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MONETARY POLICY STATEMENT
(APRIL 3-5) 2024-25

Governor's Statement

*Governor's Statement**

Shaktikanta Das

Earlier this week on April 1, we commemorated the 90th year of the Reserve Bank of India. The journey of this august institution is closely related to the evolution of the Indian economy. Numerous historic events have occurred during these nine decades: nationalisation of the Reserve Bank (1949), the planning era, bank nationalisation, wars, droughts, the fall of the Bretton Woods system, oil shocks, a precarious balance of payments situation and the subsequent market reforms, the Asian and the Global Financial crises, the taper tantrum and finally the COVID-19 pandemic and the geo-political hostilities of the recent years. During this journey, the Reserve Bank was always at the forefront, combining its developmental and regulatory roles, in steering the Indian financial system and the economy towards stability. While doing so, it has discharged its responsibilities with integrity and professionalism.

Compared to many other central banks, the Reserve Bank has a much broader range of functions which is vital for ensuring macro-financial stability of a modern and complex economy like India. There are functional complementarities among these responsibilities. Being a full-service central bank, the Reserve Bank is well positioned to take a holistic view of various critical issues confronting the financial sector and the larger economy, and take appropriate steps in the best interest of the economy. We continuously strive to learn, adapt and innovate while performing our multiple responsibilities.

Decisions and Deliberations of the Monetary Policy Committee (MPC)

The Monetary Policy Committee (MPC) met on 3rd, 4th and 5th April 2024. After a detailed assessment

* Governor's Statement - April 5, 2024.

of the evolving macroeconomic and financial developments and the outlook, it decided by a 5 to 1 majority to keep the policy repo rate unchanged at 6.50 per cent. Consequently, the standing deposit facility (SDF) rate remains at 6.25 per cent and the marginal standing facility (MSF) rate and the Bank Rate at 6.75 per cent. The MPC also decided by a majority of 5 out of 6 members to remain focused on withdrawal of accommodation to ensure that inflation progressively aligns to the target, while supporting growth.

I shall now briefly set out the rationale for these decisions. Since the last policy, the growth-inflation dynamics have played out favourably. Growth has continued to sustain its momentum surpassing all projections. Headline inflation has eased to 5.1 per cent during January and February 2024 from 5.7 per cent in December 2023, with core inflation declining steadily over the past nine months to its lowest level in the series.¹ Fuel component of the CPI remained in deflation for six consecutive months.² Food inflation pressures, however, accentuated in February.³

Looking ahead, robust growth prospects provide the policy space to remain focused on inflation and ensure its descent to the target of 4.0 per cent. As the uncertainties in food prices continue to pose challenges, the MPC remains vigilant to the upside risks to inflation that might derail the path of disinflation. Under these circumstances, monetary policy must continue to be actively disinflationary to ensure anchoring of inflation expectations and fuller transmission of the past actions. The MPC, therefore,

¹ Core inflation is defined as headline CPI excluding food and fuel groups. The softening of core inflation to 3.4 per cent in February 2024 (same as in October 2019) marks the lowest print in the current CPI series (2012=100) and it was broad based across all categories. Core services inflation at 3.1 per cent in February was the lowest print in the current CPI series (2012=100). Core goods at 3.6 per cent in February is the lowest since January 2020.

² Deflation in fuel which was (-) 0.1 in September 2023 deepened to (-) 1.0 per cent in December and was at (-) 0.8 per cent in February 2024.

³ Food inflation after moderating to 7.6 per cent in January 2024 from 8.7 per cent in December 2023, edged up to 7.8 per cent in February 2024.

decided to keep the policy rate unchanged at 6.50 per cent in this meeting and remain focused on withdrawal of accommodation. The MPC will remain resolute in its commitment to aligning inflation to the target.

Assessment of Growth and Inflation

Global Growth

The global economy has remained resilient with a stable outlook as reflected in various high frequency indicators.⁴ Global trade is expected to grow faster in 2024, although weaker than its historical average.⁵ Inflation is moving closer to targets, but the last mile of disinflation is turning out to be challenging. Services inflation in advanced economies remains sticky amidst tight labour markets. Accordingly, central banks are cautious in their communications, thereby tempering market expectations about the timing and magnitude of interest rate cuts later during this year. Equity markets have gained while bond yields and US dollar have remained volatile. The overall outlook is challenged by continuing geopolitical conflicts, disruptions in trade routes and high public debt burden.

In the last monetary policy statement, I had expressed concerns about the high levels of public debt in both advanced and emerging market economies (EMEs). These are dormant risks which could erupt abruptly. Debt to GDP ratios, which rose during the pandemic, remain elevated and are projected

⁴ Global composite purchasing managers' index (PMI) increased to a nine-month high of 52.3 in March 2024, up from 52.1 in February – supported by continued expansion in both services and manufacturing. Global manufacturing PMI returned to expansion zone in February 2024 in 18 months and expanded further in March to 50.6, its highest reading since July 2022. World merchandise trade volume growth (y-o-y) turned positive in January 2024, after nine months of contraction. World industrial production growth (y-o-y) has also been positive since October 2023, following several months of contraction.

⁵ According to the World Economic Outlook Update of the IMF, January 2024, world trade volume is projected to grow from 0.4 per cent in 2023 to 3.3 per cent in 2024, below its historical average growth rate of 4.9 per cent (2000-2019).

to increase further with rising interest burden and cost of borrowing, thus raising debt sustainability concerns.⁶ Worsening debt situation in advanced economies (AEs) can generate spillovers for EMEs in the form of swings in capital flows and volatility in financial markets. EMEs with rising levels of public debt, in particular, would be vulnerable to these spillover effects. Credible fiscal consolidation plans, particularly in major advanced economies, focusing on growth enhancing investment would be necessary to address this challenge. India, however, presents a different picture on account of its fiscal consolidation and faster GDP growth.⁷

Domestic Growth

Domestic economic activity continues to expand at an accelerated pace, supported by fixed investment⁸ and improving global environment. The second advance estimates (SAE) placed real GDP growth at 7.6 per cent for 2023-24, the third successive year of 7 per cent or higher growth.⁹

From the supply side, industrial activity led by manufacturing continued its momentum.¹⁰ The purchasing managers' index (PMI) for manufacturing displayed a sustained expansion in February-March,

⁶ According to the IMF, the gross public debt to GDP ratio of AEs increased from 104.1 per cent in 2019 to 122.9 per cent in 2020. This ratio came down to 112.3 per cent in 2022 and is projected to increase to 116.3 per cent in 2028. For EMEs, the gross public debt to GDP ratio increased from 55.9 per cent in 2019 to 65.9 per cent in 2020. This ratio came down marginally to 65.3 per cent in 2022 and is projected to rise to 78.1 per cent in 2028 (Fiscal Monitor, October 2023).

⁷ According to the IMF, the general government debt to GDP ratio of India increased from 75.0 per cent in 2019 to 88.5 per cent during the pandemic year 2020. This ratio came down to 81.0 per cent in 2022 and is projected to decline to 80.5 per cent in 2028 (IMF Fiscal Monitor, October 2023).

⁸ Gross fixed capital formation (GFCF) increased at a double-digit pace of 10.2 per cent in 2023-24, with an expansion of 11.6 per cent in Q1; 10.6 per cent in Q2; and 10.2 per cent in Q3.

⁹ GDP expanded by 9.7 per cent and 7.0 per cent in 2021-22 and 2022-23, respectively. GDP growth for first three quarters of 2023-24 was estimated at 8.2 per cent, 8.1 per cent and 8.4 per cent, respectively.

¹⁰ On the supply side, sustained buoyancy in manufacturing and construction led to a growth of 6.9 per cent in gross value added (GVA) for 2023-24. Core industries recorded a growth of 6.7 per cent during February.

touching a 16-year high in March.¹¹ Services sector exhibited broad based buoyancy with all sectors registering strong growth.¹² The PMI services remained above 60 during February-March, suggesting sustained healthy expansion.¹³

With rural demand catching up, consumption is expected to support economic growth in 2024-25.¹⁴ Urban consumption stayed buoyant as evident from various indicators.¹⁵ The resilience in cement production, together with strong growth in steel consumption and production and import of capital goods, augur well for the investment cycle to gain further traction.¹⁶ The total flow of resources to the commercial sector from banks and other sources at ₹31.2 lakh crore during 2023-24 is significantly higher than that of last year (₹26.4 lakh crore). External demand improved in February with exports registering double digit expansion. Trade deficit, however, widened in February as imports also accelerated.¹⁷

Going forward, the outlook for agriculture and rural activity appears bright, with good *rabi* wheat crop and

improved prospects of *kharif* crops, due to expected normal south-west monsoon.¹⁸ Strengthening of rural demand, improving employment conditions and informal sector activity,¹⁹ moderating inflationary pressures and sustained momentum in manufacturing and services sector should boost private consumption. As per our survey, consumer confidence one year ahead reached a new high. The prospects of investment activity remain bright owing to upturn in the private capex cycle becoming steadily broad-based;²⁰ persisting and robust government capital expenditure; healthy balance sheets of banks and corporates; rising capacity utilisation;²¹ and strengthening business optimism as reflected in our surveys. Improving global growth and trade prospects, coupled with our rising integration in global supply chains, are expected to propel external demand for goods and services. The headwinds from protracted geopolitical tensions and increasing disruptions in trade routes, however, pose risks to the outlook. Taking all these factors into consideration, real GDP growth for 2024-25 is projected at 7.0 per cent with Q1 at 7.1 per cent; Q2 at 6.9 per cent; Q3 at 7.0 per cent; and Q4 also at 7.0 per cent. The risks are evenly balanced.

¹¹ PMI manufacturing strengthened to 59.1 in March 2024 from 56.9 in February.

¹² Amongst high frequency indicators - e-way bills and freight traffic posted double-digit growth of 18.9 per cent and 10.1 per cent, respectively, during February 2024. Toll collections; GST collections; and international air cargo expanded at a robust pace of 10.2 per cent, 11.5 per cent and 15.2 per cent, respectively in March.

¹³ PMI services accelerated further to 61.2 in March from 60.6 in February 2024.

¹⁴ demand, which was lagging urban demand earlier, picked up since Q2 2023-24. This is also suggested by performance of indicators such as two-wheeler sales (30.3 per cent growth during January-February), MNREGA demand (declined by 9.8 per cent y-o-y during February-March 2024) and retail tractor sales (increased by 16.1 per cent in January-February).

¹⁵ Domestic air passenger traffic rose by 5.8 per cent y-o-y in February 2024 and 4.1 per cent y-o-y in March 2024, while retail passenger vehicle sales posted a growth of 12.4 per cent y-o-y during February 2024.

¹⁶ Steel consumption rose by 9.7 per cent, while cement production jumped by 7.9 per cent in January-February 2024. Imports of capital goods expanded by 6.9 per cent during January-February 2024, while capital goods production increased by 4.1 per cent in January 2024.

¹⁷ India's merchandise exports expanded by 11.9 per cent to \$41.4 billion, and imports increased by 12.2 per cent to \$60.1 billion in February. India's trade deficit widened to \$18.7 billion in February from \$16.6 billion last year.

¹⁸ Decaying El Nino and a forecast of developing La Nina during June-August provides positive outlook for the upcoming agriculture season. As per the preliminary reports (as of March 28, 2024), 51.4 lakh hectares of the summer crop area have been sown so far, registering an increase of 10.1 per cent over a year ago, with higher acreage under rice (9.8 per cent), pulses (23.6 per cent) and oilseeds (4.2 per cent). The procurement for the new *rabi* marketing season (RMS) (2024-25) has started in advance of its schedule (April 01) in Rajasthan and Madhya Pradesh. As of April 2, 2024, 4.6 lakh tonnes of wheat have been procured.

¹⁹ According to Periodic Labour Force Survey (PLFS), the unemployment rate fell to its lowest in the series at 3.1 per cent (usual status) in calendar year 2023. Similarly, labour force participation rate for 15 years of age and above in 2023 at 59.8 per cent was the highest since the inception of the survey.

²⁰ Several sectors are seeing improvement in investment activities viz., food processing, beverages and tobacco, textiles, chemicals and chemical products, cement and cement products, iron and steel, electronics, construction, telecommunications, roads and railways.

²¹ Capacity utilisation (CU) in the manufacturing sector rose to 74.7 per cent in Q3:2023-24 from 74.0 per cent recorded in the previous quarter. The seasonally adjusted CU also improved marginally to 74.6 per cent in Q3:2023-24 and persisted above the long-period average.

Inflation

Turning to inflation, food price uncertainties continue to weigh on the inflation trajectory going forward. A record *rabi* wheat production would help temper price pressure and replenish the buffer stocks. Moreover, early indication of a normal monsoon augurs well for the *kharif* season. International food prices also remain benign.²² The tight demand supply situation in certain categories of pulses and the production outcomes of key vegetables warrant close monitoring, given the forecast of above normal temperatures in the coming months. Frequent and overlapping adverse climate shocks pose key upside risks to the outlook on international and domestic food prices.

Cost push pressures faced by firms are seeing an upward bias after a period of sustained moderation. Deflation in fuel is likely to deepen in the near term, following the cut in LPG prices in March.²³ Notwithstanding the cut in petrol and diesel prices in mid-March,²⁴ the recent uptick in crude oil prices needs to be closely monitored. Continuing geo-political tensions also pose upside risk to commodity prices and supply chains. Assuming a normal monsoon, CPI inflation for 2024-25 is projected at 4.5 per cent with Q1 at 4.9 per cent; Q2 at 3.8 per cent; Q3 at 4.6 per cent; and Q4 at 4.5 per cent. The risks are evenly balanced.

What do these Inflation and Growth Conditions mean for Monetary Policy?

Inflation has come down significantly but remains above the 4 per cent target. Food inflation continues to exhibit considerable volatility impeding

²² The World Bank commodities price data for March 2024 indicate that agriculture food prices, though registering a sequential pick-up, remain in deflation, with a y-o-y decline of 8.1 per cent in March 2024.

²³ The price of Liquefied Petroleum Gas (LPG) for households was reduced by ₹100 per cylinder effective March 9, 2024.

²⁴ Prices of petrol and diesel were reduced by ₹2 per litre each effective March 15, 2024.

the ongoing disinflation process.²⁵ High and persistent food inflation could unhinge anchoring of inflation expectations which is underway.²⁶ Our ongoing effort is to ensure fuller transmission of policy actions and anchoring of household inflation expectations. The strong growth momentum, together with our GDP projections for 2024-25, give us the policy space to unwaveringly focus on price stability.

Two years ago, around this time, when CPI inflation had peaked at 7.8 per cent in April 2022, the elephant in the room was inflation. The elephant has now gone out for a walk and appears to be returning to the forest. We would like the elephant to return to the forest and remain there on a durable basis. In other words, it is essential, in the best interest of the economy, that CPI inflation continues to moderate and aligns to the target on a durable basis. Till this is achieved, our task remains unfinished.

The success in the disinflation process so far should not distract us from the vulnerability of the inflation trajectory to the frequent incidence of supply side shocks. Our effort is to ensure price stability on an enduring basis, paving the way for a sustained period of high growth.

Liquidity and Financial Market Conditions

In the February monetary policy statement, I had mentioned that liquidity conditions were driven by exogenous factors, which were likely to correct in the foreseeable future. Liquidity conditions eased during February and March²⁷ in the wake of increased government spending, the Reserve Bank's market operations and the return-leg of a USD-INR sell buy

²⁵ Food inflation moved in a wide range of 3.3 per cent in May 2023 to 10.6 per cent in July and averaged 7.0 per cent in 2023-24 (April-February). In February 2024, food inflation at 7.8 per cent, contributed around 70 per cent to the headline inflation.

²⁶ Since September 2022 the one year ahead inflation expectations of households cumulatively declined by 120 bps.

²⁷ System liquidity deficit – as measured by net injections under the liquidity adjustment facility (net LAF) – was much lower at ₹1.0 lakh crore during February-March as compared to ₹1.61 lakh crore in December-January.

swap auction.²⁸ In particular, the liquidity situation improved in March with system liquidity turning intermittently surplus in the first half of the month. In these circumstances, the Reserve Bank conducted fourteen fine tuning variable rate reverse repo (VRRR) operations during February and early March to absorb intermittent surplus liquidity.²⁹

Anticipating the seasonal tightening of liquidity at end-March, the Reserve Bank injected liquidity through variable rate repo (VRR) operations – both main and fine-tuning operations.³⁰ Consequently, the average borrowings under the MSF window moderated.³¹ Liquidity conditions have again turned surplus from March 30, necessitating VRRR auctions from April 2.

Reflecting these liquidity developments, the weighted average call rate (WACR) exhibited a softening bias and has hovered near the repo rate since the last policy meeting.³² In tandem, rates in the collateralised segment of the call money market have also softened. Financial conditions remained conducive as reflected in reduced term spread in the G-sec market and stable risk premium in the bond market.³³ In the credit market, monetary transmission continues to be work in progress.³⁴

²⁸ The return-leg of a USD/INR sell buy swap auction for US\$ 5 billion conducted by the Reserve Bank on March 8, 2022 injected liquidity amounting to ₹42,800 crore on March 11, 2024.

²⁹ Fourteen VRRR operations of 1-4 days maturity were conducted cumulatively mopping up ₹4.44 lakh crore during February to early March.

³⁰ Between February-March, fourteen fine tuning VRR operations of 1-7 days maturity were conducted amounting to ₹8.0 lakh crore of which six fine tuning VRR operations were conducted cumulatively injecting ₹3.9 lakh crore in the second half of March. During February-March, four main operations cumulatively injected ₹3.5 lakh crore into the system.

³¹ Recourse to MSF came down from ₹0.74 lakh crore in December-January to ₹0.24 lakh crore in February-March.

³² During February-March, the WACR averaged 6.61 per cent as against 6.76 per cent in December-January.

³³ During February-March, the average term spread (10-year minus 91-day Treasury Bills) softened to 11 basis points (bps) from 24 bps in December-January. During February-March, the risk premium (AAA 5-year corporate bond minus 5-year G-sec rate) was at 60 bps, same as in December-January.

³⁴ The weighted average lending rate (WALR) on fresh rupee loans rose by 185 bps while that on outstanding loans rose by 111 bps during the current tightening cycle (May 2022 – February 2024). During the same period, the weighted average domestic term deposit rates (WADTDR) on fresh deposits and outstanding deposits rose by 241 basis points and 183 bps, respectively.

Looking ahead, the Reserve Bank will remain nimble and flexible in its liquidity management through main and fine-tuning operations in both repo and reverse repo. We will deploy an appropriate mix of instruments to modulate both frictional and durable liquidity so as to ensure that money market interest rates evolve in an orderly manner that preserves financial stability.

The Indian rupee (INR) has remained largely range-bound as compared to both its emerging market peers and a few advanced economies during 2023-24.³⁵ The INR was the most stable among major currencies during this period. As compared to the previous three years, the INR exhibited the lowest volatility in 2023-24.³⁶ The relative stability of the INR reflects India's sound macroeconomic fundamentals, financial stability and improvements in the external position.

Financial Stability

Latest data as at end-December 2023 show that the key indicators of capital and asset quality of scheduled commercial banks (SCBs) continued to be healthy.³⁷ The financial indicators of non-banking

³⁵ The depreciation of Indian rupee (INR) at 1.4 per cent against the US dollar in 2023-24 was lower as compared to emerging market peers like Chinese yuan, Thailand baht, Indonesian rupiah, Vietnamese dong and Malaysian ringgit and a few advanced economy currencies like Japanese yen, Korean won and New Zealand dollar.

³⁶ The coefficients of variation (CV) of the INR were 1.6 per cent, 1.2 per cent, 2.7 per cent, and 0.6 per cent for the years 2020-21, 2021-22, 2022-23 and 2023-24, respectively. During 2022-23 and 2023-24, the INR was one of the least volatile in terms of CV among various peer EME currencies including the Chinese yuan, the Thailand baht, Malaysian ringgit and Brazilian real.

³⁷ The capital adequacy ratio (CRAR) and the liquidity coverage ratio (LCR) of SCBs were well above the regulatory threshold. As per provisional data, the CRAR ratio of SCBs stood at 15.9 per cent in December 2023. The provision coverage ratio increased to 75.6 per cent. The LCR of SCBs was comfortable at 131.4 per cent, much above the minimum stipulation of 100 per cent. GNPA ratio dipped to 3.0 per cent in December 2023 from 3.3 per cent in September 2023 and 3.8 per cent in March 2023. The net NPA ratio of SCBs further dipped to 0.7 per cent. The net interest margin (NIM) of SCBs at 3.7 per cent showed slight moderation vis-à-vis 3.8 per cent recorded in the last three quarters. Headline profitability indicators, however, viz., return on asset (RoA) at 1.3 per cent in December 2023, and return on equity (RoE) at 13.2 per cent hovered around their decadal-high levels.

financial companies (NBFCs) are also in line with that of the banking system as per the latest available data.

Let me emphasise here that banks, NBFCs and other financial entities must continue to give the highest priority to quality of governance and adherence to regulatory guidelines. Financial sector players, by and large, operate with public money – be it of depositors in banks and select NBFCs or investors in bonds and other financial instruments. They should always be mindful of this. The Reserve Bank will continue to constructively engage with financial entities in this regard. It needs to be recognised that financial stability is a joint responsibility of all stakeholders.

The Reserve Bank has also been engaging with the regulated entities and various stakeholders for simplifying its regulations and reducing compliance burden. As part of this endeavour, the recommendations of the Regulations Review Authority (RRA 2.0) constituted by the Reserve Bank have been largely implemented. RRA 2.0 has set a new benchmark for meaningful engagement between the Regulator and the Regulated Entities.³⁸ Moving further in the same direction, Internal Review Groups were formed in 2023 to rationalise, simplify and remove obsolete regulations and streamline reporting mechanism. In pursuance of recommendations of RRA 2.0 and the Internal Review Groups, more than one thousand circulars have been withdrawn. A Master Direction for rationalising and harmonising supervisory returns has also been issued. The Reserve Bank will continue to follow a consultative approach and undertake review of regulations in line with the evolving financial landscape.

³⁸ The RRA 2.0 had constituted an Advisory Group under the chairmanship of Shri Swaminathan J., the then Managing Director, State Bank of India with members representing regulated entities, including compliance officers, to support the RRA 2.0 in achieving its objectives. The Group invited feedback and suggestions from regulated entities, industry bodies and other stakeholders and assisted the RRA 2.0 in identifying areas/regulations/ etc. which could be rationalised.

External Sector

During the first three quarters of 2023-24, India's current account deficit (CAD) narrowed significantly on account of a moderation in merchandise trade deficit coupled with robust growth in services exports and strong remittances.³⁹ India's merchandise and services exports have grown at a healthy pace in Q4:2023-24.⁴⁰ India continues to be the largest recipient of remittances in the world. The cost of receiving remittances is gradually coming down.⁴¹ Overall, the CAD for 2024-25 is expected to remain at a level that is both viable and eminently manageable.

On the external financing side, India's foreign portfolio investment (FPI) flows saw a significant turnaround in 2023-24. Net FPI inflows stood at US\$ 41.6 billion during 2023-24, as against net outflows in the preceding two years (US\$ 14.1 billion in 2021-22 and US\$ 4.8 billion in 2022-23). This is the second highest level of FPI inflow after 2014-15.⁴² Net foreign direct investment (FDI) moderated to US\$ 14.2 billion in April-January 2023-24 from US\$ 25.0 billion a year ago.⁴³ External commercial borrowings

³⁹ During Q3: 2023-24, the CAD stood at US\$ 10.5 billion (1.2 per cent of GDP) as compared to US\$ 11.4 billion (1.3 per cent of GDP) in Q2. During April-December 2023-24, the CAD was placed at US\$ 31.0 billion (1.2 per cent of GDP) as compared to 2.6 per cent during same period of 2022-23.

⁴⁰ India's merchandise exports rose for the third consecutive month on a y-o-y basis by 11.9 per cent in February 2024, whereas the growth in imports at 12.2 per cent remained in the positive territory for the second consecutive month. The average monthly trade deficit during January-February 2024 was also significantly lower (US\$ 17.6 billion) than the previous nine-month average (US\$ 21.1 billion). Services exports grew by 3.5 per cent in February 2024 on a y-o-y basis, whereas services imports largely remained flat, leading to a surplus in services trade.

⁴¹ India's cost of receiving US\$ 200 remittances stood at 4.9 per cent in Q3:2023, significantly lower than 9.6 per cent in Q1:2013 and also vis-a-vis the global average of 6.2 per cent; however, it is higher than the SDG target of 3 per cent to be achieved by 2030, which requires cooperation among countries.

⁴² The net FPI inflow in 2014-15 was US\$ 45.1 billion.

⁴³ Gross inward FDI at US\$ 59.9 billion during April-January, 2023-24 was marginally lower than US\$ 61.7 billion during the same period of 2022-23. Net inflows were lower during April-January 2023-24 due to higher repatriation at US\$ 34.8 billion as compared with US\$ 25.0 billion during the same period of 2022-23.

(ECBs) and non-resident deposits recorded higher net inflows compared to the previous year.⁴⁴ The amount of ECB agreements also grew markedly during 2023-24 (up to February 2024).⁴⁵ India's foreign exchange reserves reached an all-time high of US\$ 645.6 billion as of March 29, 2024. Latest data on various external vulnerability indicators suggest improved resilience of India's external sector.⁴⁶ We remain confident of meeting our external financing requirements comfortably.

Additional Measures

I shall now announce certain additional measures.

Trading of Sovereign Green Bonds in International Financial Services Centre (IFSC)

With a view to facilitating wider non-resident participation in Sovereign Green Bonds, a scheme for investment and trading in these Bonds in the IFSC will be notified shortly.

RBI Retail Direct Scheme - Introduction of Mobile App

The RBI Retail Direct Scheme was launched in November 2021. It is now proposed to launch a mobile app for accessing the Retail Direct portal. This will be of greater convenience to retail investors and deepen the G-sec market.

Review of Liquidity Coverage Ratio (LCR) Framework

Technological developments have enabled bank customers to instantly withdraw or transfer money from their bank accounts. While improving customer

⁴⁴ External commercial borrowings to India witnessed a turnaround with net inflows of US\$ 3.7 billion during April-February 2023-24 as against net outflows of US\$ 4.7 billion a year ago. Non-resident deposits recorded a higher net inflow of US\$ 10.2 billion in April-January 2023-24 than US\$ 6.0 billion a year ago.

⁴⁵ ECB agreement amount during April-February 2023-24 stood at US\$ 41.5 billion as compared to US\$ 22.8 billion during the same period of 2022-23.

⁴⁶ India's external debt/GDP ratio fell from 19.0 per cent at end-March 2023 to 18.7 per cent at end-December 2023. The net International Investment position to GDP ratio improved from (-) 11.3 per cent to (-) 10.8 per cent during the same period.

convenience, this has also created challenges for banks to deal with potential situations when, due to certain factors, a large number of depositors decide to instantly and simultaneously withdraw their money from banks. The developments in certain jurisdictions last year demonstrated the difficulties it can create for banks to deal with such situations. A need has, therefore, arisen to undertake a comprehensive review of the LCR framework for banks. A draft circular will be issued shortly for stakeholder consultation.

Dealing in Rupee Interest Rate Derivative products – Small Finance Banks

At present, Small Finance Banks (SFBs) are permitted to use only Interest Rate Futures (IRFs) for proprietary hedging. It has now been decided to allow SFBs to use permissible rupee interest derivative products. This will allow further flexibility to SFBs for hedging their interest rate risk and enhance their resilience.

Enabling UPI for Cash Deposit Facility

Deposit of cash through Cash Deposit Machines (CDMs) is primarily being done through the use of debit cards. Given the experience gained from card-less cash withdrawal using UPI at the ATMs, it is now proposed to also facilitate deposit of cash in CDMs using UPI. This measure will further enhance customer convenience and make the currency handling process at banks more efficient.

UPI Access for Prepaid Payment Instruments (PPIs) through Third Party Apps

At present, UPI payments from Prepaid Payment Instruments (PPIs) can be made only by using the web or mobile app provided by the PPI issuer. It is now proposed to permit the use of third-party UPI apps for making UPI payments from PPI wallets. This will further enhance customer convenience and boost adoption of digital payments for small value transactions.

Distribution of Central Bank Digital Currency (CBDC) through Non-bank Payment System Operators

The CBDC pilots are currently in operation with increasing number of use-cases and participating banks. It is proposed to make CBDC-Retail accessible to a broader segment of users by enabling non-bank payment system operators to offer CBDC wallets. This will also facilitate testing of the resiliency of CBDC platform to handle multi-channel transactions.

Conclusion

As we progress towards RBI@100, the upcoming decade is going to be a transformational journey. The Reserve Bank will continue to focus on preserving

financial stability and promoting a system that is robust, resilient and future-ready to support economic growth. Price stability will be a key component of this endeavour.

Turning to the present, inflation is on a declining trajectory and GDP growth is buoyant. At this juncture, we should not lower our guard but continue to work towards ensuring that inflation aligns durably and sustainably to the target. Our goal is in sight and we must remain vigilant. We are inspired by the profound words of Mahatma Gandhi: "*...One must persevere and have patience. Success is the inevitable result of such effort.*"⁴⁷

Thank you. Namaskar

⁴⁷ Collected Works of Mahatma Gandhi, Volume 91.

**MONETARY POLICY STATEMENT
(APRIL 3-5) 2024-25**

Resolution of the Monetary Policy Committee (MPC)
April 3-5, 2024

*Monetary Policy Statement, 2024-25 Resolution of the Monetary Policy Committee (MPC) April 3 to 5, 2024**

On the basis of an assessment of the current and evolving macroeconomic situation, the Monetary Policy Committee (MPC) at its meeting today (April 5, 2024) decided to:

- Keep the policy repo rate under the liquidity adjustment facility (LAF) unchanged at 6.50 per cent.

Consequently, the standing deposit facility (SDF) rate remains unchanged at 6.25 per cent and the marginal standing facility (MSF) rate and the Bank Rate at 6.75 per cent.

- The MPC also decided to remain focused on withdrawal of accommodation to ensure that inflation progressively aligns to the target, while supporting growth.

These decisions are in consonance with the objective of achieving the medium-term target for consumer price index (CPI) inflation of 4 per cent within a band of +/- 2 per cent, while supporting growth.

Assessment and Outlook

2. The global economy exhibits resilience and is likely to maintain its steady growth in 2024. Inflation is treading down, supported by favourable base effects though stubborn services prices are keeping it elevated relative to targets. As the central banks navigate the last mile of disinflation, financial markets are responding to changing perceptions on the timing and pace of monetary policy trajectories. Equity markets are rallying, while sovereign bond yields and the US

dollar are exhibiting bidirectional movements. Gold prices have surged on safe haven demand.

3. The domestic economy is experiencing strong momentum. As per the second advance estimates (SAE), real gross domestic product (GDP) expanded at 7.6 per cent in 2023-24 on the back of buoyant domestic demand. Real GDP increased by 8.4 per cent in Q3, with strong investment activity and a lower drag from net external demand. On the supply side, gross value added recorded a growth of 6.9 per cent in 2023-24, driven by manufacturing and construction activity.

4. Looking ahead, an expected normal south-west monsoon should support agricultural activity. Manufacturing is expected to maintain its momentum on the back of sustained profitability. Services activity is likely to grow above the pre-pandemic trend. Private consumption should gain steam with further pick-up in rural activity and steady urban demand. A rise in discretionary spending expected by urban households, as per the Reserve Bank's consumer survey, and improving income levels augur well for the strengthening of private consumption. The prospects of fixed investment remain bright with business optimism, healthy corporate and bank balance sheets, robust government capital expenditure and signs of upturn in the private capex cycle. Headwinds from geopolitical tensions, volatility in international financial markets, geoeconomic fragmentation, rising Red Sea disruptions, and extreme weather events, however, pose risks to the outlook. Taking all these factors into consideration, real GDP growth for 2024-25 is projected at 7.0 per cent with Q1 at 7.1 per cent; Q2 at 6.9 per cent; Q3 at 7.0 per cent; and Q4 at 7.0 per cent (Chart 1). The risks are evenly balanced.

5. Headline inflation softened to 5.1 per cent during January-February 2024, from 5.7 per cent in December. After correcting in January, food inflation edged up to 7.8 per cent in February primarily driven by vegetables,

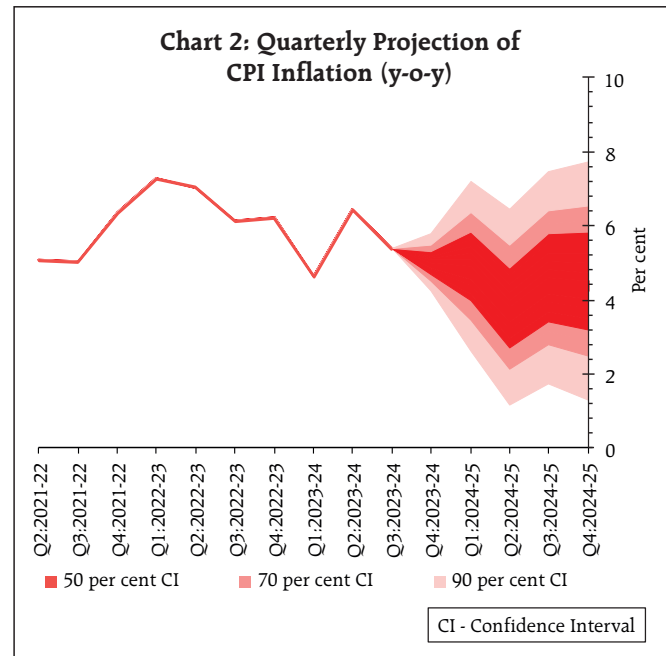
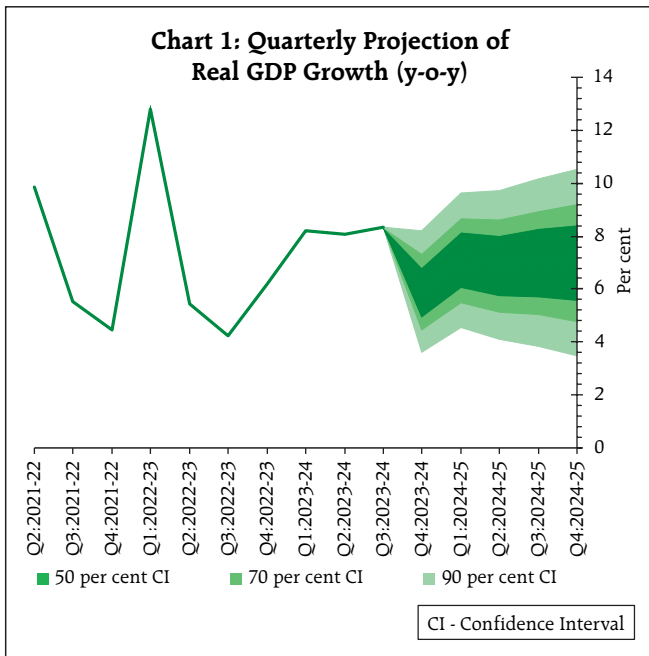
* Released on April 5, 2024.

eggs, meat and fish. Fuel prices remained in deflation for the sixth consecutive month in February. CPI core (CPI excluding food and fuel) disinflation took it down to 3.4 per cent in February – this was one of the lowest in the current CPI series, with both goods and services components registering a fall in inflation.

6. Going ahead, food price uncertainties would continue to weigh on the inflation outlook. An expected record *rabi* wheat production in 2023-24, however, will help contain cereal prices. Early indications of a normal monsoon also augur well for the *kharif* season. On the other hand, the increasing incidence of climate shocks remains a key upside risk to food prices. Low reservoir levels, especially in the southern states and outlook of above normal temperatures during April-June, also pose concern. Tight demand supply conditions in certain pulses and the prices of key vegetables need close monitoring. Fuel price deflation is likely to deepen in the near term following the recent cut in LPG prices. After witnessing sustained moderation, cost push pressures faced by firms are showing upward bias. The recent firming up of international crude oil prices warrants

close monitoring. Geo-political tensions and volatility in financial markets also pose risks to the inflation outlook. Taking into account these factors and assuming a normal monsoon, CPI inflation for 2024-25 is projected at 4.5 per cent with Q1 at 4.9 per cent; Q2 at 3.8 per cent; Q3 at 4.6 per cent; and Q4 at 4.5 per cent (Chart 2). The risks are evenly balanced.

7. The MPC noted that domestic economic activity remains resilient, backed by strong investment demand and upbeat business and consumer sentiments. Headline inflation has come off the December peak; however, food price pressures have been interrupting the ongoing disinflation process, posing challenges for the final descent of inflation to the target. Unpredictable supply side shocks from adverse climate events and their impact on agricultural production as also geo-political tensions and spillovers to trade and commodity markets add uncertainties to the outlook. As the path of disinflation needs to be sustained till inflation reaches the 4 per cent target on a durable basis, the MPC decided to keep the policy repo rate unchanged at 6.50 per cent in this meeting. Monetary policy must continue to be actively disinflationary to ensure anchoring of inflation expectations and fuller



transmission. The MPC will remain resolute in its commitment to aligning inflation to the target. The MPC believes that durable price stability would set strong foundations for a period of high growth. The MPC also decided to remain focused on withdrawal of accommodation to ensure that inflation progressively aligns to the target, while supporting growth.

8. Dr. Shashanka Bhide, Dr. Ashima Goyal, Dr. Rajiv Ranjan, Dr. Michael Debabrata Patra and Shri Shaktikanta Das voted to keep the policy repo rate unchanged at 6.50 per cent. Prof. Jayanth R. Varma voted to reduce the policy repo rate by 25 basis points.

9. Dr. Shashanka Bhide, Dr. Ashima Goyal, Dr. Rajiv Ranjan, Dr. Michael Debabrata Patra and Shri Shaktikanta Das voted to remain focused on withdrawal of accommodation to ensure that inflation progressively aligns to the target, while supporting growth. Prof. Jayanth R. Varma voted for a change in stance to neutral.

10. The minutes of the MPC's meeting will be published on April 19, 2024.

11. The next meeting of the MPC is scheduled during June 5 to 7, 2024.

**MONETARY POLICY STATEMENT
(APRIL 3-5) 2024-25**

Statement on Developmental and Regulatory Policies

Statement on Developmental and Regulatory Policies

This Statement sets out various developmental and regulatory policy measures relating to (i) Financial Markets; (ii) Regulations; and (iii) Payment Systems and FinTech.

I. Financial Markets

1. Trading of Sovereign Green Bonds in IFSC

Based on an announcement in the Union Budget for FY 2022-23, the Government of India issued Sovereign Green Bonds (SGrBs) in January 2023. SGrBs were also issued as part of the Government borrowing calendar in FY 2023-24. At present, foreign portfolio investors (FPIs) registered with SEBI are permitted to invest in SGrBs under the different routes available for investment by FPIs in government securities. With a view to facilitating wider non-resident participation in SGrBs, it has been decided to permit eligible foreign investors in the International Financial Services Centre (IFSC) to also invest in such bonds. A scheme for investment and trading in SGrBs by eligible foreign investors in IFSC is being notified separately in consultation with the Government and the IFSC Authority.

2. RBI Retail Direct Scheme - Introduction of Mobile App

RBI Retail Direct Scheme, launched in November 2021, gives access to individual investors to maintain gilt accounts with RBI and invest in government securities. The Scheme enables investors to buy securities in primary auctions as well as buy/sell securities through the NDS-OM platform. To further improve ease of access, a mobile application of the Retail Direct portal is being developed. The app will enable investors to buy and sell instruments on the go, at their convenience. The app will be available for use shortly.

II. Regulations

3. Review of LCR Framework

Banks covered under Liquidity Coverage Ratio (LCR) framework are required to maintain a stock of high quality liquid assets (HQLA) to cover the expected net cash outflows in the next 30 calendar days. However, the recent episodes in some jurisdictions have demonstrated the increased ability of the depositors to quickly withdraw or transfer deposits during times of stress, using digital banking channels. Such emerging risks may require a revisit of certain assumptions under LCR framework. Therefore, certain modifications to the LCR framework are being proposed towards facilitating better management of liquidity risk by the banks. A draft circular in this regard shall be issued shortly for comments of all stakeholders.

4. Dealing in Rupee Interest Rate Derivative products – Small Finance Banks

Extant guidelines permit Small Finance Banks (SFBs) to use only Interest Rate Futures (IRFs) for the purpose of proprietary hedging. In order to expand the avenues available to the SFBs for hedging interest rate risk in their balance sheet and commercial operations more effectively as well as with a view to provide them with greater flexibility, it has now been decided to allow them to deal in permissible rupee interest derivative products in terms of Rupee Interest Rate Derivatives (Reserve Bank) Directions, 2019. A circular in this regard shall be issued shortly.

III. Payment Systems and Fintech

5. Enabling UPI for Cash Deposit Facility

Cash Deposit Machines (CDMs) deployed by banks enhance customer convenience while reducing cash-handling load on bank branches. The facility of cash deposit is presently available only through use of debit cards. Given the popularity and acceptance of UPI, as also the benefits seen from the availability

of UPI for card-less cash withdrawal at ATMs, it is now proposed to facilitate cash deposit facility through use of UPI. Operational instructions will be issued shortly.

6. UPI access for Prepaid Payment Instruments (PPIs) through third-party applications

At present, UPI payments from bank accounts can be made by linking a bank account through the UPI App of the bank or using any third-party UPI application. However, the same facility is not available for PPIs. PPIs can currently be used to make UPI transactions only by using the application provided by the PPI issuer. To provide more flexibility to PPI holders, it is now proposed to permit linking of PPIs through third-party UPI applications. This will enable the PPI holders

to make UPI payments like bank account holders. Instructions in this regard will be issued shortly.

7. Distribution of CBDCs through Non-bank Payment System Operators

CBDC pilots in the Retail and Wholesale segments are underway with more use-cases and more participating banks. Continuing with this approach, it is proposed to make CBDC-Retail accessible to a broader segment of users in a sustained manner, by enabling non-bank payment system operators to offer CBDC wallets. This is expected to enhance access and expand choices available to users apart from testing the resiliency of the CBDC platform to handle multi-channel transactions. Necessary changes will be made to the system to facilitate this.

**MONETARY POLICY STATEMENT
(APRIL 3-5) 2024-25**

Monetary Policy Report - April 2024

I. Macroeconomic Outlook

The outlook for domestic economic activity remains resilient on the back of strong domestic demand and improved macroeconomic fundamentals. Volatile food prices interrupt the path of disinflation and cloud the inflation outlook. Geopolitical hostilities, volatile global financial markets and climate shocks are the key risks to the outlook. Monetary policy remains focused on aligning inflation with the target to pave the path for sustained growth in the medium-term.

I.1 Key Developments since the October 2023 MPR

The global economy has remained surprisingly resilient despite repeated and overlapping shocks and unprecedented monetary tightening. Growth in the US and several major emerging market economies (EMEs) has held up better than expected. Sectorally, manufacturing activity has remained subdued, but services have exhibited strength. Headline inflation has come down across countries although the descent in core and services inflation has been slow amidst continuing tightness in labour markets. Major central banks in advanced economies (AEs) have kept policy rates on hold to ensure the aligning of inflation with targets.

Incoming data on the economic outlook and evolving expectations about monetary policy's trajectory in AEs reverberated through global financial markets imparting high volatility. A faster-than-expected decline in inflation fuelled expectations of an early reversal in the US monetary policy cycle, leading to a sharp correction in sovereign bond yields in November and December 2023. Yields have, however, hardened since the beginning of 2024 as central bank communication pushed back on market exuberance related to the magnitude and pace of monetary policy easing. Following the correction seen in Q3:2023 (July-September), global equity markets posted strong gains in November-December, primarily

in AEs. The US dollar (US\$) depreciated to a 6-month low at end-December but recovered subsequently on stronger-than-expected US economic data. Crude oil prices declined during October-December 2023 on slowing global demand and improved supply from countries outside of organization of the petroleum exporting countries (OPEC) but recovered thereafter in the wake of supply disruptions in key shipping routes and extension of production cuts by OPEC plus through June 2024. Food prices eased with the decline in prices of cereals, meat and vegetable oils, although sugar prices have firmed up.

Turning to the domestic economy, the second advance estimates (SAE) released by the National Statistical Office (NSO) placed real gross domestic product (GDP) growth for 2023-24 at 7.6 per cent, underpinned by strong investment activity. On the supply side, gross value added (GVA) expanded by 6.9 per cent in 2023-24, with manufacturing and services sectors turning out to be the key drivers. Real GDP growth for Q3:2023-24 was placed at 8.4 per cent, outpacing consensus forecasts by a wide margin, underpinned by strong investment and an improvement in private consumption.

Headline CPI inflation moderated to 5.3 per cent in October 2023-February 2024 from an average of 5.5 per cent in H1:2023-24. Sporadic food price shocks continued to impart significant volatility to the inflation trajectory, with headline inflation rising sharply in November and December 2023 due to a spike in vegetable prices. Core inflation (*i.e.*, CPI excluding food and fuel) has, however, been on a steadily declining path. In February 2024, it fell to 3.4 per cent, among the lowest prints in the current CPI series (2012=100), driven by both core goods and services components. With the cumulative rate hike of 250 basis points (bps) undertaken during May 2022-February 2023 working its way through the economy, the Monetary Policy Committee (MPC)

kept the policy repo rate unchanged at 6.50 per cent through H2 and remained resolute in its commitment to align inflation with the target, keeping in mind the objective of growth.

Monetary Policy Committee Meetings: October 2023 – March 2024

When the MPC met in October 2023, global growth and trade were losing momentum, inflation was easing gradually but remained well above targets in major economies. Concerns about higher for longer interest rates were keeping financial conditions tight and imparting volatility to global financial markets. Domestically, CPI headline inflation rose sharply in July 2023 on the back of a spike in vegetable prices while core inflation softened. The projection of CPI inflation for 2023-24 was retained at 5.4 per cent as the spurt in vegetable prices was expected to be transitory. Domestic economic activity was showing resilience despite external headwinds. The real GDP growth projection for 2023-24 was retained at 6.5 per cent. The MPC observed that the unprecedented food price shocks were impinging on the evolving trajectory of inflation and that recurring incidence of such overlapping shocks could impart generalisation and persistence. Accordingly, the MPC unanimously decided to keep the policy repo rate unchanged at 6.50 and, by a majority of 5-1, voted to remain focused on the stance of withdrawal of accommodation to ensure that inflation progressively aligns with the target, while supporting growth.

At the time of the December 2023 meeting, receding global inflation was engendering expectations of a reversal in the monetary policy cycle in AEs. Market sentiments improved amidst declining sovereign bond yields, a depreciating US dollar and strengthening global equity markets. In India, CPI headline inflation had fallen to 4.9 per cent (October 2023 print) from an average of 6.4 per cent during the previous quarter (July-September 2023).

Furthermore, core inflation had moderated to levels last seen in Q4:2019-20. Domestic economic activity exhibited resilience, with real GDP growing by 7.6 per cent in Q2:2023-24, driven by robust investment and government consumption. The projection of real GDP growth for 2023-24 was revised up to 7.0 per cent while that of inflation was retained at 5.4 per cent. The MPC observed that recurring food price shocks were impeding the ongoing disinflation process and monetary policy needed to remain actively disinflationary to ensure anchoring of inflation expectations and fuller transmission. Against this backdrop, the MPC unanimously voted to keep the policy repo rate unchanged at 6.50 per cent and voted with a 5-1 majority to continue with the stance of withdrawal of accommodation.

In the run up to the February 2024 meeting, headline CPI inflation had picked up to 5.7 per cent in December 2023, led primarily by an increase in vegetable price inflation, even as deflation in fuel prices deepened. Core inflation had softened to a four-year low of 3.8 per cent in December. Assuming a normal monsoon, CPI inflation was projected to decline to 4.5 per cent in 2024-25 from 5.4 per cent in 2023-24. Domestic economic activity was strengthening, with the first advance estimates (FAE) released by the NSO placing year-on-year (y-o-y) GDP growth at 7.3 per cent for 2023-24, underpinned by strong investment activity. Real GDP growth was projected at 7.0 per cent for 2024-25. The MPC noted that considerable uncertainty prevailed on the food price outlook from the possibility of adverse weather events. Upside risks to inflation also emanated from geopolitical developments and their impact on supply chains, volatility in international financial markets and uncertainty around commodity prices. The MPC decided by a majority of 5-1 to keep the policy repo rate unchanged at 6.50 per cent while retaining the stance of withdrawal of accommodation.

Table I.1: Monetary Policy Committee Meetings and Policy Rate Voting Patterns

Country	Policy Meetings: October 2023 - March 2024			
	Total meetings	Meetings with full consensus	Meetings without full consensus	Variation in policy rate (basis points)
Brazil	4	4	0	-200
Chile	3	2	1	-225
Colombia	4	0	4	-100
Czech Republic	4	1	3	-125
Hungary	5	3	2	-400
India	3	2	1	0
Japan	4	3	1	10
South Africa	3	3	0	0
Sweden	3	3	0	0
Thailand	2	1	1	0
UK	4	0	4	0
US	4	4	0	0

Sources: Central bank websites.

The MPC's voting pattern reflects the diversity in individual members' assessments, expectations and policy preferences – a characteristic also reflected in voting patterns of other central banks (Table I.1). With the economic outlook diverging across countries, central banks' policy rate decisions have become increasingly asynchronous. Central banks of Brazil and Chile, which tightened policy earlier, have reduced their policy rates since the second half of 2023 in response to declining inflation and in support of economic activity. On the other hand, Japan raised its benchmark policy rate for the first time in 17 years in March, ending eight years of negative interest rates.

