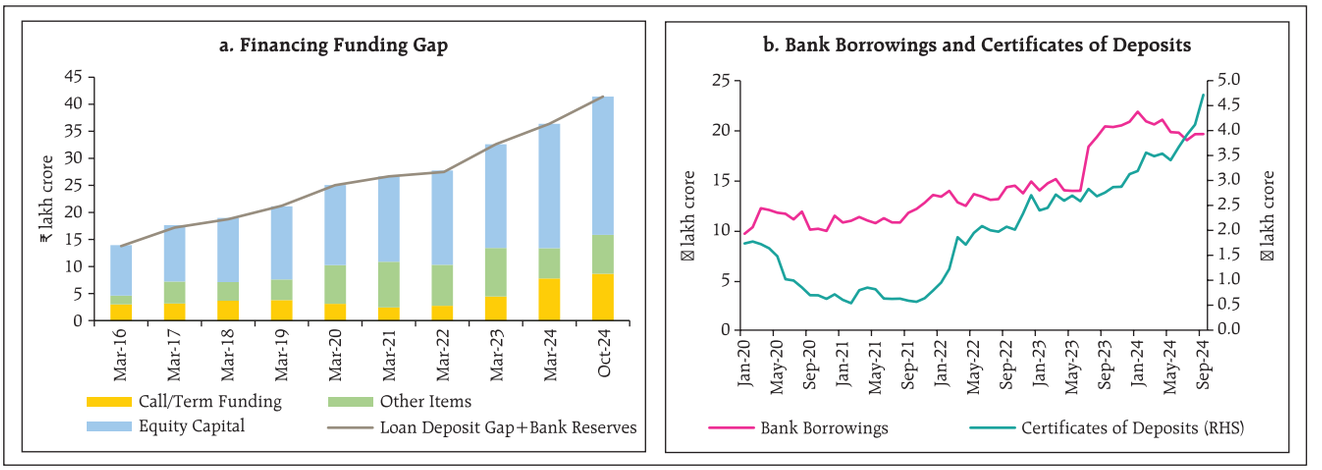
1.74 An analysis of the loan-deposit gap reveals the following: (1) while the loan growth has been running at 13.4 per cent {3-month moving average (3-MMA)} in September 2024, investments recorded lower growth of 7.6 per cent (3-MMA), resulting in 11.2 per cent growth (3-MMA) in the combined assets (loan + investment), same as deposit growth of 11.2 per cent (3-MMA) (Chart 1.57 a and b); (2) increase in profits and resultant rise in equity capital has been a significant additional source of funds, which contributed to an increase in loan-deposit ratio (Chart 1.58 a); and (3) banks' reliance

Chart 1.57: Banking System – Balance Sheet Dynamics



Sources: RBI supervisory returns and staff calculations.

Chart 1.58: Banks' Funding Gap



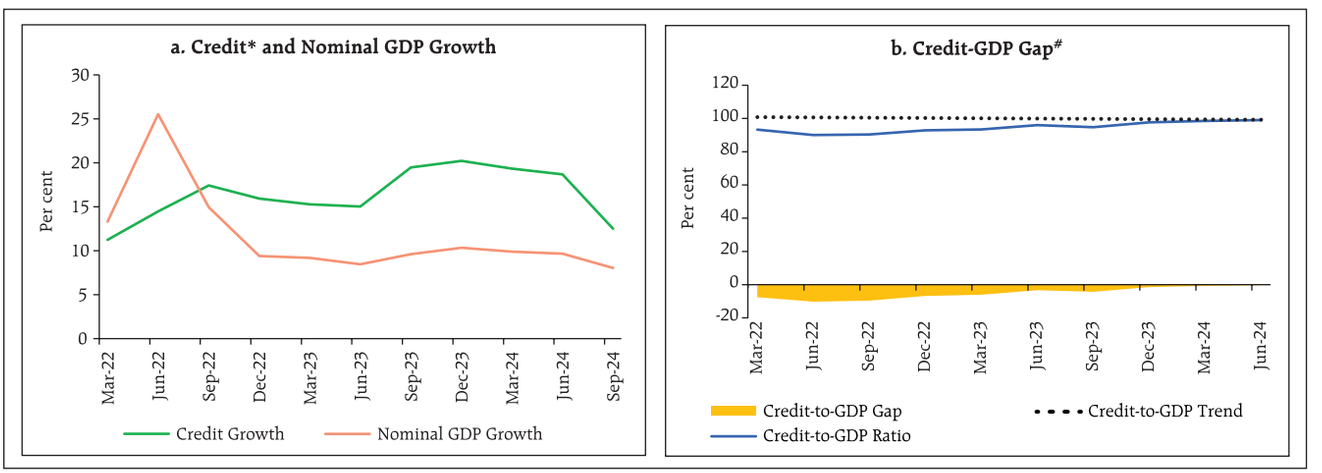
Sources: RBI supervisory returns and staff calculations.

on borrowings for bridging the financing gap rose as loan growth outpaced deposit growth leading to an increase in loan-deposit ratio (Chart 1.58 b).

1.75 With credit[41] growth outpacing nominal GDP growth for two successive years, the credit-GDP gap (*i.e.*, the difference between the credit-GDP ratio and its long-term trend) narrowed to (-) 0.7 per cent in Q4:2023-24 from (-) 10.3 per cent in Q1:2022-23 (Chart 1.59 a and b).

1.76 Banks' deposit profile has been changing, with a decline in the share of low-cost CASA deposits in favour of term deposits, especially for higher interest rate buckets (Chart 1.60 a), indicating growing competition for savings and investor preference for financial products offering higher

Chart 1.59: Credit and GDP Growth and Credit-GDP Gap

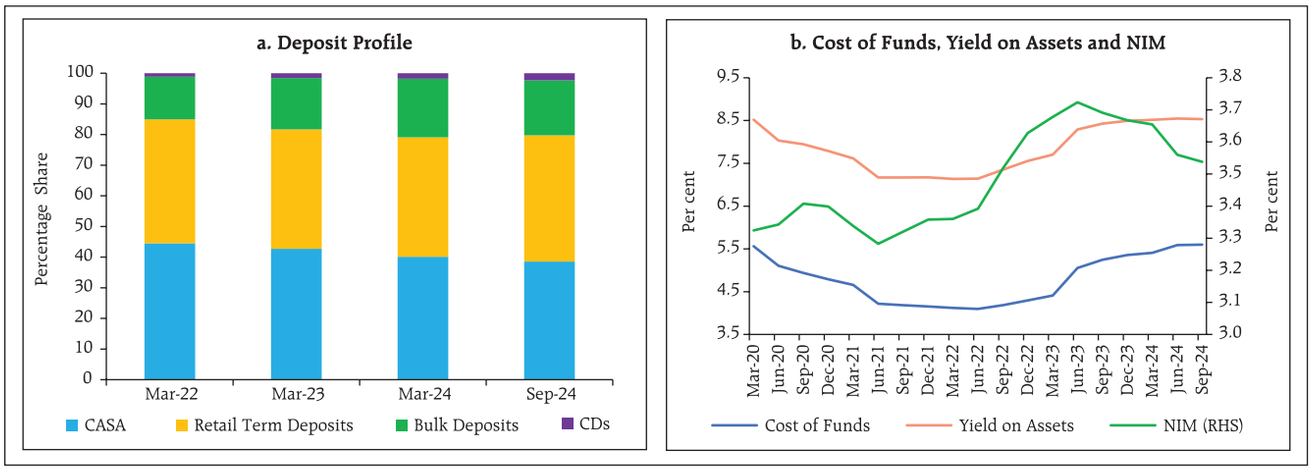


Notes: (1) * Credit growth includes the impact of merger of a non-bank with a bank.
(2) # Credit-GDP gap has been estimated with one sided Hodrick-Prescott Filter and Lambda = 400,000. Credit refers to loans and advances.

Sources: BIS, RBI and staff calculations.

[41] Credit refers to loans extended by banks and excludes investments.

Chart 1.60: Deposit Profile and Profitability



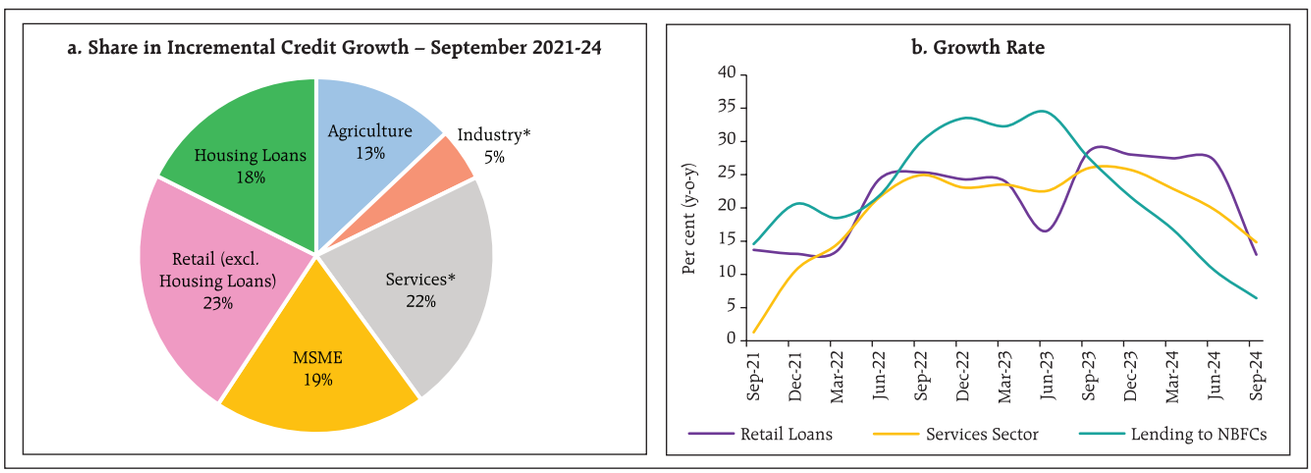
Sources: RBI supervisory returns and staff calculations.

returns. For instance, term deposits formed 82 per cent of incremental deposits mobilised in H1:2024-25. Banks also raised more funds through higher cost certificates of deposits (CDs). Consequently, banks' cost of funds rose by 148 bps since March 2022. As a result, banks' NIM and profitability face pressure from stiffer competition for funds (Chart 1.60 b).

1.77 Regulatory measures taken in November 2023 in the form of raising risk weights on certain segments of consumer credit by banks and NBFCs as well as bank credit to NBFCs, especially unsecured loans, are fructifying. There has been a noticeable slowdown in both retail loans and bank lending to NBFCs from CAGR of 26.9 per cent and 28.7 per cent between September 2021 and September 2023 (when headline credit growth was 18.6 per cent) to 13.0 per cent and 6.4 per cent (y-o-y), respectively, in September 2024 (Chart 1.61 a and b). Unsecured retail lending growth also fell from 27.0 per cent to 15.6 per cent over this period.