Macroeconomic Outlook

Chapters II and III analyse macroeconomic developments relating to inflation and economic activity during H2:2023-24 (October 2023 - March 2024). Turning to the baseline assumptions, international crude prices exhibited sizeable two-way movements in H2, falling in October-December 2023 to around US\$75 per barrel on slowing global

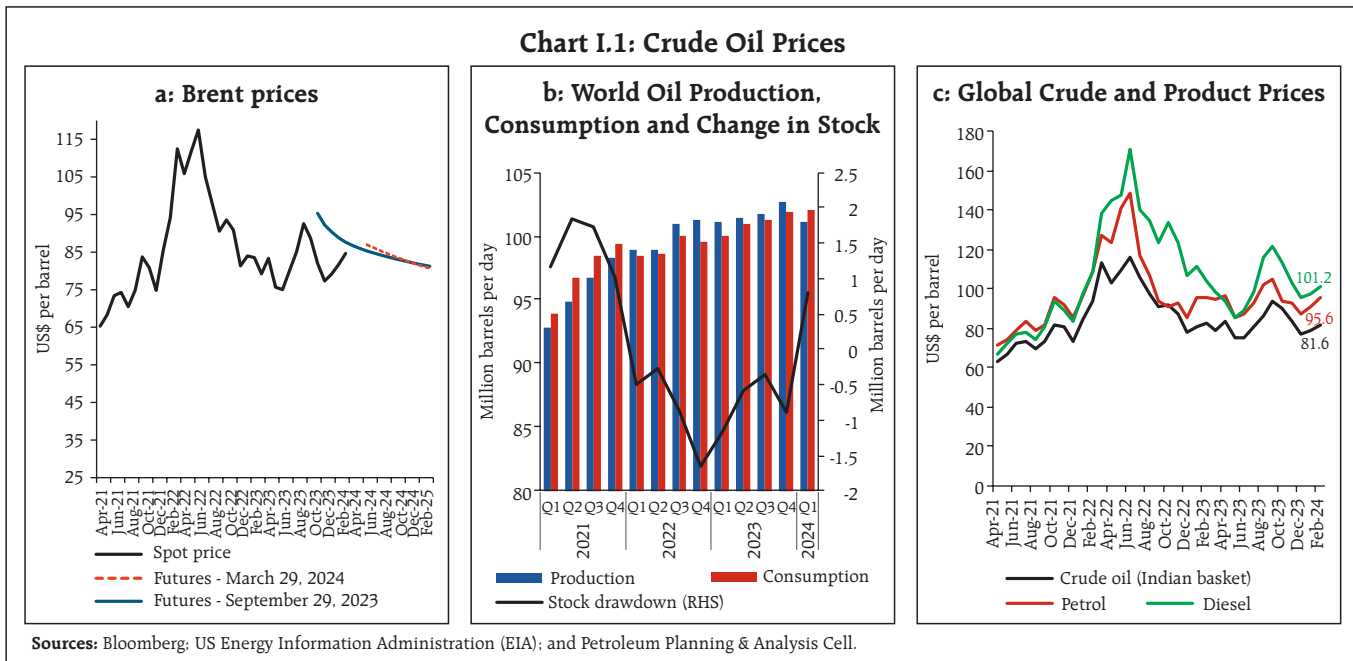
demand amidst weak manufacturing activity and easing demand for transportation fuels as well as supply increases from non-OPEC countries. Amidst intensifying hostilities in the Middle-East, deep output cuts by OPEC *plus*, and incidents of supply outages, international crude prices moved higher from mid-December reaching an average close to US\$ 85 per barrel in March. Geopolitical tensions imparted significant uncertainty to the outlook (Charts I.1a and I.1b). The spread between global petroleum product prices and crude prices eased from its recent peaks in mid-2022 but remains elevated by historical standards in view of demand-supply refinery mismatches (Chart I.1c). Taking into account these factors, the baseline assumption for crude price (Indian basket) is retained at US\$ 85 per barrel (Table I.2).

Table I.2: Baseline Assumptions for Projections

Indicator	MPR October 2023	MPR April 2024
Crude Oil (Indian basket)	US\$ 85 per barrel during H2:2023-24	US\$ 85 per barrel during 2024-25
Exchange rate	₹ 82.5/US\$ during H2:2023-24	₹ 83/US\$ during 2024-25
Monsoon	6 per cent below long period average for 2023-24	Normal for 2024-25
Global growth	3.0 per cent in 2023 3.0 per cent in 2024	3.1 per cent in 2024 3.2 per cent in 2025
Fiscal deficit (per cent of GDP)	To remain within BE 2023-24 Centre: 5.9 Combined: 8.5	To remain within BE 2024-25 Centre: 5.1 Combined: 7.7
Domestic macroeconomic/ structural policies during the forecast period	No major change	No major change

- Notes:**
1. The Indian basket of crude oil represents a derived numeraire comprising sour grade (Oman and Dubai average) and sweet grade (Brent) crude oil.
 2. The exchange rate path assumed here is for the purpose of generating the baseline projections and does not indicate any 'view' on the level of the exchange rate. The Reserve Bank is guided by the objective of containing excess volatility in the foreign exchange market and not by any specific level of and/or band around the exchange rate.
 3. BE: Budget estimates.
 4. Combined fiscal deficit refers to that of the Centre and States taken together.

Sources: RBI estimates; Budget documents; and IMF.



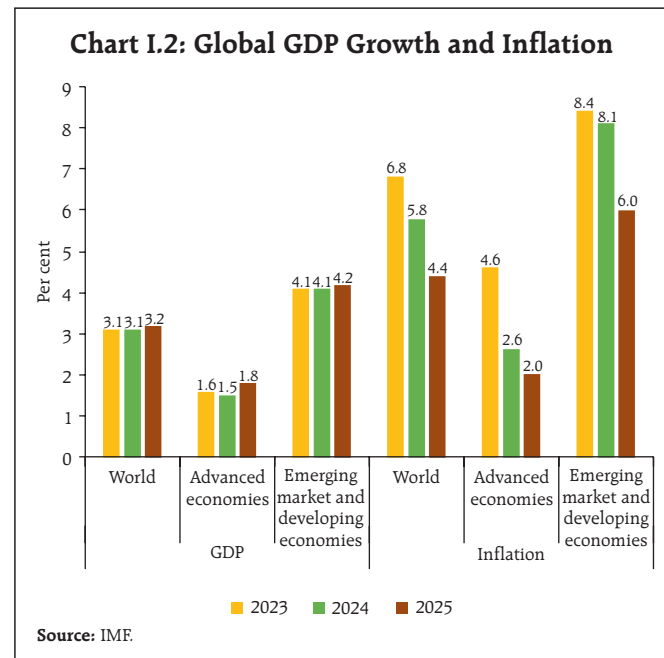
Second, the nominal exchange rate of the Indian rupee (₹) saw two-way movements in the range of ₹82.8-83.4 per US dollar in H2. Taking into consideration the uncertainty around US dollar movements, the ebbs and flows of global capital flows and international crude oil prices, the baseline assumption for the exchange rate is revised to ₹83 per US dollar.

Third, the global growth forecast for 2024 was revised upwards by 20 bps to 3.1 per cent by the International Monetary Fund (IMF) in its January 2024 update of the World Economic Outlook (WEO) from its October 2023 projection. Global growth is expected to increase marginally to 3.2 per cent in 2025 (Chart I.2). Global trade growth (goods and services combined) is projected to accelerate from 0.4 per cent in 2023 to 3.3 per cent in 2024 and further to 3.6 per cent in 2025. Global GDP growth for 2024 and 2025 is expected to trail its historical (2000-19) average of 3.8 per cent as multiple headwinds – tighter monetary policy; withdrawal of fiscal stimulus given debt sustainability challenges; reduced pent-up demand; financial stability risks; continued geopolitical challenges; and geoeconomic fragmentation – weigh on prospects. Inflation is projected to decline in most

regions in 2024 – more rapidly in AEs vis-à-vis EMEs – amidst unwinding of supply-side pressures, restrictive monetary policy, easing labour markets and the pass-through of earlier declines in energy prices.

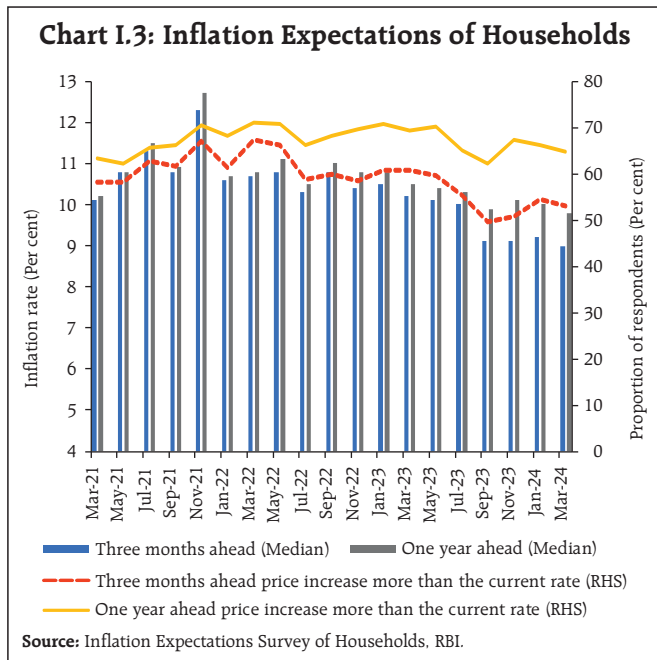
I.2 The Outlook for Inflation

In H2, movements in headline inflation were driven by fluctuations in food prices even as core



inflation witnessed a sustained decline (Chapter II). In the March 2024 round of the Reserve Bank's inflation expectations survey¹, both the three months and one year ahead median inflation expectations of urban households decreased by 20 bps *vis-à-vis* the previous round. Concomitantly, the proportion of respondents expecting the general price level to increase by more than the current rate decreased for both horizons *vis-à-vis* the previous round (Chart I.3). The distributional characteristics of inflation expectations contain useful forward-looking information about future inflation (Box I.1).

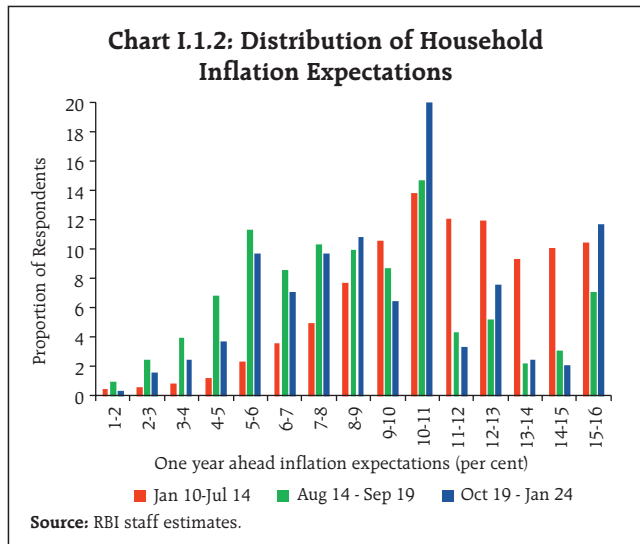
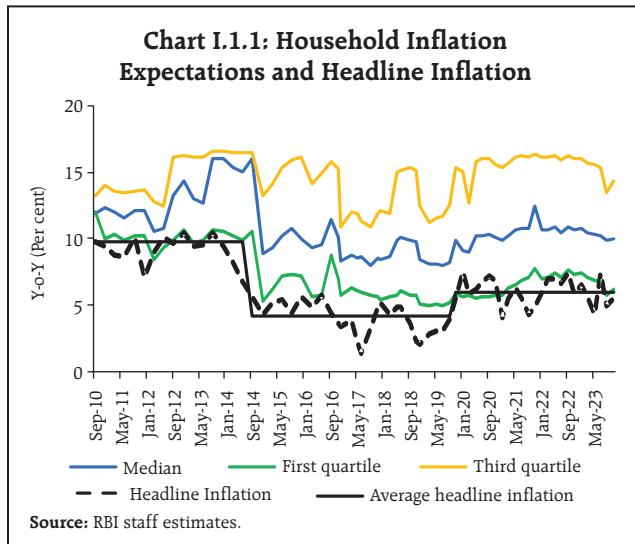
Manufacturing firms polled in the January-March 2024 round of the Reserve Bank's industrial outlook survey expect easing in cost pressures from raw materials as well as selling prices in Q1:2024-25



Box I.1: Information Content of the Distribution of Inflation Expectations

Households' inflation expectations are an important driver of consumption, savings and wage-setting behaviour. Given the innate heterogeneity, higher order moments of its distribution have useful forward-looking information about inflation, especially during regime shifts (Reis, 2021; Adrian, 2023).

The distributional characteristics of inflation expectations are examined by partitioning the period January 2010 to January 2024 into three regimes, based on the breaks in headline inflation.² This analysis suggests that the distribution was marked by low dispersion and negative skew during the high inflation episode of January 2010-



(Contd.)

¹ The Reserve Bank's inflation expectations survey of households is being conducted in 19 cities since March 2021 (18 cities in the previous rounds) and the results of the March 2024 round are based on responses from 6,083 households.

² Unit level data on one year ahead inflation expectations from the survey of households conducted by the Reserve Bank has been used. The Bai-Perron (2003) test suggests breaks in headline CPI inflation in August 2014 and October 2019.

Table I.1.1: Distributional Characteristics of Inflation Expectations and One Year Ahead Inflation

	One year ahead headline inflation				
	(1)	(2)	(3)	(4)	(5)
Median	0.0712 (0.157)				
Mean		0.191 (0.246)			
Standard Deviation			-0.919*** (0.328)		
Interquartile Range				-0.377*** (0.122)	
Skewness					-1.673*** (0.622)
Headline inflation (t)	0.307** (0.139)	0.267* (0.146)	0.223** (0.102)	0.302*** (0.092)	0.0992 (0.132)
Constant	2.342* (1.286)	1.339 (2.048)	7.911*** (1.891)	6.092*** (1.188)	3.804*** (0.672)
R ²	0.425	0.430	0.495	0.509	0.490
Observations	61	61	61	61	61
Controls	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Source: RBI staff estimates.

July 2014, *i.e.*, households' inflation expectations were elevated and concentrated in a narrow band, with very few respondents expecting low inflation (Charts I.1.1 and I.1.2). With the adoption of flexible inflation targeting (FIT), the distribution became more dispersed and symmetric during August 2014-September 2019, with more households expecting lower inflation and diversity of expectations rising. During the subsequent period which was affected by the pandemic and war-led disruptions, there was a rise in median inflation expectations and

uncertainty on dispersion across households increased. The distribution developed a negative skew as more households expected higher inflation.

The future information content of higher order moments of inflation expectations for the period January 2012-November 2023 is examined under:

$$\pi_{t+12} = c + \beta m_t + \gamma \pi_t + \beta X_{t+12} + \varepsilon_t$$

where, π_{t+12} is one year ahead headline CPI inflation, m_t denotes moments of the distribution, π_t is current inflation, X_{t+12} are controls for one year ahead y-o-y change in global food prices as measured by the FAO index, crude oil prices (Indian basket) and the rupee-dollar exchange rate. ε_t is the error term. This model's estimates suggest that median and mean of household expectations are slow-moving indicators and are not significant in predicting one year ahead inflation. On the other hand, measures of dispersion – standard deviation and interquartile range – are significant with a negative sign, suggesting that higher disagreement among households is associated with lower inflation. When inflation falls from its peak, a larger variance is associated with decreasing inflation, as informed households reduce their expectations early and the mass of the distribution follows with a lag (Marques *et al.*, 2023). Skewness is also significant with a negative sign, as expected (Table I.1.1).

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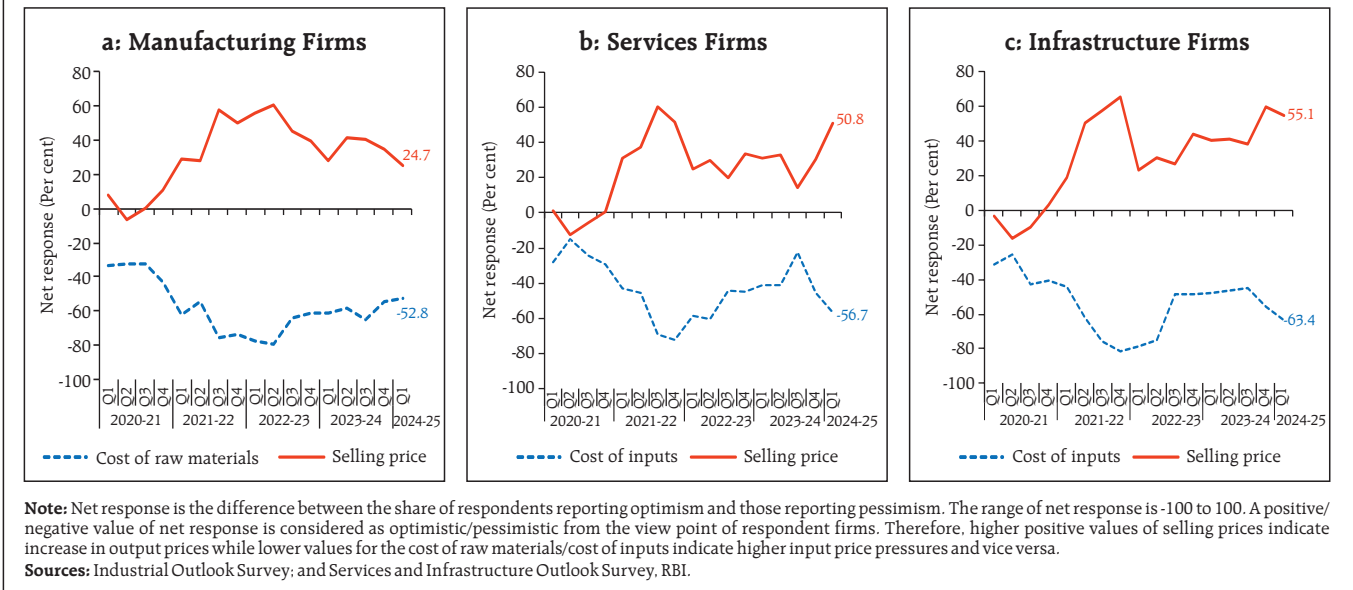
vis-à-vis the previous round (Chart I.4a).³ In contrast, services sector companies expect higher input cost pressures and growth in selling prices in Q1:2024-25, while infrastructure firms expect higher input cost pressures but lower growth in selling prices (Charts

I.4b and I.4c).⁴ In the PMI surveys, manufacturing firms reported increased input cost pressures but slower output price increases in March 2024. Services firms reported higher input and output prices, with a marked increase in the rate of inflation in March 2024.

³ The results of the January-March 2024 round of the industrial outlook survey are based on responses from 1,354 companies.

⁴ Based on 587 services companies and 120 infrastructure firms polled in the January-March 2024 round of the services and infrastructure outlook survey.

Chart I.4: Expectations for Cost of Raw Materials/Inputs and Selling Prices



Professional forecasters surveyed by the Reserve Bank in March 2024 expected headline CPI inflation to moderate from 5.4 per cent in Q3:2023-24 to 5.1 per cent in Q4, 5.0-3.8 per cent in H1:2024-25, and 4.8-4.6 per cent in H2 (Chart I.5a and Table I.3).⁵ They expected core inflation (*i.e.*, CPI excluding food and beverages, pan, tobacco and intoxicants, and fuel and light) at 3.4 per cent in Q4:2023-24 and Q1:2024-25, increasing progressively to 3.7 per cent in Q2, 4.1 per cent in Q3, and 4.3 per cent in Q4. Their 5-year ahead inflation expectations remained unchanged at 4.7 per cent, while their 10-year ahead inflation expectations declined by 20 bps to 4.3 per cent in the March 2024 round from the previous round (Chart I.5b).

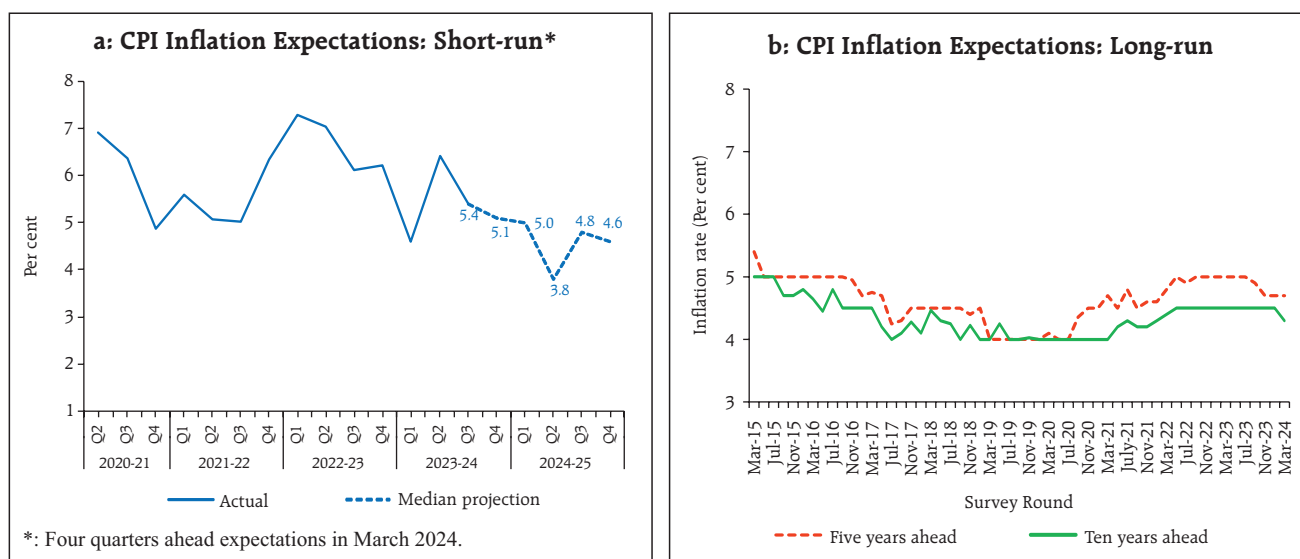
Looking ahead, the outlook for inflation will be contingent largely on the evolving food inflation dynamics. *Rabi* sowing has exceeded last year's levels, but pulses have witnessed a decline. According to the second advance estimates, the production of cereals, pulses and oilseeds has trailed last year's level. Water reservoir levels remain significantly below the level of

last year and of the decadal average. Vegetable prices are undergoing seasonal correction unevenly. The continuing pass-through of monetary policy actions and stance, on the other hand, is keeping core inflation subdued. Adverse weather events and continuing geopolitical hostilities, however, remain the key risks. Taking into account the initial conditions, signals from forward-looking surveys and estimates from time-series and structural models⁶, CPI inflation is projected to average 4.5 per cent in 2024-25 – 4.9 per cent in Q1, 3.8 per cent in Q2, 4.6 per cent in Q3 and 4.5 per cent in Q4, with risks evenly balanced (Chart I.6). The 50 per cent and the 70 per cent confidence intervals for headline inflation in Q4:2024-25 are 3.2–5.8 per cent and 2.5–6.5 per cent, respectively. For 2025-26, assuming a normal monsoon and no further exogenous or policy shocks, structural model estimates indicate that inflation will average 4.1 per cent, in a range of 3.9–4.3 per cent. In Q4:2025-26, CPI inflation is projected at 4.0 per cent, with the 50

⁵ 45 panellists participated in the March 2024 round of the Reserve Bank's survey of professional forecasters.

⁶ John, Joice, Deepak Kumar, Asish Thomas George, Pratik Mitra, Muneesh Kapur and Michael Debabrata Patra (2023), "A Recalibrated Quarterly Projection Model (QPM 2.0) for India", *Reserve Bank of India Bulletin*, February.

Chart I.5: Inflation Expectations of Professional Forecasters



Sources: Survey of Professional Forecasters, RBI; and National Statistical Office.

Table I.3: Projections - Reserve Bank and Professional Forecasters

	(Per cent)		
	2023-24	2024-25	2025-26
Reserve Bank's Baseline Projections			
Inflation, Q4 (y-o-y)	5.0	4.5	4.0
Real GDP growth	7.6	7.0	7.0
Median Projections of Professional Forecasters			
Inflation, Q4 (y-o-y)	5.1	4.6	-
Real GDP growth	7.6	6.7	6.5
Gross domestic saving (per cent of GNDI)	30.4	31.6	30.0
Gross capital formation (per cent of GDP)	32.6	33.3	33.9
Credit growth of scheduled commercial banks	16.9	13.5	13.5
Combined gross fiscal deficit (per cent of GDP)	8.9	8.1	7.5
Central government gross fiscal deficit (per cent of GDP)	5.8	5.1	4.5
Repo rate (end-period)	6.50	6.00	-
Yield on 91-days treasury bills (end-period)	6.9	6.4	6.3
Yield on 10-year central government securities (end-period)	7.1	6.8	6.5
Overall balance of payments (US\$ billion)	50.0	39.8	30.2
Merchandise exports growth	-3.7	3.3	6.2
Merchandise imports growth	-5.5	4.8	7.5
Current account balance (per cent of GDP)	-1.0	-1.2	-1.1

Note: GNDI: Gross National Disposable Income.

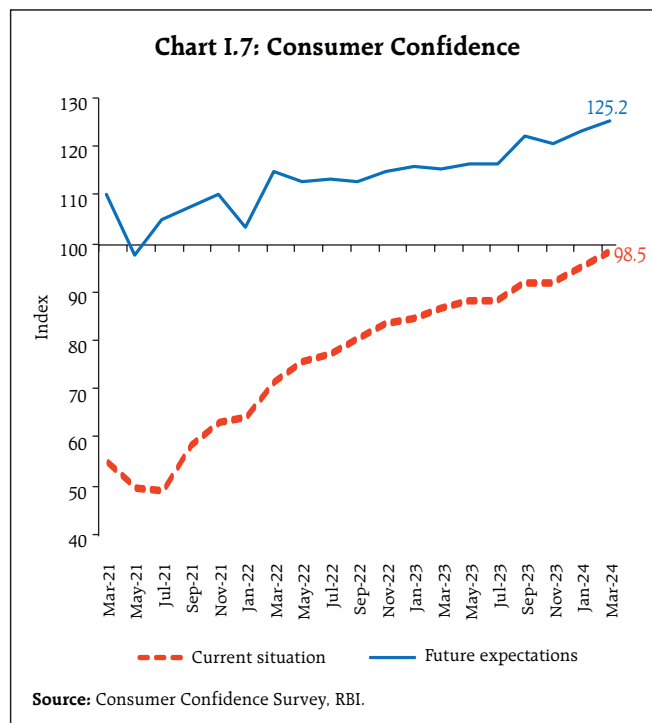
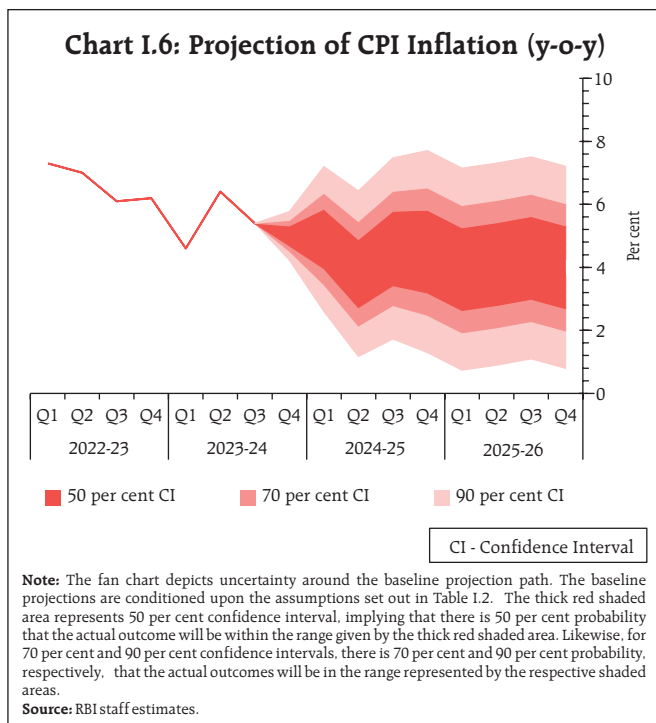
Sources: RBI staff estimates; and Survey of Professional Forecasters (March 2024).

per cent and the 70 per cent confidence intervals at 2.7–5.3 per cent and 2.0–6.0 per cent, respectively.

These baseline forecasts are subject to several upside and downside risks. The upside risks emanate from persistent food price pressures from extreme weather-related disturbances; an escalation in geopolitical hostilities which could further aggravate supply disruptions; increased volatility in prices of key commodities, particularly crude oil; and a larger pass-through of input cost pressures to output prices as demand gains strength. The downside risks emanate from an early resolution of geopolitical conflicts; a pronounced slowdown in the global demand with further easing of global commodity prices; and an improvement in supply responses of key primary commodities.

1.3 The Outlook for Growth

Domestic economic activity is supported by an upturn in the investment cycle on the back of the government's continued thrust on capital expenditure, higher capacity utilisation, underlying resilience of the services sector, double digit credit growth, and healthier corporate and bank balance sheets. Escalating geopolitical tensions, new



flashpoints choking arterial routes of global trade, and volatile global financial conditions, however, impart uncertainty to the outlook.

Turning to the key messages from forward-looking surveys, consumer confidence of urban households (the current situation index) improved further in the March 2024 survey round *vis-à-vis* the previous round, reaching closer to the neutral level on the back of improved perceptions on general economic conditions and the employment situation. Consumers' future outlook—for the year ahead—continued in optimistic territory and registered a new peak since the onset of the pandemic, propelled by improvement in all parameters (Chart I.7).⁷

In the Reserve Bank's industrial outlook survey of January-March 2024, manufacturing firms were optimistic on the business outlook during Q1:2024-25, *albeit* with waning sentiments from the previous round (Chart I.8a). Services and infrastructure companies remained upbeat on the overall business

⁷ The Reserve Bank's consumer confidence survey is being conducted in 19 cities since March 2021 (13 cities in the previous rounds) and the results of the March 2024 round are based on responses from 6,083 respondents.

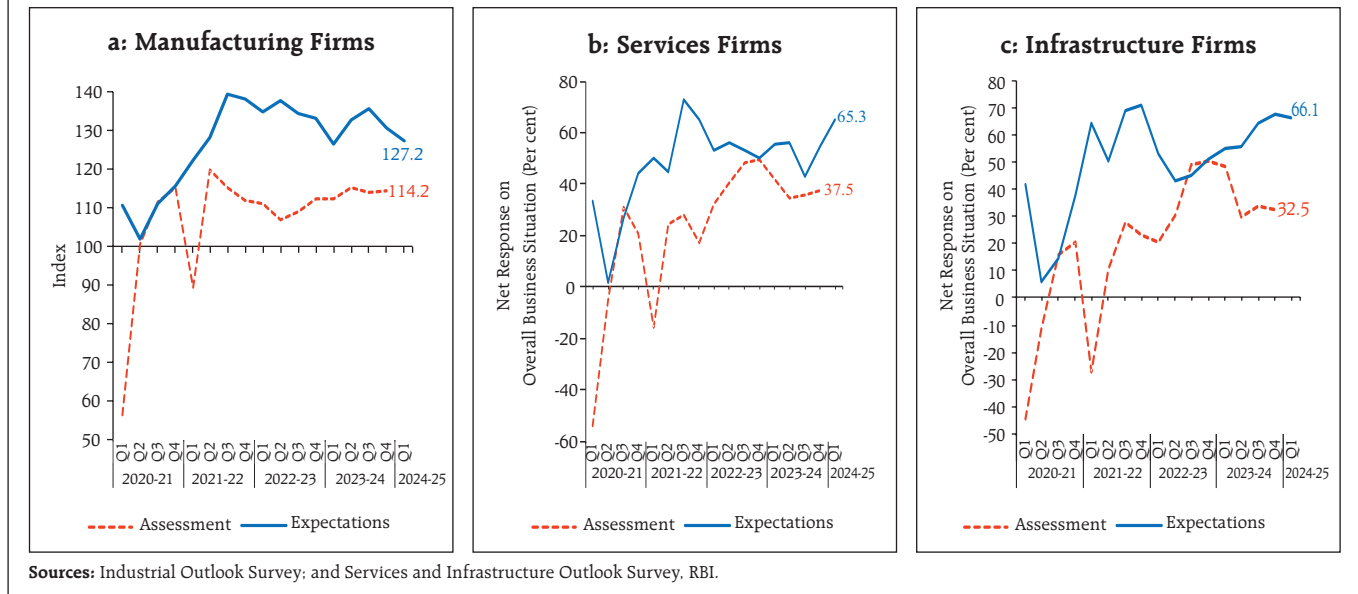
situation in Q1:2024-25, though with some moderation in sentiments for the latter (Charts I.8b and I.8c).

Recent surveys by other agencies generally reported sequential improvement in business expectations relative to the previous round (Table I.4). Manufacturing and services firms in the latest PMI surveys exhibited optimism for the year ahead.

Professional forecasters polled in the March 2024 round of the Reserve Bank's survey expected real GDP growth at 6.0 per cent in Q4:2023-24, 6.7 per cent in H1:2024-25, and 6.6-6.8 per cent in H2 (Chart I.9 and Table I.3).

Overall, the outlook for growth is improving on the back of domestic drivers of demand, although persisting uncertainties on the global front pose risks to the outlook. Taking into account the baseline assumptions, survey indicators and model forecasts, real GDP growth is expected at 7.0 per cent in 2024-25 – 7.1 per cent in Q1; 6.9 per cent in Q2; and 7.0 per cent each in Q3 and Q4 - with risks evenly balanced around this baseline path (Chart I.10 and Table I.3). For 2025-26, assuming a normal monsoon and no major

Chart I.8: Business Assessment and Expectations



exogenous or policy shocks, structural model estimates indicate real GDP growth at 7.0 per cent, with quarterly growth rates in the range of 6.7-7.4 per cent.

There are upside and downside risks to this baseline growth path. The upsides emanate from a stronger growth in the manufacturing and services

sectors sustained by strong domestic demand; upbeat business optimism; accelerated private investment spurred by government’s continued capex push; an early resolution of geopolitical conflicts; faster disinflation; and improvement in global trade and supply chains. On the contrary, further escalation in geopolitical tensions and geoeconomic fragmentation;

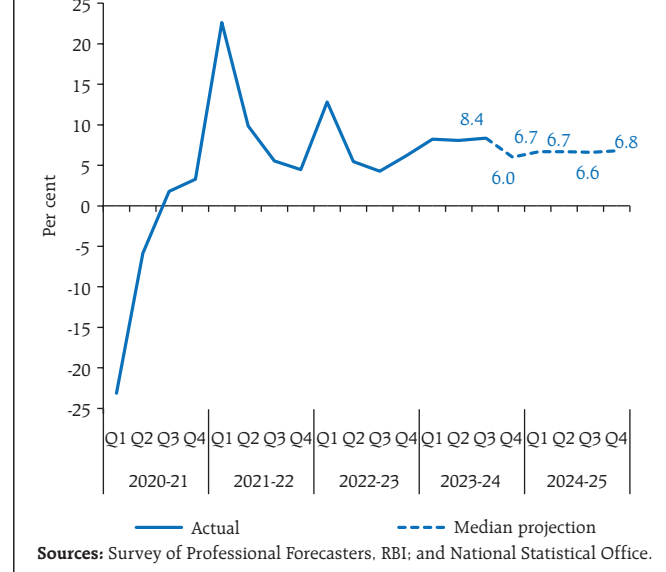
Table I.4: Business Expectations Surveys

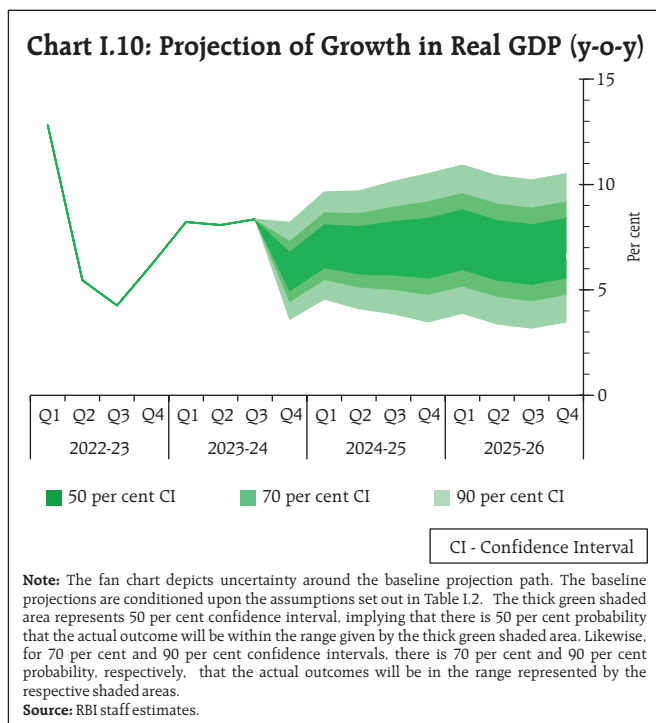
Item	NCAER Business Confidence Index (January 2024)	FICCI Overall Business Confidence Index (February 2024)	Dun and Bradstreet Composite Business Optimism Index (February 2024)	CII Business Confidence Index (January 2024)
Current level of the index	127.6	70.9	72.8	67.8
Index as per previous survey	140.7	66.9	70.3	67.1
% change (q-o-q) sequential	-9.3	5.9	3.6	1.0
% change (y-o-y)	0.8	16.2	-5.8	0.3

Notes: 1. NCAER: National Council of Applied Economic Research.
 2. FICCI: Federation of Indian Chambers of Commerce & Industry.
 3. CII: Confederation of Indian Industry.
 4. Dun and Bradstreet Composite Business Optimism Index is for Q4:2023-24, and the rest pertain to Q3:2023-24.

Sources: NCAER; FICCI; CII; and Dun & Bradstreet Information Services India Pvt. Ltd.

Chart I.9: Professional Forecasters' Projection of Real GDP Growth





unexpected spurts in global commodity prices; increased volatility in international financial markets; deceleration in global trade and demand; and frequent weather-related disturbances due to climate change pose downside risks to the baseline growth path.

I.4 Balance of Risks

The projections of growth and inflation presented in this chapter are, *inter alia*, conditioned on the assumptions set out in Table 1.2. These are subject to uncertainties on the global growth outlook, crude oil prices, exchange rate and food prices. Against this backdrop, this section explores the alternative scenarios to assess the balance of risks to the baseline projections.

(i) Global Growth Uncertainties

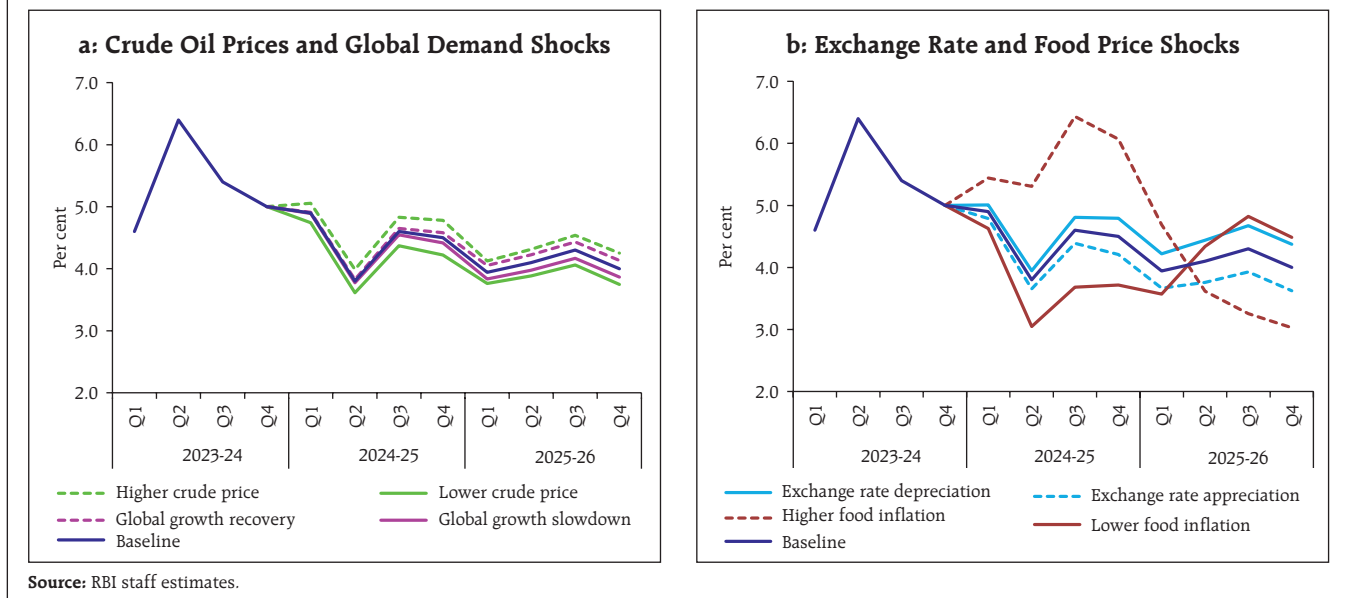
Global economic activity moderated in H2:2023 but remained more robust than anticipated earlier. With inflation declining and growth holding firm, the likelihood of a soft landing has increased for the global economy. There are, however, downside risks, going forward. The escalation in geopolitical tensions in West Asia hampering shipping through the Suez Canal

and resultant supply disruptions could keep inflation elevated, delaying the easing of monetary conditions. Furthermore, if the last mile of disinflation turns out to be protracted, it may require interest rates to remain higher for longer thereby posing considerable downside risks to growth. At high risk are less developed economies with relatively elevated debt-to-GDP ratio. Rising trade distortions and geoeconomic fragmentation could also weigh on global trade and growth. All these factors can pull down global growth well below the baseline. In such a scenario, if global growth is 100 bps lower than the baseline, domestic growth and inflation could be around 30 bps and 15 bps, respectively, below their baseline trajectories. Conversely, on the upside, a faster disinflation could allow monetary authorities to reduce policy rates earlier than anticipated, easing financial conditions further, improving sentiments and providing a fillip to global growth. Further, a greater push for supply-side reforms and harnessing of new technologies such as artificial intelligence could provide a boost to productivity, global growth and demand. In this scenario, if global growth is higher by 50 bps, domestic growth and inflation could edge higher by around 15 bps and 7 bps, respectively (Charts I.11a and I.12a).

(ii) International Crude Oil Prices

Global crude oil prices have remained highly volatile, with Brent crude falling from a high of US\$ 95 in early October 2023 to below US\$ 75 by mid-December, before rebounding and settling above US\$ 80 in the first quarter of 2024. An escalation in the conflict in West Asia and logistical impediments in key trade routes may cause serious disruptions in the oil market. Assuming crude oil price to be 10 per cent above the baseline, domestic inflation could be higher by 30 bps and growth weaker by around 15 bps, respectively. Conversely, de-escalation of geopolitical tensions along with a further weakening of global demand may pull down crude oil prices. If crude oil prices fall by 10 per cent relative to the baseline and assuming their full pass-through to the domestic

Chart I.11: Impact of Risk Scenarios on the Baseline Inflation Path



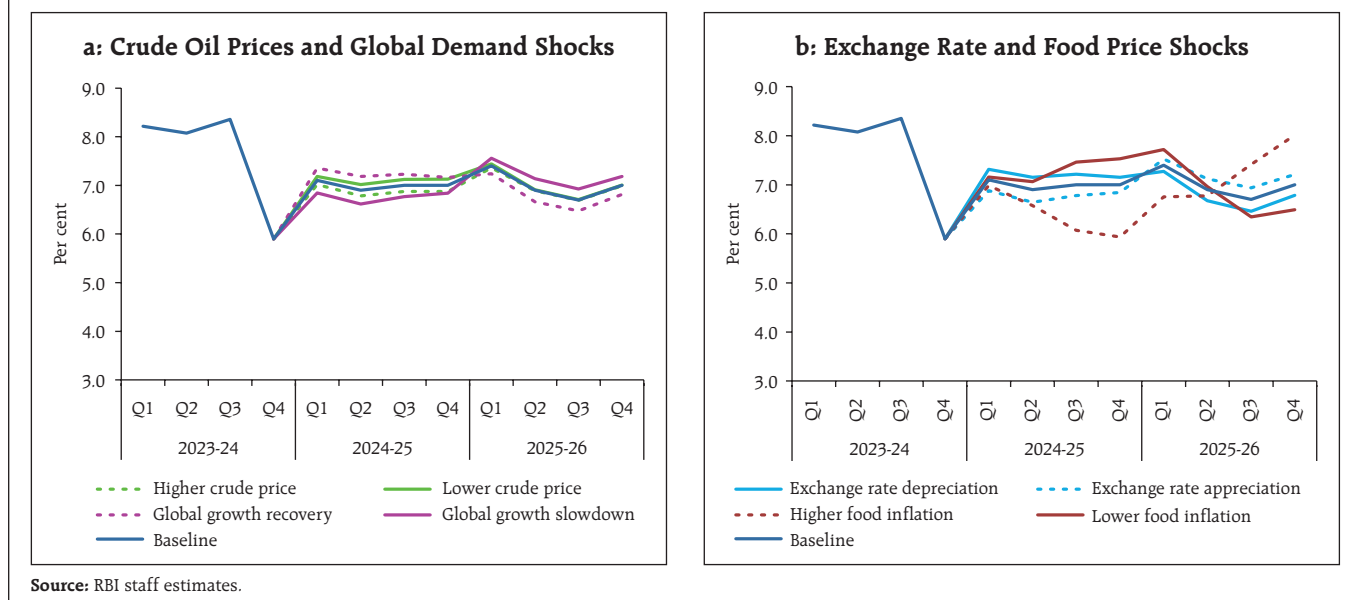
product prices, inflation could ease by around 30 bps with a boost of 15 bps to India's real GDP growth (Charts I.11a and I.12a).

(iii) Exchange Rate

In H2, the Indian Rupee (INR) moved bi-directionally against the US dollar. Looking ahead, a 'higher for longer' interest rate scenario could keep

risk aversion towards EME assets elevated, impinging upon capital flows. Concerns around public debt in EMEs, particularly in those with large foreign currency debt, could induce flight to safety and a broad-based depreciation of EME currencies. Crude oil and other commodity prices could harden over the baseline. Should the INR depreciate by 5 per cent from the baseline assumption, inflation could edge up by

Chart I.12: Impact of Risk Scenarios on the Baseline Growth Path



around 35 bps while GDP growth could be higher by around 25 bps through stimulating exports. On the other hand, the Indian economy remains the fastest growing large economy in the world and is pivotal to the global outlook. Sustained global disinflation and the accompanying scenario of monetary easing in AEs along with the strengthening of domestic macroeconomic fundamentals and the inclusion of government bonds in global indices could enhance India's attractiveness as a destination for foreign investors. In this scenario, if the INR appreciates by 5 per cent relative to the baseline, inflation and GDP growth could moderate by around 35 bps and 25 bps, respectively (Chart I.11b and I.12b).

(iv) Food Inflation

Food inflation exhibited sizeable volatility in H2:2023-24, driven by large shocks to vegetable prices. Erratic rainfall and deficient soil moisture hindered *rabi* sowing, although the effect was uneven across crops and regions. While crops such as wheat,

oilseeds and coarse cereals witnessed an increase in acreage, area sown under pulses declined by over 6 lakh hectares year-on-year. Water reservoir levels have dipped below the decadal average. According to the SAE, production of cereals, pulses and oilseeds in 2023-24 was lower than a year ago. These developments impart uncertainty to the outlook on food prices. The global food price outlook is also subject to significant upside risks from the historically unprecedented heat wave sweeping across the globe. The India Meteorological Department (IMD) has forecast above-normal temperatures and heatwave days during the summer season. Climate change has increased the frequency and ferocity of weather shocks, posing challenges for monetary policy (Box I.2). All these developments could impart upside risk to the domestic food inflation trajectory and could raise headline inflation by around 100 bps over the baseline. On the other hand, ample foodgrains buffer stocks and effective supply management could help

Box I.2: Climate Change and Monetary Policy

Global average temperatures are on a rise, with accompanying increase in extreme weather events (EWE), and the economic and social impact of global warming is becoming increasingly evident. There are different channels through which climate change can affect monetary policy. First, climate change directly impacts inflation through adverse weather events affecting agricultural production and global supply chains. Second, climate change could impact the natural rate of interest due to increasing temperatures and occurrence of EWE undermining productivity and lowering potential output. Thirdly, the after-effects of climate change might weaken the transmission of monetary policy actions to financing conditions faced by households and firms (Schnabel, 2021). For these reasons, central banks are increasingly incorporating climate risks explicitly into their modelling frameworks.

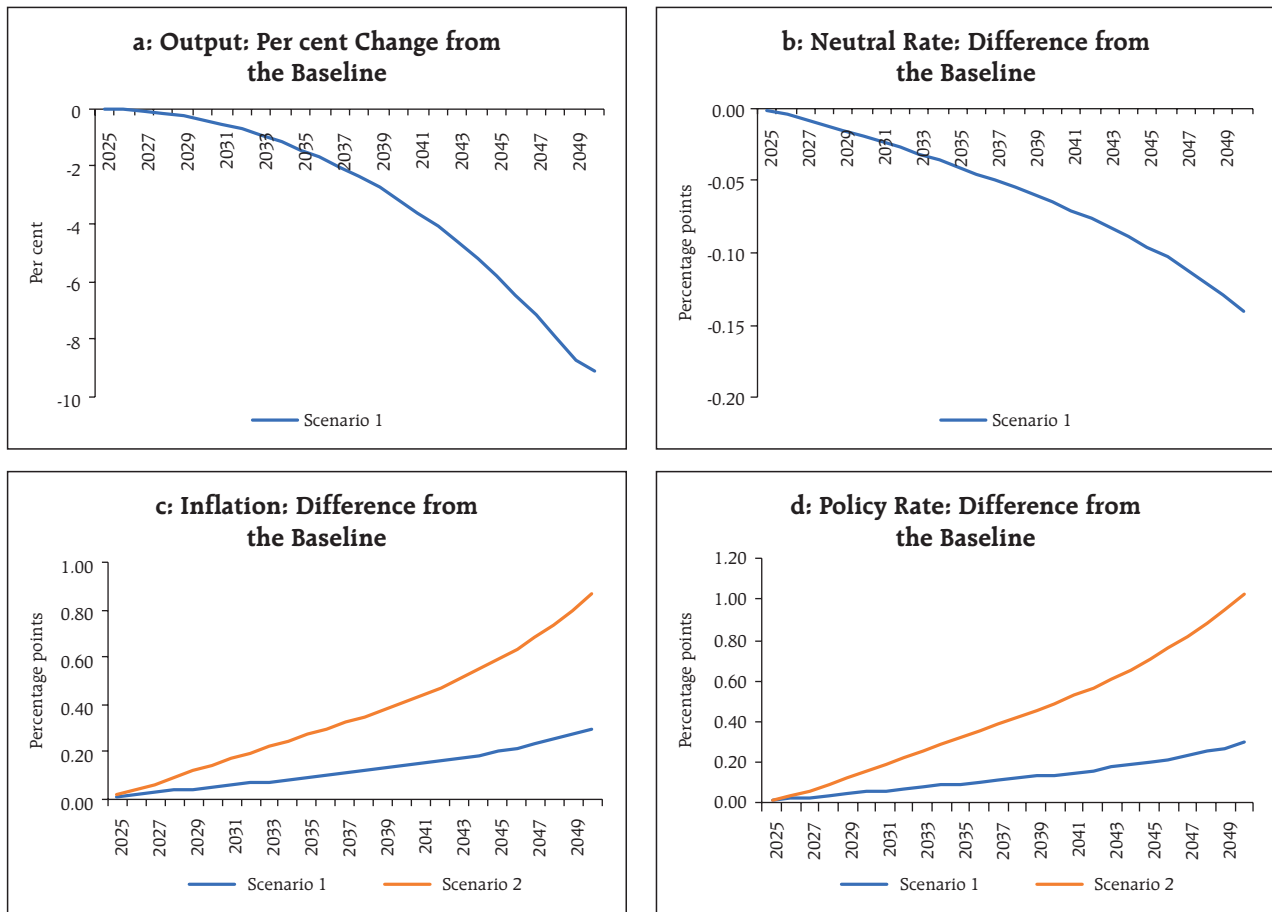
A New-Keynesian model that incorporates a physical climate risk damage function calibrated with aspects of

the National Institute Global Econometric Model (NiGEM) is used to estimate the counterfactual macroeconomic impact of climate change (Scenario 1) *vis-à-vis* a no climate change scenario (Baseline) (RBI, 2023; Dafermos, 2022).

In the absence of any climate mitigation policies, the long-term output will be lower by around 9 per cent by 2050 *vis-à-vis* a no climate change scenario with full pass-through of the physical risks of climate change to the economy. Both inflation and its volatility may increase over time (RBI, 2023). Lower productivity may lead to a fall in the natural rate of interest. Frequent shocks to inflation will, however, necessitate tighter monetary policy even with a lower natural rate of interest (Chart I.2.1). Furthermore, if inflation hysteresis gets entrenched, it may lead to de-anchoring of inflation expectations. The undermining of the central bank's credibility would warrant even higher interest rates to rein in inflation, entailing greater loss of output (Scenario 2, Chart I.2.1).

(Contd.)

Chart I.2.1: Impact of Physical Risks of Climate Change



Source: RBI staff estimates (2023).

References:

Dafermos, Y (2022), Monetary policy and the macroeconomic modelling of climate change, ASEAN Core Curriculum on Climate Risk Resilience/Sustainable Finance.
 RBI, (2023), Chapter II: Macroeconomic Effects of Climate Change in India, *Report of Currency and Finance*.
 Schnabel, I. (2021), Central banks must do their part in fighting global warming, available at <https://www.imf.org/en/Publications/fandd/issues/2021/09/isabel-schnabel-ECB-climate-change>

ease food inflationary pressures and pull headline inflation 50 bps below the baseline.

1.5 Conclusion

Amidst global challenges, the Indian economy has stayed resilient. Buoyed by strong domestic demand and backed by robust macroeconomic fundamentals, India has emerged as the fastest growing major economy of the world in 2023-24. The upturn in the investment cycle, broad-based revival in manufacturing and services sectors, government's

capex push, upbeat business and consumer sentiments and strong corporate and bank balance sheets provide impetus to the growth momentum going forward. Volatile food prices, however, interrupt the path of disinflation and cloud the inflation outlook. The continuing effect of monetary policy action and stance is keeping core inflation muted. Spillovers from geopolitical hostilities, volatile global financial markets and climate shocks are the key risks to the growth and inflation outlook.

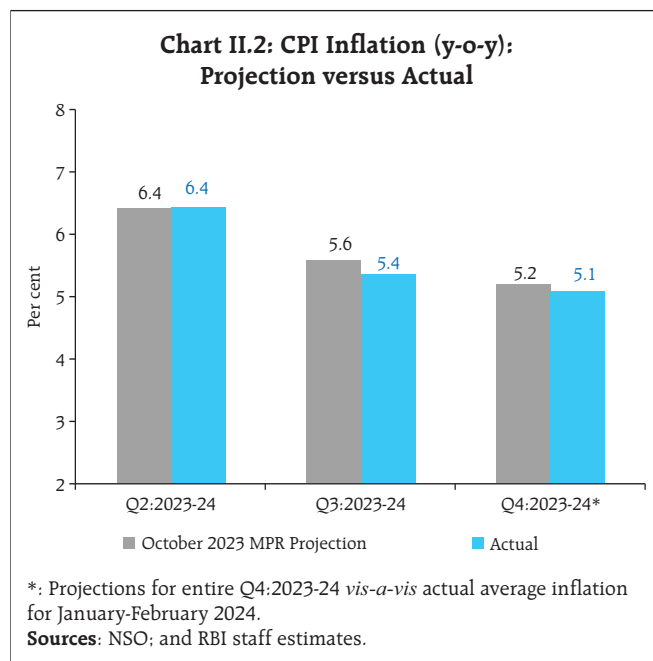
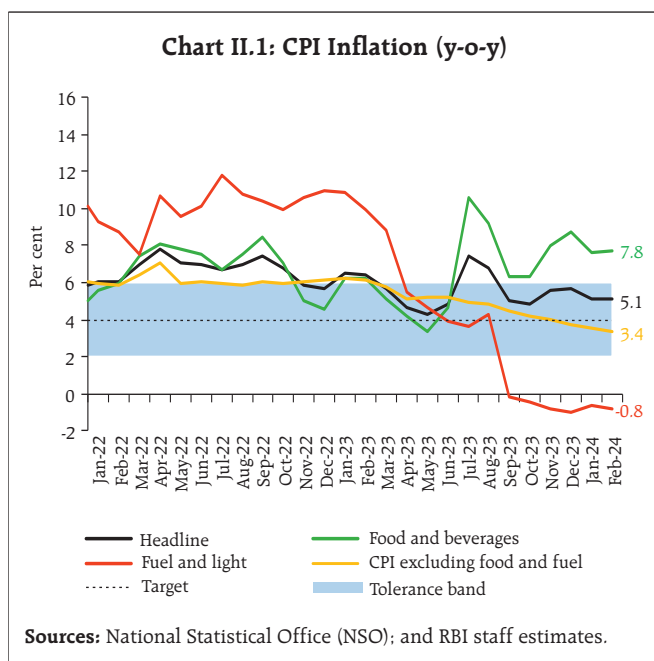
II. Prices and Costs

Headline inflation has been on a moderating path during H2:2023-24 with resurgences in food price pressures interrupting the descent, even as core inflation softened across its goods and services components. Industrial and farm input price pressures remain muted, and nominal rural and organised sector wage growth stays steady. Going forward, the risks to the 'last mile' of disinflation process may emanate from incidence of unpredictable supply side shocks.

Since August 2023, headline consumer price index (CPI) inflation¹ has been on a moderating trajectory, troughing at 4.9 per cent in October 2023. A resurgence of food price pressures pushed it up to 5.7 per cent in December, despite steady core (CPI excluding food and fuel)² disinflation and a deepening fuel price deflation. In January-February 2024, headline inflation eased to 5.1 per cent, with both food and core inflation easing and fuel prices remaining in deflation (Chart II.1). Notwithstanding the moderation, food inflation

remained elevated. The softening of core inflation to 3.4 per cent in February, among the lowest prints in the current CPI series (2012=100), was broad based across its goods and services components.

The Reserve Bank of India (RBI) Act enjoins the RBI to set out deviations of actual inflation outcomes from projections, if any, and explain the underlying reasons thereof. The October 2023 MPR had projected inflation to edge down to 5.6 per cent in Q3:2023-24 and further to 5.2 per cent in Q4 (Chart II.2). Actual inflation at 5.4 per cent in Q3 and at 5.1 per cent in Q4 (January-February 2024) was lower than the projections by 20 basis points (bps) and 10 bps, respectively. The undershooting of inflation came about from food as well as core components. Proactive supply side interventions helped to contain the build-up of price pressures, especially in respect of onions, cereals and pulses. In the core component, the softening of services inflation, particularly under housing, turned out to be sharper than anticipated.



¹ Headline inflation is measured by year-on-year (y-o-y) changes in the all-India consumer price index (CPI) produced by the National Statistical Office (NSO).

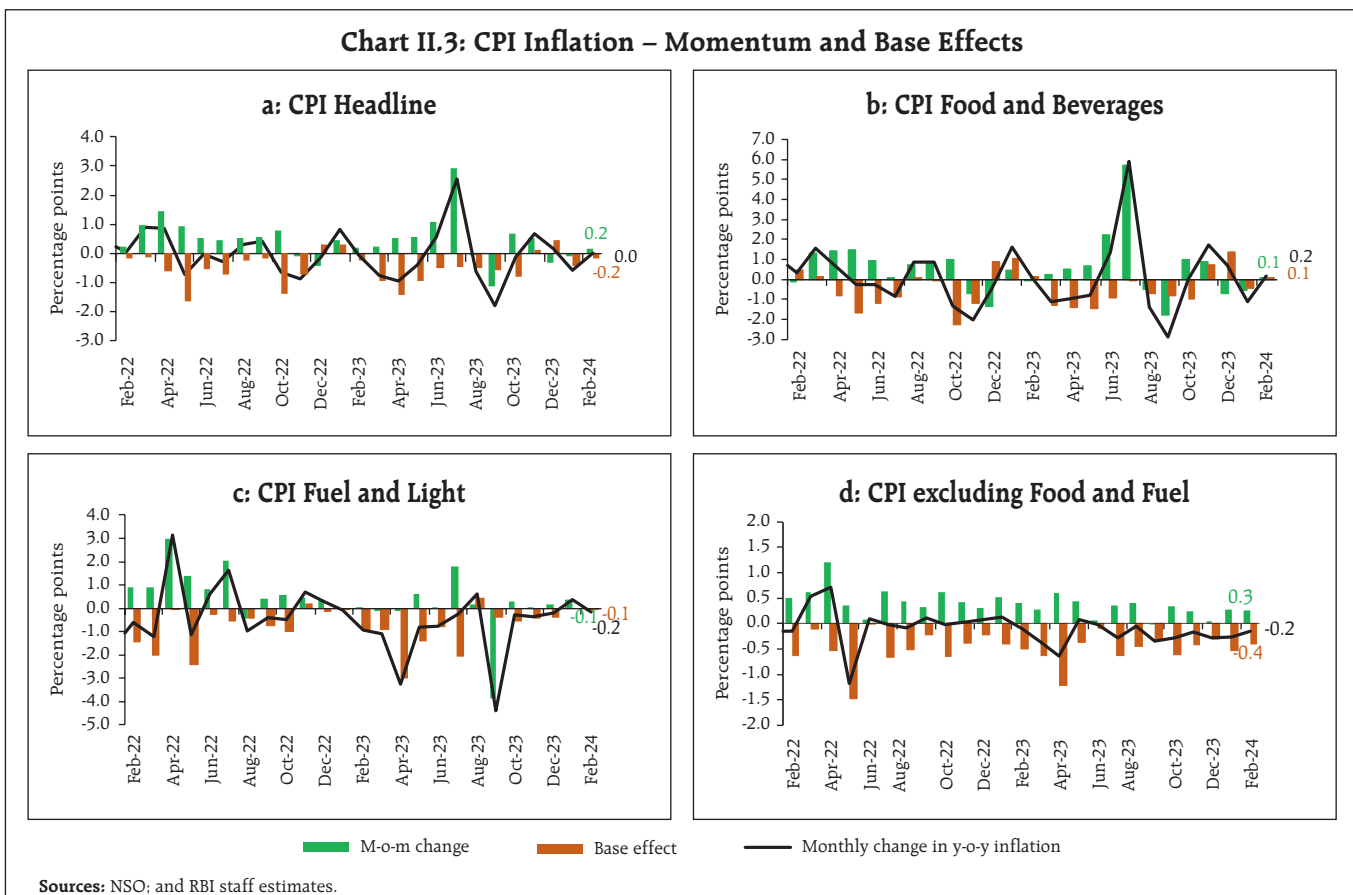
² Core CPI, i.e., CPI excluding food and fuel is worked out by eliminating the groups 'food and beverages' and 'fuel and light' from the headline CPI.

II.1 Consumer Prices

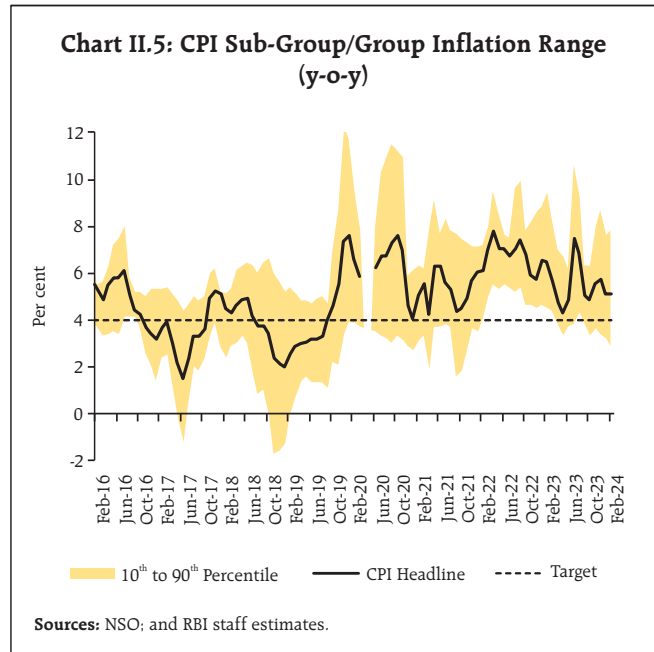
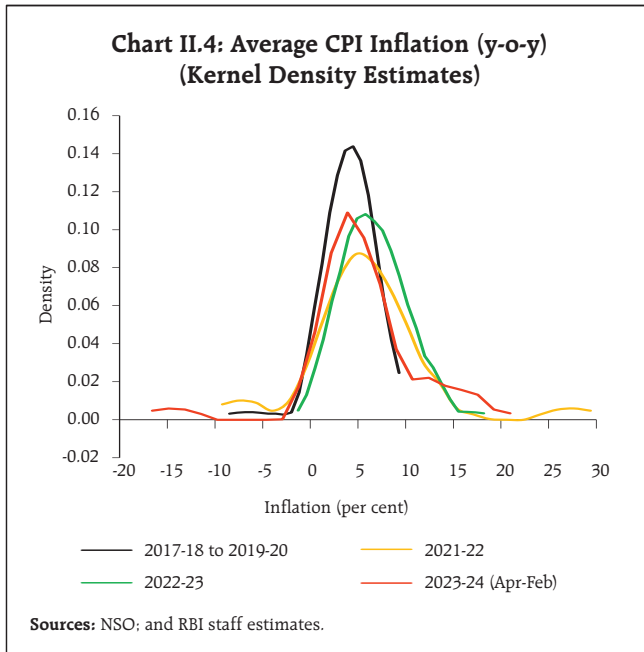
Headline inflation dynamics in H2:2023-24 were broadly shaped by the interplay between volatile food price momentum and base effects³. Favourable base effects and sharp negative price momentum – from a part reversal of the spike in vegetable prices in July, sharp decline in LPG prices and muted rise in core CPI prices – pulled down headline inflation from 6.8 per cent in August to 5.0 per cent in September. Thereafter, by November, headline inflation edged up on a significant pick-up in food price momentum and unfavourable base effects. Although the momentum turned negative in December, a strong unfavourable base effect, primarily from the food group, pushed up headline inflation further to 5.7 per cent. In January 2024, the decline in momentum, driven by

correction in food prices along with favourable base effects, led to a softening of headline inflation to 5.1 per cent. It remained steady in February as a positive price momentum in food and core was evened out by favourable base effects from fuel and core groups (Chart II.3).

A comparison of the distribution of CPI inflation in 2023-24 *vis-à-vis* 2022-23 indicates that a fall in the mean of the distribution to 5.4 per cent in 2023-24 (April-February) from 6.8 per cent in the corresponding period of 2022-23 coexisted with a marked increase in its standard deviation (Chart II.4). Furthermore, inflation variability across CPI remained high in H2 of 2023-24 (Chart II.5), attesting to the lingering impact of overlapping supply side shocks on the inflation formation process.

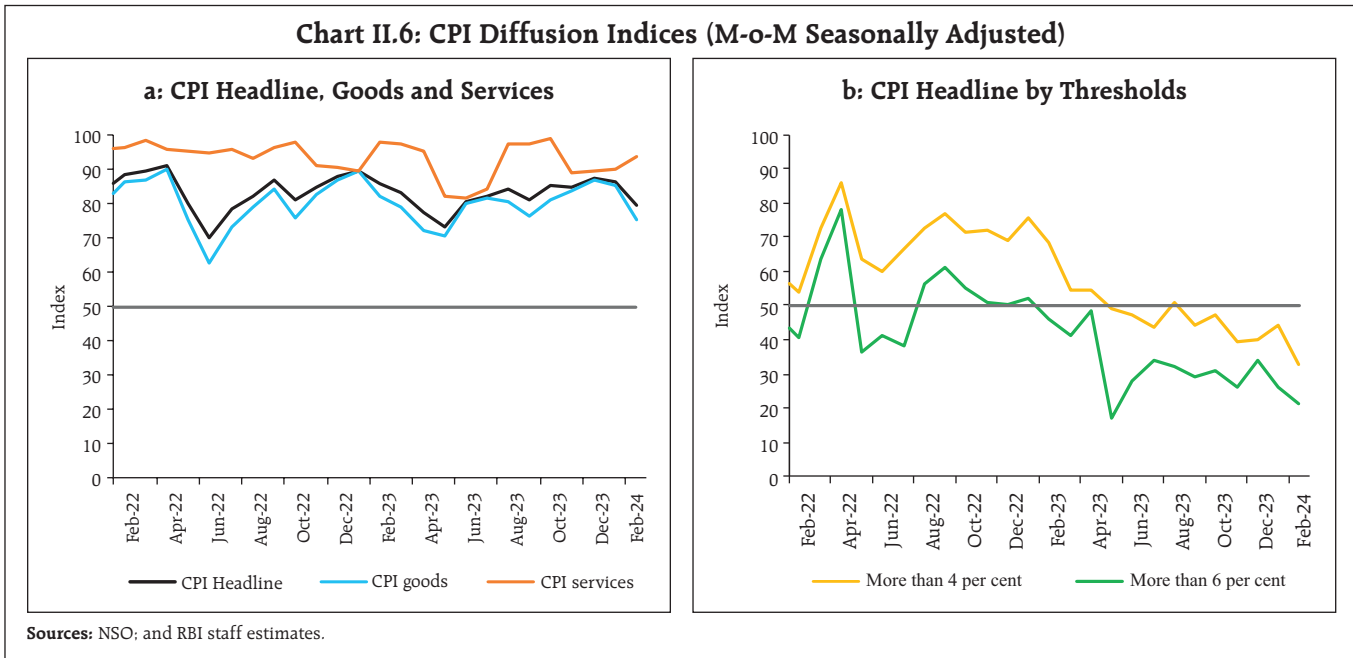


³ A change in CPI year-on-year (y-o-y) inflation between any two months is the difference between the current month-on-month (m-o-m) change in the price index (momentum) and the m-o-m change in the price index 12 months earlier (base effect). For more details, see Box I.1 of the MPR, September 2014.



Headline CPI diffusion indices (DIs)⁴ remained elevated since August 2023, driven largely by CPI goods, with some moderation observed in February 2024. DI for CPI services corrected during November-December, but it registered a pick-up in January-

February (Chart II.6a). Even as CPI DIs remained in the expansionary zone, threshold DI⁵ – for price increases in excess of 4 per cent as well as 6 per cent on a seasonally adjusted annualised rate (saar) basis – slipped further into the contractionary zone in



⁴ The CPI diffusion index, a measure of dispersion of price changes, categorises items in the CPI basket according to whether their prices have risen, remained stagnant or fallen over the previous month. The higher the reading above 50, the broader is the expansion or generalisation of price increases; the further is the reading below 50, the broader is the price decline across items.

⁵ Threshold diffusion indices capture the dispersion of price increases in CPI basket beyond the specified saar thresholds of 4 per cent and 6 per cent.

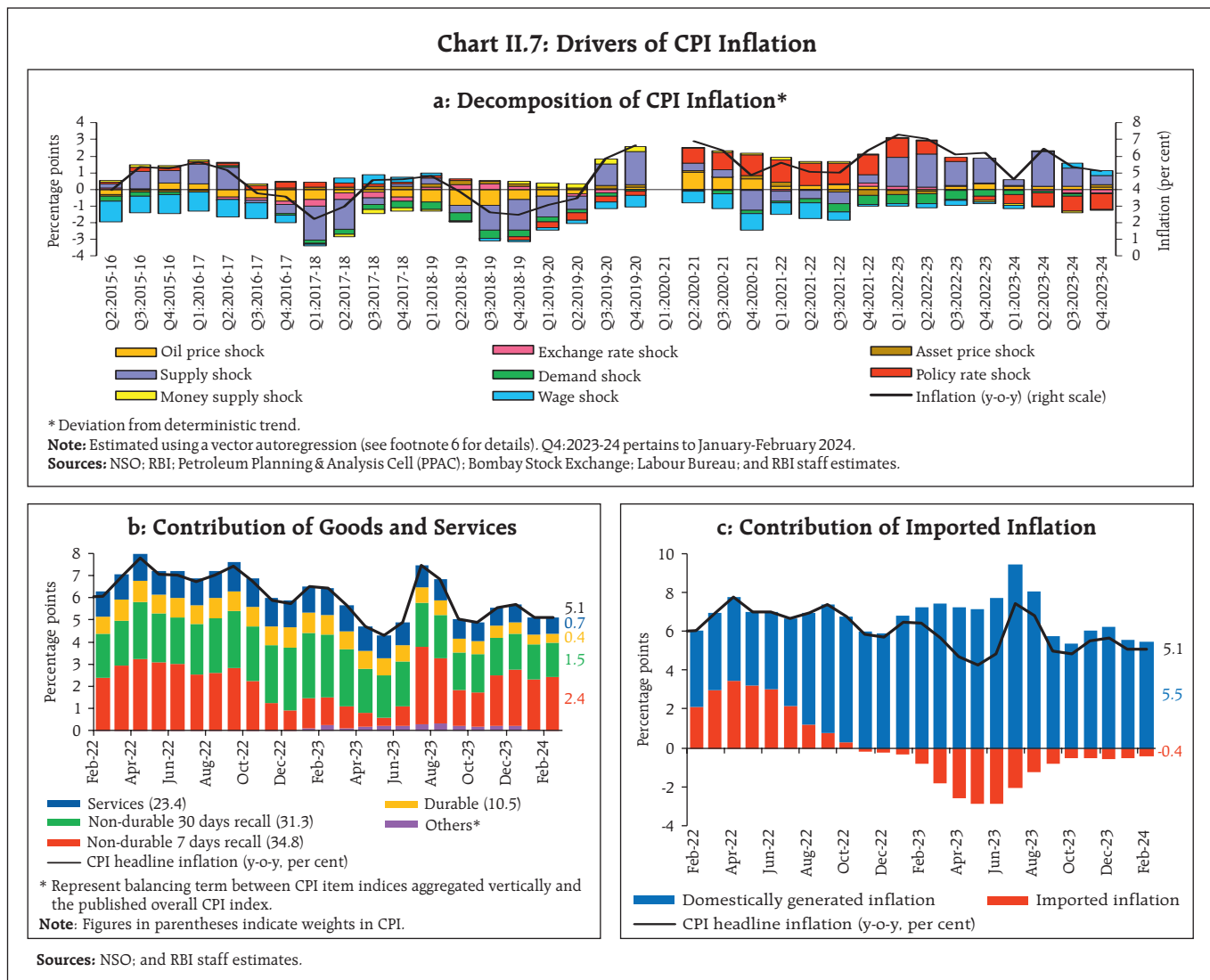
H2:2023-24, indicating that a generalised and durable disinflation is underway in 2023-24 so far (Chart II.6b).

the transmission of past monetary policy actions (Chart II.7a).

II.2 Drivers of Inflation

A historical decomposition of inflation using a vector autoregression (VAR)⁶ model indicates that the moderation in inflation in Q3:2023-24 and Q4 came from weakening of supply side shocks, especially in food prices from a spike in Q2, and from

Price inflation in goods (with a weight of 76.6 per cent in overall CPI) contributed to around 80 per cent of headline inflation during August-December 2023 and services (with a weight of 23.4 per cent) contributed the remaining 20 per cent. By February 2024, the contribution of goods to overall inflation



⁶ Historical decomposition estimates the contribution of each shock to the movements in inflation over the sample period (Q4:2010-11 to Q4:2023-24) based on a vector autoregression (VAR) with the following variables (represented as the vector Y_t) – crude oil prices (US\$ per barrel); exchange rate (INR per US\$), asset price (BSE Sensex), CPI; the output gap; rural wages; the policy repo rate; and money supply (M_3). All variables other than policy repo rate are y-o-y growth rates. The VAR can be written in reduced form as: $Y_t = c + A Y_{t-1} + e_t$ where e_t represents a vector of shocks. Using Wold decomposition, Y_t can be represented as a function of its deterministic trend and sum of all the shocks e_t . This formulation facilitates decomposition of the deviation of inflation from its deterministic trend into the sum of contributions from various shocks.

rose to around 86 per cent (Chart II.7b). Perishable items (non-durable with a 7-day recall⁷), which include vegetables, spices, fruits and other food items such as milk, meat and fish and prepared meals, contributed most to goods inflation variability. Among semi-perishables (non-durable goods with a 30-day recall), cereals, pulses, electricity, personal care items (like toiletries) and medicines were the main drivers of inflation. Broadly, the contribution of durables (goods with a 365-day recall) like clothing and footwear items,

motorcycles/scooters and household goods (furniture and electronic items) to overall inflation came down from around 12 per cent during September-November 2023 to around 8 per cent in February 2024. Analysis of price setting behaviour suggests that after adjusting for idiosyncratic item-specific price shocks, economy wide price shocks tend to lead to more frequent change in food prices. Core prices tend to be stickier (Box II.1).

Box II.1: Sticky and Flexible Prices

The extent of price stickiness or the degree of responsiveness of retail prices to changing market conditions has a considerable bearing on persistence observed in the inflation process and the impact of monetary policy actions on macroeconomic variables. Price stickiness in CPI item level data for the period Jan-2014 to Jan-2024 is analysed based on the indirect frequency approach (Banerjee and Bhattacharya, 2017)⁸.

After controlling for idiosyncratic price shocks⁹ that is specific to each item in CPI basket, the results indicate that the probability of price changes in food and core (CPI excluding food and fuel) in a month from economy-wide aggregate shocks is 24 per cent and 20 per cent, respectively. In terms of duration of price spell, economy wide shocks could translate to price changes, on an

average, every 3.9 months for CPI food and 5.6 months for CPI core items (Table II.1.1), with the average size of price changes being higher in case of food. A statistically significant positive correlation between frequency and size of price change (0.46) indicates that exogenous price shocks often trigger corresponding price adjustments.

Table II.1.1: CPI Price Stickiness[#] – Stylised Facts

CPI Groups	Probability of price change in a month	Duration of price stickiness (in months)	Average size of price change (per cent)
CPI Food	0.24	3.88	0.50
CPI Fuel	0.18	5.74	0.47
CPI Core (CPI excl. food & fuel)	0.20	5.55	0.40

[#]: Controlling for idiosyncratic price shocks

Source: RBI staff estimates.

(Contd.)

⁷ The CPI weighting diagrams use the modified mixed reference period (MMRP) data based on the 2011-12 Consumer Expenditure Survey conducted by the National Sample Survey Office (NSSO). Under MMRP, data are collected on expenditures incurred for frequently purchased items – edible oil, eggs, fish, meat, vegetables, fruits, spices, beverages, processed foods, pan, tobacco and intoxicants – during the last seven days; for clothing, bedding, footwear, education, medical (institutional), durable goods, during the last 365 days; and for all other food, fuel and light, miscellaneous goods and services including non-institutional medical services, rents and taxes, data relate to the last 30 days.

⁸ The indirect frequency approach relies on the following indicator function:

$$I_{it} = 1 \text{ if } p_{it} \neq p_{it-1};$$

$$= 0 \text{ if } p_{it} = p_{it-1};$$

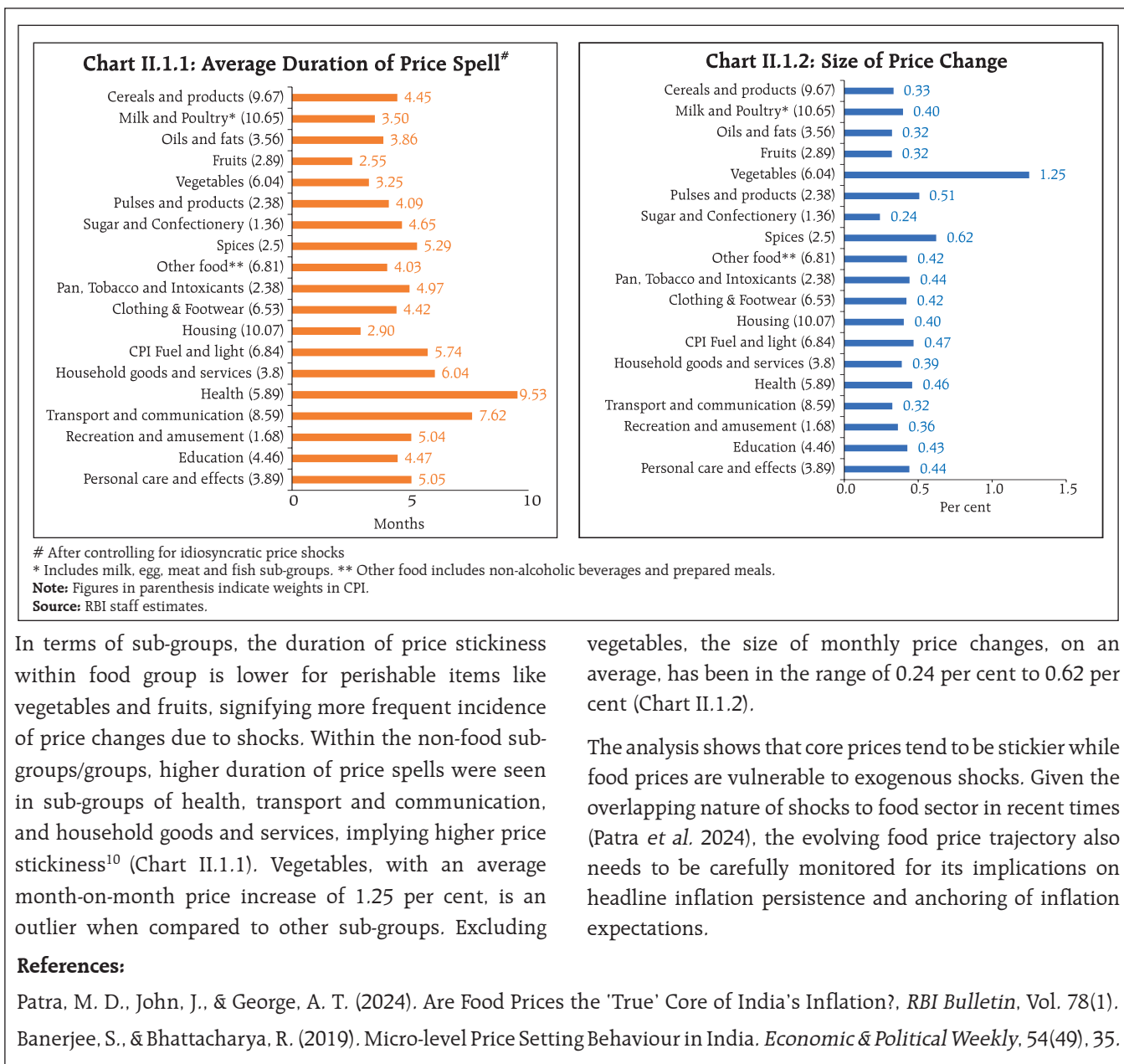
where, $i = 1, 2, \dots, k$ (where k is the number of items in CPI), $t = 1, 2, \dots, n$ (where n is the number of periods), and p_{it} is the CPI index for item i in time t . The average frequency of price change (I_i) and implied duration of price spell (D_i) is calculated for each item in CPI basket as follows:

$$I_i = \frac{1}{n} \sum_{t=1}^n I_{it} \quad \forall i = 1, 2, \dots, k$$

$$D_i = - \left[\frac{1}{\{\ln(1 - I_i)\}} \right] \quad \forall i = 1, 2, \dots, k$$

The I_i and D_i for various CPI sub-groups/groups are obtained as a weighted average of CPI items.

⁹ Item specific price shocks greater than one standard deviation were considered for computing frequency and duration as price changes less than one standard deviation could largely reflect idiosyncratic factors specific to individual items.



With the gradual moderation in international commodity prices since September 2022, the contribution of imported components¹¹ to headline inflation turned negative from the end of 2022, driven

¹⁰ The low duration for CPI housing could be on account of staggered house rent data collection over six months among the sampled units under the Repeat House Rent Survey procedure used for compiling the house rent index.

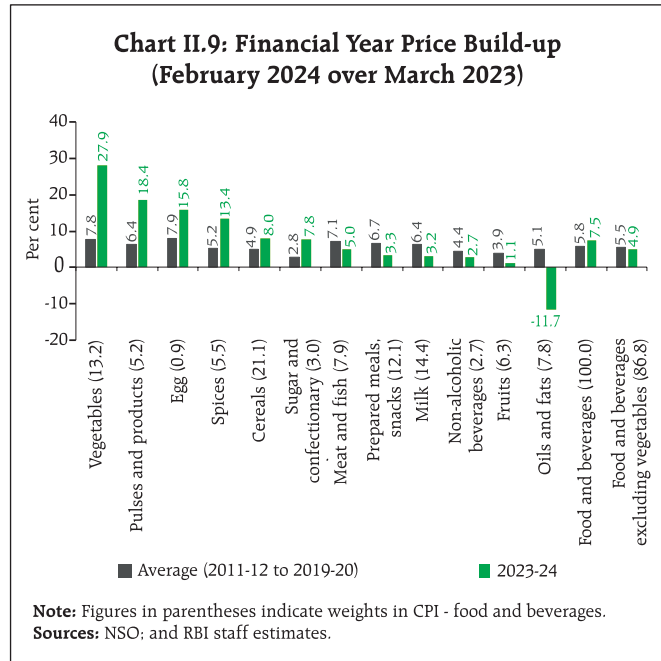
¹¹ Global commodities that drive domestic prices include petroleum products, coal, electronic goods, gold, silver, chemical products, metal products, textiles, cereals, milk products, and vegetables oils – these together have a weight of 36.4 per cent in the CPI basket.

by y-o-y decline in the prices of edible oils, energy, electronic goods parts and polymer (Chart II.7c). Deflation in international commodity prices of precious metals (gold; silver), energy (LPG; crude oil), palm kernel, electronic goods parts and polymer prices abated since July 2023; as a result, the contribution of imported inflation in pulling down headline inflation lessened to (-)0.5 percentage points in October 2023 from (-)2.9 percentage points in June 2023, and broadly remained stable thereafter.

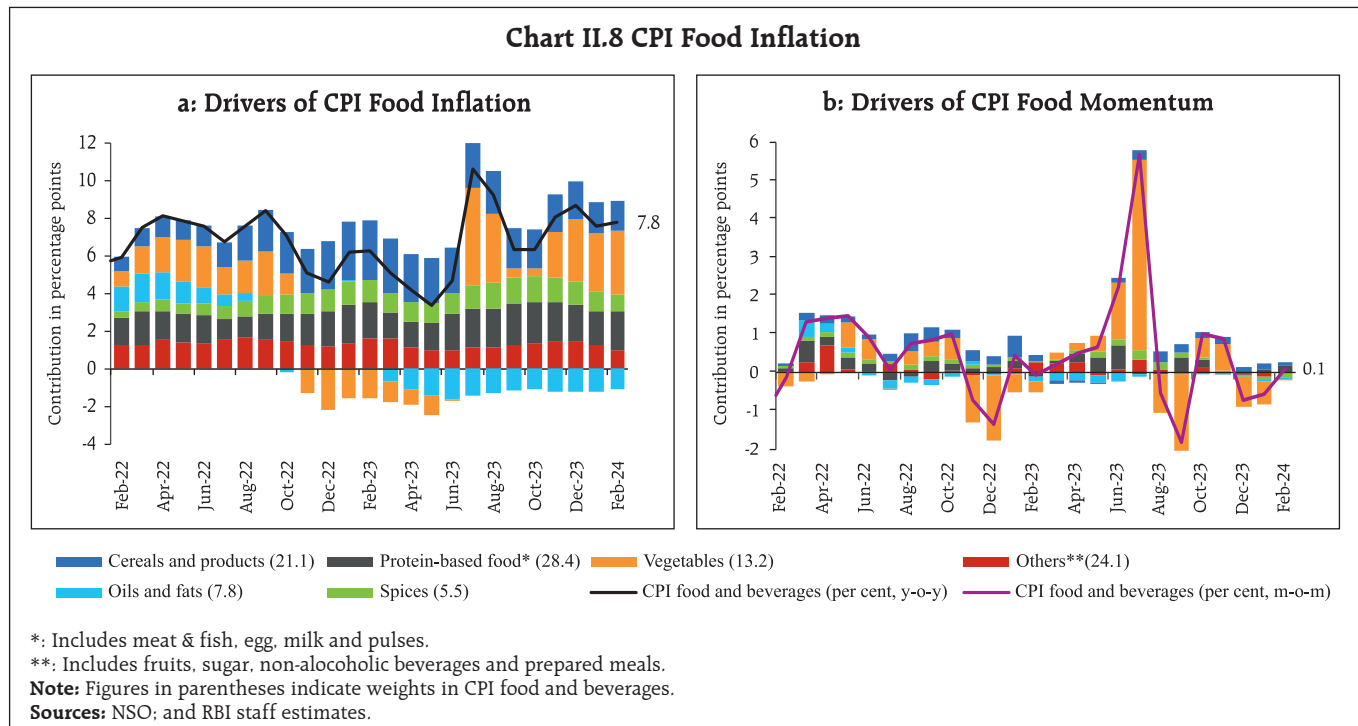
CPI Food Group

Food and beverages (weight of 45.9 per cent in the CPI basket) inflation, which increased sharply in July-August 2023 due to a spike in vegetables prices caused by excess rainfall/floods and supply disruptions, moderated in September-October with the normalisation of supply chains and fresh crop arrivals. The softening was short-lived, however, and food inflation picked up again in November-December and remained elevated at 7.8 per cent in February 2024, primarily driven by increase in inflation of vegetables, pulses, as well as from an uptick in egg, meat and fish inflation in February. Food inflation excluding vegetables, however, moderated from 6.8 per cent in September 2023 to 4.9 per cent in February 2024, on the back of easing of inflation in cereals, milk, spices and prepared meals. Oils and fats sub-group has been in deflation since February 2023 (Chart II.8).

Though vegetable prices dominated the overall food price build-up during 2023-24 so far, pulses, eggs, spices, cereals and sugar also registered substantial price increases, much higher than historical patterns.



This was, however, offset by meat and fish, prepared meals, milk, non-alcoholic beverages and fruits which experienced lower price build-up this year than their pre-COVID long-term averages. Moreover, oils and fats registered significant price decline. As a result, price build-up in food excluding vegetables was lower than that in the pre-COVID period (Chart II.9).



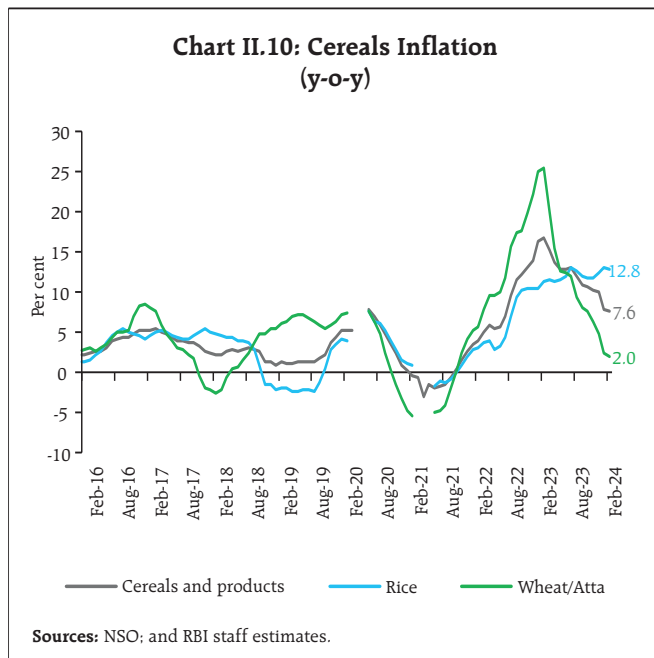
The relatively shallower winter easing in vegetables prices during November 2023-February 2024 was primarily driven by lower market arrivals due to unseasonal rainfall in some parts of the country; above-normal temperatures owing to prevailing *El Niño* conditions turning unfavourable for winter crop yields; lower production of some vegetables like garlic; and higher demand during the festival season. Moreover, deficient production in *kharif* pulses [(-) 6.6 per cent as per the second advance estimates (SAE) of 2023-24 over final estimates (FE) of 2022-23] on top of a decline in year-on-year (y-o-y) production in 2022-23 contributed to the hardening of inflation in pulses. The observed price pressures in the food and beverages group, however, was not broad-based as inflation remained below 4 per cent for items weighing almost 50 per cent in the food basket in February 2024.

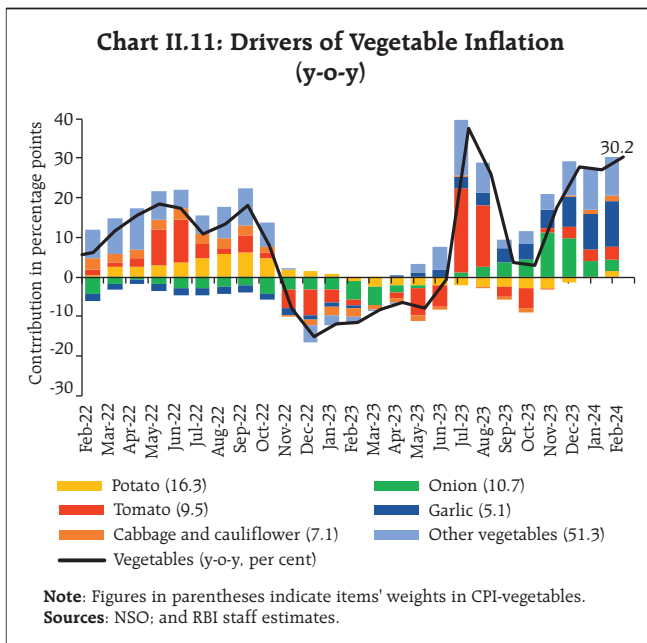
Inflation in cereals (weight of 9.7 per cent in the CPI and 21.1 per cent in the food and beverages group) moderated from 10.9 per cent in September 2023 to 7.6 per cent in February 2024 (Chart II.10). While rice prices, on a y-o-y basis, remained in double digits, prices of wheat (y-o-y) witnessed a sustained

moderation since March 2023. Rice prices (y-o-y) were elevated as supply conditions remained tight despite restrictions on rice exports due to lower production [(-) 1.4 per cent based on the SAE of 2023-24 over FE of 2022-23]. Comfortable buffer stocks of rice (7.6 times the norm as of March 16, 2024) along with price stabilisation measures, including extension of 20 per cent duty on exports of parboiled rice; fixing the minimum export prices (MEP) of basmati rice at US\$ 950 per tonne; increased offloading under the Open Market Sale Scheme (OMSS); and a targeted sale of newly launched 'Bharat Rice' at a fixed price (₹29 per kg) are likely to improve domestic availability and enable ebbing of price pressures in the medium term. In the case of wheat, price stabilisation measures including tightening of stock limits with respect to traders/wholesalers and retailers; the increased offloading of stocks under the OMSS; the sale of newly launched 'Bharat Atta' at a fixed retail price (₹27.5 per kg); and the ban/restriction on wheat exports since May 2022 helped contain inflation. The hike in the minimum support price (MSP) of wheat by 7.1 per cent in the *rabi* marketing season (RMS) of 2024-25 and an improved acreage by 1.2 per cent in the 2023-24 *rabi* season augurs well for higher wheat production and domestic supply. The SAE of 2023-24 indicates an increase in production of wheat by 1.3 per cent over the FE of 2022-23.

Vegetables (weight of 6.0 per cent in the CPI and 13.2 per cent in the food and beverages group) price inflation moderated in September-October 2023 but increased in November 2023-February 2024 due to less than usual winter easing in prices, above-normal temperatures, and cold waves in some parts of northern India (Chart II.11).

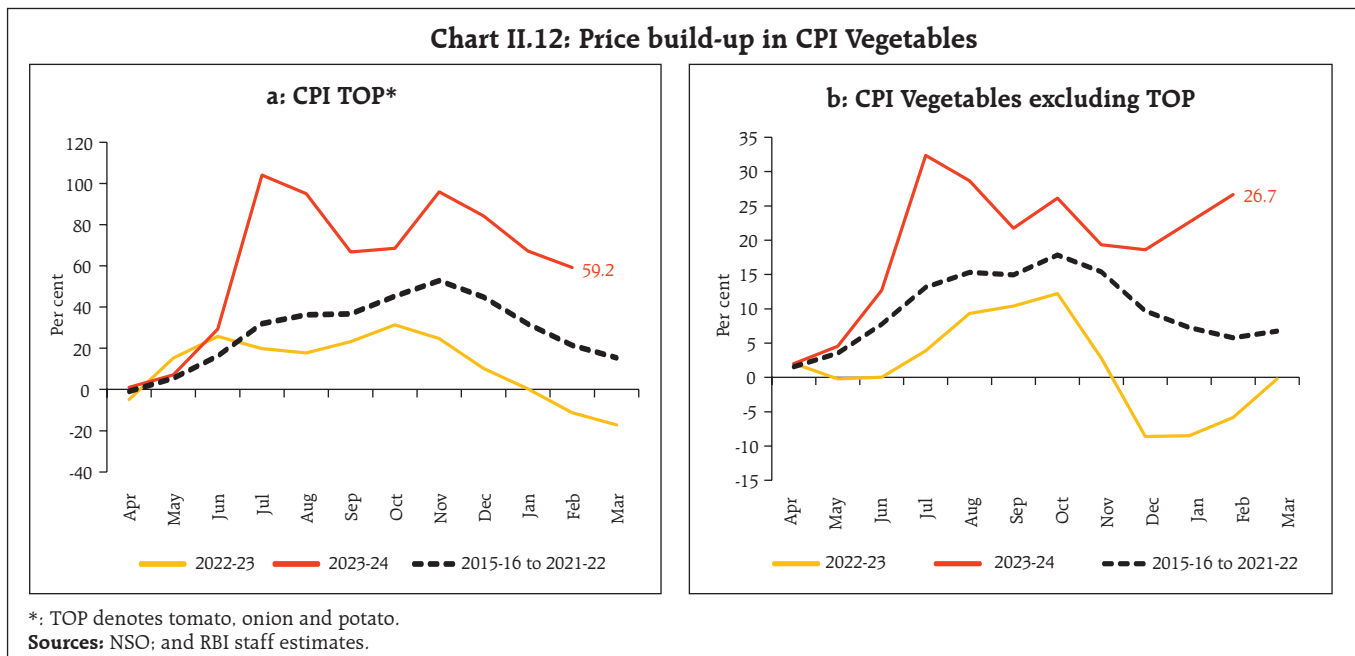
Among key vegetables, onion prices increased sharply in November 2023 with a y-o-y inflation of 86.3 per cent driven by lower *kharif* acreage and fall in production [(-)15.7 per cent in 2023-24 as per the first advance estimates (FAE) over FE of 2022-23] due to erratic rainfall, on top of a production shortfall





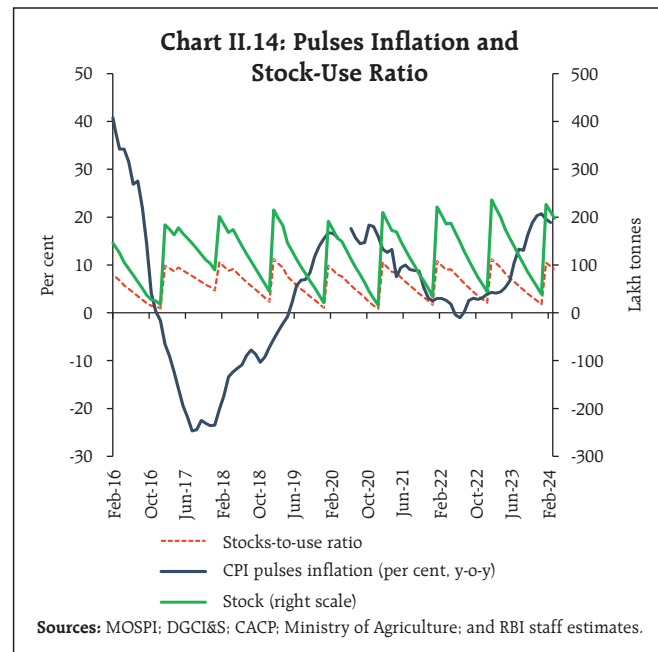
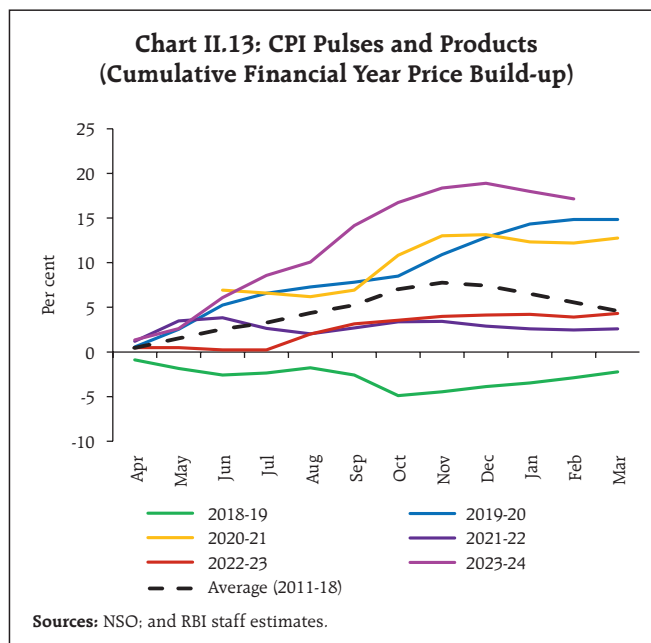
after the surge in July-August due to floods and supply bottlenecks in some parts of the country. Inflationary pressures, however, recurred in November due to unseasonal rainfall which damaged crops. Potato prices, however, remained in deflation since February 2023 till January 2024 on account of higher production last year (an increase of 7.1 per cent in 2022-23 over FE of 2021-22). Production in 2023-24 experienced some shortfall [(-)1.9 per cent in 2023-24 as per the FAE over FE of 2022-23]. Potato prices increased in February, on a y-o-y basis, primarily due to an adverse base effect. Vegetables excluding TOP (tomato; onion; and potato) category like garlic, cauliflower and cabbage also witnessed lower than usual price correction during November 2023-February 2024, thereby emerging as major drivers of vegetables inflation (Chart II.11). More specifically, the lower production of garlic [(-) 0.8 per cent in 2023-24 as per the FAE over 2022-23 on top of (-) 8.1 per cent in 2022-23 over 2021-22] resulted in sustained price pressures leading to triple digit inflation since September 2023 – reaching 264.3 per cent in February 2024. As a result, vegetable price build-ups across TOP and non-TOP categories turned out to be much larger than usual in the financial year so far (Chart II.12).

in the previous year. Onion prices fell in December 2023-February 2024 as price stabilisation measures such as imposition of 40 per cent export duty, followed by prohibition of exports, increased procurement, and offloading of onions at a fixed retail price (₹25 per kg) from select outlets helped improve domestic availability and contain price pressures. Tomato prices recorded y-o-y deflation in September-October 2023



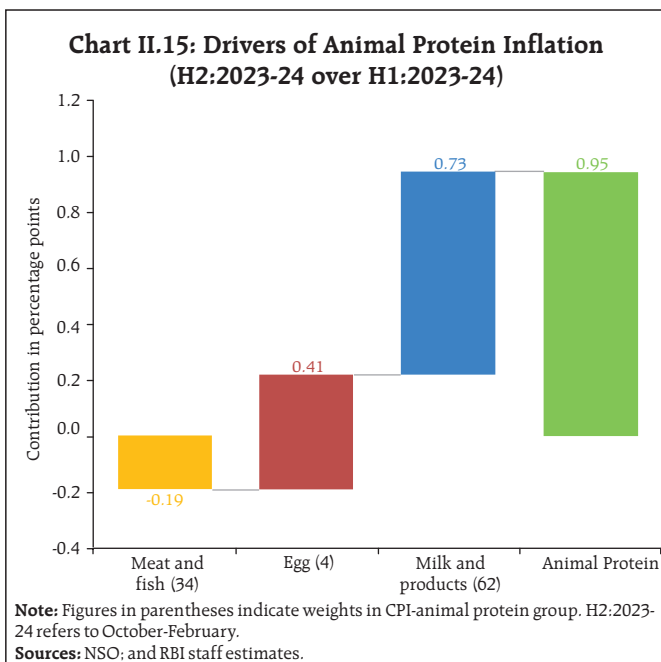
Inflation in fruits (weight of 2.9 per cent in the CPI and 6.3 per cent within the food and beverages group), recorded a sustained increase since June 2023, peaking at 11.1 per cent in December 2023 before moderating to 4.8 per cent in February 2024. Elevated inflation in fruits, despite higher production (1.7 per cent in 2023-24 as per the FAE over FE of 2022-23), was driven primarily by apple due to lower than usual correction in its prices in November 2023-February 2024. Inflation in groundnut prices also remained in double digits during July-December 2023 on account of lower production.