1.78 Banks' retail loan quality has remained stable so far: the GNPA ratio stood at 1.2 per cent in

Chart 1.61: Incremental Credit and Growth Rate in Select Sectors

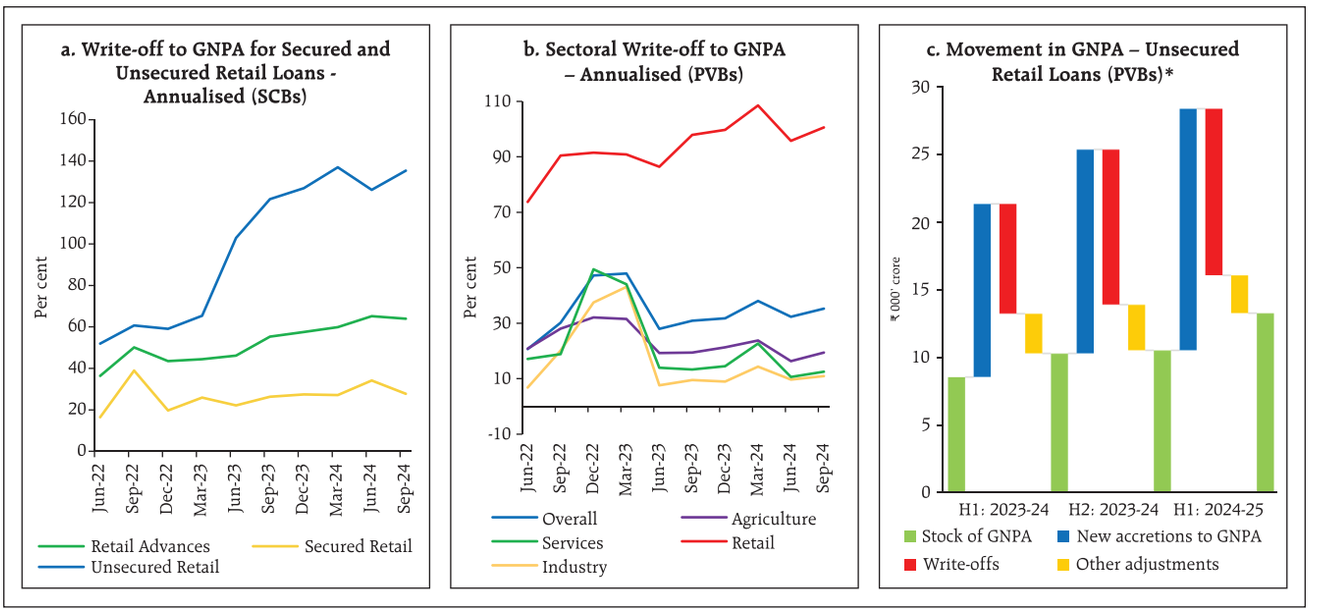


Notes: (1) *Excludes MSME

(2) Retail loans refer to loans given to individuals and consist of (a) consumer credit (b) education loan (c) loans given for creating/enhancement of immovable assets (*e.g.* housing, *etc.*) and (d) loans given for investment in financial assets (shares, debentures, *etc.*)

Sources: RBI supervisory returns and staff calculations.

Chart 1.62: Write-offs and Movements in GNPA



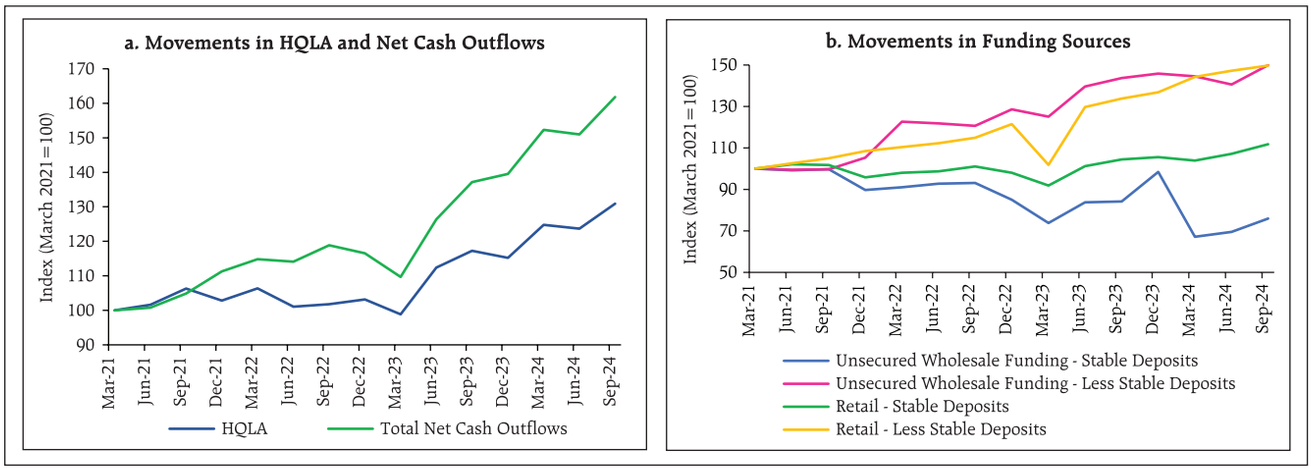
Notes: * Other adjustments include reduction of NPA due to upgradation, actual recoveries, *etc.*
Sources: RBI supervisory returns and staff calculations.

September 2024. Moreover, the SMA (1+2) ratio, a lead indicator of incipient stress, has also declined to 2.5 per cent in September 2024 from 3.0 per cent a year ago. The GNPA ratio for unsecured lending was marginally higher at 1.7 per cent. An area of concern, however, is the sharp rise in write-offs, especially among private sector banks (PVBs), which could be partly masking worsening asset quality in this segment and dilution in underwriting standards (Chart 1.62 a, b and c). Fresh accretion of NPAs in retail loan portfolios was also dominated by slippages in the unsecured loan book, with 51.9 per cent from unsecured loans as at end-September 2024. Among bank groups, small finance banks (SFBs) are witnessing larger impairment in their retail lending portfolio with the GNPA ratio at 2.7 per cent, the SMA (1+2) ratio at 3.6 per cent and the unsecured GNPA ratio at 4.7 per cent.

1.79 Banks had 66.9 per cent of their investments under the held-to-maturity (HTM) category, which is exempt from mark-to-market (MTM) valuation. The decline in government bond yields has ensured no MTM loss on these investments.

1.80 The banking system liquidity coverage ratio (LCR) declined from 135.7 per cent in September 2023 to 128.5 per cent in September 2024, driven by increase in net cash outflows, which, in turn, is influenced by a rise in less stable sources of funding. LCR of public sector banks (PSBs) declined sharply from 142.1 per cent in September 2023 to 127.4 per cent in September 2024, whereas LCR of PVBs stood marginally lower at 126.1 per cent (Chart 1.63 a and b).

Chart 1.63: Liquidity Coverage Ratio



Source: RBI supervisory returns.

I.2.9 Emerging Technology Risks

1.81 In an era defined by rapid technological advancements, the financial sector stands at the forefront of innovation, embracing emerging technologies, which offer opportunities for fostering innovation and growth. At the same time, their careful implementation and management is critical to obviate the associated risks impinging on financial stability, including cyber vulnerability and third-party dependency, in addition to possible introduction of biases in financial intermediation and risks of unauthorised access. Indian banks are clearly sensitive to the benefits of adoption of these technologies as well as the potential risks associated with them (Box 1.2).

Box 1.2: Emerging Technologies in Indian Banks

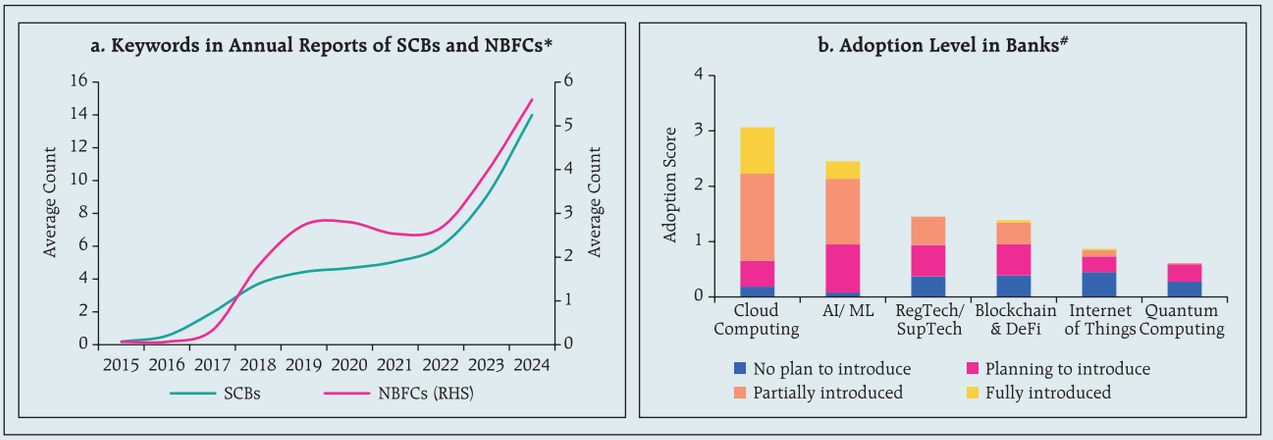
Emerging technologies have unlocked new frontiers of opportunity for financial institutions, with a wide range of avenues to streamline workflow and services, enhance operational efficiency, improve customer experience, reduce cost, strengthen risk management and gain competitive advantage. In the Indian financial sector, the focus on emerging technologies has grown rapidly during the post-pandemic period as reflected in the state of progression as well as acknowledgement and commitment expressed in the annual reports of major banks and NBFCs (Chart 1 a). While these technologies have the potential to spur innovation and drive efficiency in the financial sector, it is essential to ensure that oversight mechanisms stay ahead of the risks posed to the financial system (FSOC, 2023).

A quick survey of major Indian banks on emerging technologies[42], conducted by the Reserve Bank in November 2024 to assess the level of adoption and associated risks to the domestic financial sector found that cloud computing and artificial intelligence/ machine learning (AI/ML) were the two most widely adopted emerging technologies among banks (Chart 1 b). Cloud computing helps to reduce the cost of financial services by allowing easier access to infrastructure and facilitates economies of scale (Koh and Prenio, 2023). AI/ML is being implemented by respondents primarily for customer service, sales and marketing, risk management and know your customer (KYC) related processes. Notably, they are relying on outsourcing for emerging technologies, likely due to IT expertise and

(Contd.)

[42] Survey on emerging technology adoption and risks in Indian banks across 12 PSBs and 19 PVBs.

Chart 1: Emerging Technology Adoption in India



Note: (1) * Based on 33 select SCBs and 15 NBFCs. Keywords considered are related to cloud computing, AI/ ML, regtech/ suptech, blockchain and DeFi, internet of things and quantum computing.
(2) # Adoption score is compiled as the average of scores, ranging from 0 to 5, based on the level of adoption reported by individual banks. Bar breakup represents share of survey respondents.

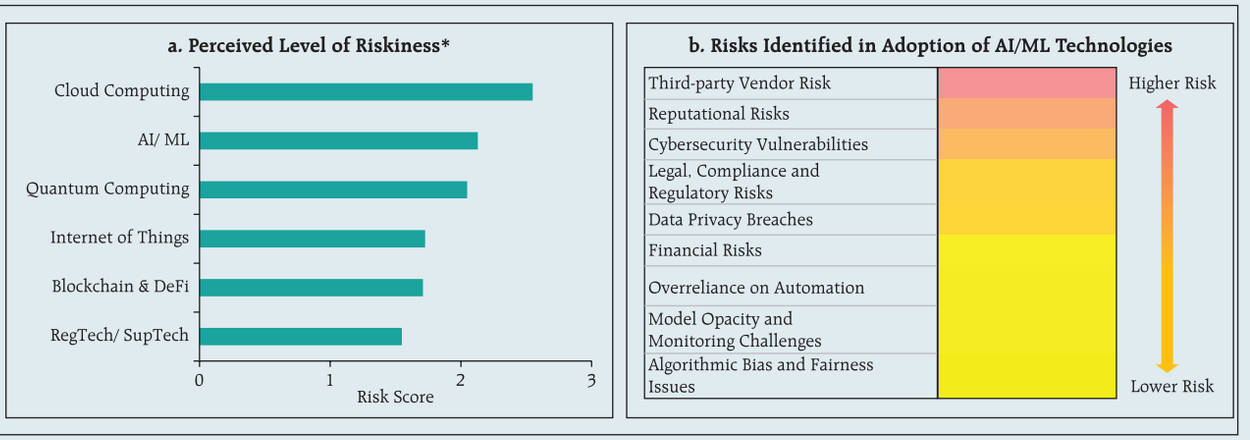
Sources: ProwessIQ and RBI staff calculations based on survey responses.

cost efficiency, with internal resources more focussed on core competencies. In terms of spending, 61 per cent of the respondent banks have allocated less than 10 per cent of their IT budget on such initiatives during the current financial year.

Respondents in the survey felt that cloud computing and AI/ML have emerged as technologies with the highest level of risk in relative terms (Chart 2 a). In response to specific question on threats posed by AI/ML, respondents identified third-party vendor risk, cybersecurity vulnerabilities and reputational damage as key risks (Chart 2 b). Quantum computing is perceived to be another emerging technology in the hierarchy of risks due to its ability to potentially break encryption algorithms (Auer *et al*, 2024). Importantly, over 80 per cent of the respondent banks have fully or partially outsourced at least one emerging technology.

In terms of risk mitigation, banks have demonstrated relatively better preparedness in maintaining backup of critical data. Larger banks are proactive in adopting mitigation measures due to availability of adequate resources and expertise (Chart 3). Regular compliance audits and training of IT/ security personnel, however, are two important areas that require improvement as per the respondents. Forensic preparedness and

Chart 2: Risks Related to Emerging Technologies

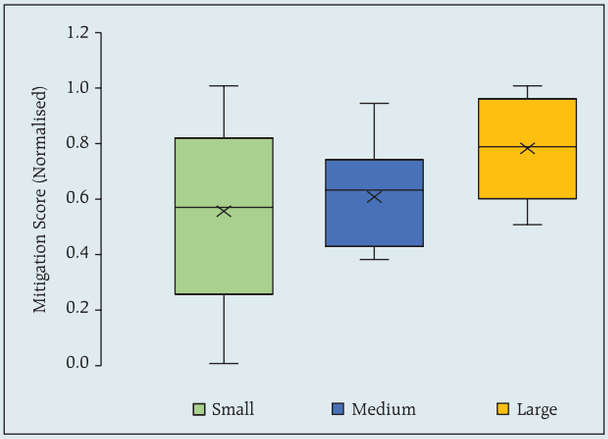


Note: * Risk score is compiled as the average of scores, ranging from 1 to 4, based on the level of risk reported by individual banks.

Source: RBI staff calculations based on survey responses.

(Contd.)

Chart 3: Relationship between Risk Mitigation and Size of Bank



Note: (1) Mitigation score is based on the steps taken by the respondents to mitigate risks associated with emerging technologies.
(2) Respondent banks categorised into small, medium and large buckets based on 3-year average asset size.
Source: RBI staff calculations based on survey responses.

business continuity plans also need improvement to strengthen resilience against emerging technology related incidents.

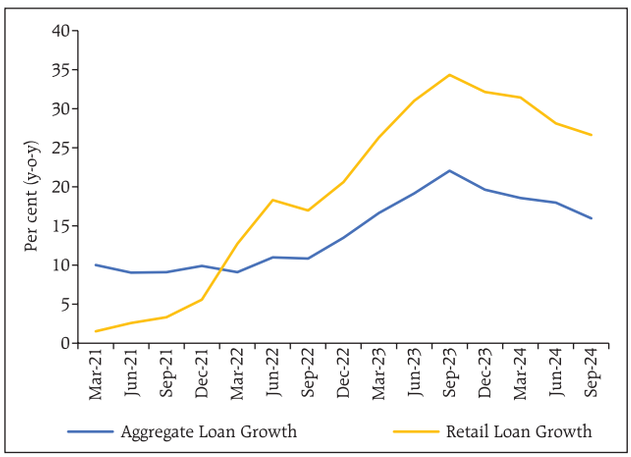
References:

1. Financial Stability Oversight Council (2023), "Annual Report", US Department of Treasury, December.
2. Koh, Ting Yang and Prenio, Jermy (2023), "Managing cloud risk – some considerations for the oversight of critical cloud service providers in the financial sector", BIS, FSI Insights on policy implementation No 53, November.
3. Auer, Raphael, Dupont, Angela, Gambacorta, Leonardo, Park, Joon Suk, Takahashi, Koji, and Valko, Andras (2024), "Quantum computing and the financial system: opportunities and risks", BIS Paper No 149, October.

I.2.10 Non-Banking Financial Companies (NBFCs)[43] [44]

1.82 As prudential increases in risk weights on NBFC lending to certain consumer credit categories as well as on bank lending to NBFCs took fuller effect, NBFCs' loan growth moderated further during H1:2024-25 to 6.5 per cent (h-o-h) in September 2024 (Chart 1.64). The impact was particularly visible in the upper-layer NBFCs (NBFC-UL) segment, which comprise primarily of NBFC-ICCs[45] with high share of retail lending (63.8 per cent) in their loan book. Middle-layer NBFCs (NBFC-ML), excluding government-owned NBFCs, however, maintained robust loan growth, especially in retail loan portfolios.

Chart 1.64: NBFCs' Loan Growth



Source: RBI supervisory returns and staff calculations.

[43] The analyses done in this section are based on NBFCs in upper and middle layers but excludes housing finance companies (HFCs), core investment companies (CICs) and standalone primary dealers (SPDs), unless otherwise mentioned; data based on provisional data available as of November 25, 2024.

[44] The effect of mergers and reclassifications, if any, has not been considered for recasting historical data.

[45] Non-Banking Financial Company - Investment and Credit Company.

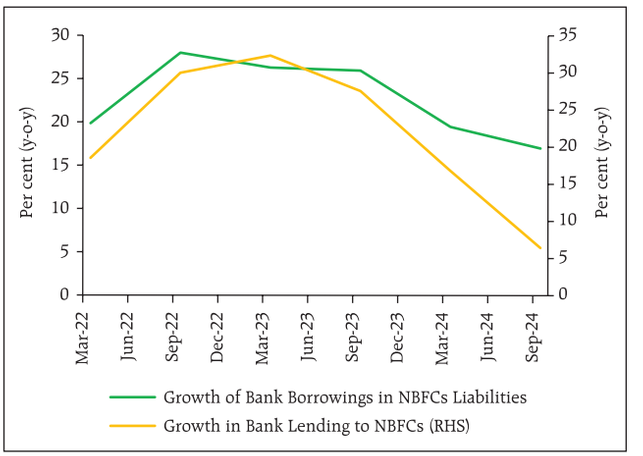
1.83 The growth of bank borrowings in NBFCs' liabilities also declined from 26.0 per cent to 17.0 per cent (Chart 1.65); reliance on non-bank sources raised their cost of funds.

1.84 NBFCs increased their foreign currency borrowings to diversify their sources of funds and contain overall costs. The rise in foreign currency borrowings could pose currency risks to these NBFCs to the extent they are unhedged (Chart 1.66).

1.85 Equity capital recorded growth (y-o-y) of 26.5 and 17.9 per cent for non-government NBFC-MLs and NBFC-ULs, respectively, in September 2024, forming 34.2 per cent and 18.4 per cent of their total liabilities, respectively. Non-government NBFC-MLs are also witnessing rise in foreign equity. The augmentation of equity has supported their retail lending.

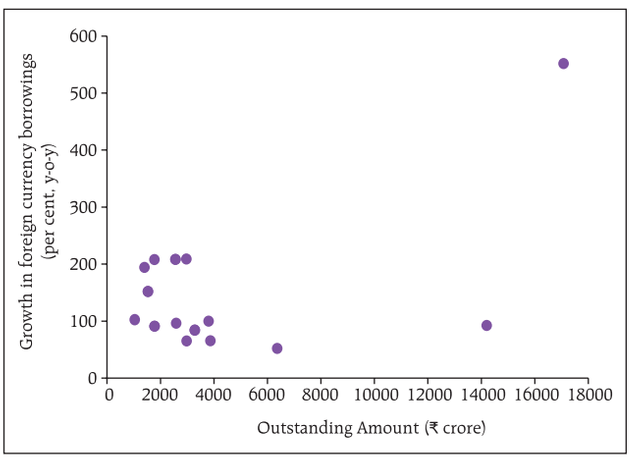
1.86 Overall, the NBFC sector remains healthy with sizable capital buffers (CRAR stood at 26.1 per cent in September 2024), robust interest margins and earnings (NIM at 5.1 per cent and RoA at 2.9 per cent) and improving asset quality (GNPA at 3.4 per cent of gross loans and advances and SMA-(1+2) at 3.5 per cent). Write-offs, however, show a rising trend, with a few outlier NBFCs showing significantly higher write-offs (Chart 1.67 a and b).

Chart 1.65: Bank Lending to NBFCs and Bank Borrowings in NBFCs' Liabilities



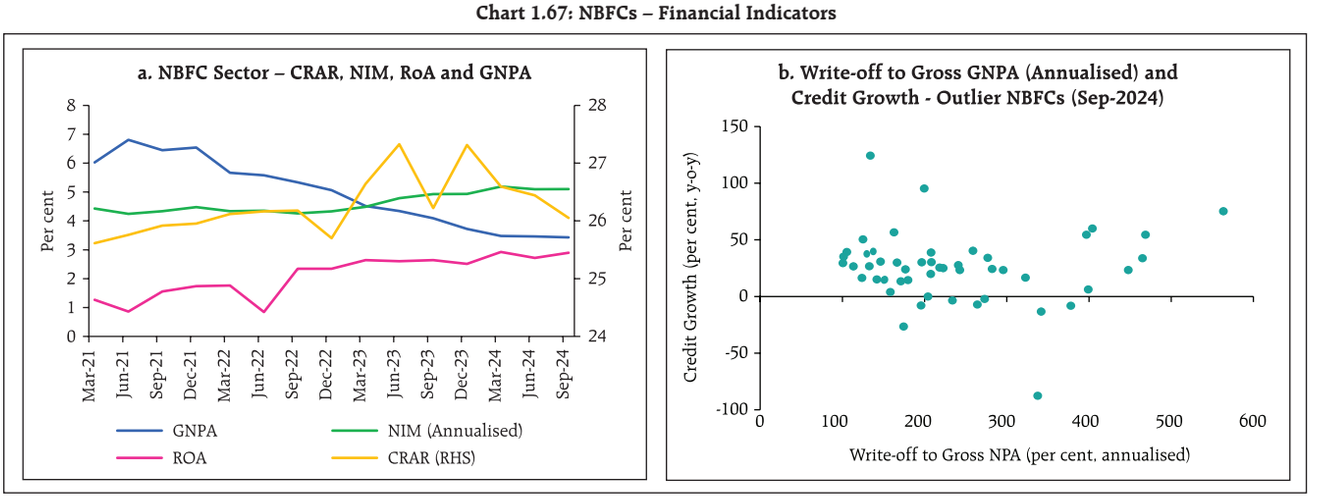
Sources: RBI supervisory returns and staff calculations.