The primary source of plant-based protein *i.e.*, pulses (weight of 2.4 per cent in the CPI and 5.2 per cent in the food and beverages group) recorded a sharp increase in prices. Double digit inflation since June 2023 was primarily driven by lower production of *tur* [(-) 21.5 per cent in 2022-23 over 2021-22 and an increase of only 0.8 per cent in 2023-24 as per the SAE over 2022-23], *urad* [(-) 5.2 per cent in 2022-23 over 2021-22 and (-) 14.4 per cent in 2023-24 as per the SAE of 2023-24 over 2022-23] and *moong* [(-) 17.6 per cent in 2023-24 as per the SAE of 2023-24 over 2022-23] (Chart II.13). The knock-on effect of lower production



is also reflected in lower stock-to-use ratio (Chart II.14). Price pressures in pulses eased marginally and inflation moderated to 18.9 per cent in February 2024 following supply-side measures including extension of 'free' import policy for *urad* and *tur* till March 31, 2025; removal of minimum import price restrictions on yellow peas till March 2024 and sale of subsidised *chana dal* under the brand 'Bharat Dal'.

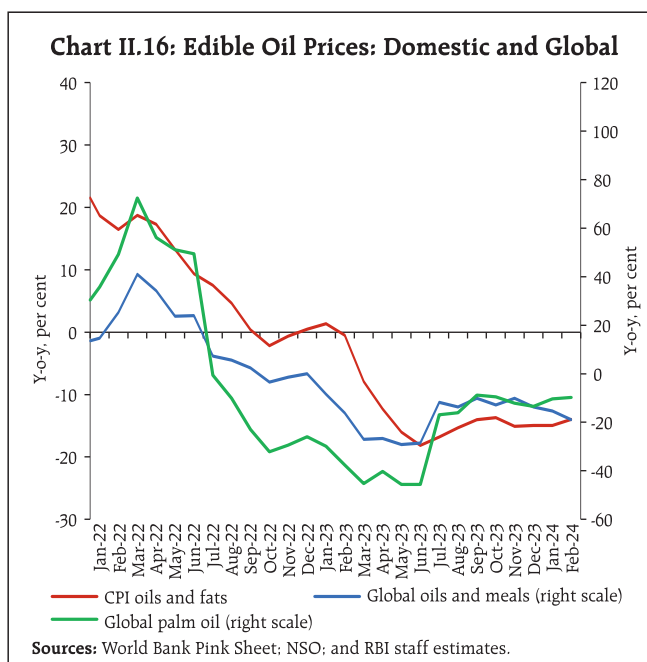
Prices of animal-based protein items increased marginally during October 2023-February 2024 as increase in prices of milk and products (weight of 6.6 per cent in the CPI and 14.4 per cent within the food and beverages group) and eggs (weight of 4.0 per cent within the group) were partially offset by moderation in meat and fish (weight of 3.6 per cent in CPI and 7.9 per cent within the food and beverages group) prices (Chart II.15). Inflation in prices of milk and products has consistently moderated since its 9-year peak of 9.6 per cent in February 2023 on the back of higher milk production as well as easing feed and fodder costs. Prices of eggs, however, have exhibited high momentum since September 2023 reflecting seasonal demand and higher exports. On the other hand, prices



of meat and fish eased more than usual in the second half of 2023-24 due to higher production against lower than anticipated demand. In February 2024, however, inflation in meat and fish picked up sharply due to lower supply of broiler on account of bird flu in Andhra Pradesh as well as adverse base effects.

Prices of oils and fats (weight of 3.6 per cent in the CPI and 7.8 per cent within the food and beverages group) remained in deflation throughout 2023-24 (April-February) due to lower international prices and higher domestic production of oilseeds during the 2022-23 season (8.9 per cent in 2022-23 over FE of 2021-22) (Chart II.16). Extension of lower import duty on crude palm, sunflower and soyabean oil till March 2025 is likely to keep inflation low despite an estimated shortfall in oilseeds production [(-) 9.2 per cent in 2023-24 as per the SAE of 2023-24 over FE of 2022-23]. Ghee and butter price inflation moderated, reflecting pass-through of easing milk price inflation and favourable base effect.

Inflation in prices of sugar and confectionery (weight of 1.4 per cent in the CPI and 3.0 per cent in the food and beverages group) hardened during



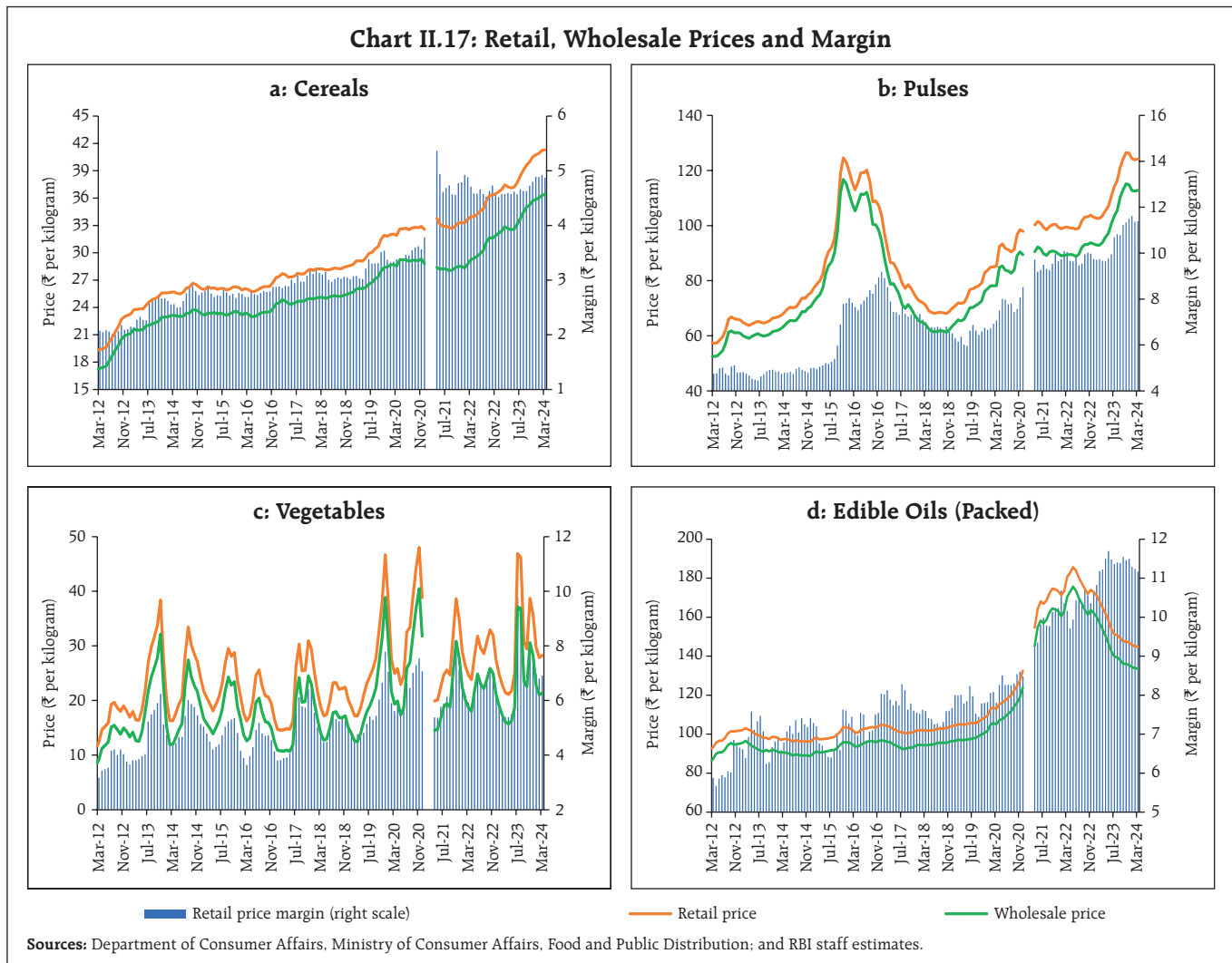
October-February 2023-24 on lower *kharif* production [(-) 9.0 per cent as per the SAE of 2023-24 over FE of 2022-23], following higher year-on-year production in 2022-23, and an increase in the fair and remunerative price (FRP) of sugarcane by ₹10 per quintal for 2023-24. Nevertheless, supply measures to ensure domestic availability, including extension of export restrictions, ban on the use of sugarcane juice and syrup for ethanol production and imposition of 50 per cent export duty on molasses used for ethanol production w.e.f. January 2024 are likely to contain inflationary pressures.

Among other food items, inflation in spices remained in double digits, primarily driven by *jeera* on account of adverse weather conditions and stagnant production. Spices inflation has, however, gradually moderated since October 2023 as month-on-month (m-o-m) price pressures in *jeera* eased and turned negative in December 2023 due to higher acreage and production (49 per cent as per FAE of 2023-24 over FE of 2022-23). Prices of prepared meals have moderated gradually, reflecting the pass-through of lower input costs of edible oils and liquified petroleum gas (LPG).

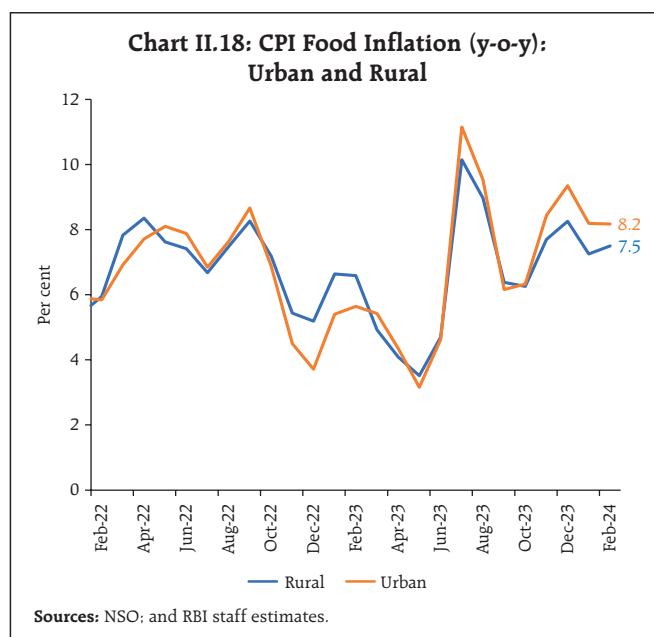
Retail Margins

Retail price margins – the difference of retail and wholesale prices¹² – for cereals increased during September 2023-March 2024. After recording a sustained increase from September 2023 to January 2024, pulses price margins stabilised from February onwards. Retail price margins in edible oils softened in the recent period, primarily due to a moderation

in the margin in refined oils. Retail price margins of TOP vegetables had moderated from its peak recorded in July 2023 due to softening of tomato prices during mid-August 2023. The margins, however, hardened again in November 2023 with a pick-up in wholesale prices of onions. Aided by supply-side measures to control the rise in onion prices, the retail price margins of TOP vegetables have started to soften from December 2023 onwards (Chart II.17).



¹² Item level retail and wholesale prices are aggregated at respective subgroups using item level CPI weights. Data for January-March 2021 have been excluded due to changes in price collection mechanism and item varieties by DCA.



Sectoral and Spatial Distribution of Food Inflation

CPI food inflation pressures were seen across both rural and urban areas, with urban food inflation outpacing its rural counterpart (Chart II.18). At the same time, volatility in food inflation¹³ in urban areas was higher than in rural areas. This was mainly driven by protein, fruits, and vegetables.

Spatially, food inflation pressures are softening – the number of states/UT with food inflation higher than 6.0 per cent in the period 2023-24 (April-February) has decreased to 20 *vis-à-vis* 27 in the corresponding period a year ago (Table II.1).

Table II.1: Distribution of food inflation across States/UTs: Number of states¹⁴

Food Inflation Range	2022-23 (Apr-Feb)	2023-24 (Apr-Feb)
Less than 2 per cent	1	1
Between 2 to 4 per cent	1	4
Between 4 to 6 per cent	7	11
Greater than 6 per cent	27	20

Sources: NSO, and RBI staff estimates.

¹³ Estimated using GARCH process.

¹⁴ Accounted for the unification of Daman and Diu with Dadra & Nagar Haveli and the formation of Ladakh as a UT

CPI Fuel Group

CPI fuel slipped into deflation of (-) 0.1 per cent in September 2023 from 4.3 per cent in August, and remained in the deflationary zone till February 2024. Its primary driver has been the substantial reduction in domestic liquified petroleum gas (LPG) prices by ₹200 per cylinder at the end of August, alongside a y-o-y decline in kerosene prices aided by softening international prices, and a slowdown in price increases (y-o-y) in firewood and chips. Electricity price increases, on a y-o-y basis, moderated from a record 13.5 per cent in August 2023 to 10.4 per cent in February 2024 (Chart II.19).

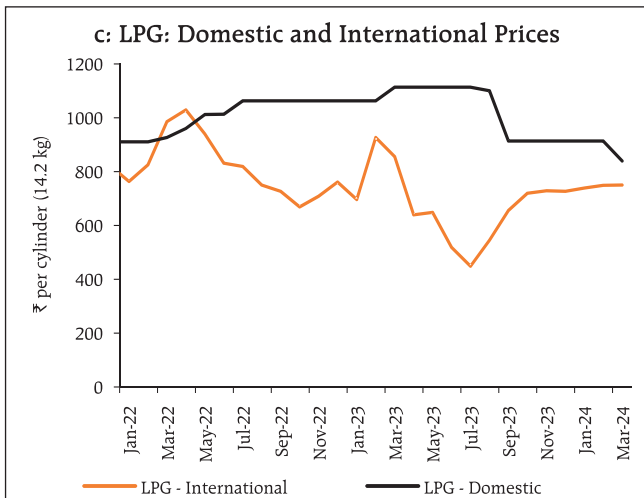
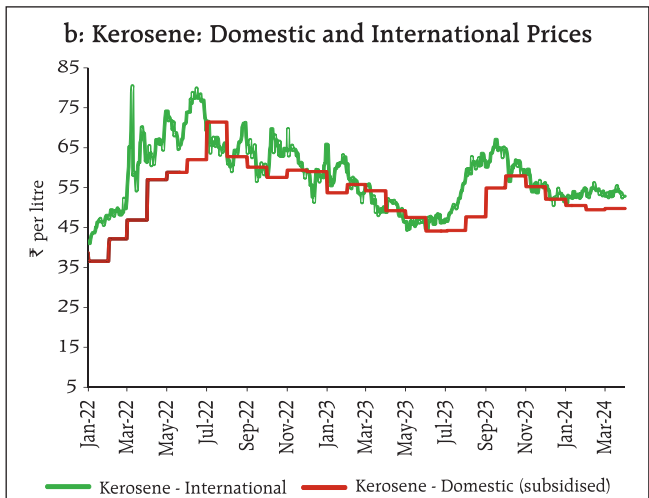
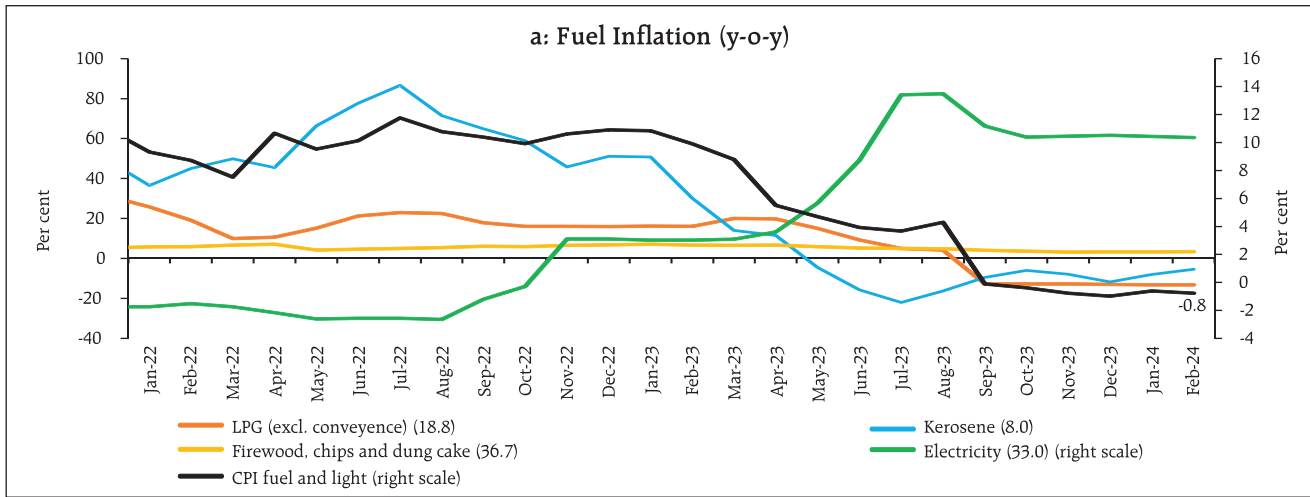
Core CPI (CPI excluding Food and Fuel)

Disinflation in core (CPI excluding food and fuel) continued during H2 of 2023-24, softening from 4.9 per cent in August 2023 to 3.4 per cent in February 2024 – the lowest rate of core inflation in the current CPI series (2012=100)¹⁵. Other exclusion-based measures of underlying inflation, which remove volatile items such as petrol, diesel, gold, and silver in addition to food and fuel, also witnessed sharp and sequential moderation during this period (Table II.2) along with lower cross-sectional variation in inflation rates (Chart II.20).

The sharp broad-based softening of core price momentum in H2 is observed in the collapse in CPI threshold diffusion indices (DIs). CPI excluding food, fuel, petrol, diesel, gold and silver DIs for price increases of greater than 6 per cent (saar) and 4 per cent (saar) slipped deeper into the contraction zone during September-December 2023, indicating sequentially lower incidence of price increases beyond the 6 per cent and 4 per cent saar thresholds.

¹⁵ A core inflation print of 3.4 per cent was also seen in October 2019.

Chart II.19: CPI Fuel Group Inflation



Notes: (1) The international price for LPG is based on spot prices for Saudi Butane and Propane, combined in the ratio of 60:40 respectively. These international product prices are indicative import prices. Further details are available at www.ppac.org.in.
 (2) The indicative international price for kerosene is the Singapore Jet Kero spot price.
 (3) The domestic prices of LPG and kerosene represent the average prices of four and three metros, respectively, as reported by Indian Oil Corporation Limited (IOCL).
 (4) Figures in parentheses indicate item's weights in CPI-fuel group.
Sources: NSO; Bloomberg; IOCL; and RBI staff estimates.

The rebound of the 4 per cent threshold DI in January 2024 was transient as it corrected in February to slide further into the contraction zone along with collapse of the 6 per cent threshold DI to low single digits (Chart II.21).

Both core goods and services categories experienced significant easing in 2023-24 so far (April-February).

Barring personal care and effects, which was impacted by pick-up in gold prices, the contribution of all other sub-groups/groups to core inflation fell (Chart II.22).

Out of the 2.8 percentage points moderation in core from its recent peak in January 2023, 82 bps was contributed by clothing and footwear sub-group. In addition, transport and communication accounted for 47 bps; housing contributed 38 bps; household goods

Table II.2: Exclusion-based Measures of Inflation (y-o-y)

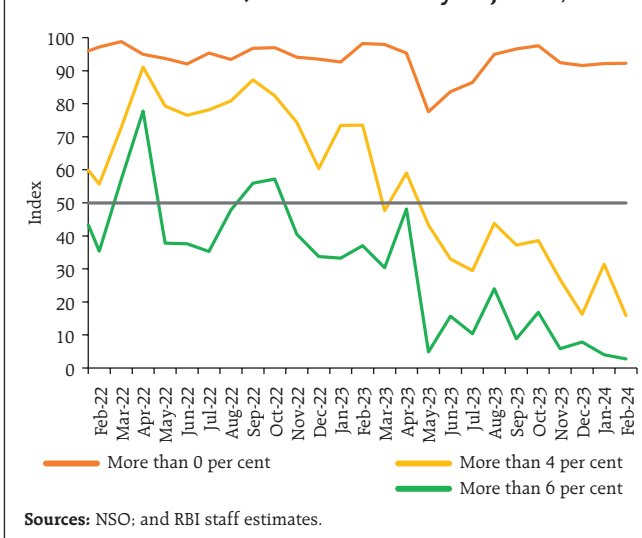
Period	CPI excluding food and fuel (47.3)	CPI excluding food fuel petrol diesel (45.0)	CPI excluding food fuel petrol diesel gold silver (43.8)
Jan-23	6.2	6.5	6.3
Feb-23	6.1	6.4	6.2
Mar-23	5.8	6.0	5.9
Apr-23	5.1	5.8	5.6
May-23	5.2	5.8	5.4
Jun-23	5.2	5.4	5.2
Jul-23	4.9	5.1	4.8
Aug-23	4.9	5.1	4.8
Sep-23	4.5	4.7	4.4
Oct-23	4.2	4.4	4.1
Nov-23	4.1	4.2	3.9
Dec-23	3.8	3.9	3.6
Jan-24	3.5	3.7	3.4
Feb-24	3.4	3.5	3.3

Notes: (1) Figures in parentheses indicate weights in CPI.
 (2) Derived as residual from headline CPI.

Sources: NSO; and RBI staff estimates.

and services, and personal care and effects contributed around 35 bps each (Chart II.23).

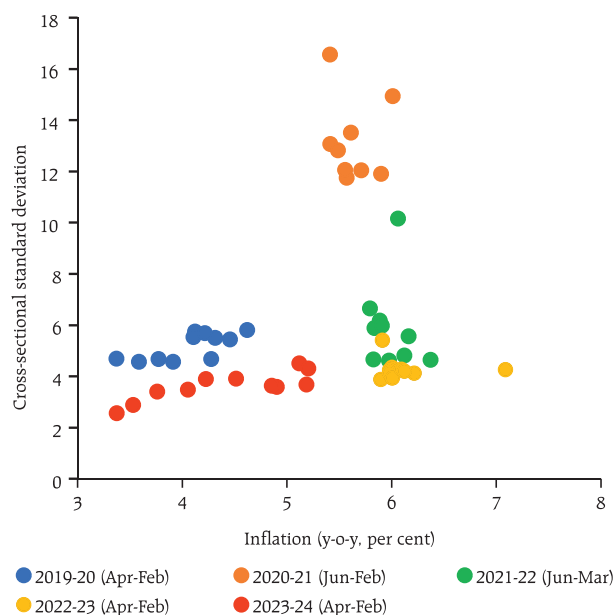
Chart II.21: CPI excluding Food, Fuel, Petrol, Diesel, Gold and Silver: Diffusion Indices by Thresholds (M-o-M Seasonally Adjusted)



Sources: NSO; and RBI staff estimates.

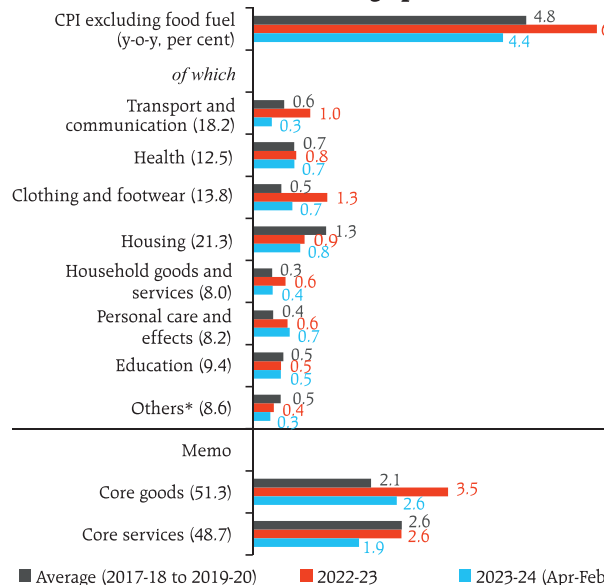
Decomposing CPI excluding food, fuel, petrol, diesel, gold, and silver inflation into its goods (with a weight of 20.7 per cent in the headline CPI) and services (weight of 23.0 per cent) components shows softening in both the categories, mainly led by goods. While core goods inflation moderated by

Chart II.20: CPI Inflation excluding Food and Fuel: Persistence

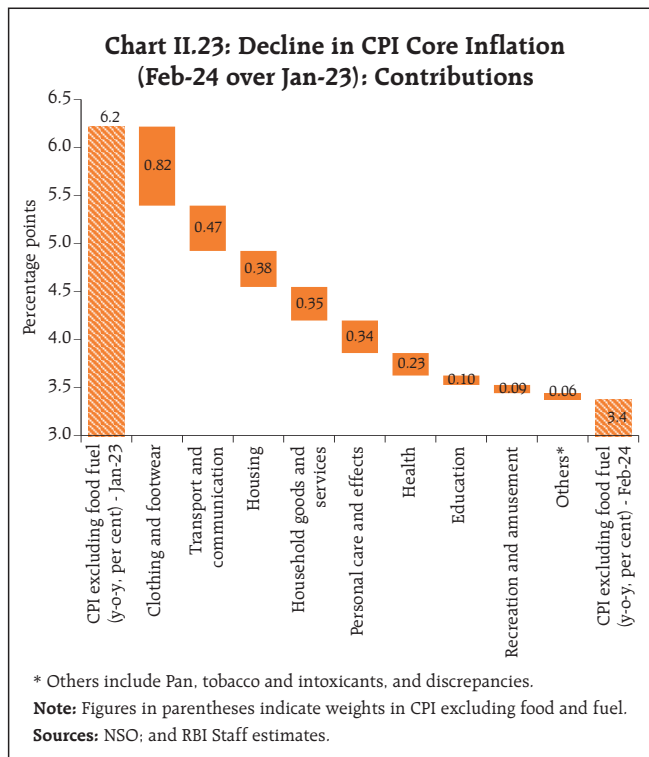


Sources: NSO; and RBI staff estimates.

Chart II.22: Contribution to CPI Inflation excluding Food Fuel (Percentage points)



*Others include Pan, tobacco and intoxicants; and Recreation and amusement.
Note: Figures in parentheses indicate weights in CPI excluding food and fuel.
Sources: NSO; and RBI staff estimates.



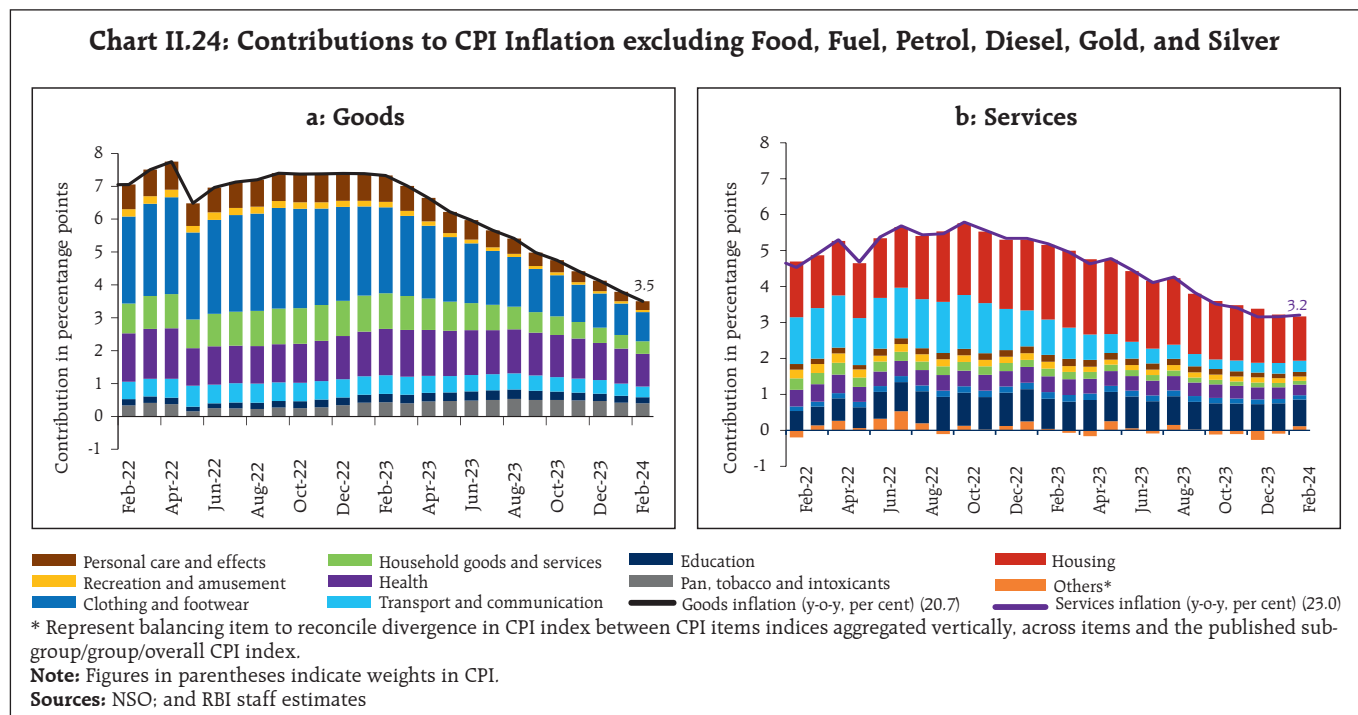
fell by around 105 bps from 4.2 per cent to 3.2 per cent during the same period. The key drivers of the softening in goods inflation were clothing and footwear, household goods, health and personal care and effects (excluding gold and silver) (Chart II.24a). In the case of services, housing (primarily house rent), transportation fares (bus/tram/taxi fare, air fare) and communication services drove the moderation in inflation (Chart II.24b).

Trimmed mean measures¹⁶ also indicated an easing of underlying inflation pressures, with weighted median inflation registering a decline of around 160 bps from 5.2 per cent in August 2023 to 3.6 per cent in February 2024 (Table II.3).

Other Measures of Inflation

CPI inflation for agricultural labourers (CPI-AL) and rural labourers (CPI-RL) exceeded CPI headline inflation during September 2023-February 2024 due to higher food and fuel inflation. Inflation in terms of CPI for industrial workers (CPI-IW), on the other

around 190 bps from 5.4 per cent in August 2023 to 3.5 per cent in February 2024, core services inflation



¹⁶ While exclusion-based measures drop a fixed set of volatile items (for example, food and fuel) in each period; trimmed measures exclude items located in the tails of the inflation distribution - items displaying changes more than the specified threshold in prices each month are excluded from each side, and the items dropped differ from month to month.

Table II.3: Trimmed Mean Measures of Inflation (y-o-y)

Month	5% trimmed	10% trimmed	25% trimmed	Weighted Median
Jan-23	6.6	6.6	6.6	6.8
Feb-23	6.6	6.5	6.5	6.6
Mar-23	6.0	6.3	6.3	6.4
Apr-23	5.1	5.6	5.9	5.7
May-23	5.1	5.6	5.7	5.5
Jun-23	5.5	5.7	5.7	5.8
Jul-23	6.1	6.0	5.6	5.5
Aug-23	5.7	5.6	5.3	5.2
Sep-23	4.7	5.0	4.9	4.7
Oct-23	4.5	4.9	4.7	4.4
Nov-23	4.6	4.8	4.5	4.1
Dec-23	4.8	4.7	4.2	4.1
Jan-24	4.7	4.5	3.9	3.7
Feb-24	4.6	4.4	3.7	3.6

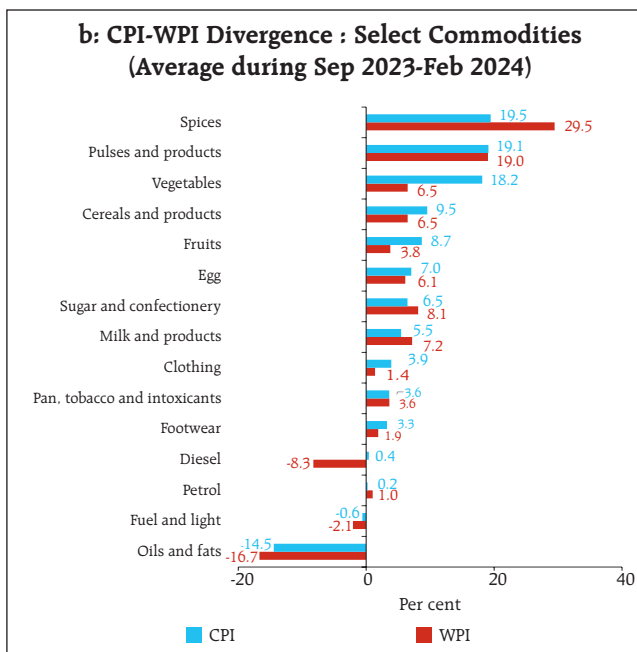
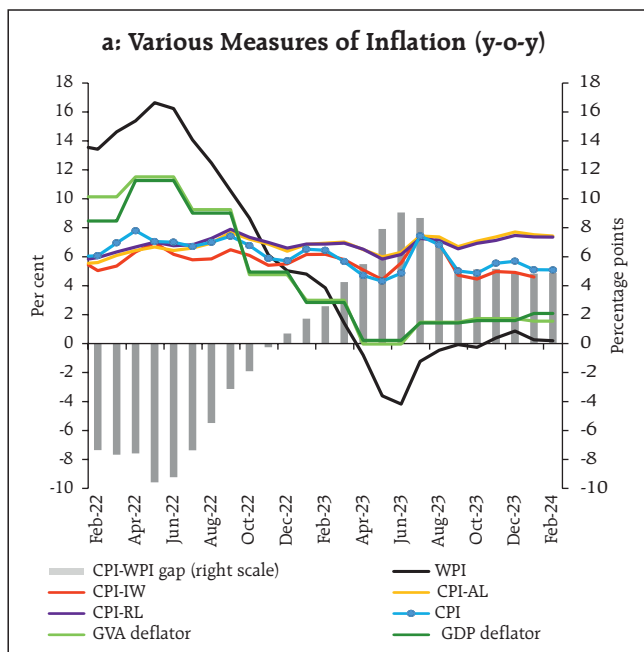
Sources: NSO; and RBI staff estimates.

hand, was below the headline CPI during September 2023 - January 2024, primarily on account of fuel inflation being significantly lower in CPI-IW vis-à-vis

headline CPI. After staying in deflationary territory between April and October 2023, wholesale price index (WPI) inflation turned positive in November 2023 on the back of a pick-up in food prices along with unfavourable base effects. On account of an uptick in CPI inflation and WPI inflation turning positive, inflation measured by deflators for gross value added (GVA) and gross domestic product (GDP) further hardened in Q3:2023-24 (Chart II.25a).

On the whole, WPI inflation remained far below headline CPI inflation during September 2023-February 2024, driven down by deflation in non-food manufactured products in WPI. In terms of similar categories, WPI inflation in food (particularly cereals, vegetables, fruits and egg), and clothing and footwear ruled below corresponding CPI groups/subgroups. Deflation in edible oil and fuel prices was deeper in the WPI. On the other hand, inflation in spices, sugar, milk, and petrol was higher in the WPI than in the CPI (Chart II.25b).

Chart II.25: Alternative Measures of Inflation



Note: For Q4:2023-24, implicit GDP and GVA deflators are used.
Sources: NSO; Labour Bureau; Ministry of Commerce and Industry; and RBI staff estimates.

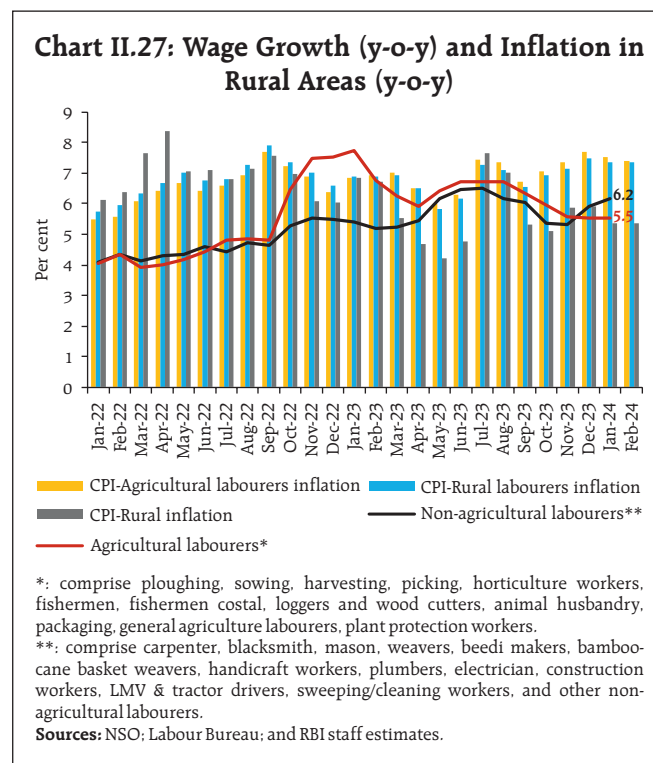
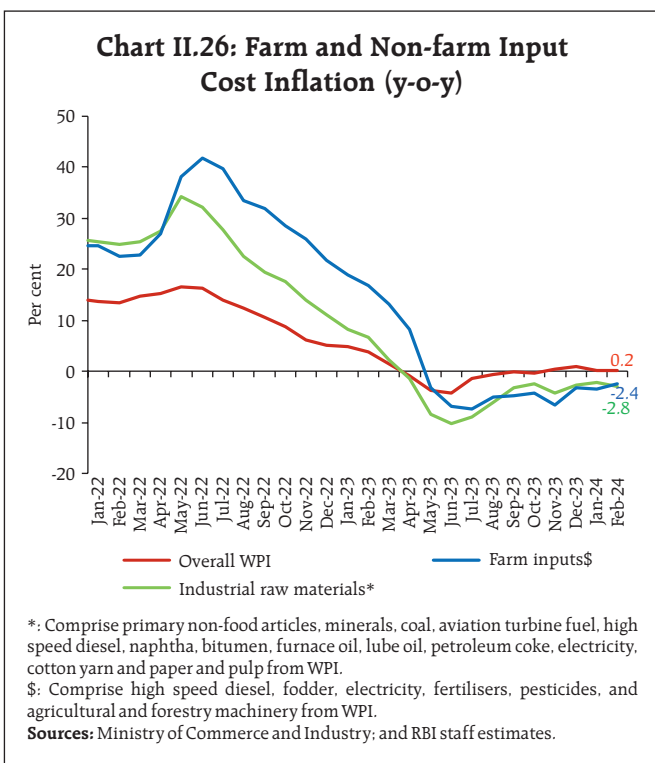
II.3 Costs

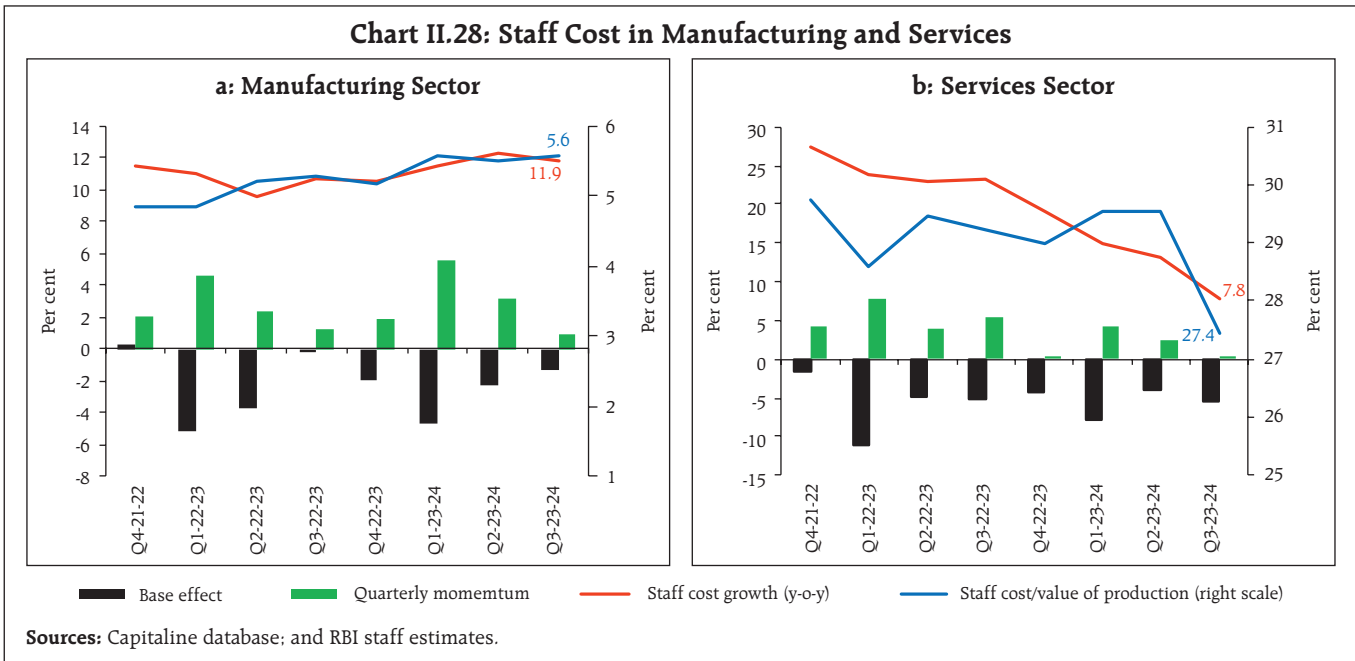
Costs, as measured by WPI inflation in industrial raw materials and farm inputs, had entered negative territory in April-May 2023 and remained muted during September 2023-February 2024 on account of sustained easing of international commodity prices (Chart II.26). Prices of industrial inputs such as high-speed diesel (HSD), aviation turbine fuel (ATF), bitumen and petroleum coke were also in deflation during November 2023-February 2024. The other contributory factors were non-food articles, particularly cotton and oilseeds, the prices of which continued to decline due to easing in international prices and lower demand. Minerals price inflation, however, remained positive during this period, driven by metallic minerals, particularly iron ore due to increased global demand, and copper due to both rising demand and limited supply owing to constraints on new mining projects worldwide, increased taxes and environmental regulations. Farm input prices deflated during September 2023-February

2024 due to decline in prices of HSD, fodder, pesticides, and fertilisers. The price of WPI electricity – a key input in both industrial and farm inputs – remained in deflation for most part of H2:2023-24 due to low rise in prices of coal coupled with favourable base effects.

Nominal rural wages increased by 5.9 per cent in January 2024, driven by wage growth in the non-agricultural rural sector (Chart II.27). While an increase in agricultural wages was recorded primarily in irrigation, harvesting and animal husbandry, the increase in non-agricultural wages was broad-based across major activities in the rural sector.

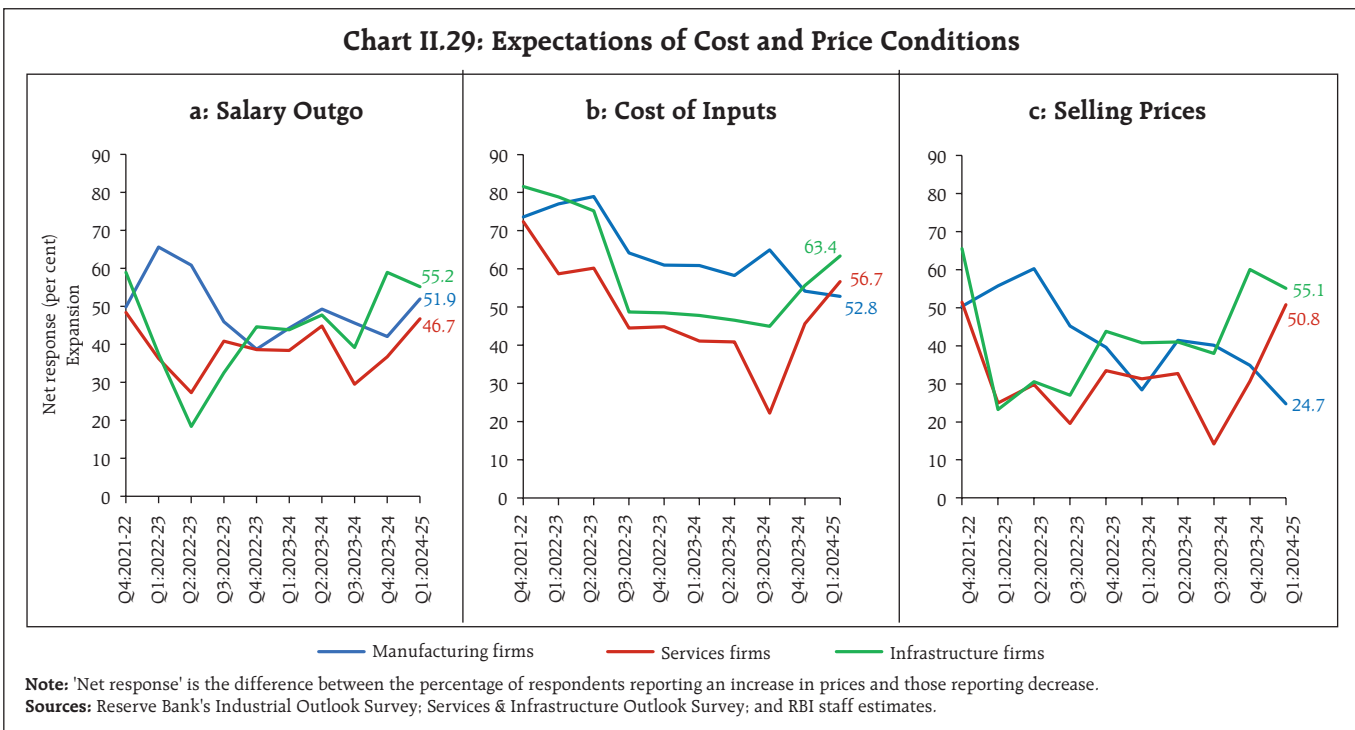
In the organised sector, staff cost growth (y-o-y) remained steady for manufacturing firms among listed companies in Q3:2023-24, while it decelerated for services firms. The share of staff cost in the value of production for manufacturing was broadly stable, whereas it fell steeply in Q3 for the services sector (Chart II.28).





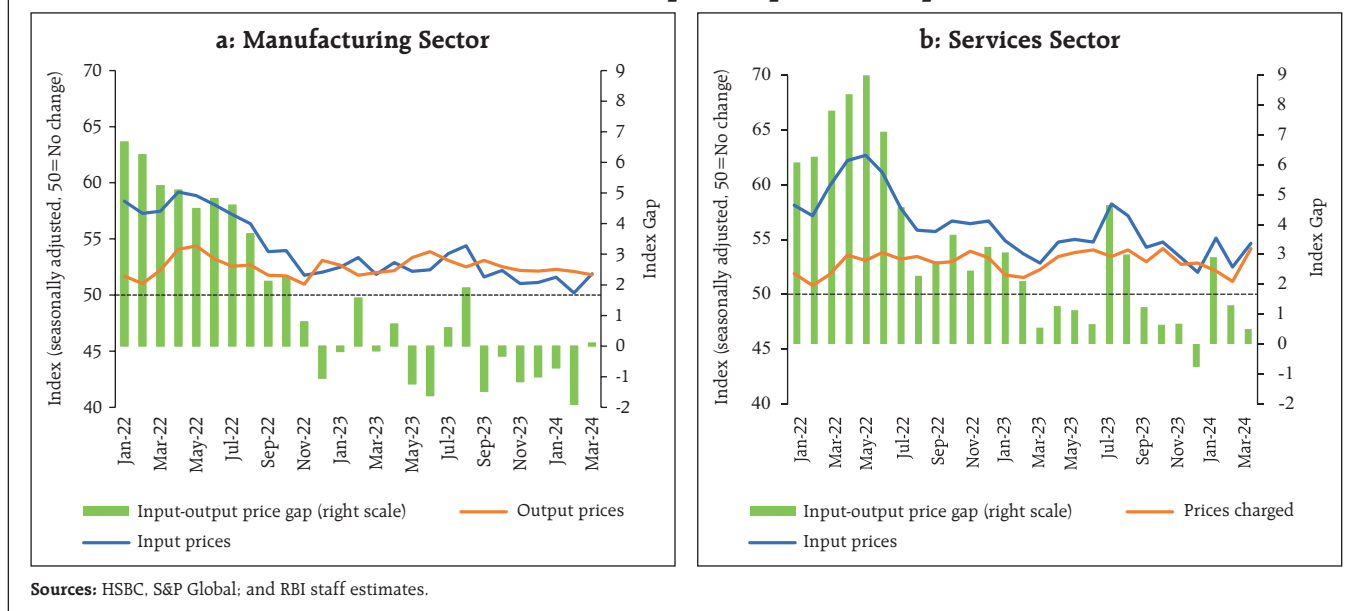
As per the firms polled in the Reserve Bank's enterprise surveys¹⁷, the pace of salary outgo, cost of inputs and selling prices is expected to rise steeply for services sector in Q1:2024-25. On the other hand, pace of growth in selling prices is likely to

soften for manufacturing and infrastructure sectors even though inputs costs for infrastructure sector and salary outgo for manufacturing sector would rise at a faster rate in Q1 (Chart II.29).