Chart 1.66: Foreign Currency Borrowings by Outlier NBFCs – September 2024



Sources: RBI supervisory returns and staff calculations.

Chart 1.67: NBFCs – Financial Indicators



Sources: RBI supervisory returns and staff calculations.

I.2.11 Non-Banking Stability Indicator (NBSI)

1.87 The NBFC sector over the years have assumed critical importance in the domestic financial system both in terms of their role in providing credit to diverse sectors of the economy and their growing interlinkages with the other parts of the financial system. Accordingly, an NBSI, like the BSI, and a stability map are developed to assess the stability of the NBFC sector and to provide a snapshot of key risk dimensions (Box 1.3).

Box 1.3: Non-Banking Stability Indicator

The Reserve Bank regularly publishes the BSI, a barometer to assess the stability of the banking sector, and the financial system stress indicator (FSSI), a composite indicator to monitor the aggregate stress level in the Indian financial system, on a half-yearly basis in the FSR. On similar lines, to make an overall assessment of the risk factors that have a bearing on the stability of the NBFCs, a non-banking stability indicator (NBSI) has been developed. With their asset size in the financial system being second to the banking sector[46] alongside the gradual rise in their credit intensity (credit to gross domestic product (GDP) ratio)[47], it is important to have a single snapshot of the health of the NBFC sector.

In line with the scale-based regulatory structure[48], NBFCs falling in the upper and middle layers {excluding the core investment companies (CICs), standalone primary dealers (SPDs) and housing finance companies (HFCs)} have been considered for construction of Non Banking Stability Map and NBSI. The indicator constitutes five composite indices representing risks in five dimensions – soundness, asset quality, profitability, liquidity and efficiency. Each composite index is constructed using multiple financial ratios (Table 1) which are first normalised for the sample period using the following formula:

$$Y_t = \frac{X_t - \min(X_t)}{\max(X_t) - \min(X_t)}$$

Where X_t is the value of the financial ratio at time t. If a variable is negatively related to risk, then it is normalised using 1-Y_t. Composite index of each dimension is then calculated as a simple average of the normalised ratios in that dimension. Finally, the non-banking stability indicator is constructed as a simple average of the five composite indices. Thus, NBSI ranges from zero to unity and its higher value denotes higher stress.

As the NBSI shows, the NBFC sector witnessed several instances of stress during the last eight years. Slowdown in economic activity, regulatory changes with respect to asset classification, failure of a large NBFC and subsequent liquidity stress, the COVID-19 pandemic and monetary policy tightening were some of

Table 1: Ratios used for constructing the Non-Banking Stability Map and Indicator

Dimension	Financial Ratios		
Soundness	CRAR #	Non-performing Loans net of Provisions to Capital	Tier 1 Capital to Assets #
Asset Quality	Gross NPAs to Total Advances	Provisions to Non-performing Loans #	Sub-Standard Advances to Gross NPAs#
Profitability	Return on Assets #	Net Interest Margin #	Return on Net Owned Funds #
Liquidity	Short-term Liability to Total Assets	Long Term Assets to Total Assets	Dynamic Liquidity#
Efficiency	Cost-to-Income Ratio	Staff Expense-to-Total Expense	Business-to-Staff Expense #

Note: # Negatively related to risk.

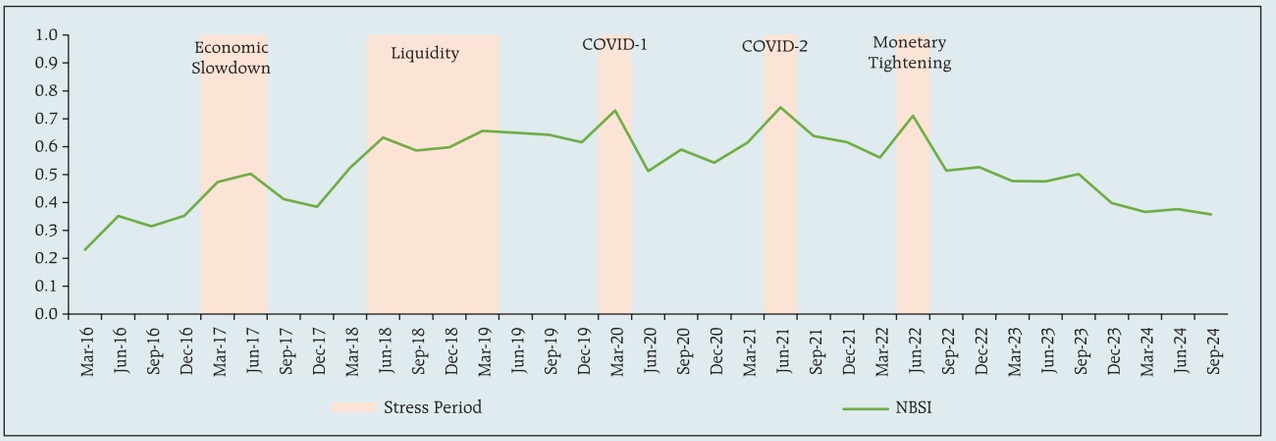
(Contd.)

[46] Harsh, A., et al (2024), "Peeling the Layers: A Review of the NBFC Sector in Recent Times", Reserve Bank of India Bulletin - September 2024

[47] RBI. (2023). Report on Trend and Progress of Banking in India, 2022-23.

[48] Master Direction – Reserve Bank of India (Non-Banking Financial Company – Scale Based Regulation) Directions, 2023 (RBI/DoR/2023-24/106 DoR. FIN.REC.No.45/03.10.119/2023-24)

Chart 1: Non-Banking Stability Indicator (NBSI)



Note: Increase in value indicates increase in risk.
Sources: RBI supervisory returns and staff calculations.

Chart 2: Non-Banking Stability Indicator (NBSI) – Dimensions

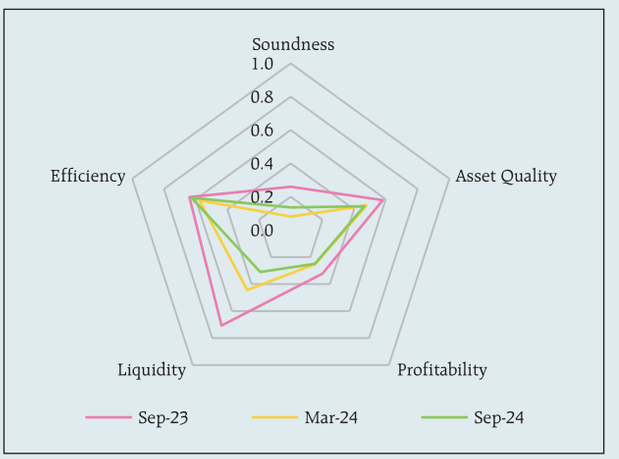
Note: (1) Increase in value indicates increase in risk.
(2) Due to unavailability of ratios, liquidity and efficiency indicators are calculated from March 2020.
Sources: RBI supervisory returns and staff calculations.

the factors that contributed to stress in the NBFC sector (Chart 1).

The stress in the NBFC sector, however, has abated in the last few years as the NBSI returned to levels witnessed prior to the 2018 crisis period. The improvement is seen across all dimensions (Chart 2). Capital buffers have consistently risen since 2019; asset quality, which was the worst preforming risk dimension during the COVID-19 pandemic, is showing steady improvement; profitability remains strong; and liquidity buffers have strengthened.

The Non Banking Stability Map also reflects improvement in the NBFC sector stability both in H2:2023-24 and H1:2024-25, with all risk dimensions exhibiting receding levels of risk (Chart 3).

Chart 3: Non Banking Stability Map



Note: Away from the centre indicates increase in risk.
Sources: RBI supervisory returns and staff calculations.

I.2.12 Microfinance

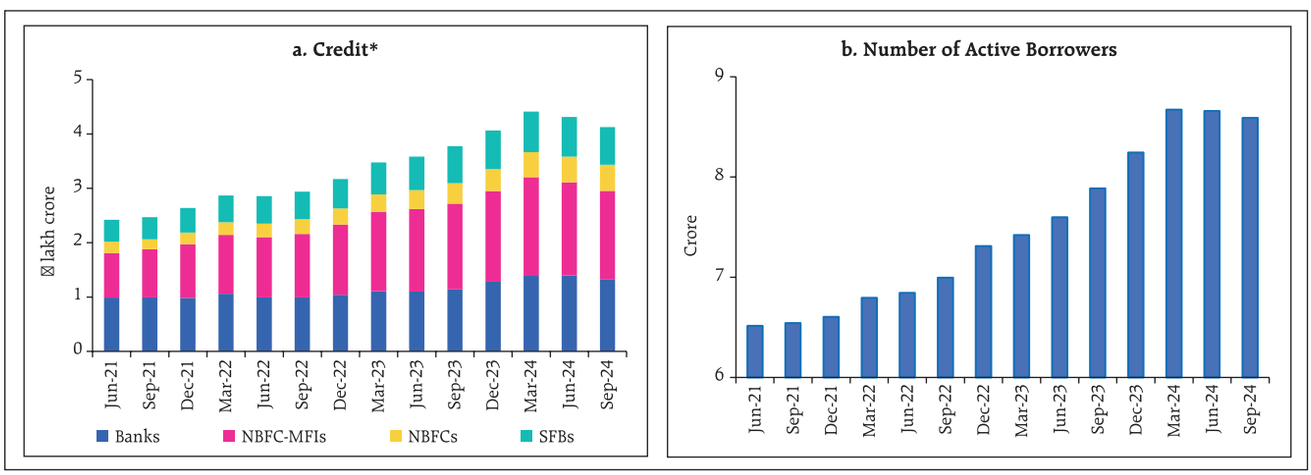
1.88 Credit to the microfinance sector by banks (including SFBs), NBFC-MFIs and other NBFCs has decelerated during the current financial year so far after witnessing rapid growth during the last three years. In terms of CAGR, credit to the microfinance sector grew by 24.4 per cent between June 2021 and March 2024 (11.0 per cent in terms of number of borrowers) in which lending by NBFC-MFIs and other (non-MFI) NBFCs had risen by 33.5 per cent and 33.4 per cent, respectively (Chart 1.68 a and b).

1.89 The microfinance sector is showing signs of stress, with rising delinquencies across all types of lenders and ticket sizes. During H1:2024-25, share of stressed assets increased, with 31-180 days past due (dpd) rising from 2.15 per cent in March 2024 to 4.30 per cent in September 2024 (Chart 1.69 a and b). Importantly, among borrowers who had availed loans from multiple lenders and those with higher credit exposure, impairment remained high (Chart 1.69 c and d).

1.90 Alongside rising delinquencies, borrower indebtedness has risen notably: the share of borrowers availing loans from four or more lenders has increased from 3.6 per cent to 5.8 per cent during the last three years (September 2024 over September 2021). Also, the quarterly average ticket size of microfinance loans disbursal has risen by 43 per cent over this period (₹35,299 in Q2:2021-22 to ₹50,430 in Q2:2024-25). A comparison across select Indian states indicates that indebtedness levels are unevenly distributed, with some regions exceeding the overall average (Chart 1.70 a and b).

1.91 As credit to the microfinance sector surged in the post-pandemic period, select NBFC-MFIs and other NBFCs were found charging exceedingly high

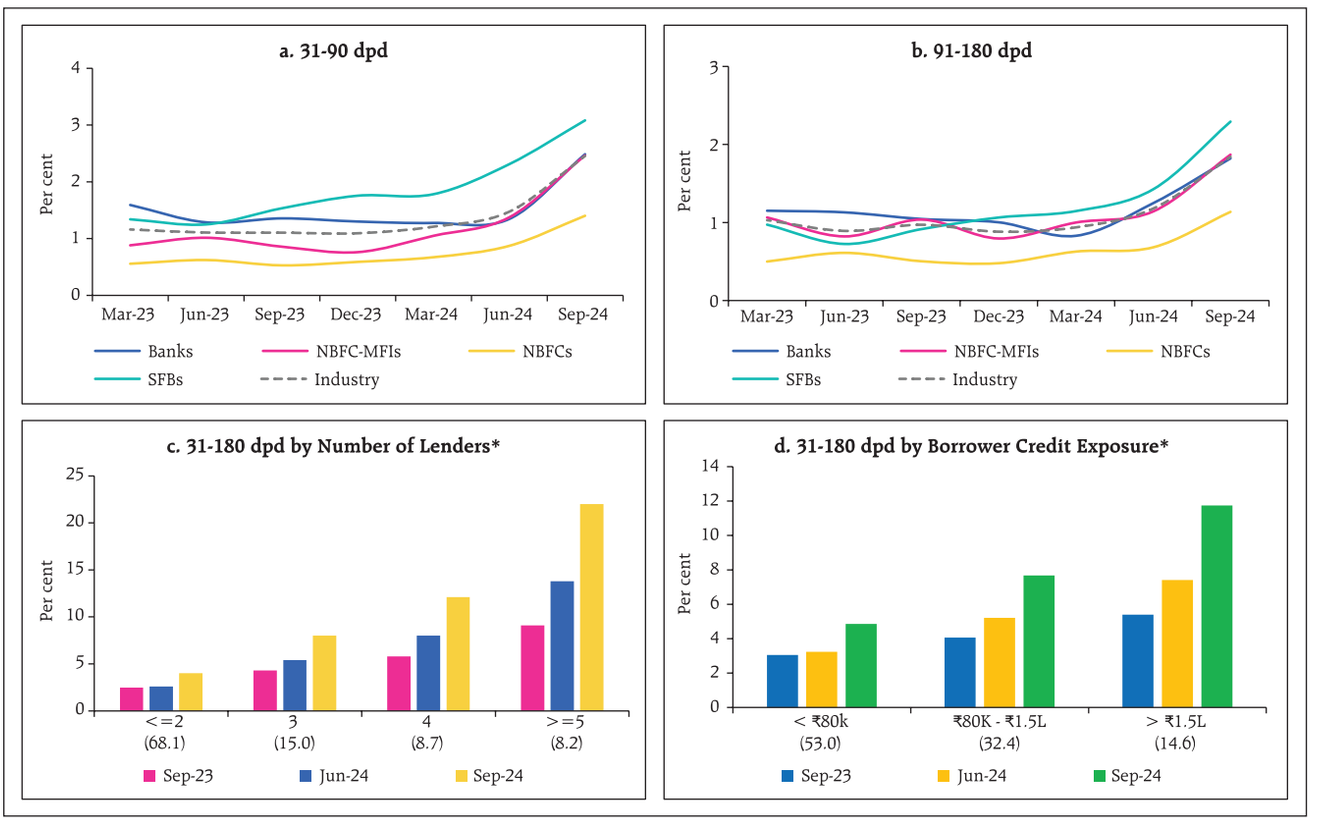
Chart 1.68: Microfinance Sector – Credit and Borrowers



Notes: (1) * Represents 99.7 per cent of total lending to microfinance segment.
(2) NBFC-MFI is a non-deposit taking NBFC which has a minimum of 75 per cent of its total assets deployed towards microfinance loans.
(3) NBFCs are those that do not qualify as NBFC-MFI and can extend microfinance loans up to 25 per cent of their total assets.

Source: CRIF High Mark Credit Information Services Pvt. Ltd.

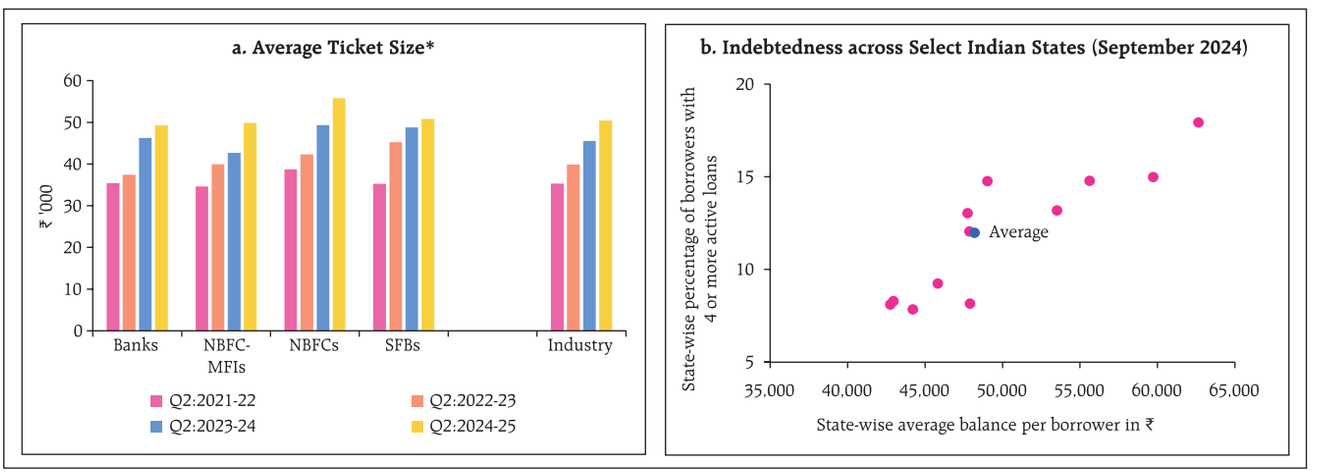
Chart 1.69: Stress in the Microfinance Sector



Note: * Based on borrower-level worst dpd. Numbers given in parentheses are the percentage share of loan portfolio outstanding in respective categories as at end-September 2024.
Source: CRIF High Mark Credit Information Services Pvt. Ltd.

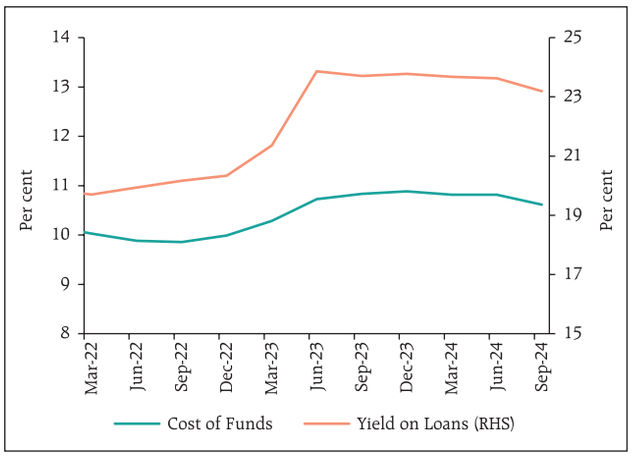
interest rates, which invoked supervisory actions by the Reserve Bank in October 2024. The yield on NBFC-MFI loans remains elevated especially since June 2023 (Chart 1.71).

Chart 1.70: Indebtedness in the Microfinance Sector



Note: * Average ticket size = Total amount disbursed during the quarter/ Total number of loans sanctioned during the quarter.
Source: CRIF High Mark Credit Information Services Pvt. Ltd.

Chart 1.71: Cost of Funds and Yield on Loans for NBFC-MFIs



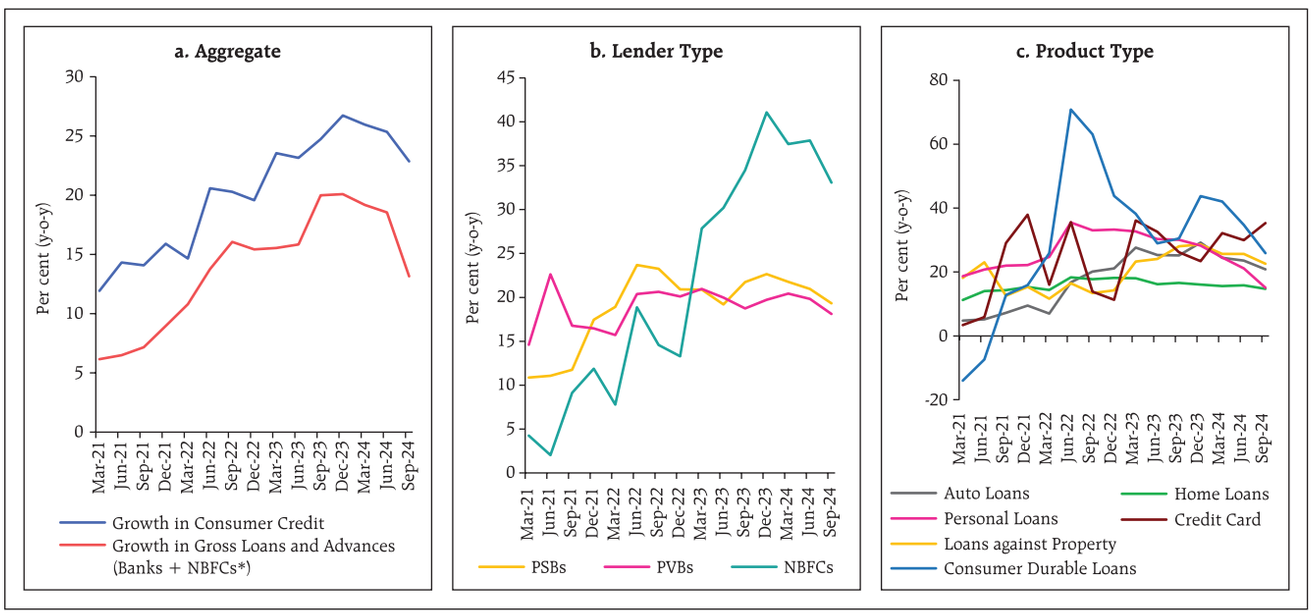
Note: (1) Based on a common sample of select middle-layer NBFC-MFIs.
(2) Cost of Funds = Annualised Interest Expense and Other Financing Cost/ Average Total Borrowing.
(3) Yield on Loans = Annualised Interest Income/ Average Gross Loans.
Sources: RBI supervisory returns and staff calculations.