¹⁷ Industrial Outlook Survey; and Services and Infrastructure Outlook Survey.

Chart II.30: PMI Input-Output Price Gap



After witnessing a dip in January 2024, one year ahead business inflation expectations¹⁸ increased by 9 basis points to 4.46 per cent in February on account of mild increase in cost pressures and sales expectations.

As per the purchasing managers' index (PMI), barring a transient dip in February, the input prices momentum of manufacturing firms rose during December 2023-March 2024 due to increase in prices of cotton, iron, machinery tools, plastics, chemical, paper and textiles. The growth in output prices, however, remained stable with a marginal decline in February-March leading to input-output price gap turning positive in March. For services sector, the pace of increase in input prices remained volatile with a sharp pick-up in March 2024 due to food, labour costs, cosmetics and medical equipment. The prices charged by service firms rose more than input prices in March 2024 which led to a further narrowing of the input-output price gap (Chart II.30).

II.4 Conclusion

Inflation has seen substantial moderation from elevated levels in the summer of 2022 but is still above the target. With core disinflation being broad based across goods and services, risks to the 'last mile' of disinflation process may emanate from incidence of unpredictable supply side shocks, which include adverse climate events and their impact on agricultural production; and geo-political tensions and its spillovers to trade and commodity markets. The combination of monetary policy action and stance, and proactive supply side measures have helped steer the disinflation process in the face of considerable uncertainties. This approach would need to be sustained to ensure a durable return of inflation to the target, thereby setting strong foundations for the high growth trajectory that is underway.

¹⁸ Based on the monthly Business Inflation Expectations Survey (BIES) of the Indian Institute of Management, Ahmedabad. The survey polls a panel of business leaders primarily from the manufacturing sector about their inflation expectations in the short and medium term.

III. Demand and Output

Domestic economic activity remained resilient in H2:2023-24 with investment demand firming up at a robust pace. Manufacturing activity strengthened further, and construction activity stayed firm. Consumer and business optimism remains buoyant. Headwinds from geopolitical tensions, rising geoeconomic fragmentation, volatility in global commodity prices, and escalation of Red Sea disruptions, however, pose risks to the outlook.

After a strong performance in H1:2023-24, the momentum of domestic economic activity remained resilient in H2, driven by strong aggregate demand. Fixed investment firmed up at a robust pace with the government's continued thrust on infrastructure building. Private corporate investment is gaining vitality. Private consumption held up well in urban areas, although its overall growth moderated. India's exports recouped some ground which, in conjunction with deceleration in imports growth, led to a lower drag from net external demand on aggregate demand

in H2. Overall, real gross domestic product (GDP) expanded strongly by 7.6 per cent year-on-year (y-o-y) in 2023-24, with 8.4 per cent growth in Q3 – the third successive quarter of over eight per cent growth. On the supply side, manufacturing activity continued to gain traction in H2, supported by lower commodity prices, diversifying global supply chains and easing logistic costs due to improving infrastructure. Buoyancy in construction activity contributed to services sector momentum. Real gross value added (GVA) posted a growth of 6.9 per cent y-o-y in 2023-24. Headwinds from geopolitical tensions, rising geoeconomic fragmentations, volatility in global commodity prices, and escalation of Red Sea disruptions, however, pose risks to the outlook.

III.1 Aggregate Demand

Aggregate demand conditions exhibited buoyancy in Q3:2023-24 (Chart III.1 and Table III.1). Its momentum – quarter-on-quarter (q-o-q) seasonally adjusted annualised rate (saar) – remained strong in Q3.

Chart III.1: GDP Growth and its Constituents

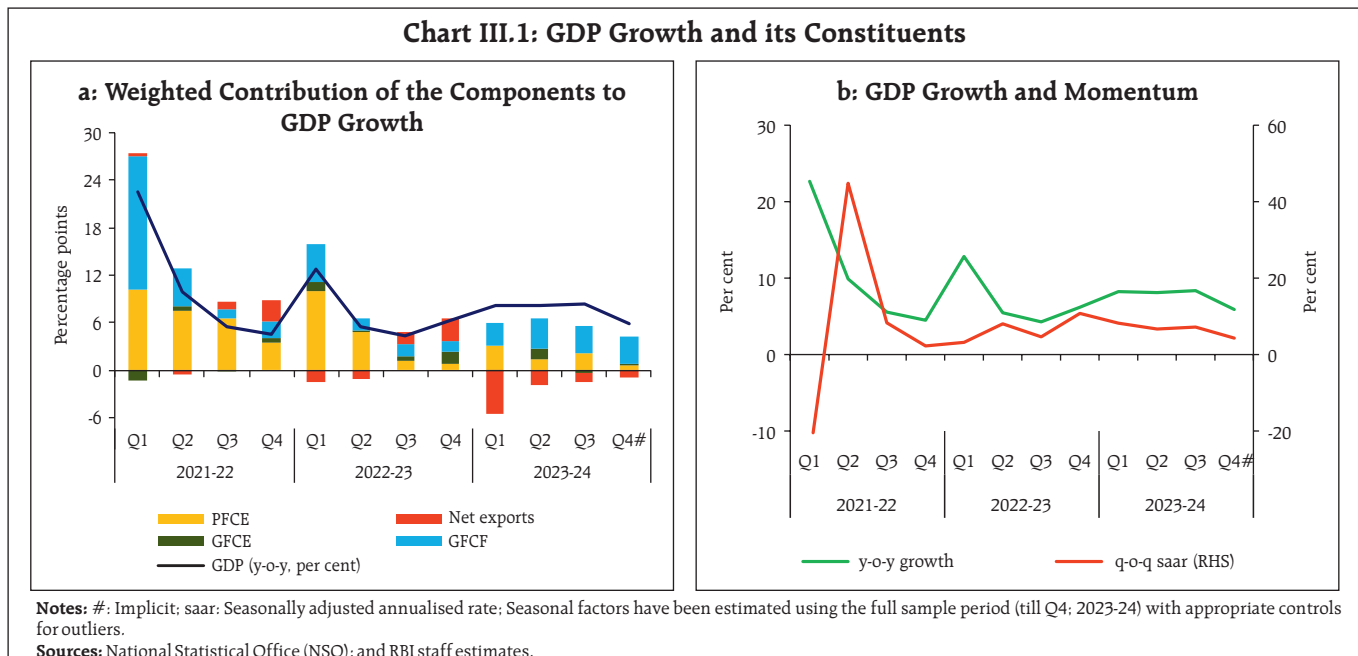


Table III.1: Real GDP Growth

(y-o-y, per cent)

Item	2022-23	2023-24	Weighted Contribution*		2022-23				2023-24			
	(FRE)	(SAE)	2022-23	2023-24	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4#
Private final consumption expenditure	6.8	3.0	3.9	1.8	18.5	8.2	1.8	1.5	5.3	2.4	3.5	1.0
Government final consumption expenditure	9.0	3.0	0.9	0.3	9.8	3.4	7.1	13.9	-0.1	13.8	-3.2	2.7
Gross fixed capital formation	6.6	10.2	2.2	3.4	13.9	4.7	5.0	3.8	8.5	11.6	10.6	10.2
Exports	13.4	1.5	3.0	0.4	19.1	11.7	10.9	12.4	-6.5	5.3	3.4	3.5
Imports	10.6	10.9	2.5	2.7	26.1	16.1	4.1	-0.4	15.3	11.9	8.3	8.2
GDP at market prices	7.0	7.6	7.0	7.6	12.8	5.5	4.3	6.2	8.2	8.1	8.4	5.9

Notes: *: Component-wise contributions to growth do not add up to GDP growth because change in stocks, valuables and discrepancies are not included. FRE: First revised estimates; SAE: Second advance estimates. #: Implicit.

Sources: NSO; and RBI staff estimates.

GDP Projections versus Actual Outcomes

The October 2023 Monetary Policy Report projected real GDP growth at 6.5 per cent for Q2:2023-24, 6.0 per cent for Q3 and 5.7 per cent for Q4. The actual growth for Q2 turned out to be higher at 8.1 per cent led by sharper than expected expansion in gross fixed capital formation (GFCF) (Chart III.2). In Q3 also, the actual growth at 8.4 per cent overshot the projection due to more than expected increase in

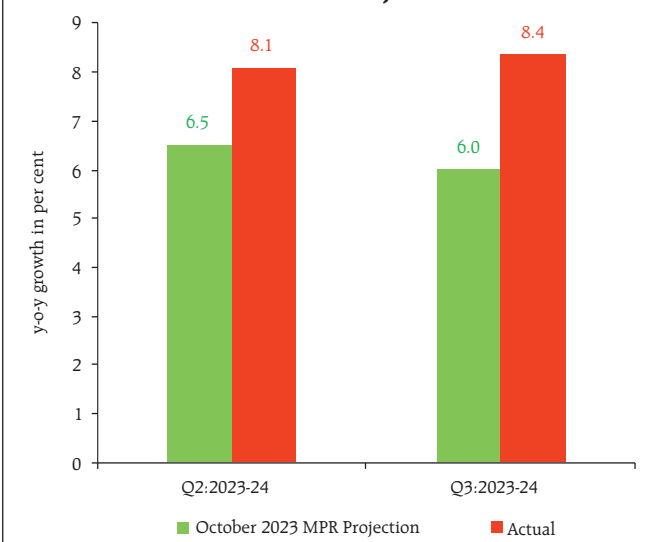
GFCF and moderation in drag from net exports. Data for Q4:2023-24 are scheduled to be released by the National Statistical Office (NSO) on May 31, 2024.

III.1.1 Private Final Consumption Expenditure

Growth in private final consumption expenditure (PFCE) – the mainstay of aggregate demand – improved to 3.5 per cent in Q3 after a dip in Q2 and contributed 2.2 percentage points to overall GDP growth. Steady urban consumption, coupled with improving income levels in the informal sector, are supporting private consumption. For the full year 2023-24, PFCE growth moderated to 3.0 per cent from 6.8 per cent in 2022-23, partly reflecting sensitivity to financial conditions (Box III.1).

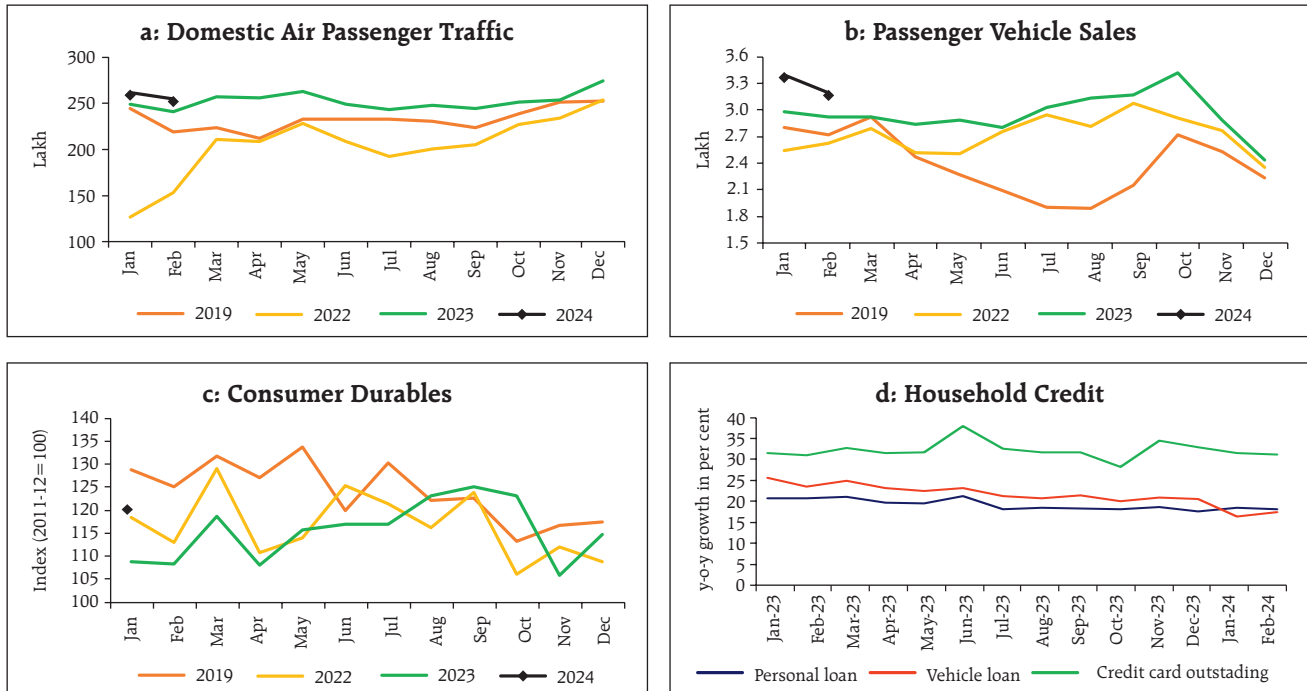
High frequency indicators of urban demand exhibited sustained expansion in H2:2023-24 (Chart III.3). Domestic air passenger traffic, passenger vehicle sales and household credit posted robust growth. Consumer durables expanded at a modest pace in Q3, but recorded double digit growth in January. Sustained buoyancy in the services sector along with corporate salary hikes are supporting urban demand.

Rural demand is gaining pace gradually as exhibited by high frequency indicators, although it

Chart III.2: GDP Growth - Projection versus Actual

Sources: NSO; and RBI staff estimates.

Chart III.3: Urban Demand: High Frequency Indicators

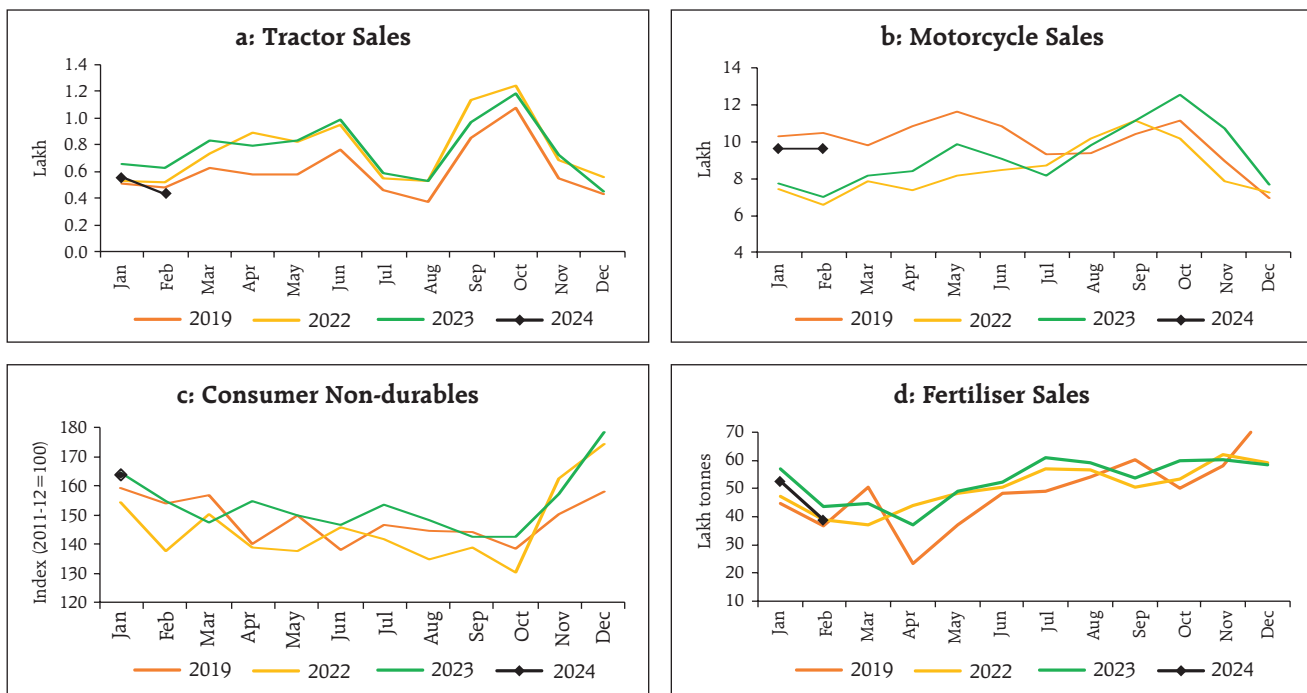


Sources: Directorate General of Civil Aviation (DGCA); Society of Indian Automobile Manufacturers (SIAM); NSO; and RBI.

lags urban demand. Motorcycle sales expanded at a rapid pace in H2:2023-24, while sales of tractors and fertilisers remained subdued after high growth last

year. Consumer non-durables registered moderate growth in Q3 and contracted marginally in January (Chart III.4). The demand for work under the Mahatma

Chart III.4: Rural Demand: High Frequency Indicators



Sources: Tractor Manufactures Association (TMA); SIAM; NSO; and Ministry of Chemicals and Fertilisers (MoC&F).

Gandhi National Rural Employment Guarantee Act (MGNREGA) declined in H2, suggesting improvement in non-farm employment in rural areas and recovery in informal sector activity. Agricultural credit growth remained robust, notwithstanding lower estimates of *rabi* production.

The labour force participation rate (LFPR) and employment rate (ER) reflect improvement in labour market conditions. As per the Periodic Labour Force Survey (PLFS), LFPR at all India level for persons aged 15 years and above (usual status) improved to 59.8 per cent (56.1 per cent last year) and the unemployment rate dropped to 3.1 per cent (3.6 per cent last year)

during 2023 (January-December). The latest quarterly PLFS indicate that LFPR for person aged 15 years and above (current weekly status) increased to 49.9 per cent in Q3:2023-24 in urban areas, the highest since the survey's inception. The unemployment rate in urban areas during Q3 dropped to 6.5 per cent, the lowest in the PLFS series (Chart III.5a). The Employees' Provident Fund Organisation (EPFO) payrolls data also point to strengthening of formal employment in Q3 as net payroll additions rose by 12.5 per cent y-o-y in Q3 and by 35.4 per cent y-o-y in January 2024 (Chart III.5b).

Box III.1: Interest Rate Sensitivity of Consumption and Investment

Analysing the impact of policy rate changes on aggregate demand (consumption and investment) is important for monetary policy transmission (Mallick and Agarwal, 2007; Pattanaik *et al.*, 2014). This involves isolating changes in the policy rate due to monetary policy surprises or shocks. Policy rate shocks are derived as residuals in a regression of actual policy rate on actual and expected¹ inflation and GDP growth² (Holm *et al.*, 2021). Subsequently, the impact of policy rate shocks³ on private consumption and fixed investment is examined, by including potential asymmetric effects⁴ in a Vector Auto Regression (VAR) model for Q4:2007-08 to Q2:2023-24. Real gross domestic product (GDP) is used as a control variable for domestic demand shocks.

The impulse response of private consumption and fixed investment to a one standard deviation change in policy rate shocks⁵ suggests that private consumption exhibits a swift adverse response, reaching its peak approximately after two quarters following a policy rate shock, while the maximum response of fixed investment is seen around the fifth quarter (Chart III.1.1). The full impact of policy rate shocks on fixed investment takes relatively more time to materialise compared to private consumption. Furthermore, the asymmetric impact suggests a stronger and statistically significant impact on both private consumption and fixed investment during tightening cycles, whereas the impact on both appears insignificant during easing cycles.

(Contd.)

¹ Expected inflation and GDP growth are taken from survey of Professional Forecasters, RBI.

$$i_m = \alpha_1 + \alpha_2 i_{m-1} + \sum_{k=0}^3 \beta_{\{k\}} \pi_{m,i} + \sum_{k=0}^3 \delta_{\{k\}} (\pi_{m,i} - \pi_{m-1,i}) + \sum_{k=0}^3 \lambda_k y_{m,i} + \sum_{k=0}^3 v_{\{k\}} (y_{m,i} - y_{m-1,i})$$

Where π and y represent inflation and GDP growth, respectively. The k subscripts refer to the horizon of the forecast: 0 is the current quarter; 1, 2 and 3 are one, two and three quarters ahead, respectively. The horizons are relative to the date of the forecast corresponding to meeting m .

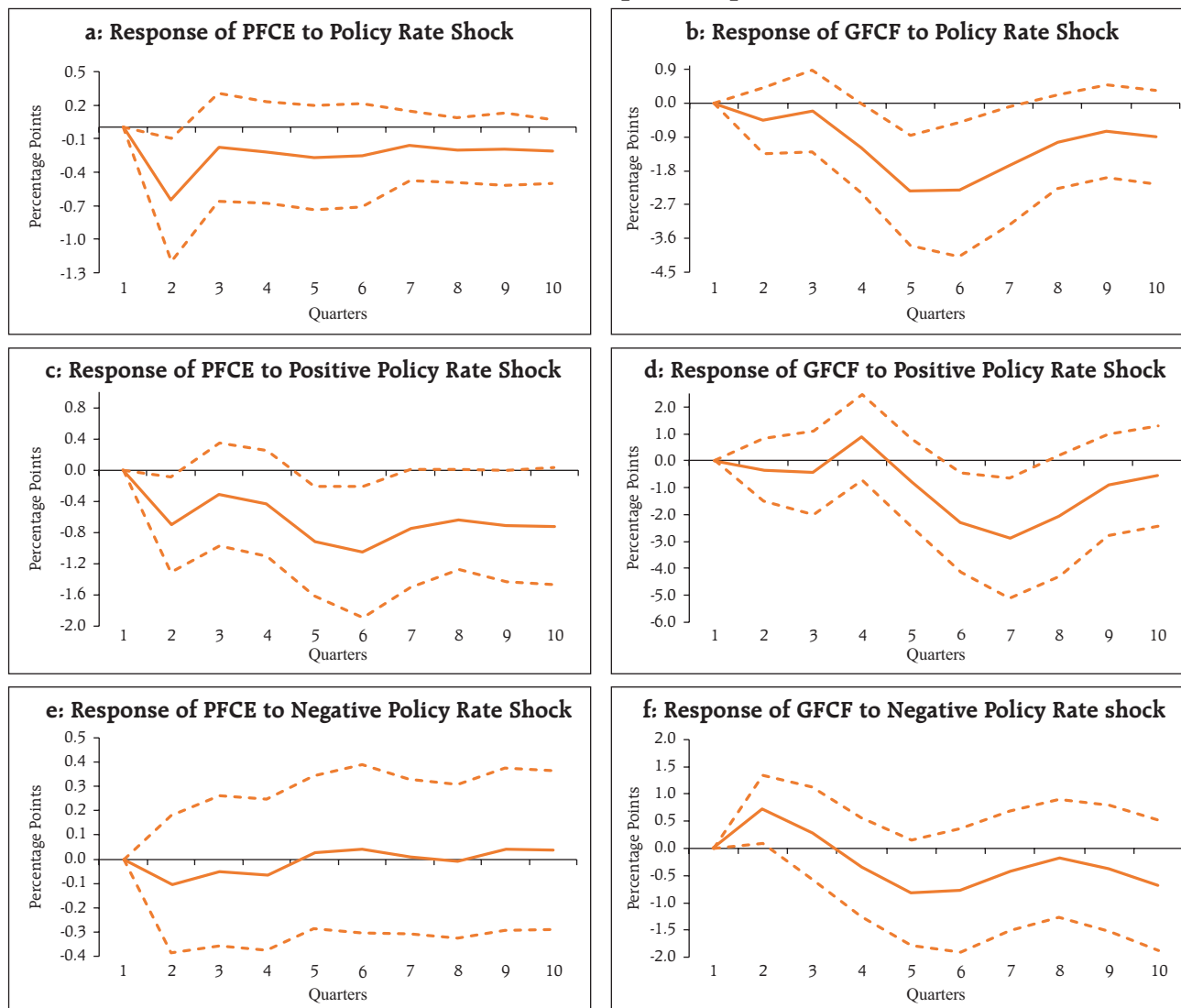
³ Since policy shocks do not have a contemporaneous impact on consumption and investment, they are therefore considered with one period lag.

⁴ Policy shock⁺ _{t} and Policy shock⁻ _{t} can be defined as:

$$\begin{aligned} \text{Policy shock}^+_{t} &= \text{Policy shock}_t, \text{ if Policy shock}_t > 0, \text{ otherwise } 0 \\ \text{Policy shock}^-_{t} &= \text{Policy shock}_t, \text{ if Policy shock}_t < 0, \text{ otherwise } 0 \end{aligned}$$

⁵ Private consumption and fixed investment are converted into first difference of logarithmic form and multiplied by 100.

Chart III.1.1: Accumulated Impulse Response Functions



Note: Impulse Responses reflect responses to one standard deviation Cholesky Innovations. Dotted lines are +/- 2 standard error bands.
Source: RBI staff estimates.

References:

Holm, M. B., Paul, P., & Tischbirek, A. (2021). The Transmission of Monetary Policy Under the Microscope. *Journal of Political Economy*, 129(10), 2861-2904.

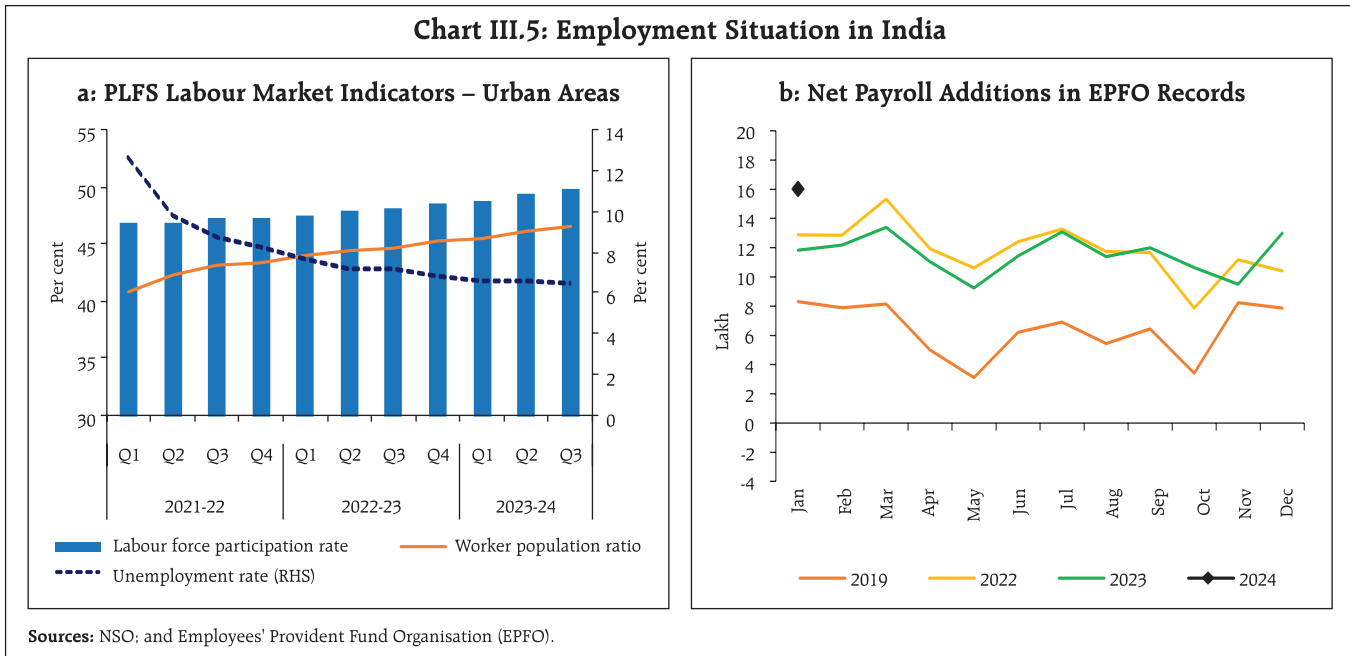
Pattanaik, S., Behera, H., Kavediya, R., Das, A., Shrivastava, A. K., & Joshi, H. (2014). Sensitivity of Investment and Growth to Changes in Real Interest Rates in India. *Prajnan*, 43(1).

Mallick, H., & Agarwal, S. (2007). Impact of Real Interest Rates on Real Output Growth in India: A Long-run Analysis in a Liberalized Financial Regime. *The Singapore Economic Review*, 52(02), 215-231.

On the other hand, according to the Naukri Jobspeak data, there was moderation in new vacancies during October-January 2023-24 due to easing of hiring

in some specific sectors like IT hardware and software services, telecom, retailing and BPO.

Chart III.5: Employment Situation in India



III.1.2 Gross Fixed Capital Formation

Gross fixed capital formation (GFCF) grew by 10.6 per cent y-o-y in Q3:2023-24, driven by a revival in private capex and the continued thrust on capital expenditure by the government. The share of GFCF in GDP, however, moderated to 32.4 per cent in Q3, after achieving a new peak during H1. Healthy balance sheets of banks and corporates, rising capacity utilisation, improving business sentiment and large public investment bode well for a sustained upturn in the private sector investment cycle. Amongst the various high-frequency indicators of investment in machinery and equipment, import of capital goods grew at a healthy pace in Q3 and January-February on the back of strong imports of electronic goods, machine tools and professional instruments (Chart III.6a). The output of power generating equipment, water purification apparatus and commercial vehicles drove a pick up in capital goods production during October-January (Chart III.6b). Coincident indicators of construction activity maintained strength in Q3 and Q4 (up to February). Steel consumption registered robust growth and cement production also grew

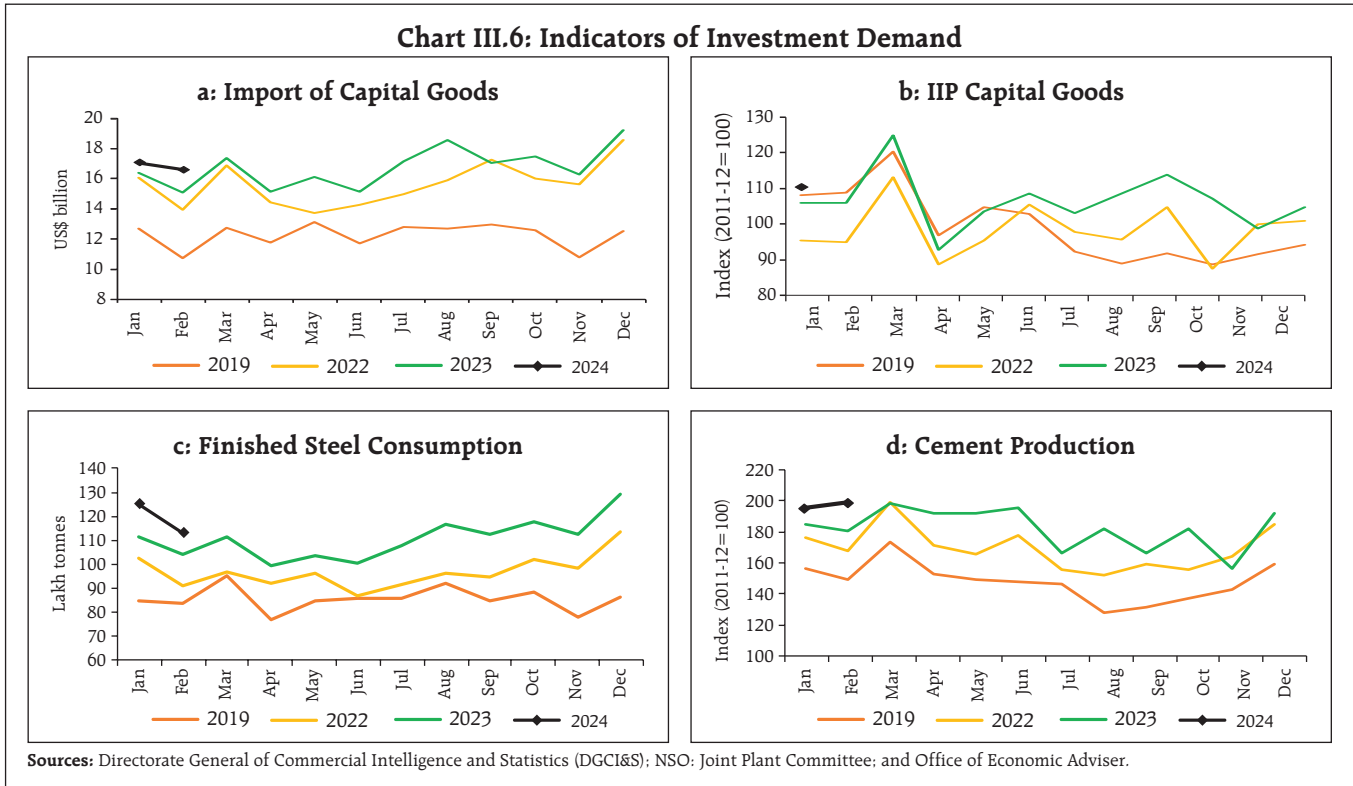
at a healthy pace (Chart III.6c and 6d). The strong demand for residential housing and elevated public infrastructure spending also propelled construction activity.

Capacity utilisation (CU) in the manufacturing sector rose to 74.7 per cent in Q3:2023-24 from 74.0 per cent recorded in the previous quarter. The seasonally adjusted CU increased marginally by 10 bps to 74.6 per cent in Q3: 2023-24. The CU continued to remain above the long-term average⁶ (Chart III.7).

Debt servicing capacity of listed private manufacturing companies remained stable at comfortable level in Q3:2023-24, as reflected in their interest coverage ratio (ICR).⁷ This augurs well for additional corporate investments. The ICR of non-IT services sector remained above the threshold level of unity (Chart III.8).

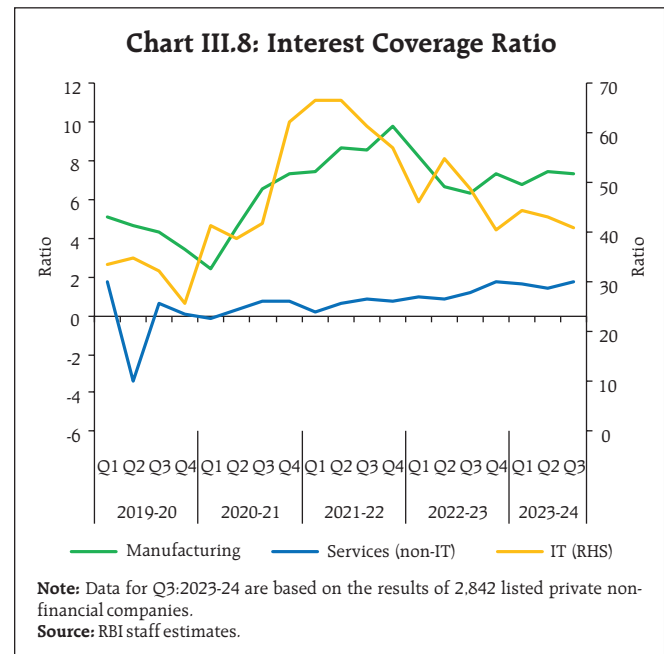
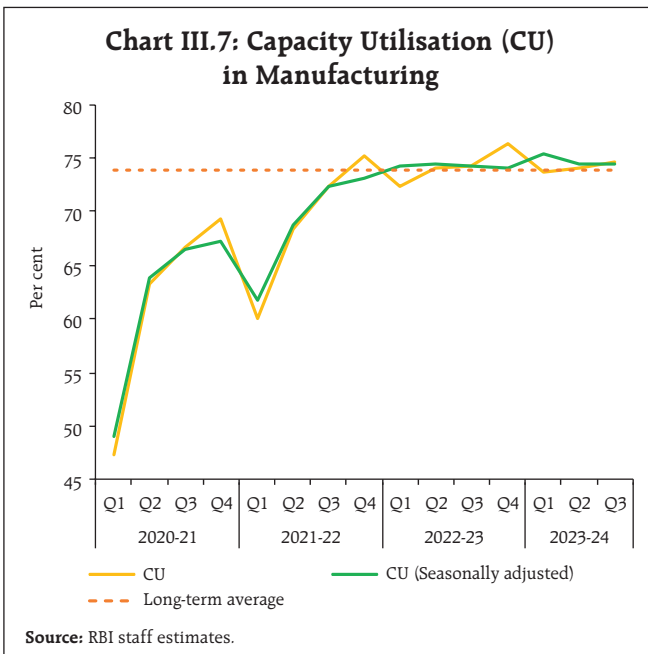
⁶ Based on RBI's survey of order books, inventories and capacity utilisation (OBICUS). Long term average is for the period Q1:2008-09 to Q3:2023-24 excluding Q1:2020-2021.

⁷ Interest coverage ratio is the ratio of earnings before interest and taxes (EBIT) to interest expenses and measures a company's capacity to make interest payments on its debt. The minimum value for a viable ICR is 1.

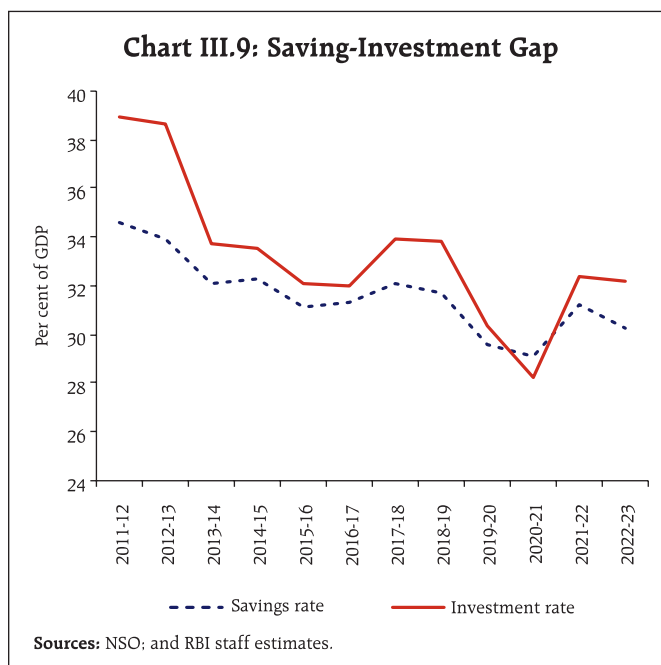


The investment rate⁸ at 32.2 per cent in 2022-23 was maintained almost at the level of the previous year (32.4 per cent), supported by the government's

infrastructure push. On the other hand, the domestic saving rate dipped to 30.2 per cent of GDP in 2022-23 from 31.2 per cent in 2021-22 (Chart III.9).



⁸ Ratio of Gross Capital Formation to GDP at current prices.

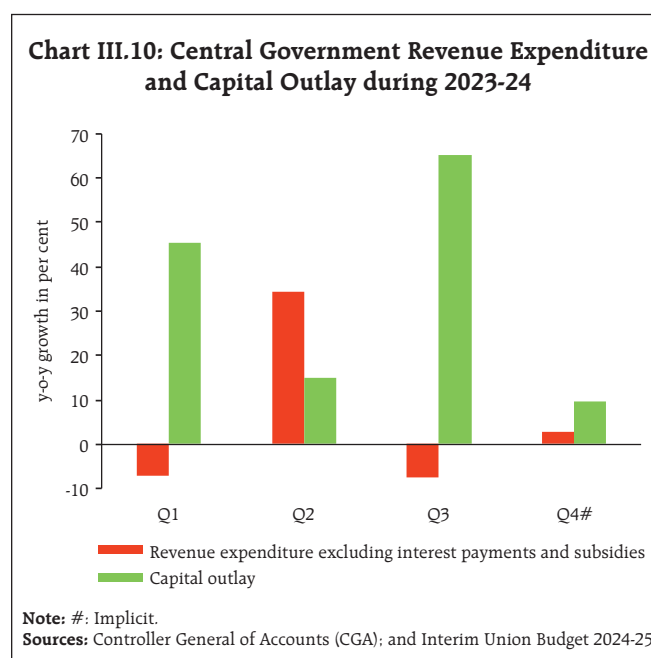


Net household financial savings declined to 5.3 per cent of GDP in 2022-23 from 7.3 per cent in the preceding year partly due to a sharp uptick in liabilities for financing fixed assets/investment.

III.1.3 Government Consumption

Government final consumption expenditure (GFCE) decelerated in H2:2023-24, with the ongoing fiscal consolidation and expenditure rationalisation. The central government's revenue expenditure excluding interest payments and subsidies declined by 7.5 per cent y-o-y, while capital outlay grew by 65.1 per cent y-o-y during Q3 (Chart III.10). In 2023-24 revised estimates (RE), the growth in the centre's revenue expenditure excluding interest payments and subsidies remained subdued at 3.9 per cent y-o-y, despite lower outgo on subsidies. Capital expenditure, on the other hand, recorded a strong expansion of 28.4 per cent y-o-y.

For 2024-25, the interim union budget projects the gross fiscal deficit (GFD) at 5.1 per cent of GDP, marking a drop of 70 basis points from 2023-24 (RE). This is in line with the medium term GFD target of 4.5 per cent by 2025-26 (Table III.2). Revenue



expenditure increased by 3.2 per cent y-o-y in 2024-25 budget estimate (BE), but moderated to 11.2 per cent of GDP from 12.0 per cent in 2023-24 (RE). Revenue expenditure excluding interest payments and major subsidies is budgeted at 6.4 per cent of GDP in 2024-25, lower than 7.0 per cent in 2023-24 (RE). The budgeted capital expenditure rose by 16.9 per cent y-o-y to 3.4 per cent of GDP in 2024-25 from 3.2 per cent in 2023-24 (RE). The interim union budget has projected a strong growth of 11.5 per cent y-o-y in gross tax revenues for 2024-25, with continued higher support from direct taxes.

The central government's gross tax revenue recorded a robust growth of 13.4 per cent during April-February 2023-24, boosted by buoyant direct tax collections. Direct taxes increased by 21.6 per cent, with income tax and corporation tax expanding by 25.8 per cent and 17.3 per cent, respectively. Indirect tax collections remained subdued as union excise duties contracted by 5.8 per cent y-o-y and custom duties rose by 3.9 per cent. Monthly GST collections (centre *plus* states) averaged ₹1.68 lakh crore during 2023-24, registering a growth of 11.6 per cent y-o-y (Chart III.11).

Table III.2: Central Government Finances

Indicator	(Per cent to GDP)			
	2021-22	2022-23	2023-24(RE)	2024-25(BE)
1. Revenue receipts	9.2	8.8	9.2	9.2
a. Tax revenue (Net)	7.6	7.8	7.9	7.9
b. Non-tax revenue	1.5	1.1	1.3	1.2
2. Non-debt capital receipts	0.2	0.3	0.2	0.2
3. Revenue expenditure	13.6	12.8	12.0	11.2
a. Interest payments	3.4	3.4	3.6	3.6
b. Major subsidies	1.9	2.0	1.4	1.2
4. Revenue expenditure excluding interest payments and subsidies	8.3	7.4	7.0	6.4
5. Capital expenditure	2.5	2.7	3.2	3.4
6. Capital outlay	2.3	2.3	2.7	2.9
7. Total expenditure	16.1	15.6	15.3	14.5
8. Gross fiscal deficit	6.7	6.4	5.9	5.1
9. Revenue deficit	4.4	4.0	2.9	2.0
10. Primary deficit	3.3	3.0	2.3	1.5

Notes: RE: Revised Estimates; BE: Budget Estimates.

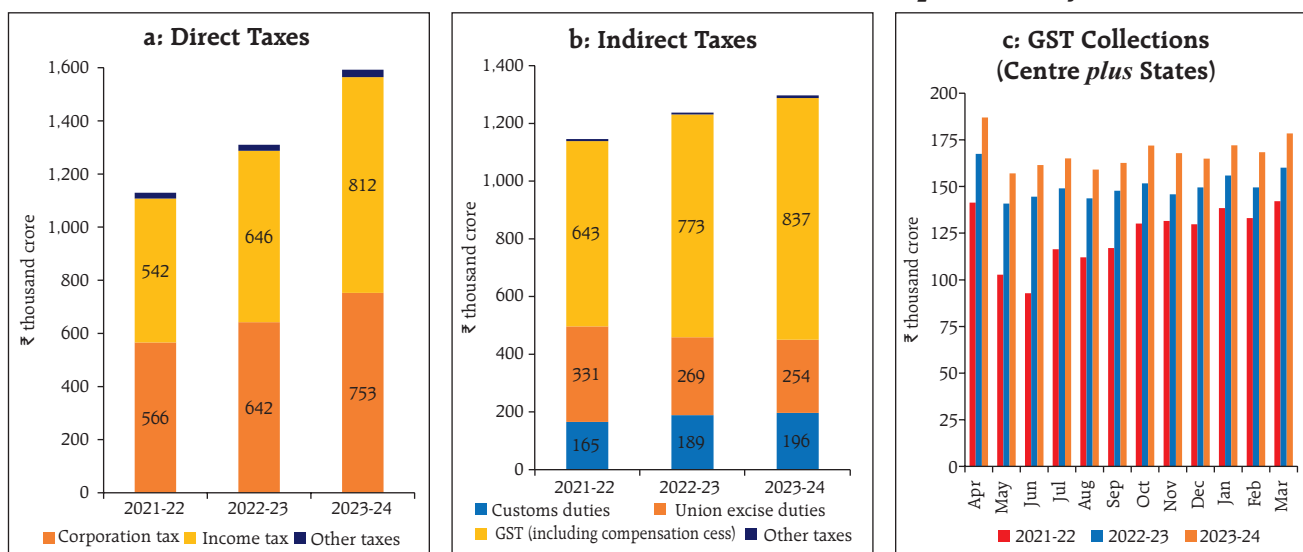
Figures may vary from those published in the Union Budget due to revision in GDP.

Source: Union Budget Documents.

During April-February 2023-24, the central government's revenue expenditure excluding interest payments and major subsidies increased by 3.3 per cent y-o-y, while capital expenditure posted a solid growth of 36.5 per cent, reflecting continued emphasis on infrastructure building.

State governments also continued with fiscal prudence, while supporting growth with a focus on capital expenditure, which was budgeted to expand by 40.3 per cent y-o-y in 2023-24 (BE). States' GFD was budgeted at 3.1 per cent of GDP in 2023-24 as against the limit of 3.5 per cent set by the centre (Table III.3).

Chart III.11: Central Government Tax Collections: April-February



Note: GST data is up to March 2023-24.

Sources: CGA; and Ministry of Finance.

Table III.3: State Government Finances - Key Deficit Indicators

	(Per cent to GDP)		
	2021-22 (A)	2022-23 (PA)	2023-24 (BE)
Revenue deficit	0.4	0.3	0.1
Gross fiscal deficit	2.8	2.8	3.1
Primary deficit	1.0	1.2	1.4

Notes: Data pertain to 31 States/UTs.

A: Actuals; PA: Provisional Accounts; BE: Budget Estimates.

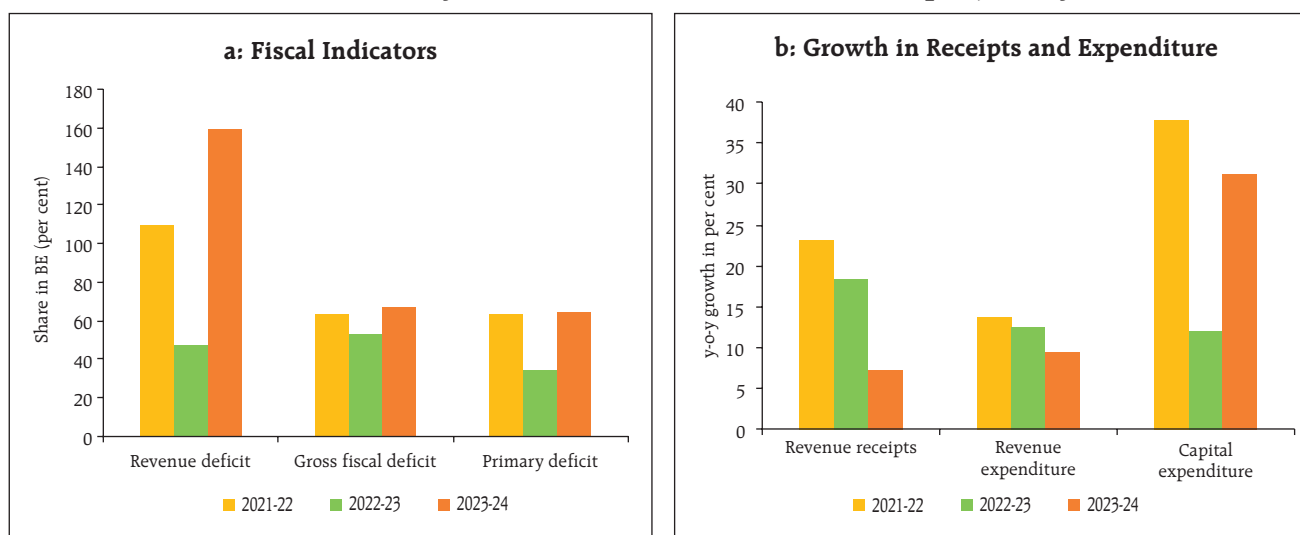
Sources: Budget Documents of States/UTs; and Comptroller and Auditor General (CAG) of India.

During 2023-24 (April-January), states' GFD reached 67.5 per cent of their budget estimates, higher than a year ago, as growth in revenue receipts slowed down to 7.4 per cent y-o-y (18.4 per cent last year). States' own tax revenues increased at a moderate pace during April-January 2023-24, partly due to contraction in revenues from sales tax/ value-added tax (VAT). On the expenditure front, revenue expenditure increased at a decelerated pace during April-January 2023-24, while capital spending rose by 31.2 per cent y-o-y during this period (Chart III.12a and b). States' revenue and capital expenditure stood

at 69.7 per cent and 58.4 per cent of budget estimates, respectively, during April-January 2023-24.