I.2.13 Consumer Credit

1.92 Post-pandemic, consumer credit has been a key driver of loan growth. In CAGR terms, it increased by 20.6 per cent as compared with 14.8 per cent growth in overall credit (banks and upper- and middle-layer NBFCs) between March 2021 and December 2023. The regulatory measures implemented during Q3:2023-24 to curb excessive growth in this segment, however, slowed its pace both at an aggregate level as well as across product and lender types (Chart 1.72 a, b and c).

1.93 The moderation in consumer credit is reflected in both credit inquiry volumes and approval rates[49]. The former fell across most product categories, with the largest decrease in the unsecured retail loan portfolio, *viz.*, personal loans and credit cards segments, for which the risk weights were increased in November 2023 (Chart 1.73 a). Despite the decline in loan approval rates, the share of premium borrowers (super-prime and prime-plus) in loan originations has risen sequentially during Q2:2024-25, suggesting that lenders are exercising caution and underwriting standards are getting tighter (Chart 1.73 b and c).

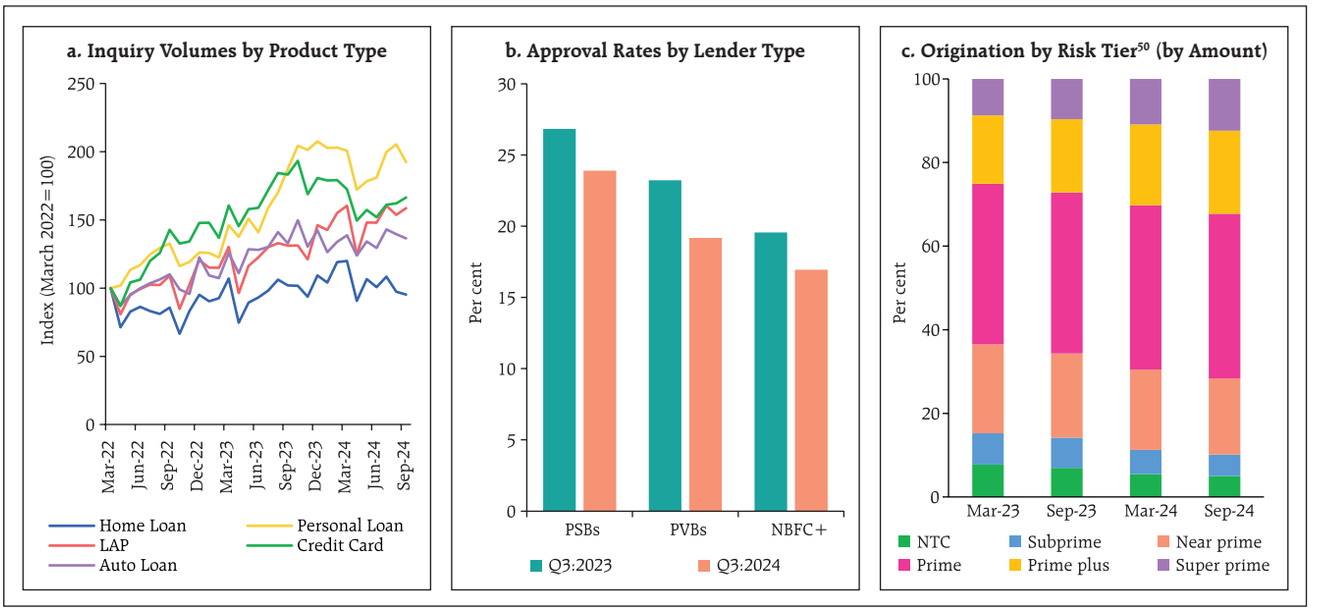
Chart 1.72: Consumer Credit Growth



Note: * Upper-layer and Middle-layer NBFCs
Sources: TransUnion CIBIL and RBI supervisory returns

[49] Approval rate is calculated as the percentage of accounts, which were opened within the next 90 days of the enquiry for home loans, property loans, auto loan, commercial vehicle, construction equipment and education loans; and within the next 30 days of enquiry for all other loans. Approval rate month is 30 – 90 days post the enquiry month.

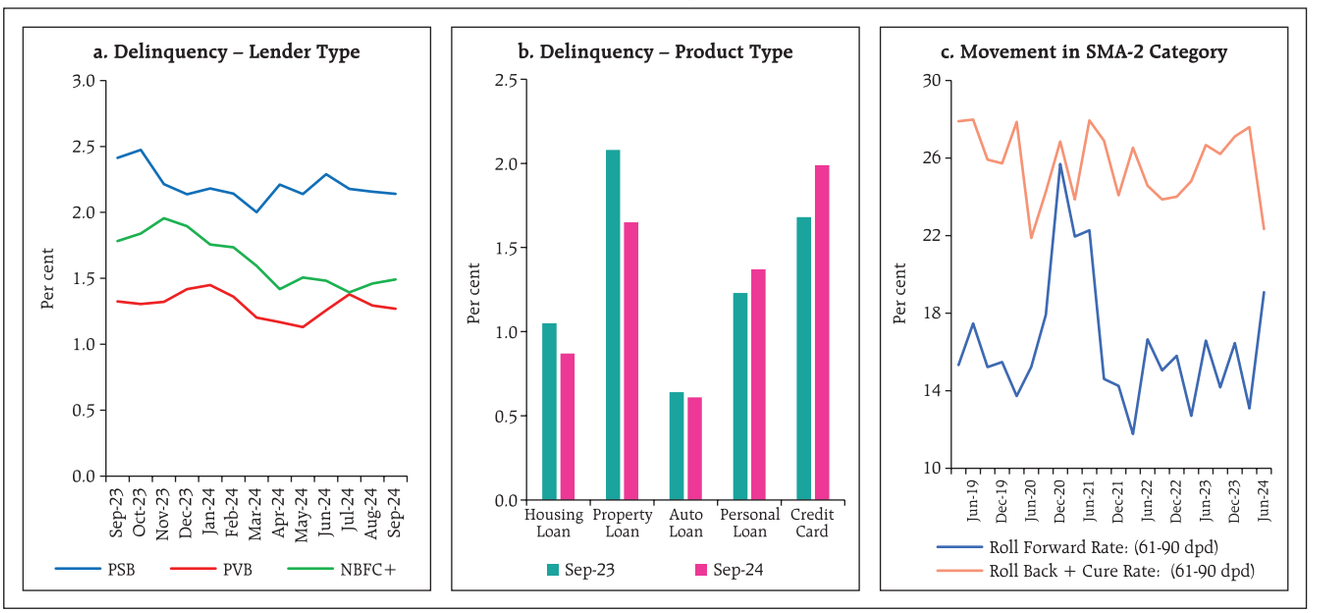
Chart 1.73: Inquiry Volumes and Approval Rates



Note: LAP: Loan against property; NTC: New to credit; NBFC+: NBFCs including HFCs.
Source: TransUnion CIBIL.

1.94 Delinquency levels in consumer credit remained stable for banks and NBFCs. However, rising impairment was seen in the unsecured retail loan portfolios. Moreover, upgradation is declining and slippage from SMA-2 to NPAs are on the rise (Chart 1.74 a, b and c).

Chart 1.74: Asset Quality of Retail Loans



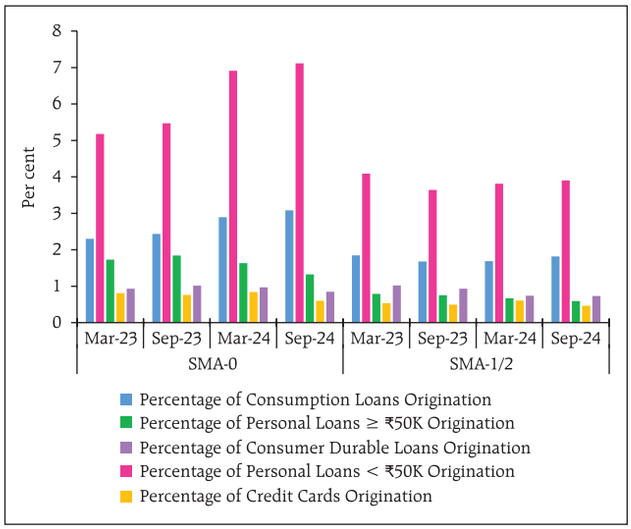
Notes: (1) Roll Forward rate is the percentage change (by amount) from SMA-2 category (61-90 dpd) in the current month, which moved to NPA category (90+dpd) in the next month (aggregated quarterly).
(2) Rollback + Cure rate is the percentage change (in amount) in SMA-2 category in the current month, which rolled back to SMA-1/ SMA-0/ 0 dpd in the next month (aggregated quarterly).
Source: TransUnion CIBIL.

[50] The segregation of risk tiers based on CIBIL scores is as follows-Super Prime:791-900; Prime Plus: 771-790, Prime:731-770; Near Prime:681-730; and Sub Prime: 300-680.

1.95 Nearly half of the borrowers availing credit card and personal loans have another live retail loan outstanding, which are often high-ticket loans (*i.e.*, housing and/or vehicle loan). Given that a default in any loan category results in other loans of the same borrower being treated as non-performing by the lending financial institution, these larger and secured loans are at risk of delinquency from slippages in relatively smaller personal loans. First default is mostly observed in unsecured advances; among the borrowers at risk of default (*i.e.*, advances in SMA category), risk of delinquency is trending high amongst borrowers who in addition to a personal loan or credit card outstanding have availed other retail loans (Chart 1.75 a and b).

1.96 11.0 per cent of the borrowers originating a personal loan under ₹50,000 had an overdue personal loan and over 60 per cent of them had availed more than three loans during 2024-25 so far. Moreover, nearly three-fifths of customers who have availed personal loan in Q2:2024-25 had more than three live loans at the time of origination (Chart 1.76).

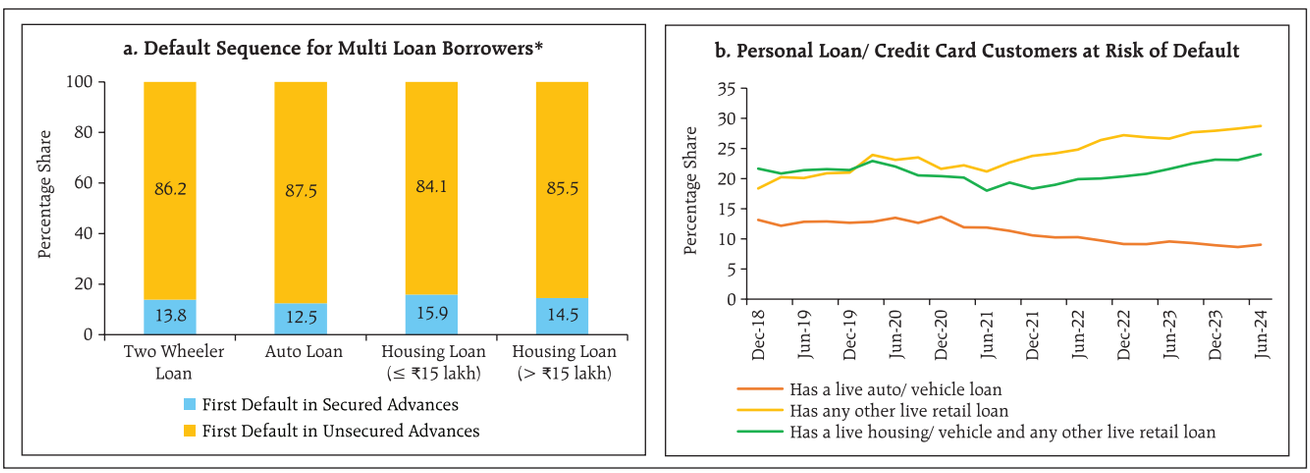
Chart 1.76: Category-wise Loan Originated with an Overdue Personal Loan



Source: TransUnion CIBIL.

1.97 Lenders are, nevertheless, exercising prudence as the shares of below prime customers across lender and product types have been

Chart 1.75: Retail Loans at Risk



Notes: * Customers defaulted first time during April 2022 and June 2024 and having multiple products at the time of default.
Source: TransUnion CIBIL.

Chart 1.77: Consumer Loan Distribution by Risk Tier

Note: Numbers in parentheses indicate the share of each category of loan in total consumer credit as at end-September 2024.
Source: TransUnion CIBIL.

marginally lower when compared to a year ago (Chart 1.77 a and b).

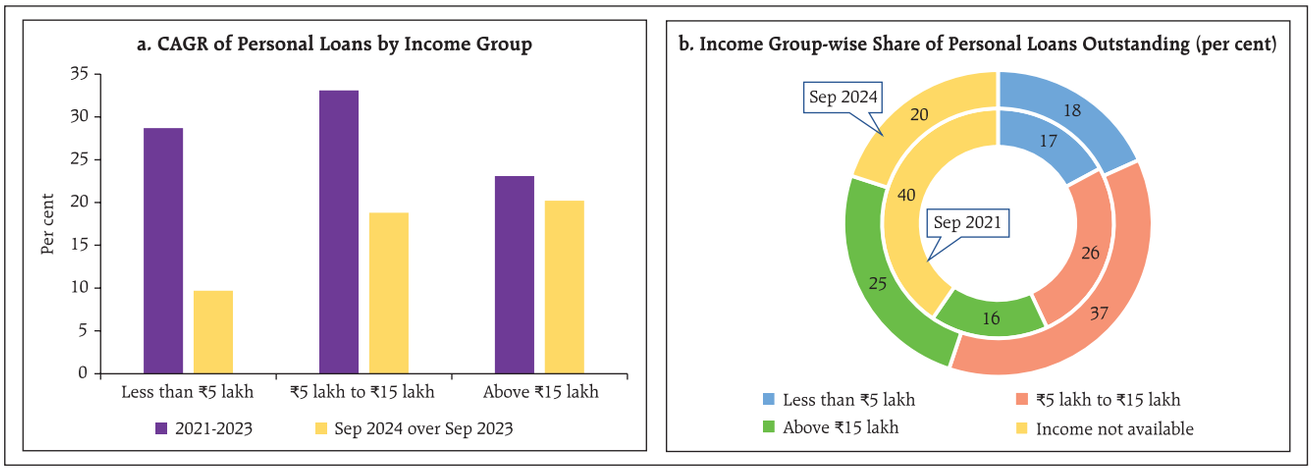
1.98 The decomposition of personal loans[51] by income categories[52] showed that after the high growth phase during 2021-23, loan growth has moderated across all income categories between September 2023 and September 2024, with sharper deceleration in the group with less than ₹5 lakh annual income. During the same period, the above ₹15 lakh income category recorded the highest growth. In terms of outstanding loans, the ₹5 lakh - ₹15 lakh income category had the largest share as at end-September 2024 (Chart 1.78 a and b).

1.99 Unsecured personal loans dominated borrowings by borrowers with less than ₹5 lakh income; higher income borrowers availed more secured loans, including housing loans (Chart 1.79 a and b).

[51] Personal loans refer to loans given to individuals and consist of (a) consumer credit (b) education loan (c) loans given for creating/enhancement of immovable assets (*e.g.* housing, *etc.*) and (d) loans given for investment in financial assets (shares, debentures, *etc.*).

[52] Based on survey responses from eight banks forming around 69 per cent of the personal loans of SCBs as of September 2024 and three upper-layer NBFCs.

Chart 1.78: Profile of Personal Loans by Income Group



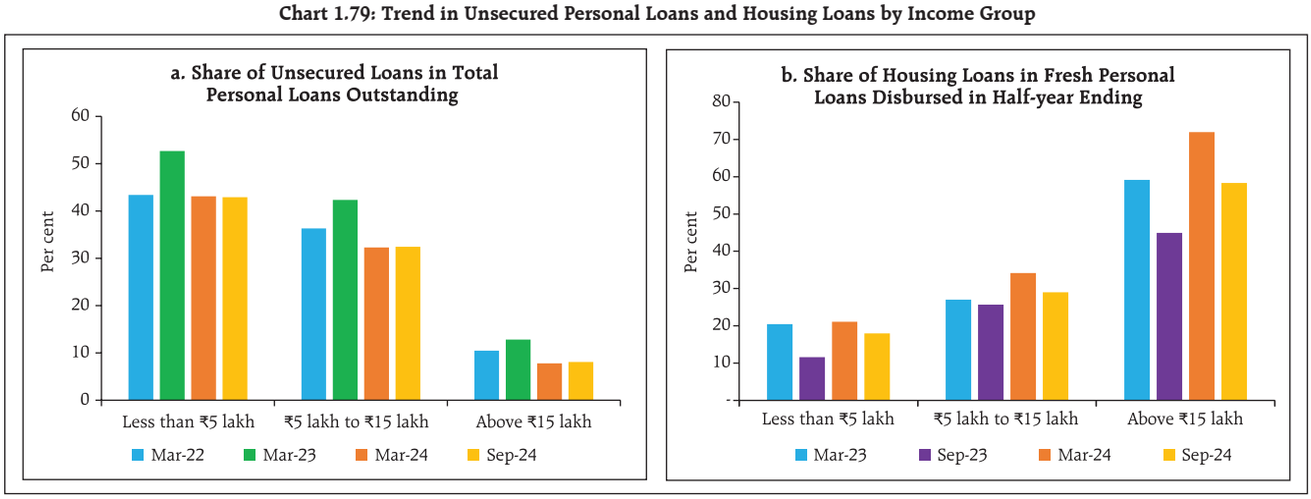
Sources: Individual submissions by financial institutions and RBI staff calculations.

I.2.14 Mutual Funds

1.100 Backed by a surfeit of new fund offers (NFOs) and continued active participation of households, the mutual fund (MF) sector experienced robust growth in 2024-25 (up to November 2024). Total assets under management (AUM) rose by 38.8 per cent (y-o-y), touching an all-time high of ₹68.1 lakh crore in November 2024 (Table 1.7). The AUM rise was driven by equity schemes (sectoral/ thematic schemes in particular), with annual growth nearly 1.5 times the rise in non-equity schemes.

1.101 Systematic investment plans (SIPs) have been a key driver of the recent growth in AUM of MFs. SIPs offered by MFs have been contributing to financialisation of household savings. By enabling periodic small investments, they have steadily increased even amidst periods of higher market volatility. Both outstanding SIP accounts as well as gross SIP contributions have reached record highs, with the latter crossing ₹25,000 crore in October 2024 (Chart 1.80).

Chart 1.79: Trend in Unsecured Personal Loans and Housing Loans by Income Group



Sources: Individual submissions by financial institutions and RBI staff calculations.

Table 1.7: Assets under Management of the Domestic Mutual Fund Industry

(₹ thousand crore)

As at end	B30 AUM			T30 AUM			Industry AUM		
Month	Equity	Non-Equity	B30 Total	Equity	Non-Equity	T30 Total	Equity	Non-Equity	Total
Nov-23	551	357	908	1,486	2,511	3,997	2,037	2,868	4,905
Mar-24	639	376	1,015	1,714	2,611	4,325	2,353	2,987	5,340
Jun-24	758	416	1,174	2,015	2,927	4,942	2,772	3,343	6,115
Sep-24	864	449	1,313	2,252	3,145	5,397	3,115	3,594	6,709
Nov-24	846	454	1,300	2,194	3,313	5,508	3,040	3,768	6,808

Note: T30 refers to the top 30 geographical locations in India and B30 refers to the locations beyond the top 30 cities.
Source: AMFI.

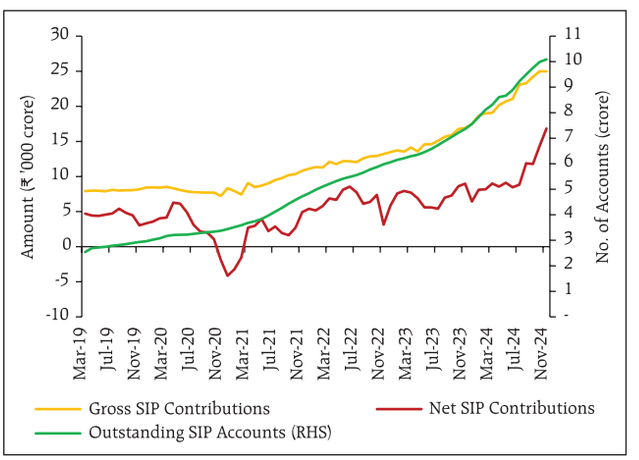
1.102 Among different categories of MFs, smallcap, midcap and largecap funds have witnessed net positive inflows for the last three quarters (Chart 1.81), despite bouts of outflows over frothy valuation concerns in respect of midcap and smallcap stocks.

1.103 Stress tests results and liquidity analysis of midcap and smallcap equity schemes of all MFs, published by AMFI, reveal that in November 2024, the number of days to liquidate 25 per cent of the portfolio for the top 5 schemes ranged from 5 to 17 days in midcap schemes and 11 to 33 days in smallcap schemes (Table 1.8).

1.104 MFs are increasingly offering sectoral and thematic funds, which are attracting large inflows from investors. In 2024-25 (up to November 2024), inflows to these funds witnessed a seven-fold increase (y-o-y) to ₹1,16,426 crore (Chart 1.82). As a result, net AUM of equity-oriented schemes recorded a growth of 49.3 per cent (y-o-y) as at end-November 2024.

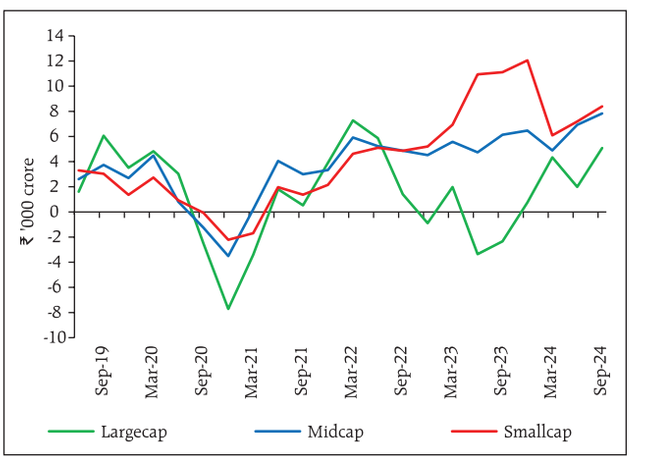
1.105 Debt schemes have also attracted significant investments of ₹3.46 lakh crore in 2024-25 (up to November 2024); money market, liquid and low duration funds together formed 75 per cent of these inflows (Chart 1.83). Overall, the AUM of debt schemes grew by 24.1 per cent (y-o-y) in November 2024.