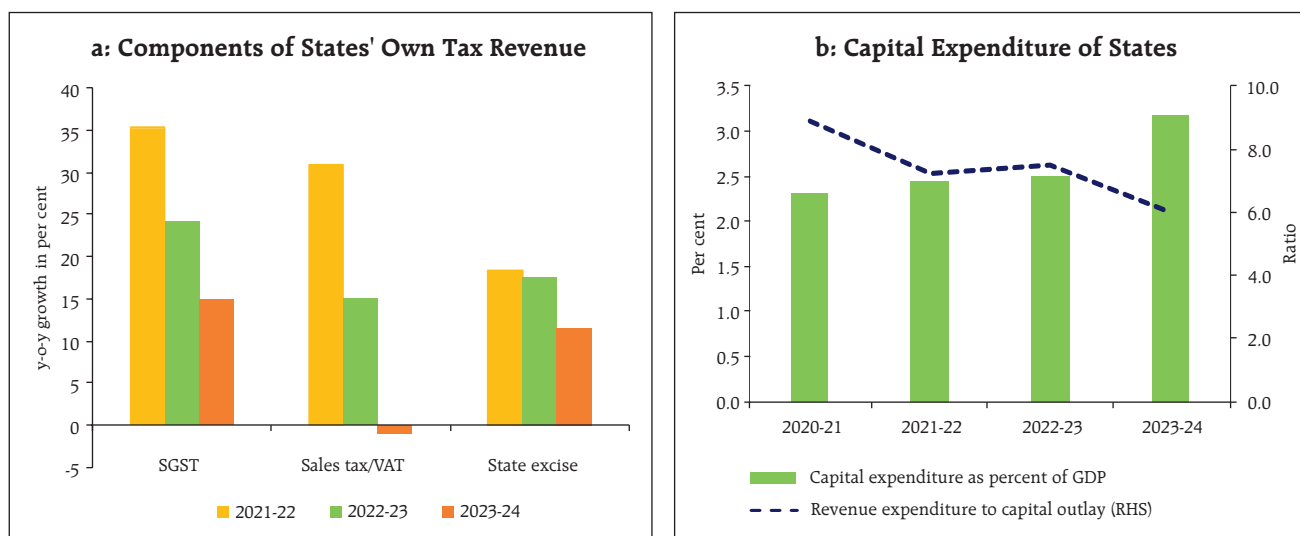
States capex was aided by the Scheme for Special Assistance to States for Capital Investment. Under this scheme, ₹95,225.77 crore has already been disbursed to the states by February 2024. This scheme has been extended for 2024-25 in the interim union budget, with 23.2 per cent higher allocations over 2023-24 (RE). The quality of states expenditure continued to improve, owing to sustained growth-inducing capex (Chart III. 13a and 13b).

In 2023-24, the centre's gross market borrowings of ₹15.43 lakh crore were completed, the same as envisaged in the budget estimates. As part of active debt consolidation, the Reserve Bank also conducted eleven switch auctions on behalf of the central government amounting to ₹1.03 lakh crore, substituting shorter maturity securities with longer maturity securities. The weighted average yield of issuances during 2023-24 dropped marginally to 7.2 per cent from 7.3 per cent in 2022-23, while the weighted average maturity elongated to 18.1 years from 16.1 years during this period further reducing the rollover risk. States raised

Chart III.12: Key Fiscal Indicators of the States/UTs: April-January

Note: Data pertain to 24 States/UTs.

Sources: Budget Documents of State Governments; and CAG.

Chart III.13: Revenue and Expenditure of States: April-January

Note: Data for revenue expenditure to capital outlay (RECO) ratio pertain to 24 States/UTs. Data for capital expenditure as per cent of GDP pertains to all States/UTs and data for 2023-24 is a Budget Estimate.
Sources: CAG; and RBI.

gross market borrowings of ₹10.07 lakh crore in 2023-24 as against the total sanctioned amount of ₹11.29 lakh crore for the current financial year (Table III.4). The Ways and Means Advances (WMA) limit fixed for the central government at ₹1.5 lakh crore and ₹50,000 crore for H1 and H2 of 2023-24, respectively, for meeting temporary mismatches between receipts and payments, remained unchanged from last year's level. For states/union territories also, the WMA limits were kept unchanged at ₹47,010 crore in 2023-24 as recommended by the Advisory Committee on Ways and Means Advances to State Governments (Chairman: Shri Sudhir Shrivastava).

In the interim union budget 2024-25, gross and net market borrowings are budgeted at ₹14.13 lakh crore and ₹11.75 lakh crore, respectively. Net market borrowings are marginally lower than ₹11.81 lakh crore

in 2023-24, indicating reduced pressure in the G-sec market and higher space for private sector funding. Issuance calendar for H1:2024-25 has planned to raise government dated securities amounting to ₹7.5 lakh crore (53.1 per cent of the total amount budgeted for the full year).

III.1.4 External Demand

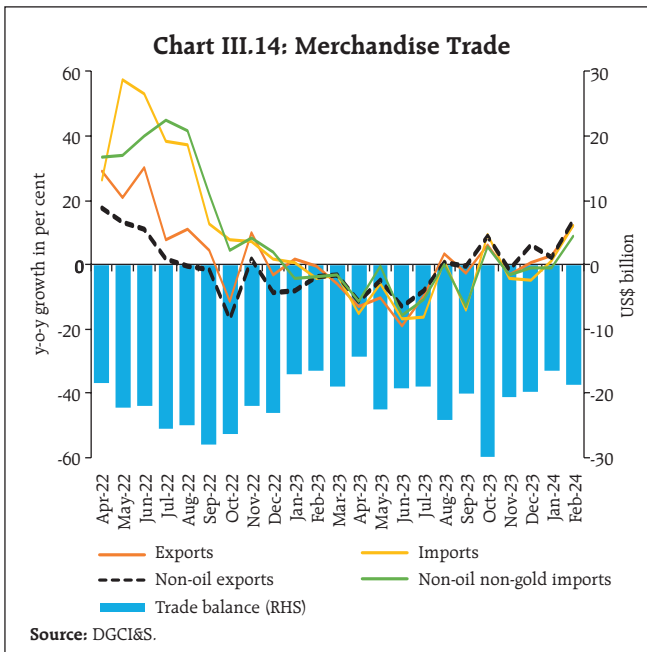
India's external demand exhibited signs of recovery in H2:2023-24 (October-February) despite protracted geopolitical tensions. Merchandise exports (US\$ terms) expanded by 3.7 per cent during H2 (October-February), while merchandise imports inched up by 2.5 per cent during this period. The merchandise trade deficit at US\$ 105.7 billion widened marginally during H2 (October-February) from US\$ 105.1 billion during the corresponding period of last year (Chart III.14).

Table III.4: Government Market Borrowings

(₹ crore)

	2021-22			2022-23			2023-24		
	Centre	States	Total	Centre	States	Total	Centre	States	Total
Net borrowings	8,63,103	4,92,483	13,55,586	11,08,261	5,18,830	16,27,091	11,80,975	7,17,140	18,98,115
Gross borrowings	11,27,382	7,01,626	18,29,008	14,21,000	7,58,392	21,79,392	15,43,000	10,07,058	25,50,058

Sources: Government of India (GoI); and RBI staff estimates.



The recovery in merchandise exports during H2:2023-24 (October-February) was led by engineering goods, electronic goods, drugs and pharmaceuticals, iron ore and cotton yarn (Chart III.15). On the other hand, petroleum products, rice, other cereals, readymade garments, and marine products dragged down exports. Petroleum products contributed a lower share of

19.9 per cent to total merchandise exports during H2 (October-February) than 21.6 per cent in the same period last year.

Growth of merchandise imports picked up in H2:2023-24 (October-February) due to higher imports of gold, electronic goods, and silver (Chart III.16). Oil imports declined by 7.5 per cent due to softening prices, while gold imports jumped substantially by 90.0 per cent during this period, reflecting strong retail demand. The growth in non-oil non-gold imports remained moderate at 1.7 per cent during H2 (October-February), led by expansion in imports of electronic goods, silver, machinery (electrical and non-electrical), and pulses.

Services trade witnessed some slowdown in H2:2023-24 (October-February) on a y-o-y basis, reflecting sluggish global demand. Services exports expanded by 5.2 per cent in Q3:2023-24 as compared with 24.5 per cent in the same period last year. Services export growth was mainly driven by software, business, and travel services. On the other hand, services imports contracted by 4.3 per cent in Q3, registering a decline for the second consecutive quarter on a y-o-y basis,

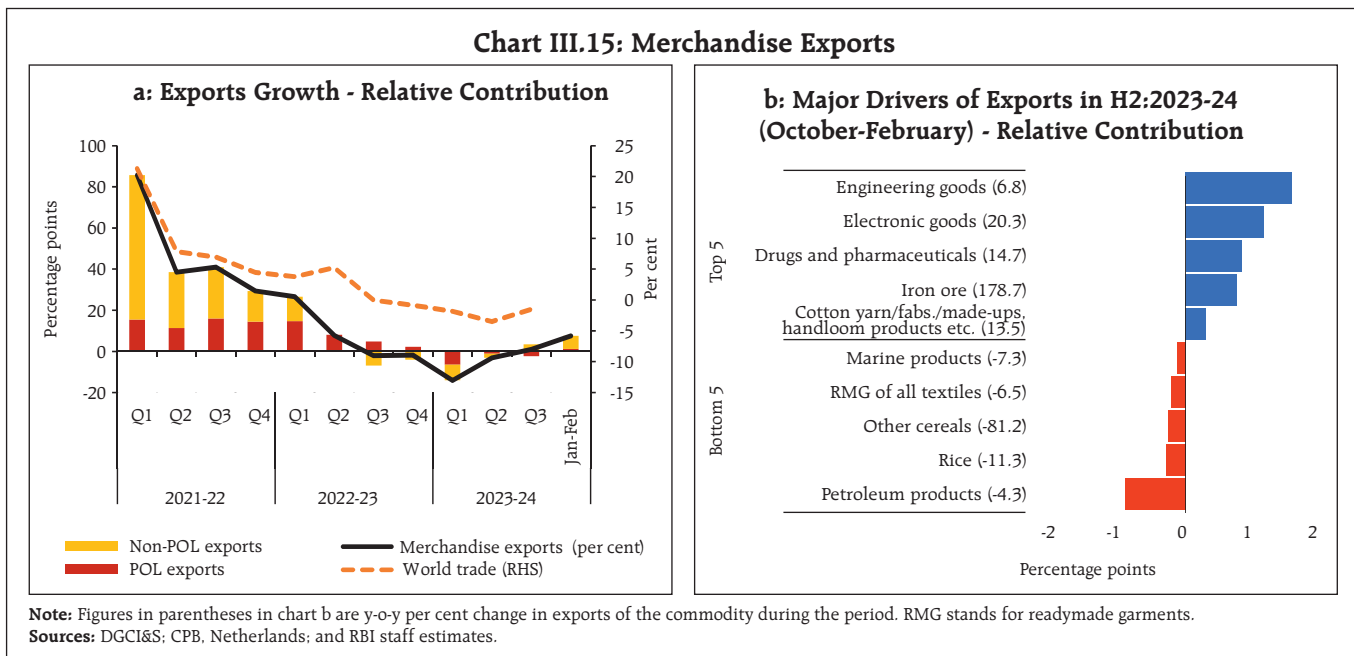
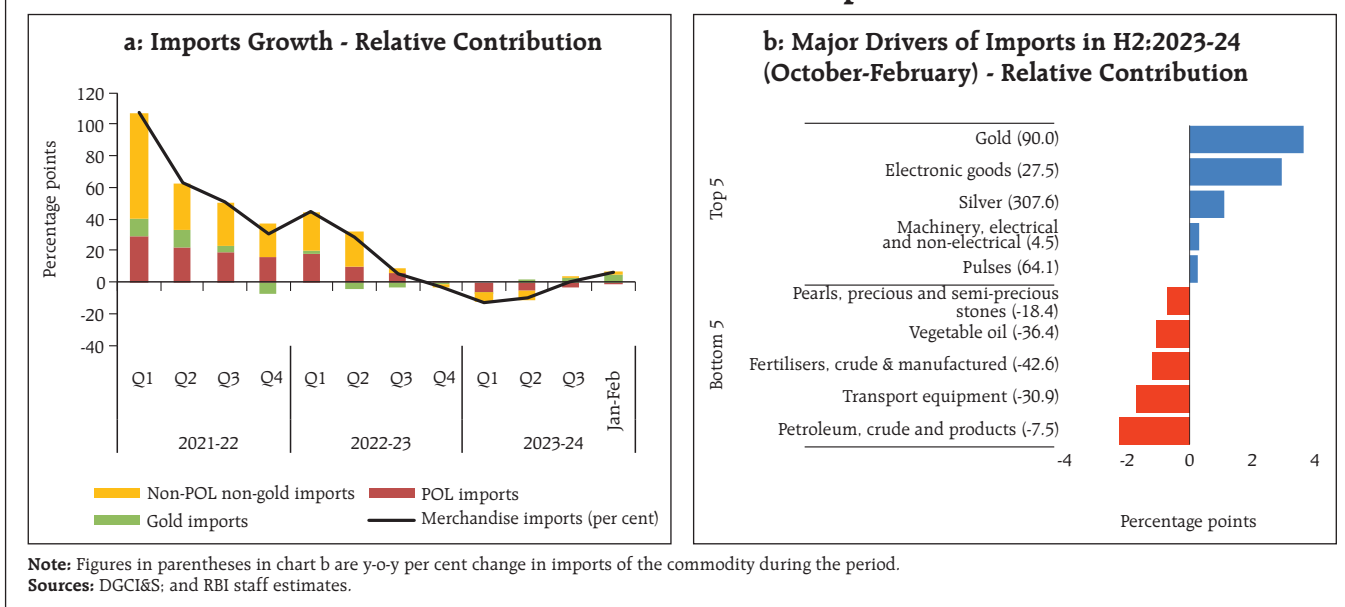
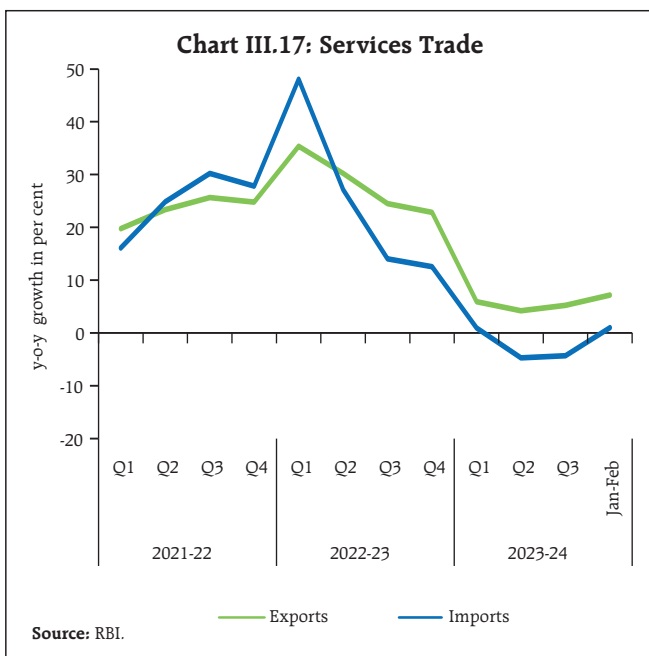


Chart III.16: Merchandise Imports



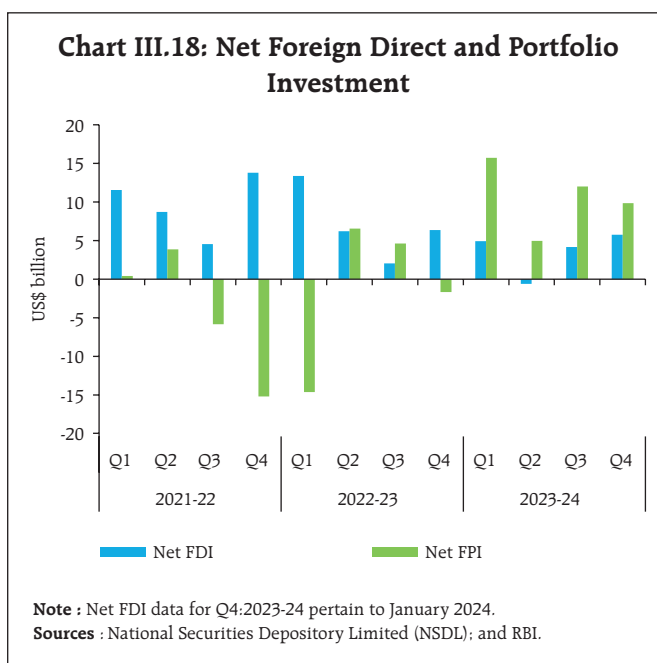
primarily on account of decline in transportation and business services (Chart III.17).

On a balance of payments basis, the current account deficit (CAD) narrowed marginally to 1.2 per cent of GDP in Q3:2023-24 from 1.3 per cent in Q2 with an improvement in net services trade and an increase in net transfer receipts.



In the financial account, capital flows increased sharply in H2:2023-24 on account of robust foreign direct investment (FDI) and foreign portfolio investment (FPI) flows. Net FDI flows jumped to US\$ 9.9 billion in H2 (October-January) from US\$ 5.4 billion a year ago (inflows of US\$ 4.2 billion in Q3:2023-24). The top five source countries for FDI in 2023-24 (April-January) include Singapore, Mauritius, USA, Netherlands and Japan, which together accounted for a share of 72.8 per cent. On the sectoral front, manufacturing, computer services, power generation, distribution and transmission, financial services, transport, and retail and wholesale trade constituted 73.6 per cent share of FDI equity inflow.

Foreign portfolio investment (FPI) extended the positive momentum in H2:2023-24, supported by net inflows in both equity and debt segments (Chart III.18). Net FPI equity flows increased to US\$ 8.0 billion during H2:2023-24 from US\$ 3.1 billion in the same period of the preceding year. Net debt inflows by FPIs amounted to US\$ 13.3 billion in H2 as compared to net outflows of US\$ 0.4 billion a year ago, aided by a substantial jump in flows after the September 2023 announcement of the inclusion



of Indian government bonds in J. P. Morgan's benchmark emerging market index from June 2024. Furthermore, the bandwagon effect of inclusion in other bond indices also supported debt inflows – Bloomberg Emerging Markets Index recently

announced inclusion of Indian Government bonds from January 31, 2025.

External commercial borrowings (ECBs) to India recorded net outflows of US\$ 0.1 billion in H2:2023-24 (up to February). Net accretions to non-resident deposits, on the other hand, rose to US\$ 4.7 billion in H2 (up to January) from US\$ 3.1 billion in the corresponding period of the previous year. As on March 29, 2024, India's foreign exchange reserves stood at US\$ 645.6 billion, equivalent to 11.3 months of projected merchandise imports in 2023-24 and 99.6 per cent of outstanding external debt at end-December 2023.

III.2 Aggregate Supply

Aggregate supply – measured by real gross value added (GVA) at basic prices – expanded by 6.5 per cent in Q3:2023-24 (4.8 per cent a year ago), led by manufacturing and construction activity (Table III.5). For the financial year 2023-24 as a whole, real GVA is estimated in the second advance estimates (SAE) to

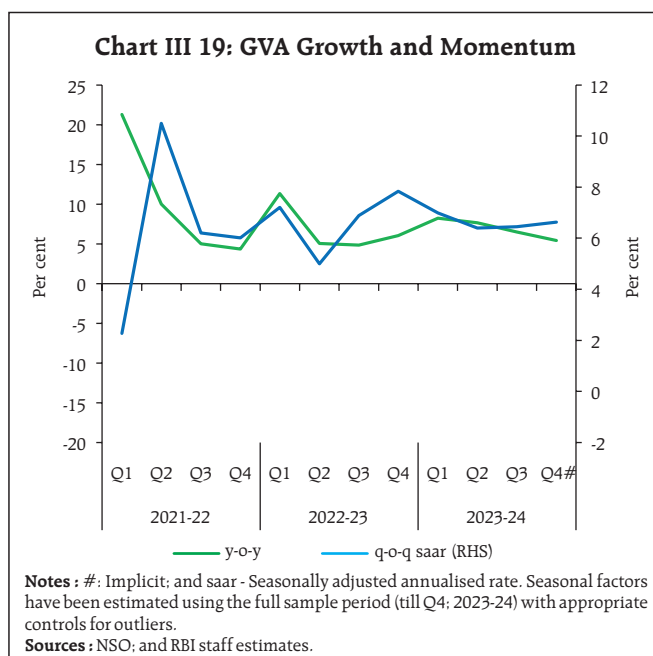
Table III.5: Real GVA Growth

(y-o-y, per cent)

Sector	2022-23	2023-24	Weighted Contribution		2022-23				2023-24			
	(FRE)	(SAE)	2022-23	2023-24	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4#
Agriculture, forestry and fishing	4.7	0.7	0.7	0.1	2.7	2.3	5.2	7.6	3.5	1.6	-0.8	-0.6
Industry	-0.6	8.3	-0.1	1.8	4.0	-5.5	-2.8	1.7	5.0	13.6	10.9	4.7
Mining and quarrying	1.9	8.1	0.0	0.2	6.6	-4.1	1.4	2.9	7.1	11.1	7.5	7.4
Manufacturing	-2.2	8.5	-0.4	1.4	2.2	-7.2	-4.8	0.9	5.0	14.4	11.6	3.9
Electricity, gas, water supply and other utilities	9.4	7.5	0.2	0.2	15.6	6.4	8.7	7.3	3.2	10.5	9.0	7.6
Services	9.9	7.9	6.1	5.0	16.4	9.4	7.5	7.3	10.4	6.9	7.4	7.2
Construction	9.4	10.7	0.8	0.9	14.7	6.9	9.5	7.4	8.5	13.5	9.5	11.3
Trade, hotels, transport, communication	12.0	6.5	2.1	1.2	22.1	13.2	9.2	7.0	9.7	4.5	6.7	5.5
Financial, real estate and professional services	9.1	8.2	2.0	1.9	10.5	8.7	7.7	9.2	12.6	6.2	7.0	6.8
Public administration, defence and other services	8.9	7.7	1.1	1.0	23.6	7.3	3.5	4.7	8.2	7.7	7.5	7.6
GVA at basic prices	6.7	6.9	6.7	6.9	11.3	5.0	4.8	6.0	8.2	7.7	6.5	5.4

Notes: FRE: First revised estimates; SAE: Second advance estimates. #: Implicit.

Sources: NSO; and RBI staff estimates.



grow at 6.9 per cent compared with 6.7 per cent last year. The momentum of overall GVA, measured by q-o-q saar, recorded robust growth in Q3 (Chart III.19).

III.2.1 Agriculture

Real GVA in agriculture, forestry and fishing contracted by 0.8 per cent in Q3:2023-24 (5.2 per

cent growth a year ago) on account of a decline in foodgrains production during *kharif* season. Deficient and unevenly distributed rainfall (both spatially and temporally) along with depleting reservoir levels led to decrease in foodgrains production. As of March 28, 2024, reservoir levels were at 36 per cent of the full capacity, below the last year’s level of 43 per cent and the decadal average of 37 per cent.

Foodgrains production for 2023-24 is estimated at 3093.5 lakh tonnes, 1.3 per cent lower than the final estimates of last year (Table III.6). Among major crops, the output of rice declined while that of wheat rose. Pulses production dropped with a sharp decline recorded during the *kharif* season. Among commercial crops, the output of oilseeds, cotton and sugarcane registered a sharp decline *vis-à-vis* last year.

As per the FAE, the production of horticultural crops during 2023-24 was placed at 355.3 million tonnes, marginally lower than the final estimates of 2022-23 and 1.2 per cent higher than the FAE of 2022-23.

Table III.6: Agricultural Production in 2023-24

(Lakh tonnes)

Crop	2022-23		2023-24		Variation in 2023-24 (Per cent)	
	SAE*	Final**	Target	SAE	Over Final 2022-23	Over Target
Foodgrains	3235.5	3135.5	3193.5	3093.5	-1.3	-3.1
<i>Kharif</i>	1534.3	1557.1	1581.3	1541.9	-1.0	-2.5
<i>Rabi</i>	1701.2	1578.4	1612.2	1551.6	-1.7	-3.8
Rice	1308.4	1255.2	1255.2	1238.2	-1.4	-1.4
Wheat	1121.8	1105.5	1140.0	1120.2	1.3	-1.7
Pulses	278.1	239.8	272.6	234.4	-2.2	-14.0
Oilseeds	400.0	403.0	428.6	366.0	-9.2	-14.6
Sugarcane	4687.9	4905.3	4700.0	4464.3	-9.0	-5.0
Cotton #	337.2	336.6	350.0	323.1	-4.0	-7.7
Jute & Mesta ##	100.5	93.9	105.0	96.3	2.6	-8.3

Notes: #: Lakh bales of 170 kgs. each.

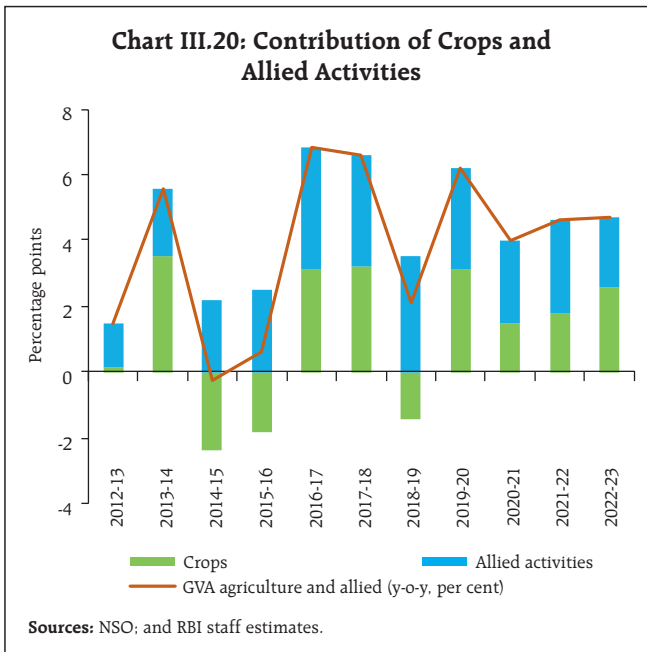
##: Lakh bales of 180 kgs. each.

*: *Rabi* and total production figures include summer production figures and hence, not comparable with SAE for 2023-24.

** : *Rabi* and total production figures here exclude summer production and hence, comparable with SAE for 2023-24.

SAE: Second advance estimates.

Sources: Ministry of Agriculture and Farmers' Welfare; and GoI.



Allied activities – livestock, forestry and fishing – contributed almost 45 per cent of agricultural GVA growth in 2022-23 (Chart III.20).

The overall procurement of rice during *kharif* marketing season in 2023-24 declined by 7.7 per cent to 454.4 lakh tonnes, while wheat procurement during *rabi* marketing season in 2023-24 at 262.0 lakh tonnes as on March 31, 2024 was 39.0 per cent higher

than last year. As on March 16, 2024, foodgrains buffer stocks were 574.6 lakh tonnes for rice (7.6 times the norm) and 82.7 lakh tonnes for wheat (0.6 times the norm) (Chart III.21a and b).

The high frequency indicators exhibit a mixed picture of rural activity as two-wheeler sales, agriculture credit and MNREGA demand indicate buoyancy while tractor sales and fertiliser sales suggest some softness in activity during H2 (Table III.7). Prospects of rural activity, however, appear bright due to better prospects of agricultural output on the back of an expected normal south-west monsoon in 2024 and accelerated pick up in informal sector activity.

III.2.2 Industry

The industrial sector strengthened further and recorded double digit growth in Q3:2023-24 on a favourable base and aided by strong activity across all sub-sectors. For the year as a whole, industry grew by 8.3 per cent y-o-y in 2023-24 as per the SAE. Manufacturing GVA expanded at a double digit pace for the second consecutive quarter in Q3, gaining strength from benign international commodity prices (Box III.2). Manufacturing has emerged as the key

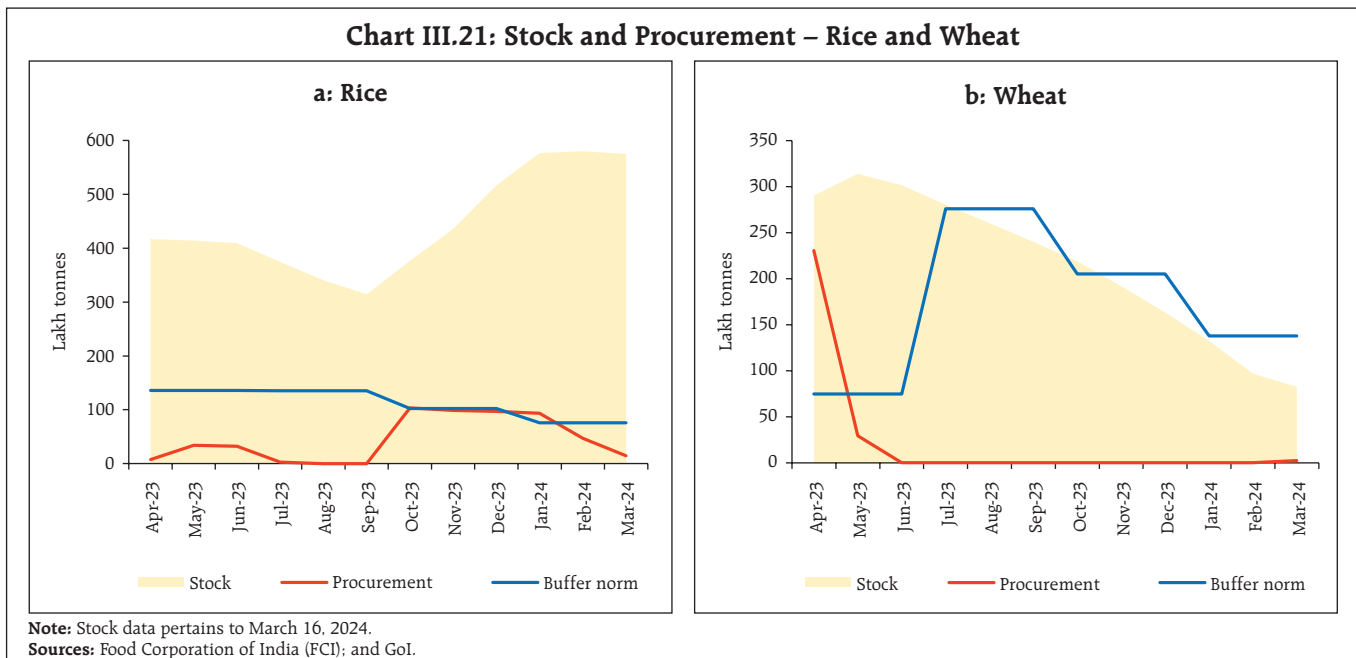


Table III.7: Rural Economy – High Frequency Indicators

Item	Unit	H1 (Apr-Sep)			H2 (Oct-Feb)		
		2021-22	2022-23	2023-24	2021-22	2022-23	2023-24
Tractor sales	Number (in lakh)	4.4	4.9	4.7	3.3	3.8	3.3
Two-wheeler sales	Number (in lakh)	65.5	84.0	87.4	58.2	61.7	77.5
Fertiliser sales	Lakh tonnes	269.1	307.2	312.9	237.0	275.2	270.3
Demand for employment (MGNREGA)*	Crore households	16.7	13.9	15.1	13.6	12.0	11.5
Agriculture and allied sector exports**	USD billion	22.7	26.4	23.3	17.7	16.4	15.4
Agriculture credit growth	y-o-y	13.1	13.4	16.8	12.9	15.0	20.1
Rice stock to buffer norm#	Ratio	3.4	2.8	3.1	7.5	5.8	7.6
Wheat stock to buffer norm#	Ratio	2.3	1.1	1.2	1.5	0.7	0.6

Sources: TMA; SIAM; MoC&F; Ministry of Rural Development; CMIE; RBI; and FCI.

Notes: *up to March. **up to January.

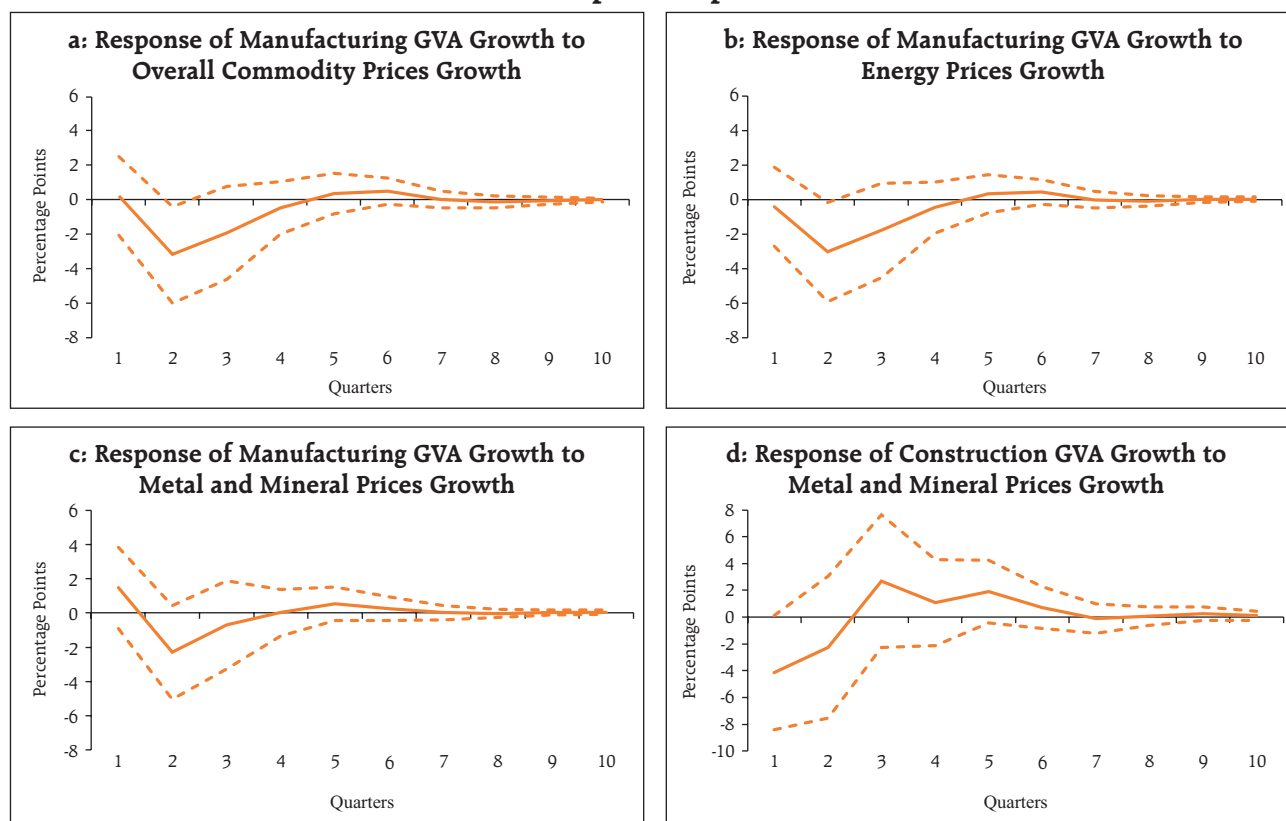
#: as on March 16, 2024.

Box III.2: Transmission of Commodity Prices Shocks to Value Addition of Different Sectors in India

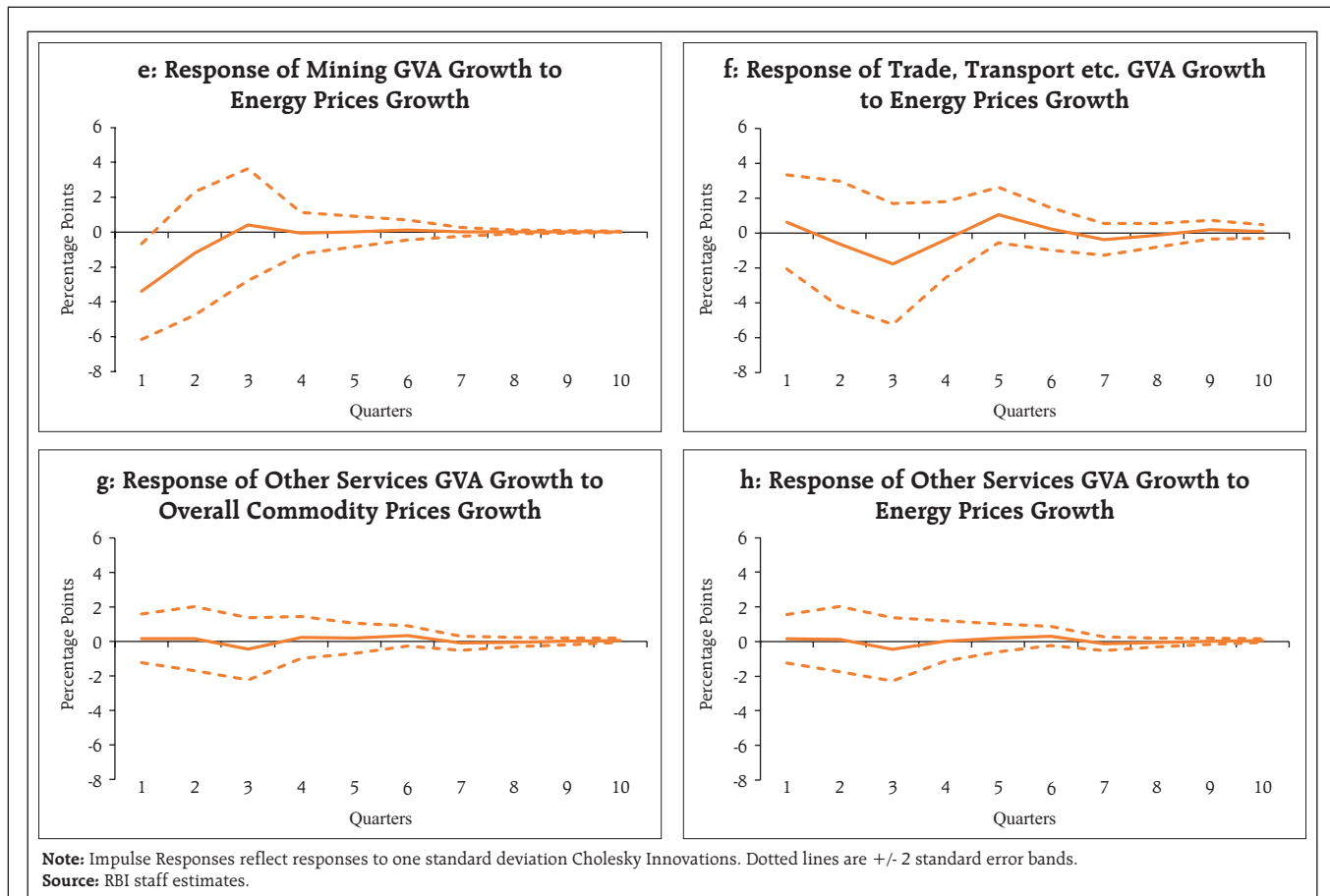
A surge in commodity prices, triggered by supply chain disruptions amidst the pandemic and subsequently Russia-Ukraine conflict, has impacted both global and domestic economic activity in the form of input cost

pressures. Global commodity prices have softened since then, providing tailwinds to growth of real gross value added (GVA). The effect of international commodity prices on GVA of major sectors is modelled by using a structural

Chart III.2.1: Impulse Response Functions



(Contd.)



vector autoregression (SVAR) with global and domestic variables (Knoop and Vespignani, 2014)- using quarterly data from Q1:2003-04 to Q2:2023-24⁹.

The impulse responses indicate that a positive shock to growth in international aggregate commodity prices; energy prices; and metal and mineral prices pulls down domestic manufacturing GVA growth with a lag of two quarters (Chart III.2.1). The adverse impact of metals and mineral prices on construction GVA growth is steeper and faster. Energy prices also adversely impact GVA growth

in mining within one quarter. On the contrary, though energy prices negatively impact GVA growth of trade, transport etc., their impact is not found to be statistically significant. GVA growth of other services appears to be immune to commodity price fluctuations.

References:

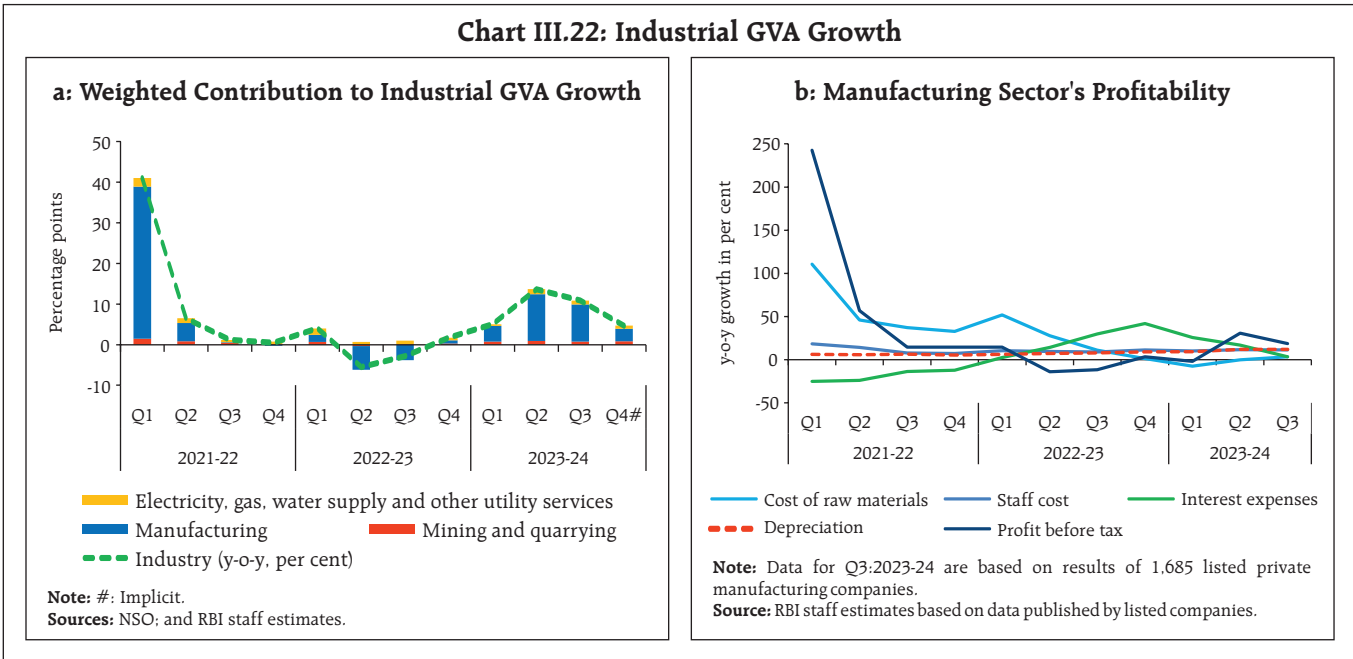
Stephen J. Knop & Joaquin L. Vespignani (2014). The sectorial impact of commodity price shocks in Australia. *Economic Modelling*, 42 (2014), 257-271.

driver of economic activity, powered by reforms. The production linked incentive (PLI) scheme has made India a hub of mobile phones manufacturing and is expected to similarly benefit several other industries

in the next few years. Introduction of goods and services tax (GST) has considerably improved the ease of doing of business. Mining activity was supported by robust coal and natural gas production, while crude

⁹ Global block includes global gross domestic product (GDP) growth (proxied by that of OECD countries) and international commodity prices (sourced from World Bank), while domestic aggregate GVA growth excluding the sector of interest, domestic GVA growth of particular sector, domestic inflation (GDP deflator) and the short-term interest rate (weighted average call money rate (WACMR)) adjusted for inflation are considered from domestic block. All variables, except for inflation and WACMR, have been seasonally adjusted and log transformed.

Chart III.22: Industrial GVA Growth



oil production remained subdued. GVA of electricity, gas, water supply, and other utility services grew by 9.0 per cent y-o-y during Q3 (Chart III.22).

The index of industrial production (IIP) grew at 6.0 per cent during Q3:2023-24 and 3.8 per cent y-o-y in January, with support from all constituents (Chart

III.23 and Table III.8). Mining and quarrying gained further with a growth of 8.2 per cent in Q3 and 5.9 per cent in January. Manufacturing recorded an expansion of 5.3 per cent in Q3 (1.4 per cent during the previous year) and 3.2 per cent in January. While the production of basic metals, coke and refined petroleum products, motor vehicles and machinery and equipment

Chart III.23: Index of Industrial Production (IIP)

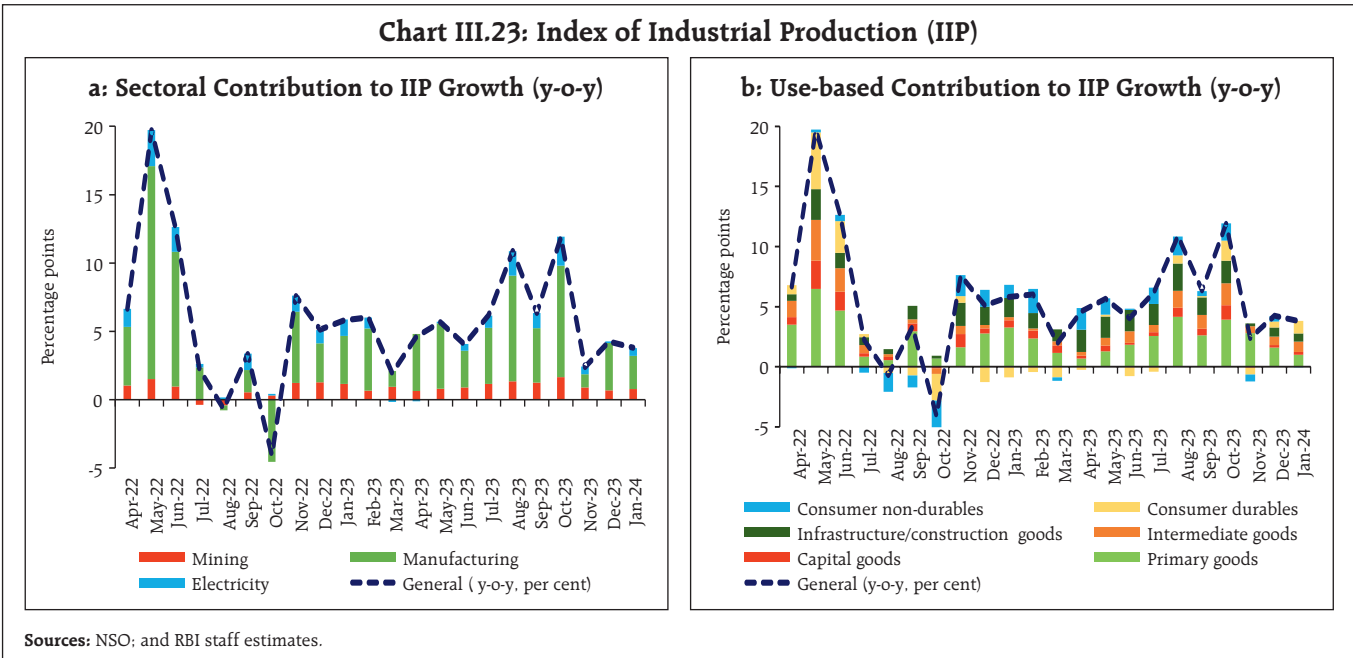


Table III.8: Industrial Sector y-o-y growth

(per cent)

Indicators	2023-24					
	Q1	Q2	Q3	Jan	Feb	Mar
1 PMI: Manufacturing (>50 indicates growth over previous month)	57.9	57.9	55.5	56.5	56.9	59.1
2 Index of Industrial Production (IIP)	4.8	7.8	6.0	3.8		
3 IIP: Manufacturing	5.1	6.8	5.3	3.2		
4 IIP: Primary goods	3.6	9.3	8.1	2.9		
5 IIP: Capital goods	5.1	8.8	7.5	4.1		
6 IIP: Infrastructure and construction goods	13.2	12.8	6.4	4.6		
7 IIP: Consumer durables	-2.7	1.1	5.1	10.9		
8 IIP: Consumer non-durables	6.8	7.0	2.4	-0.3		
9 Eight Core Industries (ECI)	6.0	10.5	8.4	4.1	6.7	
10 ECI: Steel	16.5	15.4	10.2	8.7	8.4	
11 ECI: Cement	12.7	10.4	5.1	5.7	10.2	
12 Electricity demand	1.5	13.9	9.9	5.9	6.9	
Production of Automobiles						
13 Passenger vehicles	7.0	5.6	5.0	9.8	14.4	
14 Two wheelers	1.3	-1.5	19.0	26.0	35.7	
15 Three wheelers	24.3	19.6	13.4	4.8	14.3	
16 Tractors	-8.9	-10.1	-13.0	-17.4	-13.6	

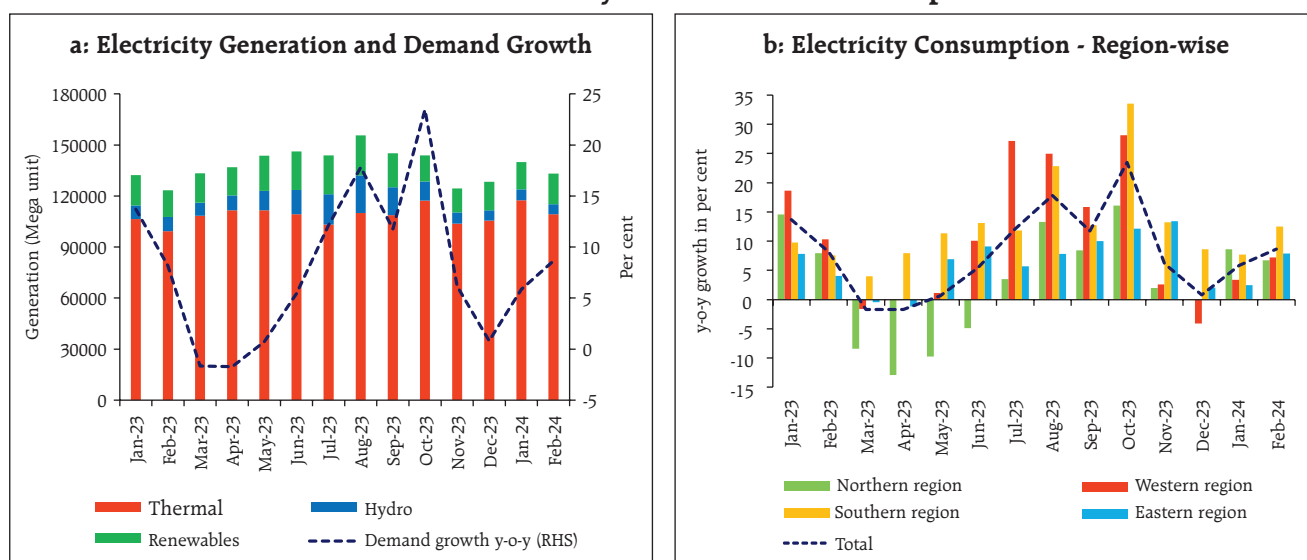
Sources: CMIE; CEIC; NSO; SIAM; HSBC, S&P Global; and RBI staff estimates.

recorded an upsurge in Q3, manufacturing of furniture, wearing apparel and computer, electronic and optical products acted as a drag on growth. In terms of the use-based classification, primary, capital, intermediate, infrastructure and consumer durables

rose during Q3 and January. Consumer non-durable goods, however, grew at a subdued pace during this period.