Chart 1.80: Monthly SIP Contributions and Outstanding SIP Accounts



Source: SEBI.

Chart 1.81: Net Inflows into Different Equity Schemes of Mutual Funds



Source: SEBI.

Table 1.8: Summary of Stress Tests and Liquidity Analysis of Midcap and Smallcap MF Schemes

Schemes/Month		Midcap Schemes					Smallcap Schemes				
		Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24
No. of days to liquidate 25 per cent of portfolio- Range for top 5 schemes w.r.t. AUM		4 to 14	4 to 15	4 to 15	4 to 17	5 to 17	10 to 23	10 to 27	9 to 24	10 to 28	11 to 33
Concentration-Assets side (AUM held in per cent)	Largecap	12.3	12.2	12.4	12.3	12.8	7.0	6.9	7.1	7.2	7.8
	Midcap	67.3	67.4	68.1	68.6	68.0	11.5	11.3	10.8	10.7	10.6
	Smallcap	15.9	15.3	14.9	14.6	14.5	75.5	75.7	75.6	75.5	75.0
	Cash	4.5	5.1	4.5	4.4	4.5	6.0	6.1	6.5	6.6	6.6

Source: AMFI.

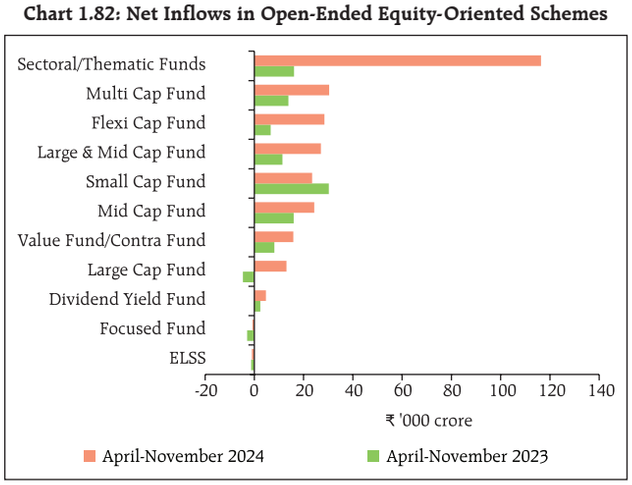
I.2.15 Financial System Stress Indicator (FSSI)

1.106 The FSSI, a comprehensive indicator of the aggregate stress level in the Indian financial system, eased to a record low in H1:2024-25. There was broad-based decline in most components of the FSSI. Easing of financial market conditions and improvements in balance sheets of financial intermediaries were key contributors to the easing of stress. Higher foreign portfolio debt inflows provided comfort to the government debt market and was reflected in declines in both short-term and long-term yields. In the money market, stress levels rose marginally as spreads of CPs, CDs and the overnight index swap (OIS) *vis-à-vis* T-bill rates widened. A rise in forex premium led to a mild uptick in stress in the forex market, whereas softening of BBB bond yields compressed stress in the corporate debt market. Banking and NBFC sectors reported improvement in asset quality and robust capital buffers. The real sector's financials remained largely unaltered (Chart 1.84 and 1.85).

I.2.16 Systemic Risk Survey

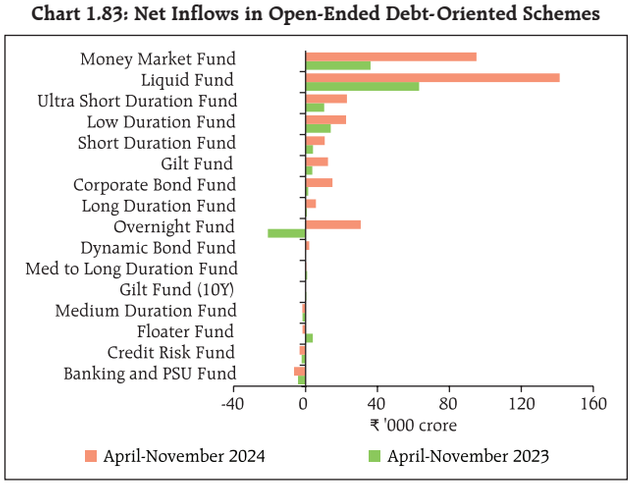
1.107 The latest round of the Reserve Bank's systemic risk survey (SRS) conducted during November 2024 reflected a sanguine outlook, with respondents categorising all major risk groups in the 'medium' risk category. Among global risks, geopolitical conflicts/geo-economic fragmentation emerged as a 'high' risk category, even as risks

Chart 1.82: Net Inflows in Open-Ended Equity-Oriented Schemes



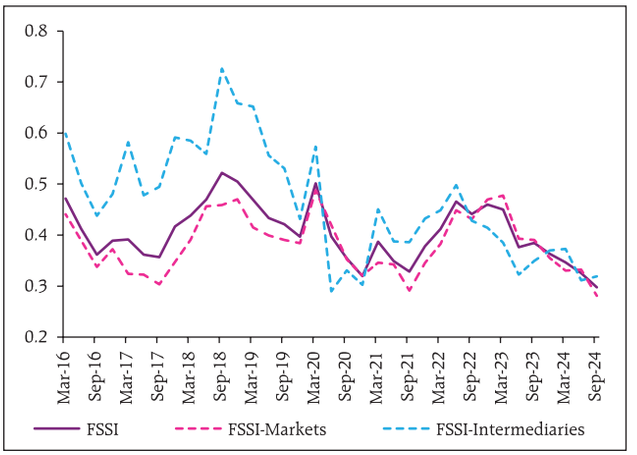
Source: SEBI.

Chart 1.83: Net Inflows in Open-Ended Debt-Oriented Schemes



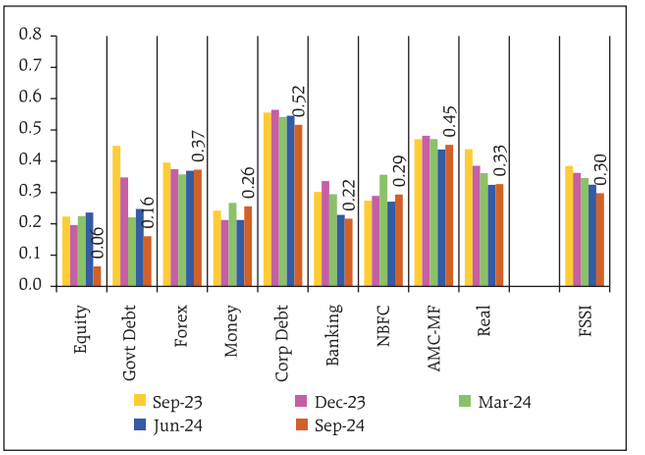
Sources: SEBI.

Chart 1.84: FSSI and its Broad Components



Sources: DBIE, Bloomberg, RBI supervisory returns and staff calculations.

Chart 1.85: Components of FSSI

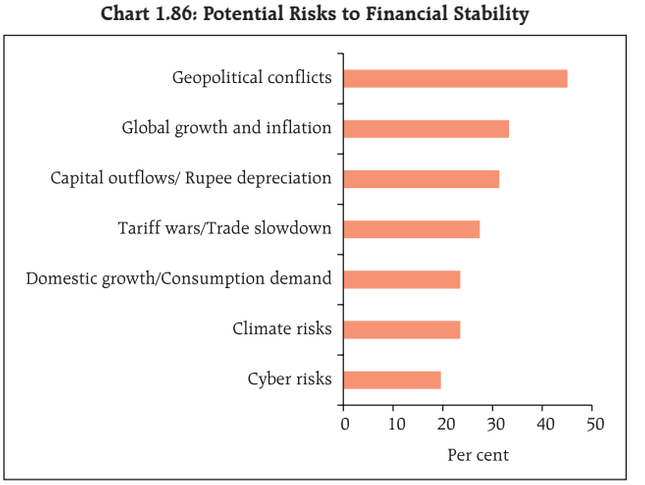


Sources: DBIE, Bloomberg, RBI supervisory returns and staff calculations.

from commodity prices and monetary tightening in advanced economies appear to have receded, compared to the May 2024 round of the survey. Macroeconomic risks were perceived to have inched up, driven by growth and inflation concerns, volatility in capital flows and a weak consumption demand outlook. Climate risk remained in the 'high' risk category even as its risk score fell marginally. Over half of the respondents perceived that the revival of private capex cycle is unlikely to materialise in the near term. Financial market risks saw a slight dip in risk perception, while institutional risks were assessed to be at similar levels as in the previous round of the survey. Among drivers of financial risk, foreign exchange risk inched up and risk from equity price volatility remained in the 'high' risk category. Among institutional risks, risks from asset quality deterioration and profitability were perceived to have moved up slightly, while cyber risk remained in the 'high' risk category. The majority of the respondents expressed confidence in the overall stability of the global and domestic financial system. Over 80 per cent of the respondents expressed higher/ similar level of confidence in the resilience of the Indian financial system. The survey participants assessed geopolitical conflicts, evolution of global growth and inflation, and capital outflows/rupee depreciation as major near-term risks (Chart 1.86).

1.108 60 per cent of the respondents assessed better or similar prospects for the Indian banking sector over a one-year horizon and expected asset quality to remain stable or improve owing to strong domestic growth and the possibility of softening of interest rates. Higher delinquencies in select sectors (*viz.*, microfinance and personal loans), however, remain key downside risks to overall asset quality. Subdued consumption demand, regulatory focus on unsecured loan growth and stricter underwriting

Chart 1.86: Potential Risks to Financial Stability



Source: Systemic Risk Survey, November 2024.

standards amid rising delinquency levels in select loan segments were perceived to weigh down credit growth in the next six months, with 40 per cent of the respondents seeing a 'marginal' deterioration in credit demand prospects.

1.109 In response to a question on their views on probable spillovers of a global shock on India's macroeconomic and financial stability, nearly 95 per cent of the respondents perceived 'medium' to 'limited' near-term impact on domestic financial stability. On the other hand, about 60 per cent of the respondents expected 'high' to 'medium' impact of global economic uncertainty on domestic macroeconomic stability. Detailed survey results are provided in Annex 1.

Summary and Outlook

1.110 The global economy and the financial system are exhibiting resilience despite bouts of volatility and heightened uncertainty. With inflation moderating, major central banks are gradually normalising monetary policy and financial conditions remain easy. While near-term risks have ebbed, medium-term vulnerabilities such as stretched asset valuations, rising and elevated levels of public debt, prolonged geopolitical tensions and perils of emerging technologies could pose risks to financial stability. Volatility spillovers from AEs can be even more disruptive through the conduit of financial markets, highlighting the importance of proactive macroprudential policies and adequate buffers to shield the financial system against these rapidly propagating negative externalities.

1.111 In this challenging global macroeconomic environment, the Indian economy remains on a strong growth trajectory underpinned by robust macroeconomic fundamentals. While risks from global spillovers remain, the Indian financial system, supported by further improvement in balance sheet of banks and NBFCs, and strong buffers, is expected to remain sound and vibrant.