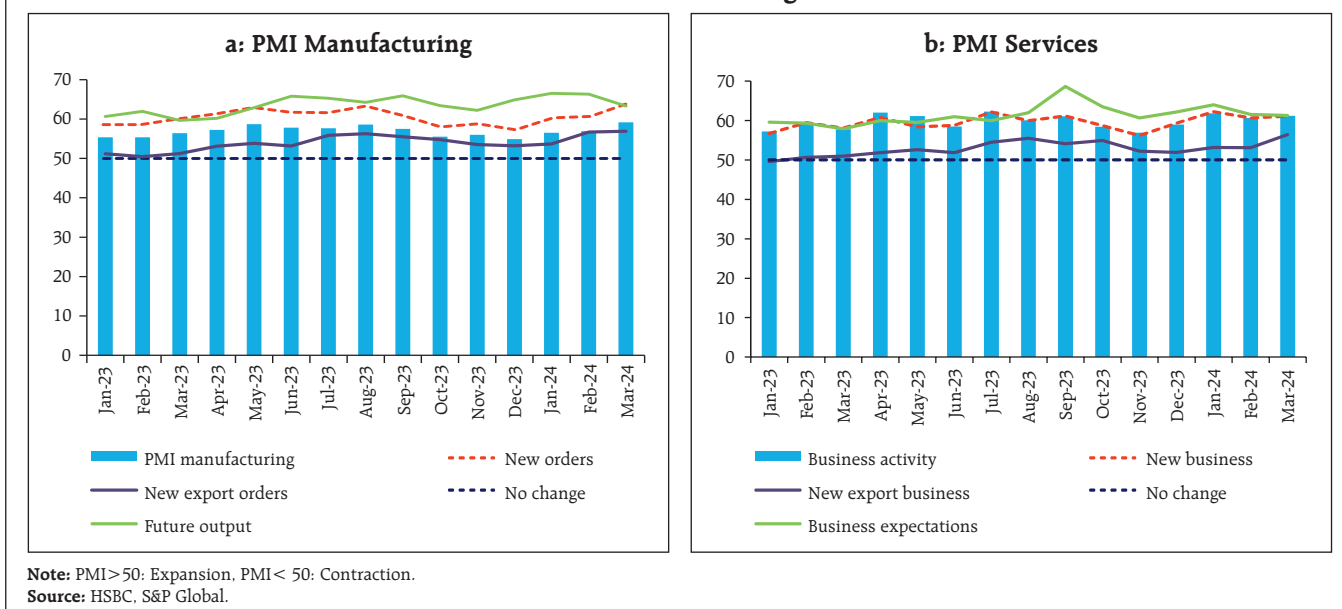
Electricity, gas, water supply and other utility services maintained buoyancy and posted sharp

Chart III.24: Electricity Generation and Consumption



Sources: Central Electricity Authority; and Power System Operation Corporation Limited (POSOCO).

Chart III.25: PMI Manufacturing and Services



growth in H2, reflecting underlying demand conditions. Electricity generation rose sharply by 9.0 per cent y-o-y in Q3:2023-24 (7.9 per cent a year ago) driven by thermal power generation which registered a growth of 14.3 per cent. Renewable energy sources, which have a share of 11.5 per cent in total generation, increased by 7.0 per cent. In Q4 (up to February), electricity generation growth increased to 6.6 per cent (Chart III.24a). Region-wise, electricity demand remained strong in all regions in Q3 and Q4 (up to February) (Chart III.24b).

The manufacturing purchasing managers' index (PMI) stayed in expansion mode all through H2, and rose to 57.5 in Q4 with a sharp uptick in new orders, including for exports. The future output index also strengthened (Chart III.25a).

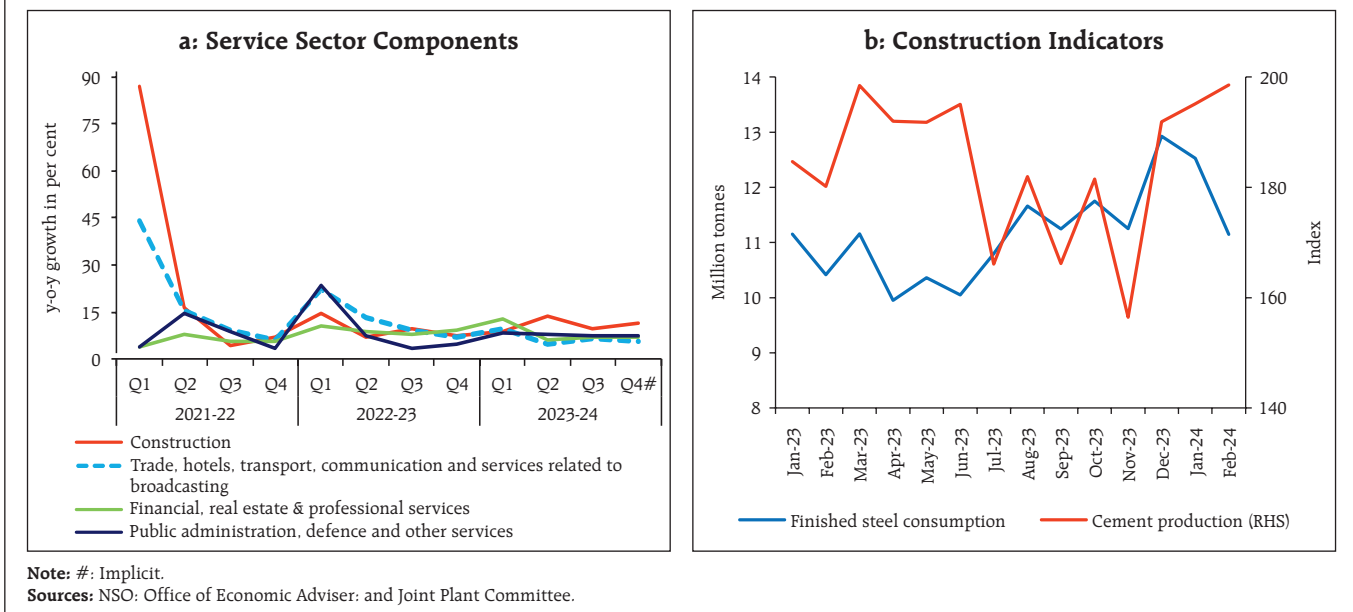
III.2.3 Services

Services remain the backbone of the Indian economy, with a contribution of over 70 per cent to GVA growth. Over the years, there has been a shift from low value addition services to high-skilled high value addition services. The sector maintained its momentum in H2:2023-24, with an impetus

from construction activity; trade, hotels, transport, communication and broadcasting; and financial, real estate and professional services (Chart III.26a). Services sector GVA growth accelerated to 7.4 per cent in Q3 from 6.9 per cent in the previous quarter. As per the SAE, the services sector is expected to grow in 2023-24 at 7.9 per cent y-o-y on the top of 9.9 per cent growth a year ago. High frequency indicators suggest strong construction activity in H2 – steel consumption recorded robust growth and a healthy expansion was registered by cement production (Chart III.26b).

GVA growth of trade, hotels, transport, and communication was 6.7 per cent y-o-y in Q3:2023-24 (4.5 per cent in Q2). GST collections in H2:2023-24 point towards robust domestic trading activity. Domestic air passenger traffic remained steady in H2, reflecting sustained growth in tourism and business-related travels. Indicators of transportation services, however, display a mixed picture – commercial vehicles growth slowed down in Q3, while passenger vehicles sale and toll collections remained strong in Q3 and Q4 (January-February). Port cargo registered

Chart III.26: Services Sector



double digit growth in Q3 and expansion in Q4 (January-February), while railway freight traffic held up its momentum during this period.

Financial, real estate and professional services rose by 7.0 per cent y-o-y in Q3:2023-24 and was a major contributor to service sector GVA growth (31.9 per cent) as well as to aggregate GVA growth (22.0 per cent). Bank credit and deposits expanded y-o-y by 16.3 per cent and 12.9 per cent, respectively, as on March 22, 2024. Insurance premia growth in both life and non-life segments also remained healthy in H2 (October-February) (Table III.9).

Nominal sales growth of non-IT services improved in Q3 after witnessing two consecutive quarters of decline. The performance of IT sector, however, weakened in Q3, owing to global headwinds (Chart III.27).

Real estate activity strengthened in Q3:2023-24, marked by the highest units sold since 2013-14. Unsold inventory dipped as new launches trailed units sold (Chart III.28a). The rise in all-India housing prices remained moderate in Q3, easing in Mumbai

and Delhi, and accelerating in Bengaluru and Chennai (Chart III.28b). Public administration, defence, and other services (PADO) grew at 7.5 per cent y-o-y in Q3. The centre's revenue expenditure, excluding interest payments and subsidies, declined during Q3. Healthy growth in other services like health, education and recreation, however, offset muted government consumption.

Chart III.27: Nominal Sales Growth in Manufacturing and Services Sectors

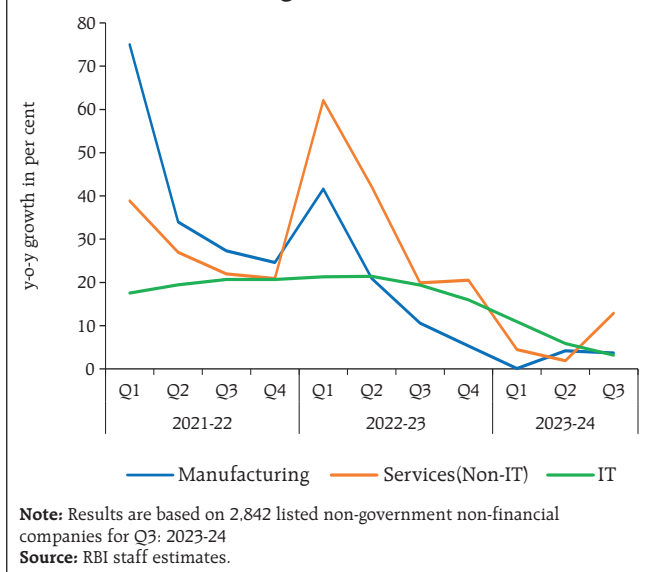


Table III.9: Services Sector y-o-y growth

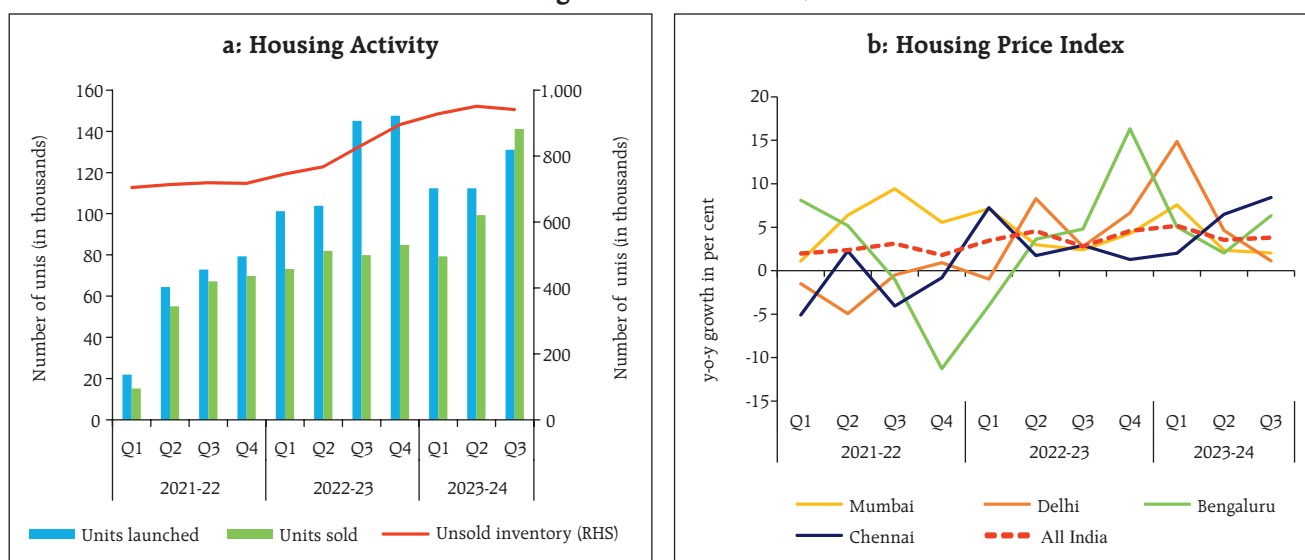
(per cent)

Indicators	2023-24					
	Q1	Q2	Q3	Jan	Feb	Mar
1 PMI: Services (>50 indicates growth over previous month)	60.6	61.1	58.1	61.8	60.6	61.2
Construction						
2 Steel consumption	10.4	19.3	14.5	12.3	7.0	
3 Cement production	12.7	10.4	5.1	5.7	10.2	
Trade, Hotels, Transport, Communication and Services related to Broadcasting						
4 Commercial vehicle sales	-3.3	6.9	3.5			
5 Domestic air passenger traffic	19.1	23.0	9.1	5.0	5.8	
6 Domestic air cargo	-1.0	-1.0	9.5	10.0	11.5	
7 International air cargo	0.1	3.7	10.7	19.3	30.2	
8 Freight traffic	1.1	4.8	6.4	6.4	10.1	
9 Port cargo	1.7	3.0	10.1	3.2	2.4	
10 Toll collection: volume	15.4	13.3	12.8	10.2	12.1	10.6
11 Petroleum consumption	6.4	6.3	1.7	8.3	5.7	
12 GST E-way bill	15.8	15.0	17.1	16.4	18.9	
13 GST revenue	11.6	10.6	12.9	10.4	12.5	11.5
Financial, Real Estate and Professional Services						
14 Credit outstanding	16.2	15.3	15.6	16.1	16.5	16.3
15 Bank deposits	12.9	12.4	12.6	12.5	12.5	12.9
16 Life insurance premium	-0.9	-21.2	5.4	27.0	48.4	
17 Non-life insurance premium	18.0	12.7	12.1	6.6	12.6	

Sources: CMIE; CEIC; NSO; HSBC, S&P Global; MOSPI; IRDAI; and RBI staff estimates.

The services PMI strengthened from 58.1 in Q3:2023-24 to 61.2 in Q4, boosted by buoyant domestic demand and new business gains from abroad (Table III.9 and Chart III.25b). The PMI composite output index improved from 58.1 in Q3:2023-24 to 61.2 in Q4.

Chart III.28: Housing Sector – Launches, Sales and Prices



Sources: PropTiger; and RBI.

III.3 Conclusion

Backed by strong fundamentals, domestic economic activity remained robust in H2:2023-24, weathering challenges from muted global demand. Fixed investment and the lower drag from net external demand propelled real GDP growth, while private consumption received support from steady urban demand. On the supply side, manufacturing activity strengthened further, benefitting from lower input costs and improvement in global supply chains. Construction activity remained firm on the back of buoyant housing demand and the government's thrust on infrastructure. Going ahead, private consumption will get support from improved prospects for rural

demand and rising consumer confidence. The government's continued emphasis on infrastructure creation, coupled with an uptick in private corporate investment and buoyant business optimism, could nurture a sustained revival in investment cycle, which augurs well for boosting productivity and growth in the economy. The impact of a lower fiscal impulse on growth could be offset by higher growth-inducing capital expenditure. The medium and long-term growth potential of the economy is rising, propelled by structural drivers like improving physical infrastructure; development of world class digital and payments technology; ease of doing business; enhanced labour force participation; and improved quality of fiscal spending.

IV. Financial Markets and Liquidity Conditions

Domestic financial market exhibited orderly movements during H2:2023-24 in contrast to volatile global market conditions. Money market rates evolved in consonance with the monetary policy stance and long-term bond yields remained stable. Banks' lending and deposit rates increased, reflecting improvement in monetary policy transmission. The Reserve Bank conducted market operations to ensure adequate liquidity to meet the productive requirements of the economy.

Introduction

During H2:2023-24, global financial markets remained volatile in anticipating the course of monetary policy. While sovereign bond yields moderated from October 2023, they have hardened since January 2024. Global equity markets remained buoyant in several advanced and emerging market economies. In the currency markets, the US dollar strengthened in Q3:2023-24 in the wake of tight labour market conditions, easing inflation, resilient

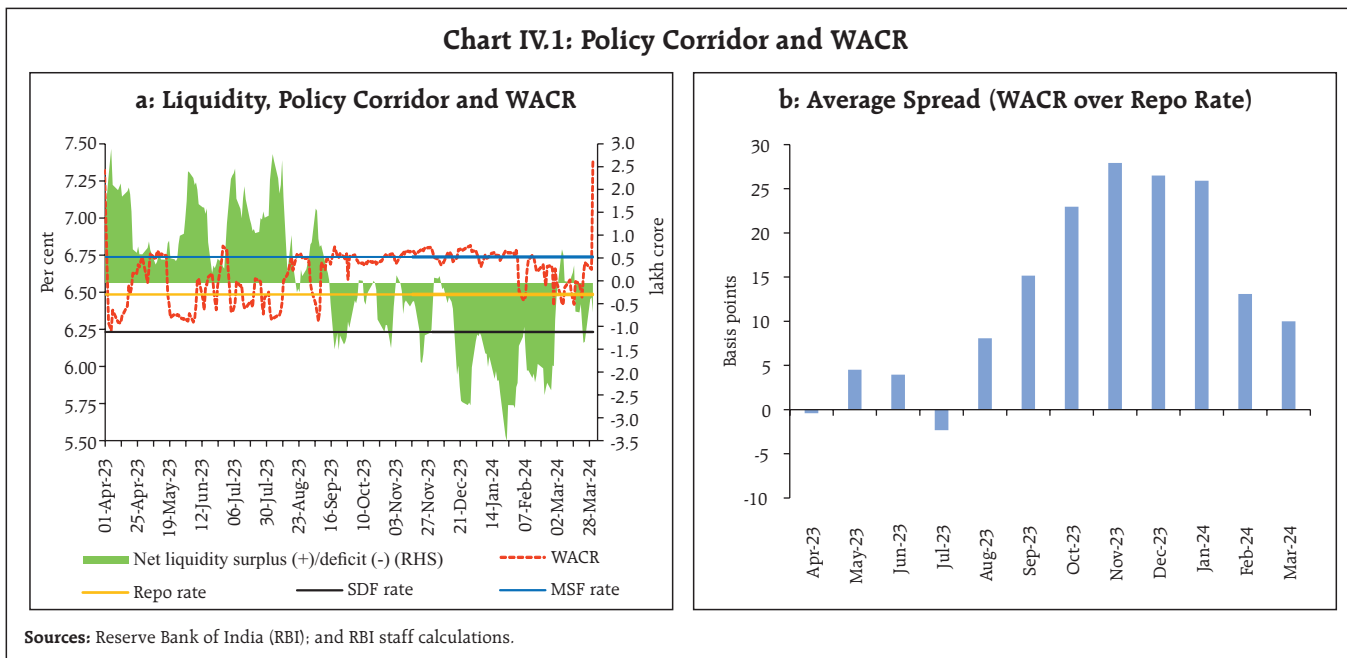
economic growth and hawkish Fed policy commentary. Consequently, emerging market currencies turned volatile amidst large fluctuations in capital flows.

IV.1 Domestic Financial Markets

In contrast to global movements, domestic financial markets remained relatively stable. Money market rates evolved in tune with liquidity shifts; in contrast, long-term government bond yields eased in response to domestic developments. Equity markets remained buoyant with intermittent corrections. The INR was the least volatile among major EM currencies. In the credit market, growth in bank credit remained robust, outpacing deposit expansion.

IV.1.1 Money Market

During H2:2023-24 (October to January), overnight money market rates initially hovered around the marginal standing facility (MSF) rate – the ceiling of the liquidity adjustment facility (LAF) corridor – reflecting tight liquidity conditions engendered by elevated level of government cash balances and higher currency demand (Chart IV.1a). These rates moderated from February 2024 as liquidity conditions



eased with a pick-up in government spending. On an average basis, the weighted average call rate (WACR) – the operating target of monetary policy – was 21 basis points (bps) above the policy repo rate during H2, up from 5 bps in H1:2023-24 (Chart IV.1b). Other overnight rates *i.e.*, triparty repo (TREPS) and market repo moved in tandem with the WACR.

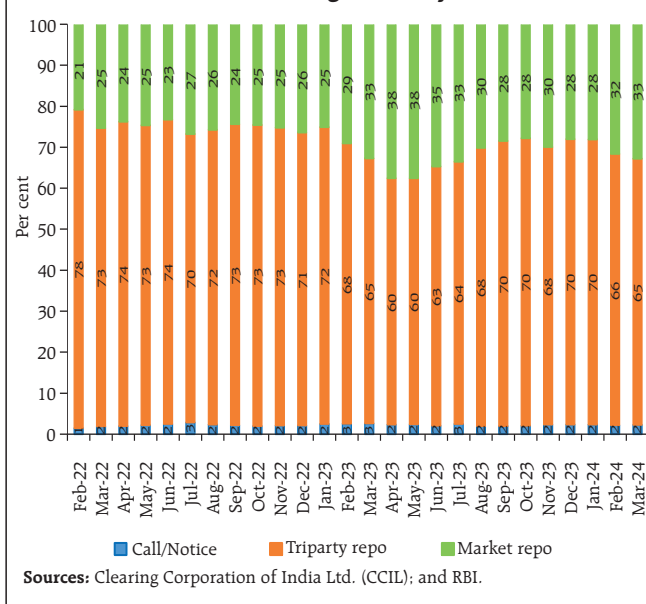
The elevated level of the WACR during H2:2023-24 was largely on account of primary dealers (PDs), the main borrowers in the overnight call market with a share of about three-fourths. Recognising the liquidity stress faced by PDs, the Reserve Bank enhanced the limit for Standalone Primary Dealers (SPDs) under the Standing Liquidity Facility (SLF) in January 2024 and made special provision under the LAF in March 2024 (see Section IV.3 for details).

In the overnight call money segment, the share of reported deals¹ in the total volume was negligible during H2, indicating that nearly all the deals have taken place on the NDS-Call platform, reflecting increasing NDS-Call membership.

Money market activity remained dominated by the collateralised segments, with the share of the uncollateralised call money market unchanged at 2.0 per cent in H2. The share of TREPS increased to 68 per cent from 64 per cent in H1:2023-24, with a corresponding moderation in the share of market repo to 30 per cent from 34 per cent (Chart IV.2). Mutual funds (MFs) remained the major lenders in the triparty repo segment (66 per cent share in H2 as compared with 64 per cent in H1). In the market repo segment, the share of MFs declined (33 per cent share in H2 as against 40 per cent in H1) while that

¹ 'Traded deals' are negotiated directly on the NDS-Call platform whereas 'reported deals' are over-the-counter (OTC) deals which are reported on the NDS-Call platform after the completion of negotiation of deals.

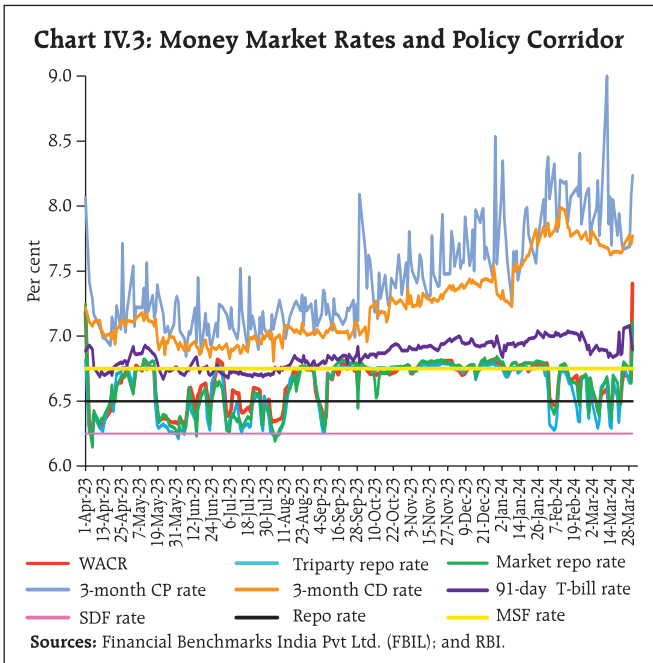
Chart IV.2: Share in Overnight Money Market Volumes



of foreign banks increased (43 per cent share in H2 as compared with 28 per cent in H1). On the borrowing side, the share of public sector banks (PSBs) in TREPS declined to 45 per cent in H2:2023-24 from 50 per cent in H1 while their share in market repo increased to 9 per cent in H2 from 7 per cent in H1.

In the longer-term money market segments, the yield on 3-month T-bills (TBs), commercial papers (CPs) and certificates of deposits (CDs) ruled above the MSF rate in the second half of the year amidst tight liquidity conditions (Chart IV.3). Yields on 3-month CPs for non-banking financial companies (NBFCs) firmed up after the announcement of several regulatory measures by the Reserve Bank on November 16, 2023². The spreads of TBs, CDs and CPs over the MSF rate increased to 19 bps, 74 bps and 100 bps, respectively, in H2:2023-24 from 2 bps, 25 bps and 41 bps, respectively, in H1. Money market rates eased after the Interim Budget

² These measures included increase in the risk weight of (i) consumer credit; (ii) consumer credit exposure of NBFCs; (iii) credit card receivables of scheduled commercial banks (SCBs) and NBFCs; and (iv) exposure of SCBs to NBFCs by 25 percentage points each.



2024-25 announcement implying higher government spending for 2023-24. The rates, however, spiked towards end-March 2024 due to year-end liquidity stress.

Fresh issuances of CDs increased to ₹5.5 lakh crore in H2:2023-24 from ₹3.0 lakh crore in H1, as deposit growth trailed robust credit growth.

Table IV.1: Maturity Profile of CP Issuances

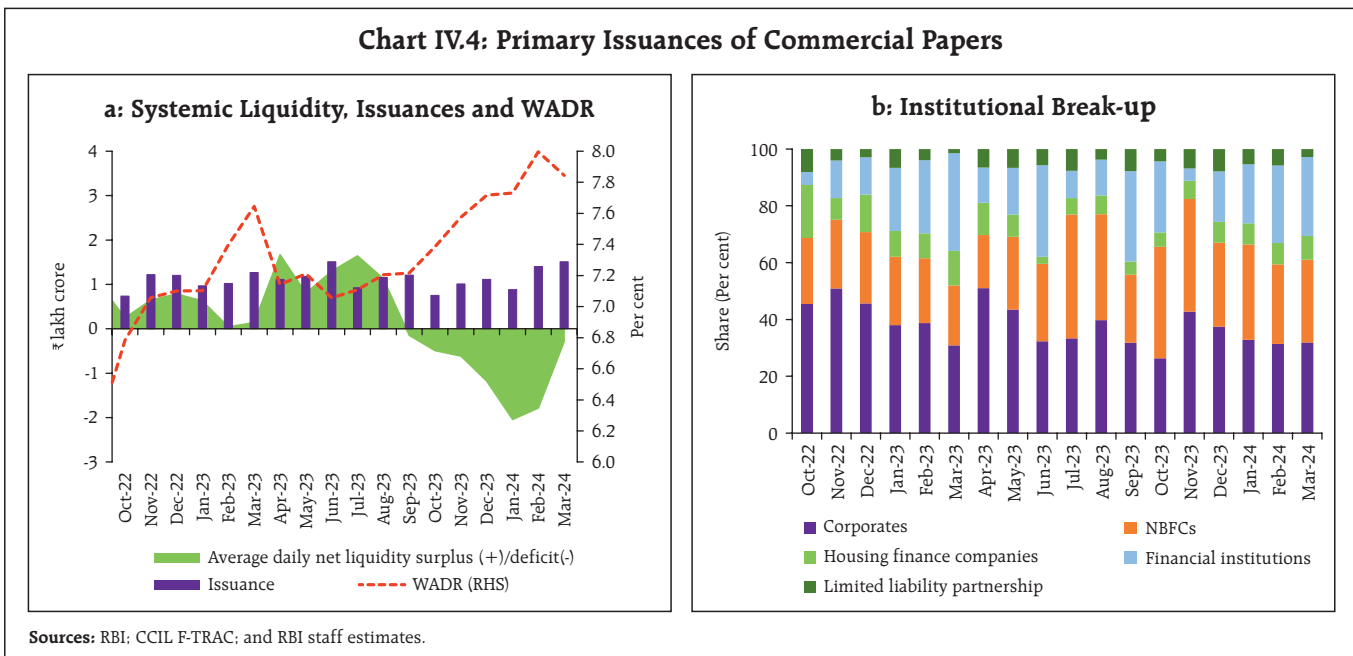
(₹ lakh crore)

Tenor	H2: 2022-23	H1: 2023-24	H2: 2023-24
7-30 days	0.38	0.45	0.48
31-90 days	3.13	3.18	2.32
91-180 days	1.94	2.75	3.11
181-365 days	0.97	0.70	0.77
Total	6.42	7.09	6.67
Outstanding (as at end-period)	3.54	4.12	3.89

Sources: CCIL; F-TRAC; and RBI.

Resource mobilisation through fresh issuances of CPs moderated to ₹6.7 lakh crore during H2:2023-24 from ₹7.1 lakh crore in H1 amidst hardening of rates (Chart IV.4a). The weighted average discount rate (WADR) of CP issuances firmed up to 7.75 per cent in H2 from 7.15 per cent in H1. Corporates and NBFCs were the major issuers of CPs with a share of 34 per cent and 33 per cent, respectively, in H2 (Chart IV.4b).

Among various maturity buckets, the 91-180 days segment had the largest share of fresh CP issuances (47 per cent in H2 as against 39 per cent in H1) (Table IV.1).

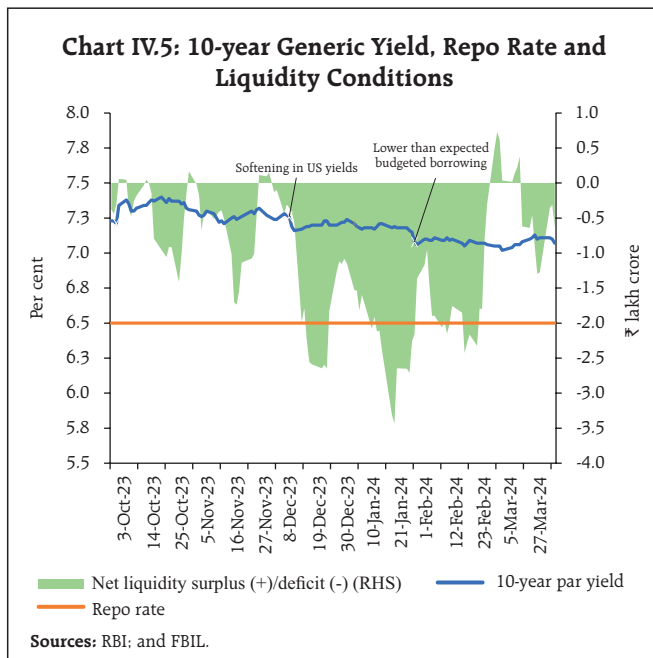


IV.1.2 Government Securities (G-sec) Market

During H2:2023-24, G-sec yields softened, reflecting both domestic and global factors (Chart IV.5). In Q3:2023-24, the yields initially firmed up but softened thereafter tracking lower than expected domestic CPI prints for October and November, decline in crude oil prices, proposed inclusion of Indian Government bonds in a major global emerging market index and decline in US yields. Overall, the 10-year G-sec yield softened by 2 bps in Q3 to close at 7.20 per cent.

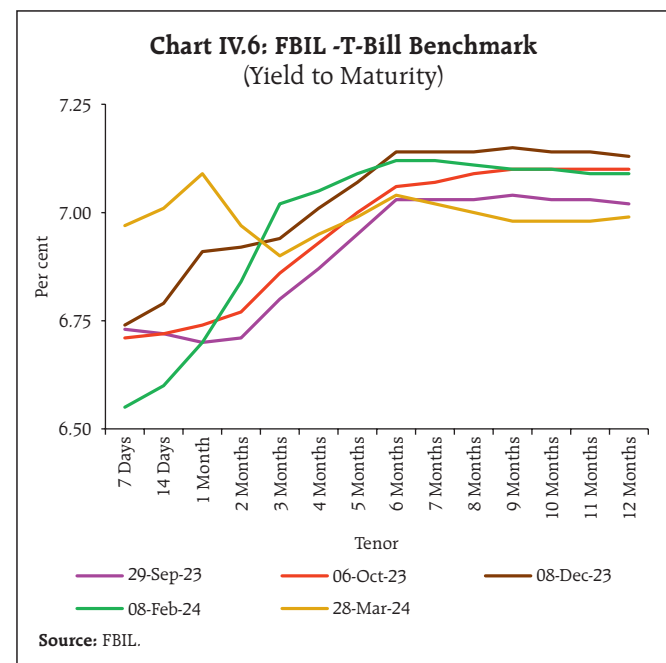
The moderation continued in January 2024 due to lower-than-expected supply of state government securities. Domestic yields eased further in February 2024 following the announcement of lower gross market borrowings in the Interim Budget 2024-25. Overall, the 10-year G-sec yield fell by 13 bps in Q4 to 7.07 per cent; cumulatively, yield declined by 15 bps in H2:2023-24.

The yields on T-bills hardened across tenors amidst tightening of liquidity conditions (Chart IV.6).

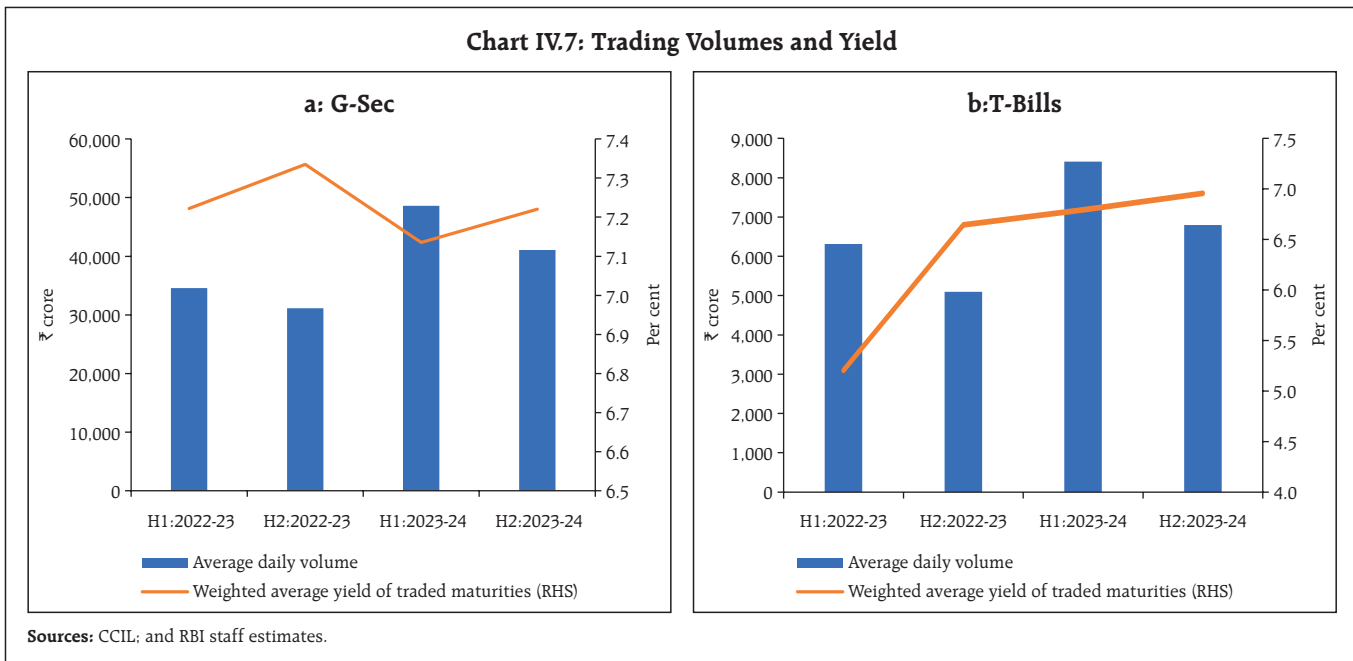


The trading volume in G-secs increased in H2:2023-24 as compared with the corresponding period of 2022-23 tracking softening of yields (Chart IV.7). The weighted average yield (WAY) on traded maturities for G-secs declined by 11 bps while that on T-bills increased by 31 bps in H2 from their levels in H2:2022-23, reflecting liquidity tightness at the shorter end.

Yields softened across the term structure as reflected in the downward shift of the curve during H2:2023-24 (Charts IV.8a). The overall dynamics of the yield curve are captured by its level, slope and curvature.³ During H2:2023-24, the average level of yields softened by 22 bps while the slope flattened by 37 bps due to relatively higher increase in short-term rates (Chart IV.8b). The curvature, on the other hand, declined by 31 bps reflecting pronounced softening in the mid segment of the curve compared to the long end. In the Indian context, the level and curvature of the yield curve are found to have more information content on future macroeconomic outcomes than the



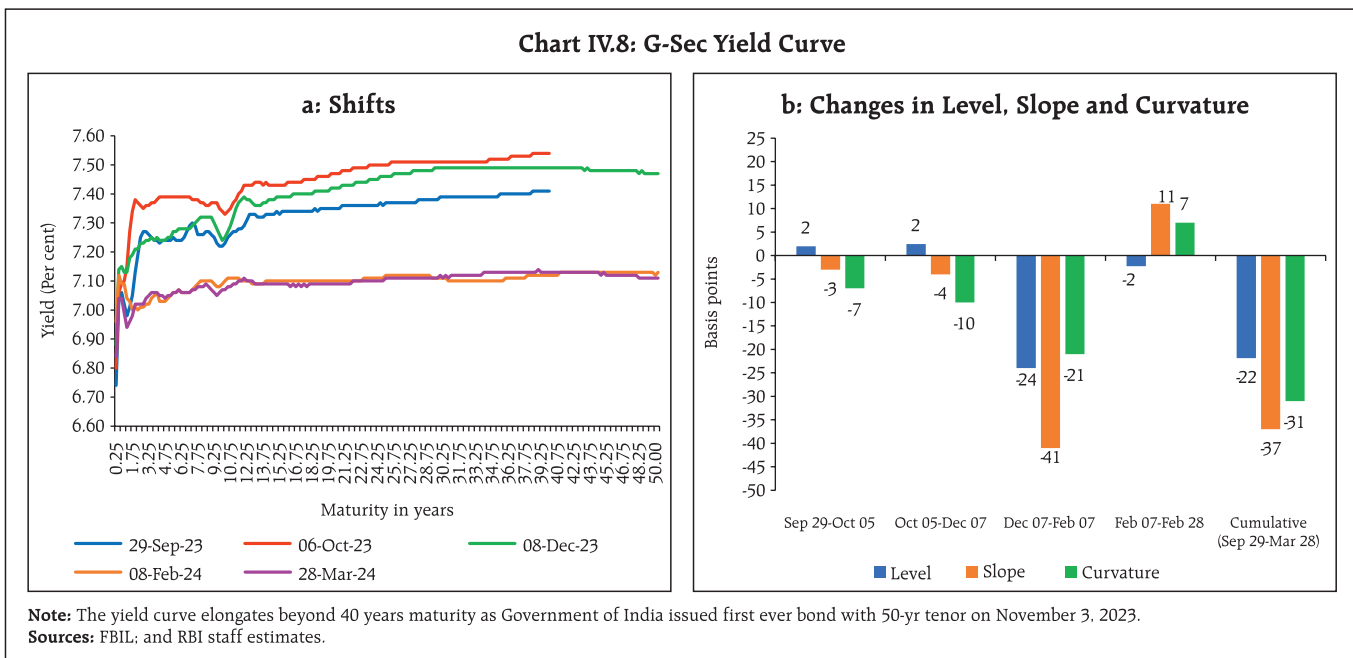
³ The level is the average of par yields of all tenors up to 30-years published by FBIL and the slope (term spread) is the difference in par yields of 3-months and 30-year maturities. The curvature is calculated as twice the 14-year yield *minus* the sum of 30-year and 3-month yields.



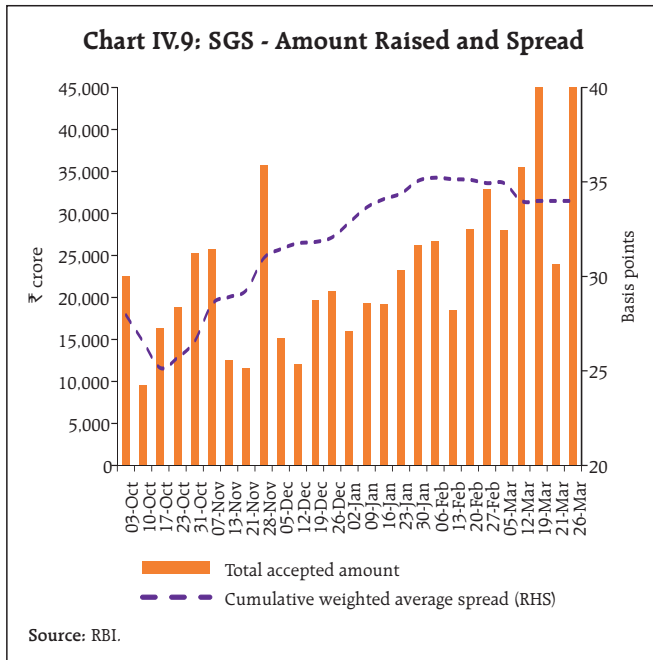
slope, unlike in AEs.⁴ The softening rates along with flatter slope indicates better anchoring of inflation expectations.

To facilitate debt consolidation, the Reserve Bank conducted five switch auctions on behalf of the Central Government amounting to ₹51,396 crore

during H2:2023-24. The weighted average maturity (WAM) of the outstanding stock of G-secs at 12.54 years during H2, was higher than 12.22 years at end-September 2023. The weighted average coupon (WAC) at 7.29 per cent at end-March 2024 was broadly at the same level as at end-September 2023 (7.28 per cent).



⁴ Patra, M.D., Joice, J., Kushwaha, K.M., and I. Bhattacharyya (2022), "What is the Yield Curve telling us about the Economy?", Reserve Bank of India Bulletin, June.



The weighted average spread of cut-off yields on state government securities (SGS) over the G-sec yields of comparable maturities was 34 bps in H2:2023-24 (Chart IV.9). The average inter-state spread on securities of 10-year tenor (fresh issuances) was 4 bps in H2:2023-24 as against 1 bp in H1.

Overall, the Reserve Bank successfully completed the gross market borrowing programme of the Central

Government for 2023-24 amounting to ₹15.4 lakh crore (net market borrowings of ₹11.8 lakh crore). Among the issuances during the year, sovereign green bonds of 5, 10 and 30 years maturity worth ₹20,000 crore were issued in H2:2023-24, underscoring the Government's commitment to sustainable and green finance. Despite record market borrowing by the Central Government during 2023-24, there was no devolvement on PDs for the first time since 2005-06. Furthermore, there was no cancellation of G-Sec auctions. The Interim Union Budget for 2024-25 has budgeted gross market borrowing of ₹14.1 lakh crore during 2024-25 (net market borrowing of ₹11.8 lakh crore).

IV.1.3 Corporate Bond Market

Corporate bond yields generally hardened, and spreads widened during H2:2023-24 amidst tightening of liquidity conditions and regulatory measures relating to consumer credit and bank credit to non-banking financial companies (NBFCs), as mentioned earlier. Issuer-wise, the average yield on AAA-rated 3-year bonds issued by public sector undertakings (PSUs), financial institutions (FIs) and banks softened by 2 bps (to 7.63 per cent) taking cues from easing G-sec yields while those on NBFCs and

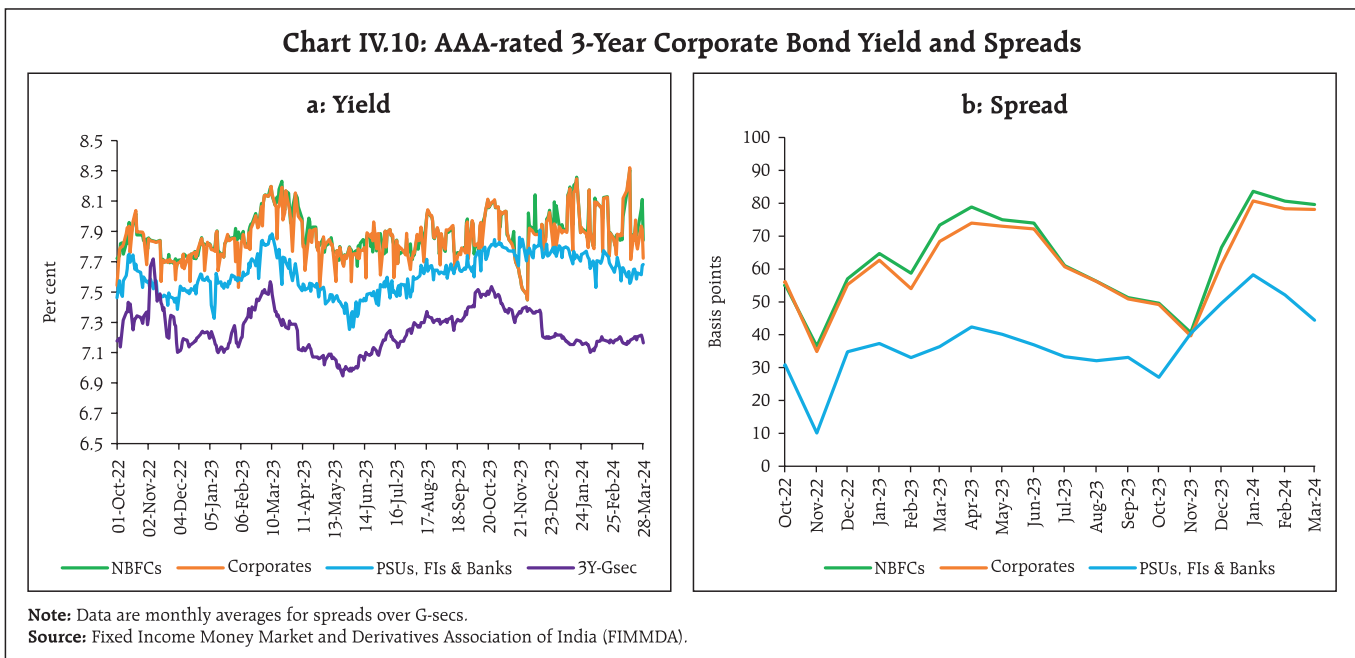


Table IV.2: Financial Markets - Rates and Spread

Instrument	Interest Rates (per cent)			Spread (bps) (over corresponding risk-free rate)		
	March 2023	September 2023	March 2024	March 2023	September 2023	March 2024
1	2	3	4	5	6	7
<i>Corporate Bonds</i>						
(i) AAA (1-yr)	8.08	7.68	7.97	66	53	77
(ii) AAA (3-yr)	8.07	7.83	7.95	68	51	77
(iii) AAA (5-yr)	8.00	7.69	7.74	57	37	54
(iv) AA (3-yr)	8.77	8.46	8.55	139	113	137
(v) BBB-minus (3-yr)	12.42	12.14	12.18	504	481	500

Note: Yields and spreads are computed as monthly averages.

Source: FIMMDA.

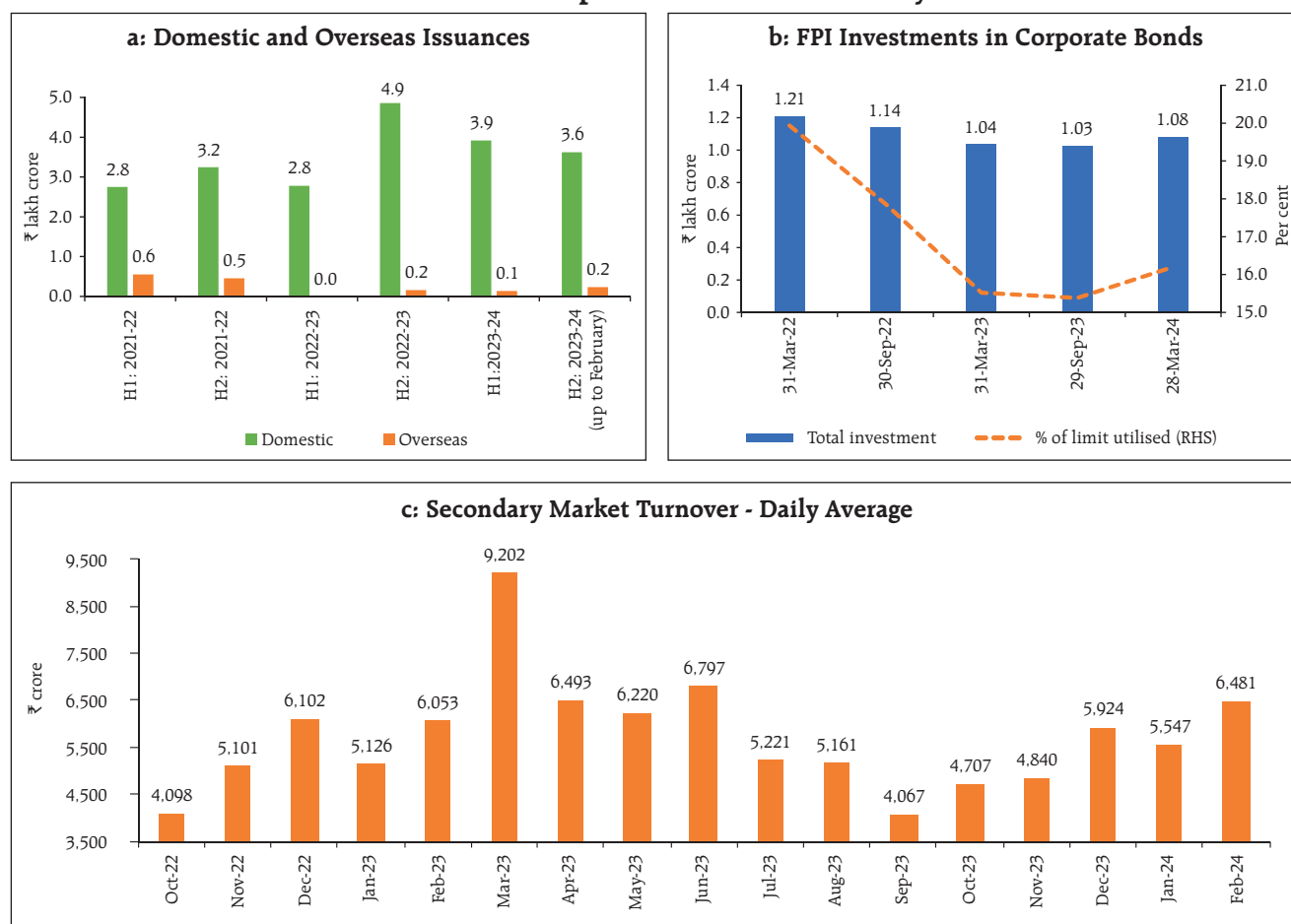
corporates hardened by 14 bps (to 7.98 per cent) and 12 bps (to 7.95 per cent), respectively, in March 2024 over September 2023, reflecting tighter regulation on

NBFCs (Chart IV.10a). The risk premium (the spread over 3-year G-sec yields) increased from 33 bps to 44 bps for PSUs, FIs and banks; from 51 bps to 80 bps for NBFCs; and from 51 bps to 77 bps for corporates, respectively, in H2 (Chart IV.10b).

The increase in risk premia was seen across tenors and the rating spectrum (Table IV.2). In contrast, the average 3-year credit default swap (CDS) spreads for the State Bank of India and the ICICI Bank trading overseas reduced by 17 bps each in H2:2023-24 over H1 in the wake of easing global financial conditions and robust earnings of the banking sector.

Primary issuances of listed corporate bonds declined to ₹3.6 lakh crore during H2 (up to February 2024) from ₹3.9 lakh crore during the corresponding

Chart IV.11: Corporate Bond Market Activity



Sources: SEBI; NSDL; and Prime Database.

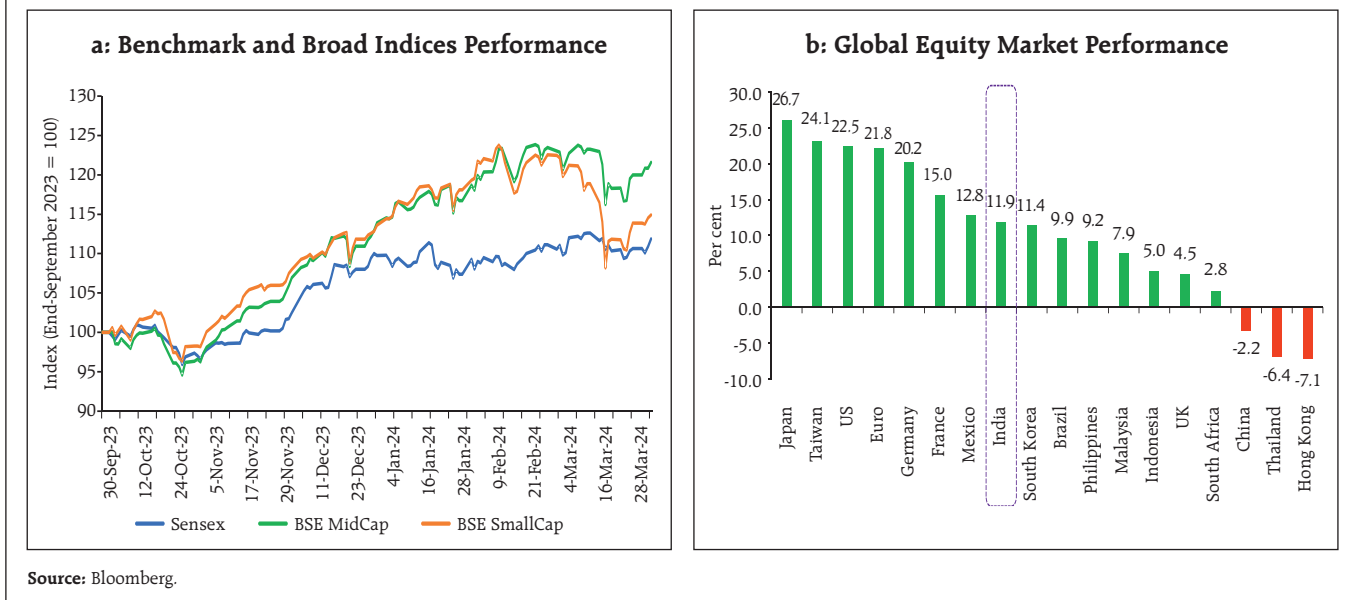
period of 2022-23 (Chart IV.11a). Overseas issuances, however, witnessed an uptick. Almost the entire resource mobilisation in the corporate bond market (97.9 per cent) was through the private placement route (up to February 2024). Outstanding investments by foreign portfolio investors (FPIs) in corporate bonds increased marginally to ₹1.08 lakh crore at end-March 2024, from ₹1.03 lakh crore at end-September 2023, with the utilisation of the approved limits rising from 15.4 per cent to 16.2 per cent (Chart IV.11b). Rising FPI inflows in the sovereign debt segment in the run up to India's inclusion in the global bond indices has not got meaningfully reflected in the corporate debt market so far. Secondary market activity increased marginally, with daily average trading volume at ₹5,500 crore during H2 (up to end-February 2024), 3.2 per cent higher than in the corresponding period of the previous year (Chart IV.11c).

IV.1.4 Equity Market

Domestic equity markets continued their upward trajectory in H2:2023-24, with the total market capitalisation of the Bombay Stock Exchange

(BSE) listed firms crossing the historic US\$ 4 trillion mark and making India the fifth largest market in the world. At the beginning of H2, markets declined amidst persistent FPI outflows triggered by rising geopolitical tensions in the Middle East. Thereafter, markets regained confidence in the wake of positive domestic corporate earnings for Q2:2023-24 and rising expectations of rate cuts by major advanced economy (AE) central banks. Markets remained flat at the start of the new year as disruptions to global shipping channels in the Red Sea and hawkish commentary from major central banks quelled market optimism over interest rate cuts. Moderation in the domestic CPI inflation print, strong GDP growth data for Q3:2023-24 and positive global cues kept domestic equity markets buoyant in February and early March 2024. Markets, however, corrected intermittently in March amidst regulatory concerns on valuation and liquidity risks in the broader segments before rebounding on dovish comments by the US Fed. Overall, the BSE Sensex gained 11.9 per cent during H2:2023-24 to close at 73,651 while the BSE MidCap and BSE SmallCap indices rose by 21.6 per cent and

Chart IV.12: Stock Market Performance



14.9 per cent, respectively, during H2 (Chart IV.12a). Indian equity markets kept pace with major emerging market (EM) economies in H2 (Chart IV.12b).

FPI flows remained volatile during H2:2023-24, with net outflows in two of the six months till March 2024. Nevertheless, foreign investors remained overall net buyers in equities, with monthly net investment flows touching a 3-year high in December 2023. Flows from domestic institutional investors (DIIs) were robust during H2:2023-24, along with reduced flows from FPIs. Overall, DIIs and FPIs were net buyers to the tune of ₹1.6 lakh crore and ₹0.7 lakh crore, respectively, in H2 (Chart IV.13a). In terms of Systematic Investment Plan (SIP) contribution through mutual funds, monthly contributions continued to record fresh highs in each successive month in H2:2023-24 (up to February 2024).

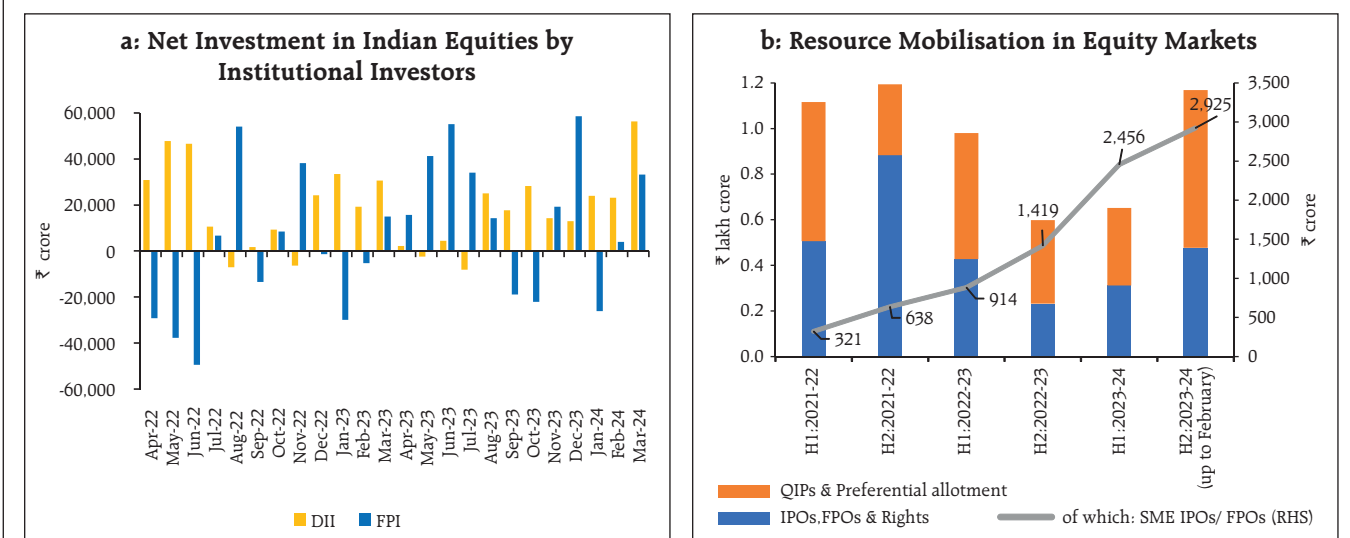
Primary market resource mobilisation in equity markets increased to ₹1.17 lakh crore during H2 (up to February 2024) from ₹0.55 lakh crore in the corresponding period of the previous year (Chart IV.13b). Out of the total primary market mobilisation, the amount raised through SME IPOs/

FPOs has shown robust growth during recent years. Illustratively, the amount raised through SME IPOs/ FPOs has almost tripled to reach ₹2,925 crore during H2 (up to February 2024) from ₹991 crore in the corresponding period of the previous year.

IV.1.5 Foreign Exchange Market

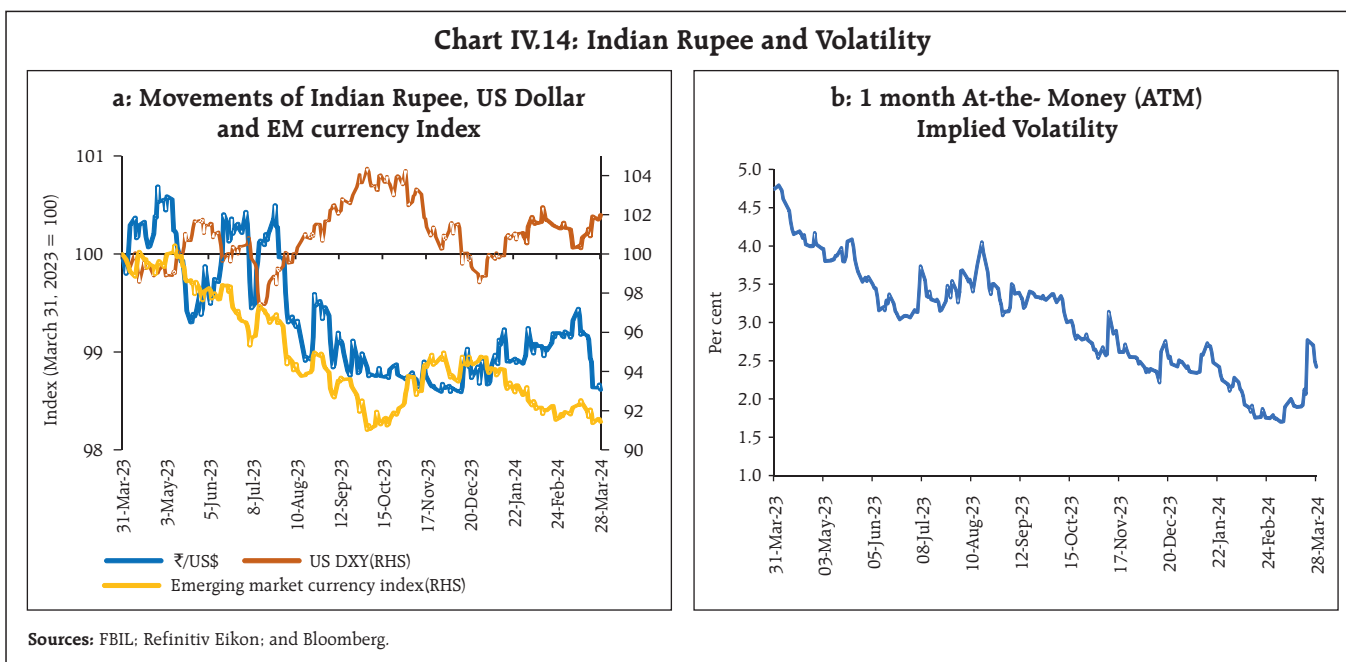
The Reserve Bank's exchange rate policy focusses on ensuring orderly conditions in the foreign exchange market. In 2023-24, the INR has largely remained range-bound due to strong macroeconomic fundamentals and improvements in India's external position with the moderation in the current account deficit (CAD), revival of capital flows, and rising foreign exchange reserves. In H2:2023-24, the Indian rupee depreciated by 0.4 per cent against the US dollar. The INR traded with a depreciating bias during October-December 2023 with the strengthening of the US dollar on rising US treasury yields and on safe haven demand due to geopolitical tensions in the Middle East. Thereafter, it appreciated with INR volatility – measured by the 1-month at the money (ATM) option implied volatility – averaging 2.4 per cent during H2:2023-24, lower than 3.6 per cent during H1 (Chart IV.14).

Chart IV.13: Institutional Investments and Resource Mobilisation



Note: IPO – Initial Public Offer, QIP – Qualified Institutional Placement, FPO – Follow On Public Offer
Sources: Capitaline; NSDL; and SEBI.

Chart IV.14: Indian Rupee and Volatility



Between end-March 2023 and end-March 2024, the INR depreciated by 1.4 per cent against the US dollar although it outperformed other EME currencies (Chart IV.15).

In H2:2023-24, exchange rate volatility across EME currencies abated. The Indian rupee remained among the least volatile EME currencies (Table IV.3).

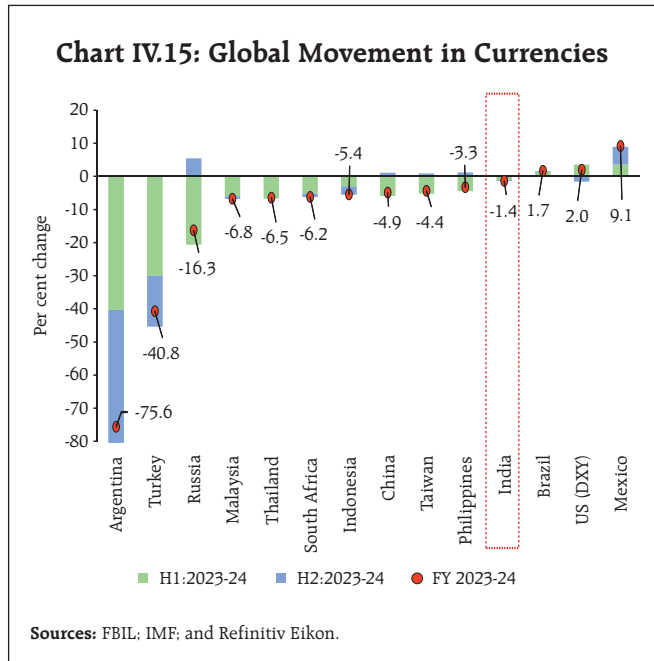
In terms of the Reserve Bank’s 40-currency real effective exchange rate index, the INR appreciated by 0.3 per cent between end-September 2023 (average) and end-March 2024 (Table IV.4).

Forward premia declined sharply at the beginning of H2:2023-24 but recovered thereafter (Chart IV.16). On an average, the 1-month forward premia eased to

Table IV.3: Monthly Coefficient of Variation (per cent)

Currency	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
Argentina	1.8	2.0	2.0	1.9	10.3	0.0	0.0	1.1	33.6	0.6	A0.6	0.6
Brazil	1.1	0.9	1.4	1.2	1.1	1.2	1.2	0.7	0.6	0.6	0.4	0.5
China	0.3	0.9	0.7	0.5	0.7	0.3	0.1	1.0	0.3	0.2	0.1	0.2
India	0.2	0.5	0.3	0.3	0.3	0.2	0.0	0.1	0.1	0.1	0.1	0.3
Indonesia	0.5	0.8	0.4	0.4	0.4	0.5	0.8	0.9	0.4	0.8	0.3	0.6
Malaysia	0.5	1.4	0.6	1.2	1.0	0.3	0.5	0.8	0.3	0.9	0.3	0.4
Mexico	0.4	0.8	0.9	0.9	0.8	1.2	1.0	1.2	0.9	0.8	0.2	0.7
Philippines	1.1	0.5	0.5	0.8	1.2	0.2	0.1	0.7	0.3	0.6	0.3	0.5
Russia	1.3	1.8	2.3	0.7	2.1	0.8	2.7	2.1	1.1	0.8	0.8	0.9
South Africa	0.9	2.6	2.3	2.5	1.4	0.8	1.0	1.1	1.5	1.0	1.0	0.9
Taiwan	0.3	0.3	0.5	0.5	0.4	0.4	0.4	1.2	0.8	0.7	0.4	0.7
Thailand	0.4	1.1	0.8	1.1	0.8	1.2	1.0	1.2	0.8	1.3	0.6	0.9
Turkey	0.5	1.7	6.8	1.6	1.1	0.7	0.9	0.7	0.6	0.8	0.8	0.8
US (DXY)	0.3	1.0	0.6	1.1	0.6	0.6	0.3	1.1	1.0	0.5	0.3	0.6

Sources: FBIL; IMF; and Refinitiv Eikon.



1.15 per cent in H2:2023-24 from 1.42 per cent in H1 in tandem with narrowing interest rate differential between the US and India.

IV.1.6 Credit Market

Bank credit growth remained robust in H2:2023-24 with improving economic activity. Growth in non-

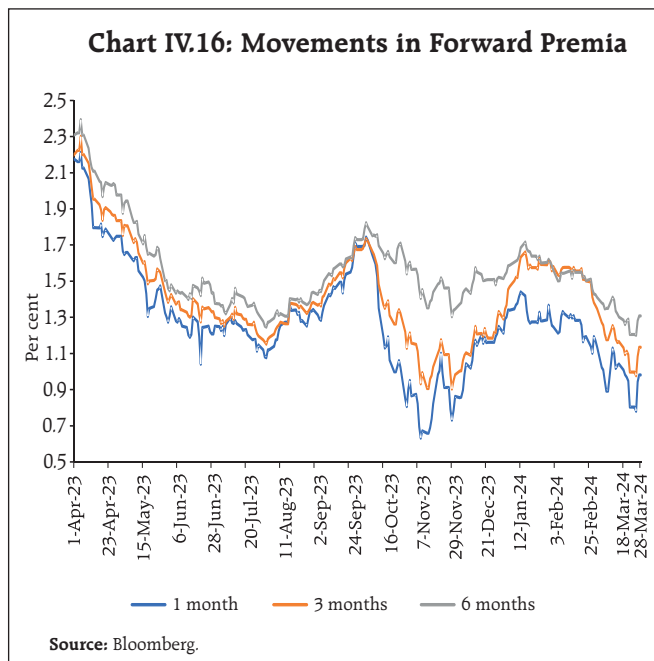


Table IV.4: Nominal and Real Effective Exchange Rate Indices (Trade-weighted)

(Base: 2015-16 = 100)

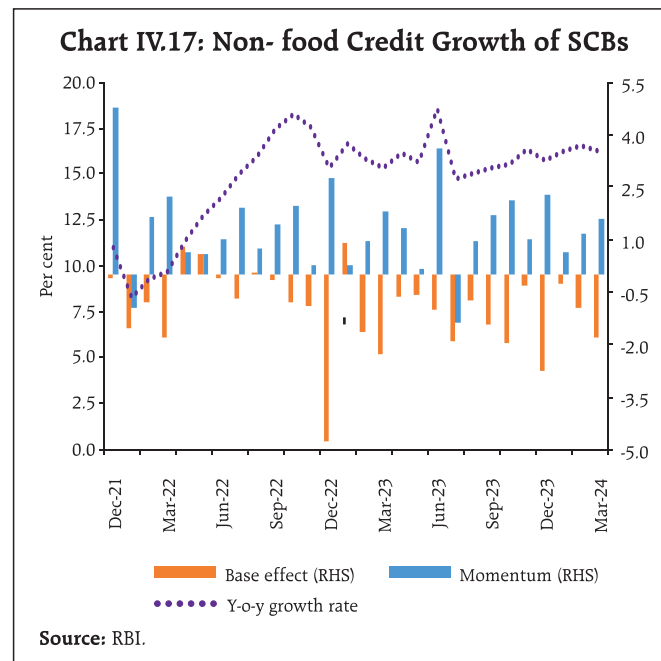
Item	End-March 2024 (P)	Appreciation (+) / Depreciation (-) (Per cent)
		End-March 2024 over September (average) 2023
40-currency REER	104.6	0.3
40-currency NEER	91.9	0.6
6-currency REER	102.1	-0.2
6-currency NEER	83.5	-0.9
₹/US\$ (March 28)	83.4	-0.4

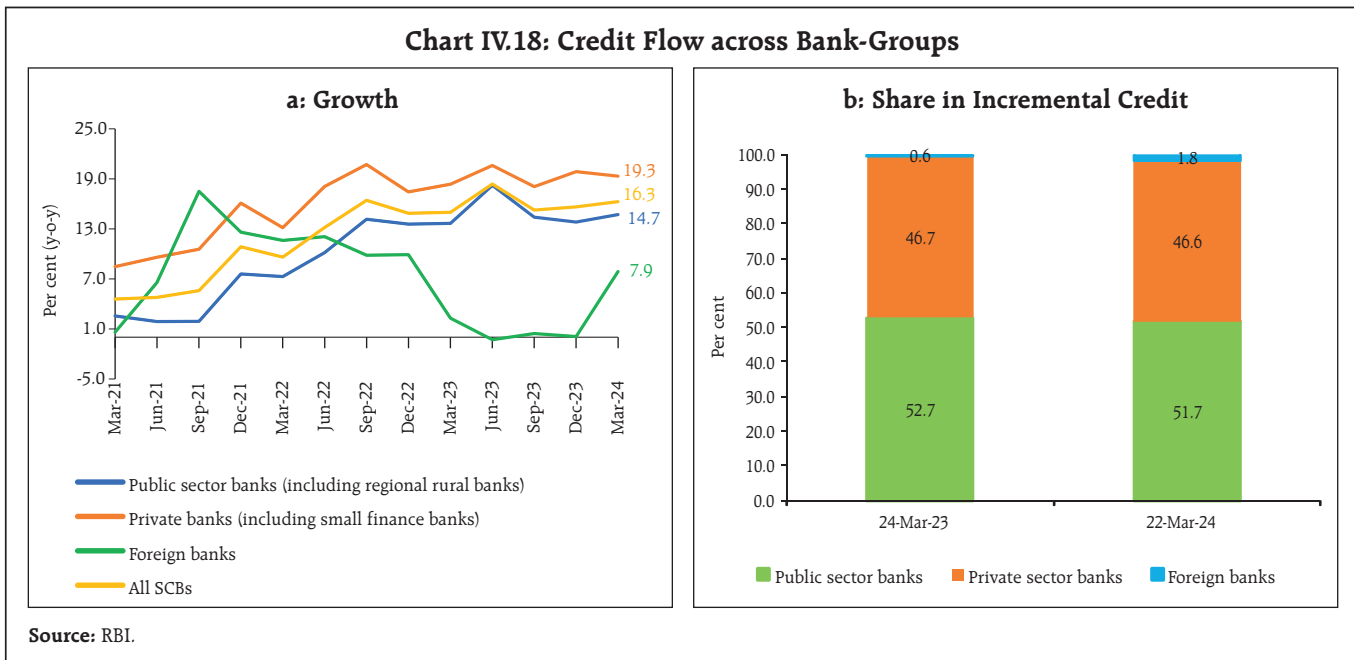
P: Provisional.

Sources: RBI; and FBIL.

food bank credit increased to 16.3 per cent (y-o-y) as at end-March 2024 from 15.4 per cent as at end-March 2023 (Chart IV.17).

While credit growth (y-o-y) picked up across the board, it remained higher for private sector banks (PVBs) (19.3 per cent) vis-à-vis public sector banks (PSBs) (14.7 per cent) (Chart IV.18a). PSBs, however, continued to be the major driver of incremental credit extended by all scheduled commercial banks (SCBs) in 2023-24 (Chart IV.18b).





From a sectoral perspective, credit growth was driven by services and retail sectors. Credit growth to agriculture sector peaked in January 2024 and outpaced that to the retail sector. Industrial credit growth, which was tepid during the first half of 2023-24, improved in the third quarter. Credit growth to the services sector remained resilient during 2023-24, while personal loans growth moderated, especially after the regulatory measures taken by the Reserve Bank on November 16, 2023⁵.

SCBs' incremental credit offtake in agriculture and services sectors rose to 15.9 per cent and 35.9 per cent in February 2024 from 12.6 per cent and 35.1 per cent, respectively, in the previous year. On the contrary, the incremental share of personal loans declined over the same period (Chart IV.19).

Credit to agriculture and allied activities registered double digit growth, improving to 20.1 per cent (y-o-y)

⁵ On November 16, 2023, risk weights for consumer credit exposure of commercial banks (outstanding as well as new) were increased for personal loans, excluding housing loans, education loans, vehicle loans and loans secured by gold and gold jewellery, by 25 percentage points to 125 per cent. Moreover, risk weights for credit card receivables of scheduled commercial banks (SCBs) were increased by 25 percentage points to 150 per cent.

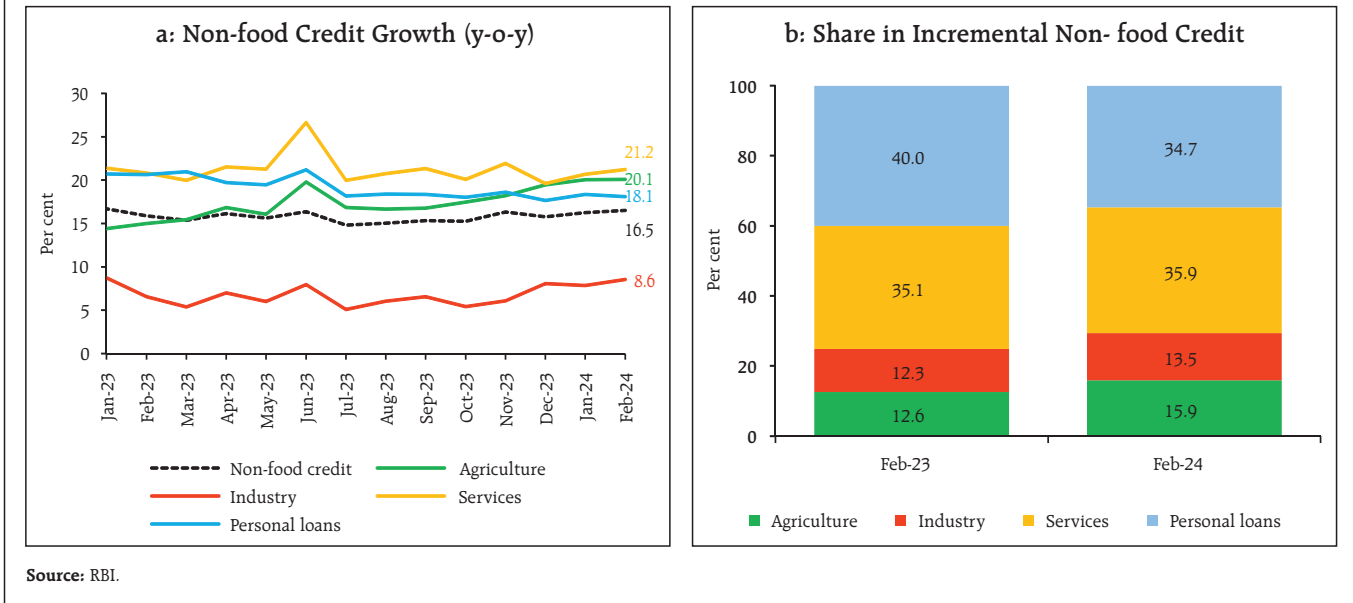
in February 2024 from 15.0 per cent a year ago. The enhanced agriculture credit target and the interest subvention scheme provided by the government kept agriculture credit growth robust⁶.

Industrial credit growth rose to 8.6 per cent in February 2024 from 6.8 per cent in the previous year due to improved credit offtake by large as well as micro and small industries. Among major industries, textiles and metals industries exhibited robust bank credit demand during the year, while credit to infrastructure and chemical industries picked up pace during H2:2023-24 (Chart IV.20).

Services sector credit witnessed a healthy growth of 21.2 per cent (y-o-y) in February 2024 as compared with 20.5 per cent a year ago. Credit to NBFCs continued to be the largest contributor to this growth, though the pace moderated during the year. Credit growth to commercial real estate and transport

⁶ The target for credit to agriculture was increased to ₹20 lakh crore in 2023-24 from ₹18.5 lakh crore in the previous year. Moreover, modified interest rate subvention scheme was announced by the Government of India for short-term loans to agriculture.

Chart IV.19: Sectoral Deployment of Bank Credit



operators improved during the year, while bank credit to trade remained resilient (Chart IV.21a).

Personal loans growth moderated to 18.1 per cent in February 2024 from 20.6 per cent a year ago.

Chart IV.20: Bank Credit in Industry Sector – Size-wise and Type-wise

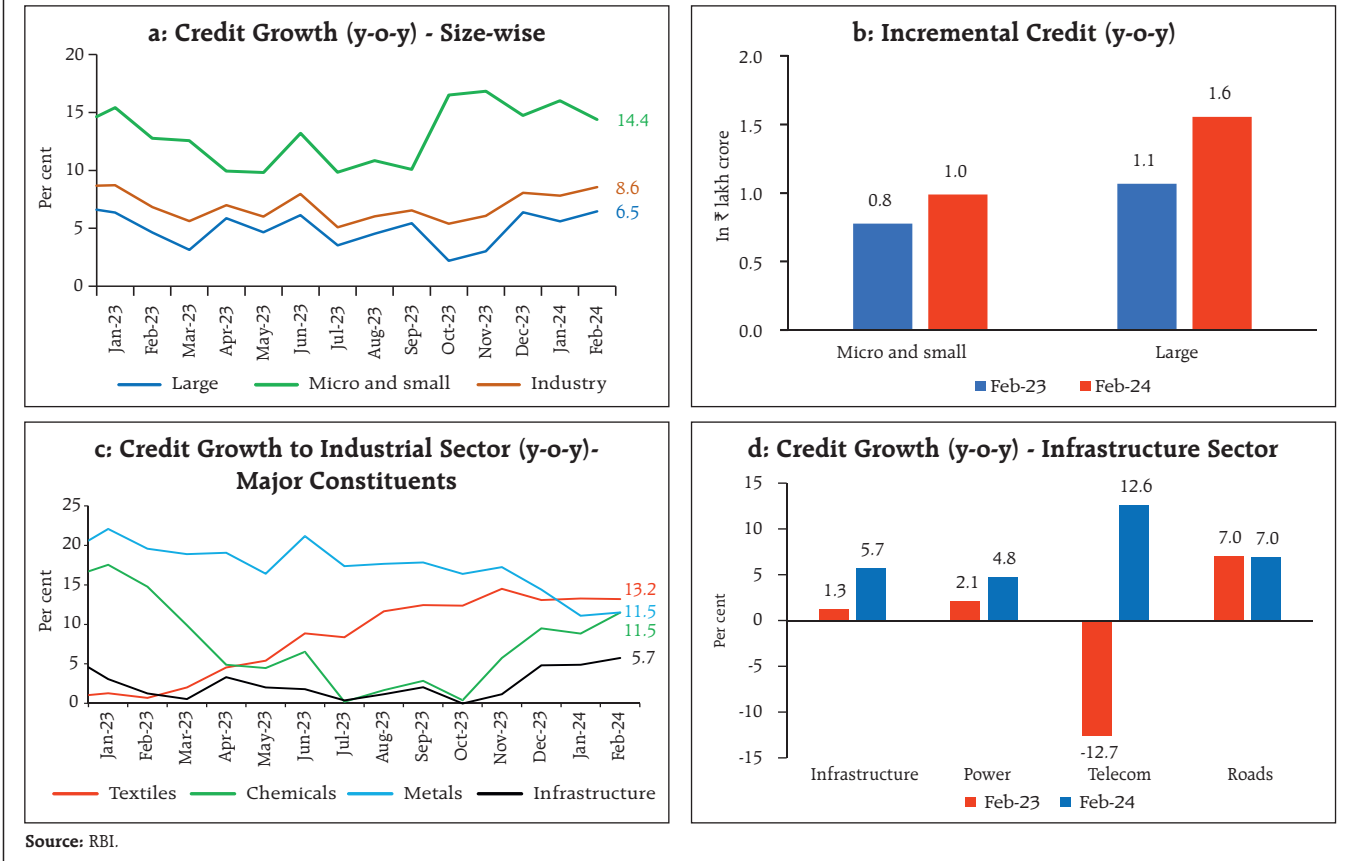
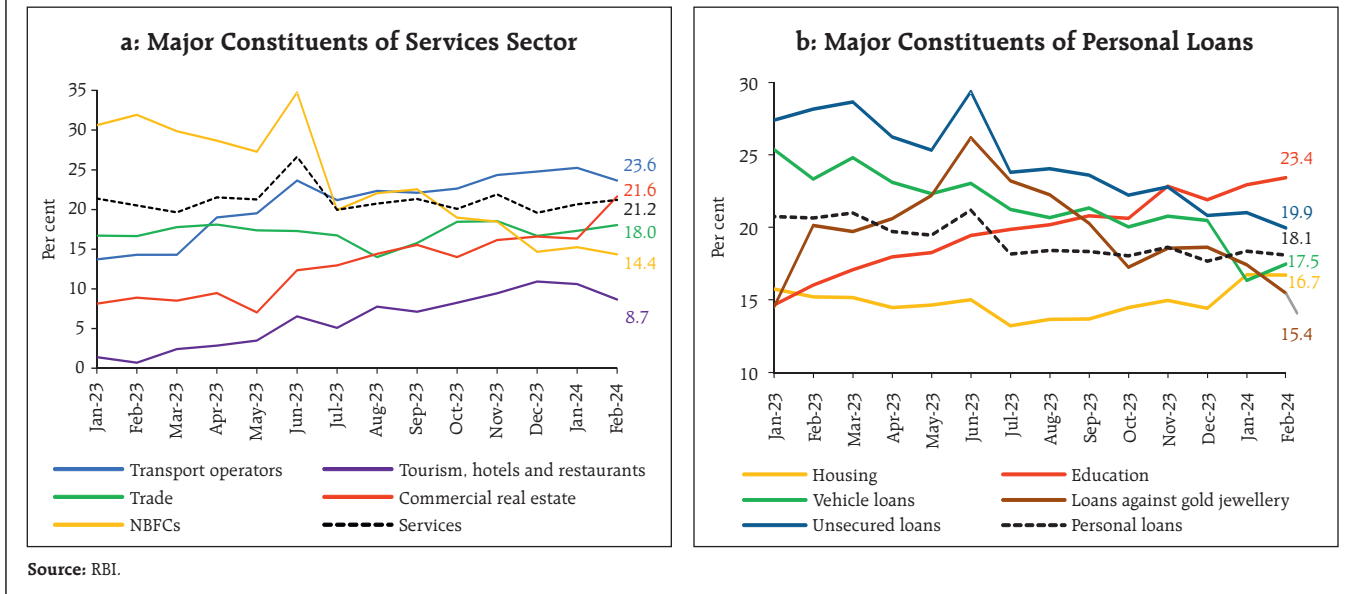


Chart IV.21: Credit Growth (y-o-y)



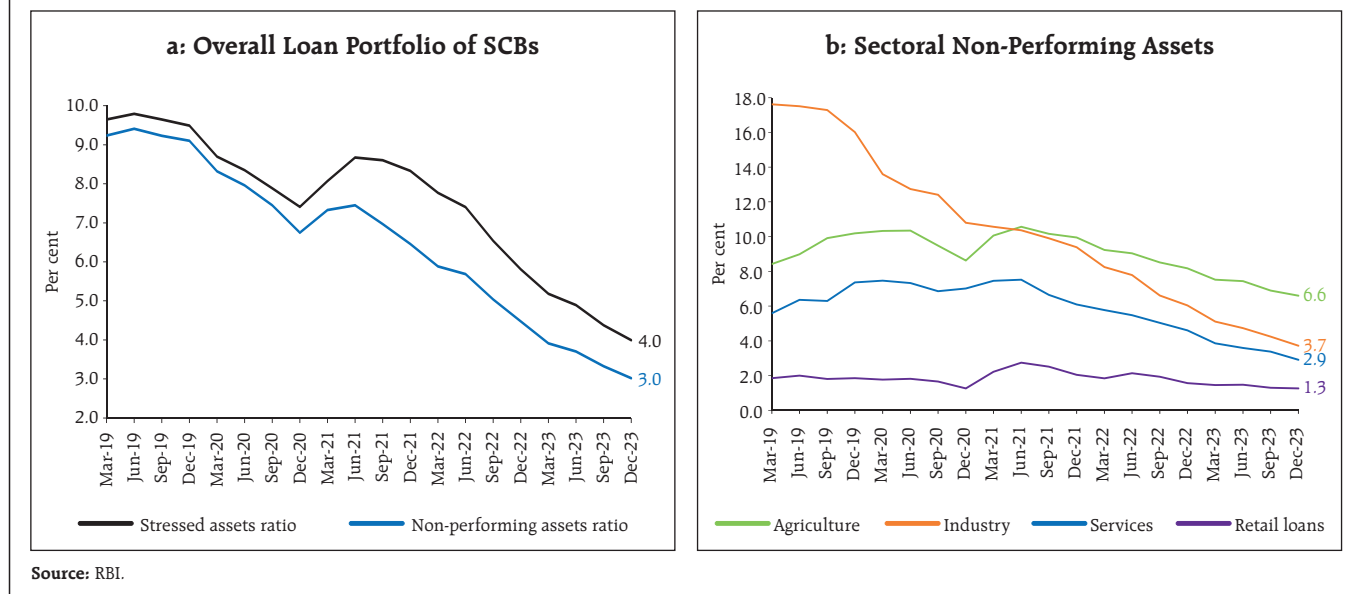
Unsecured⁷ personal loans growth decelerated after the increase in risk weights on select segments in November 2023. Vehicle loans growth moderated in the third quarter of the year while that for housing loans remained range bound (Chart IV.21b).

The asset quality of SCBs improved during 2023-24 (up to December 2023), with the overall gross non-

performing assets (NPA) ratio declining to 3.0 per cent in December 2023 from 4.5 per cent a year ago (Chart IV.22a). Asset quality improved across all the major sectors (Chart IV.22b).

Non-SLR⁸ investments of banks (comprising investments in CPs, bonds, debentures and shares of public and private corporates) increased by 4.1 per

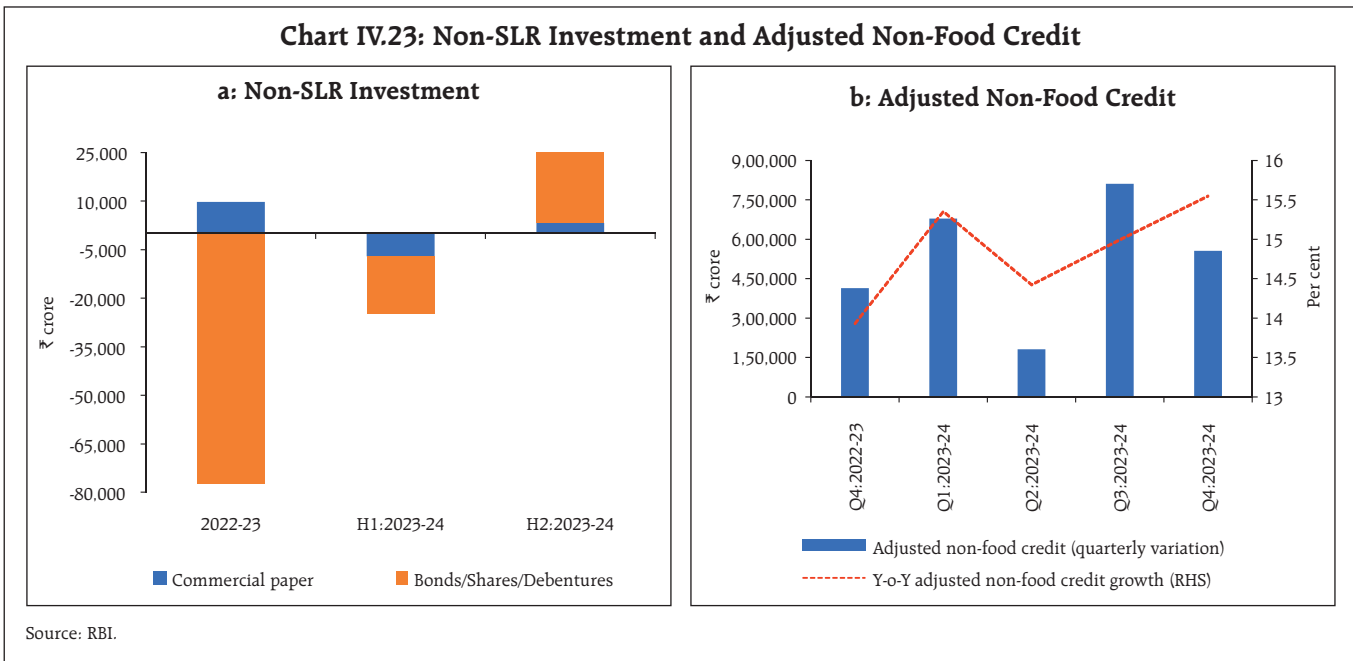
Chart IV.22: Stressed Assets and Non-Performing Assets of SCBs



⁷ Personal loans excluding housing loans, education loans, vehicle loans and loans secured by gold and gold jewellery.

⁸ Statutory Liquidity Ratio.

Chart IV.23: Non-SLR Investment and Adjusted Non-Food Credit



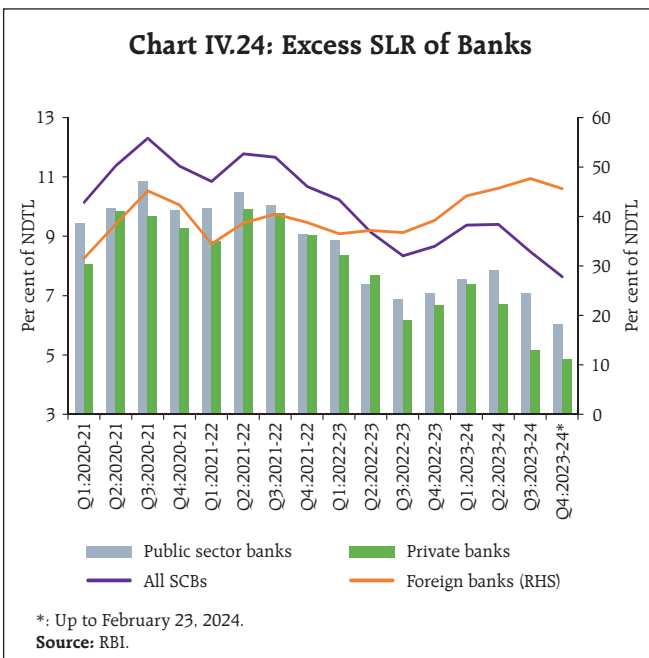
cent in H2:2023-24 as against a decline of 3.7 per cent in H1:2023-24 (Chart IV.23a). The growth in adjusted non-food credit (*i.e.*, non-food bank credit *plus* non-SLR investments by banks) accelerated to 15.5 per cent in Q4:2023-24 from 13.9 per cent in Q4:2022-23 (Chart IV.23b).

Reflecting the improvement in credit offtake, excess holdings of SLR securities of SCBs moderated

to 7.7 per cent of their net demand and time liabilities (NDTL) as on February 23, 2024 from 8.7 per cent at end-March 2023 (Chart IV.24). Excess SLR holdings provide collateral buffers to banks for availing funds under the LAF and are also a component of the liquidity coverage ratio (LCR).

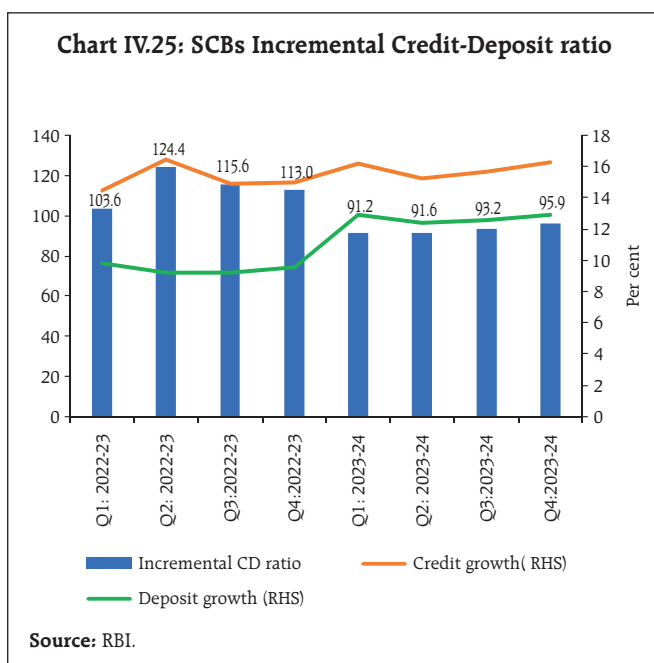
During H2:2023-24, the incremental credit-deposit ratio remained below 100 per cent as against ruling above 100 per cent for the corresponding period a year ago (Chart IV.25). This reflected a surge in deposit mobilisation, particularly in the wake of withdrawal of ₹2000 notes. Consequently, the wedge between credit and deposit growth has reduced. As at end-March 2024, the incremental credit-deposit ratio stood at 95.9 per cent.

Chart IV.24: Excess SLR of Banks



IV.2 Monetary Policy Transmission

The transmission to banks' lending and deposit rates continued in H2:2023-24, with banks increasing rates on the back of persistent credit demand. The 1-year median marginal cost of funds-based lending rate (MCLR) of scheduled commercial banks (SCBs) increased by 15 basis points (bps), reflecting higher



cost of borrowings. The weighted average lending rates (WALRs) on outstanding and fresh rupee loans witnessed marginal change with WALR on outstanding rupee loans increasing by 1 bp, while that on fresh rupee loans declining by 2 bps during H2: 2023-24 (up to February 2024). In response to the cumulative increase of 250 bps in the policy repo rate since May 2022, the WALRs on fresh and outstanding

rupee loans of SCBs increased by 185 bps and 111 bps, respectively, in the current tightening phase, i.e., May 2022 to February 2024. On the deposit side, the weighted average domestic term deposit rates (WADTDRs) on fresh and outstanding rupee deposits of SCBs increased by 12 bps and 17 bps, respectively, in H2:2023-24 (up to February 2024). The WADTDRs on fresh and outstanding rupee deposits of SCBs increased by 241 bps and 183 bps, respectively, during May 2022 to February 2024 (Table IV.5).

The share of EBLR-linked loans in total outstanding floating rate loans increased to 56.2 per cent as at end-December 2023 from 49.6 per cent in March 2023. Concomitantly, the share of MCLR linked loans declined to 39.4 per cent (Chart IV.26). The increasing share of EBLR-linked loans with shorter reset periods and the increase in the MCLR aided transmission to WALRs on outstanding loans of SCBs in the current tightening cycle.

Across bank groups, the transmission to WALRs on fresh rupee loans for PSBs was higher than that of PVBs during May 2022 to February 2024. In the case of WALRs on outstanding rupee loans, however,

Table IV.5: Transmission from the Repo Rate to Banks' Deposit and Lending Rates

(Variation in basis points)

Period	Repo Rate	Term Deposit Rates			Lending Rates			
		WADTDR - Fresh Deposits		WADTDR- Outstanding Deposits	EBLR	1-Yr. MCLR (Median)	WALR - Fresh Rupee Loans	WALR- Outstanding Rupee Loans
		Retail Deposits	Retail and Bulk Deposits					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Easing Period Feb 2019 to Mar 2022	-250	-209	-259	-188	-250	-155	-232	-150
Tightening Period May 2022 to Feb 2024	+250	162	241	183	250*	167*	185	111
Of which Oct 2023 to Feb 2024	0	-2	12	17	0	15*	-2	1

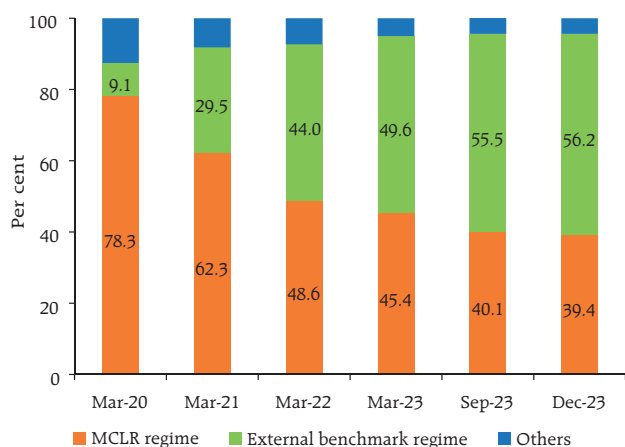
Notes: 1. WALR: Weighted average lending rate. WADTDR: Weighted average domestic term deposit rate; MCLR: Marginal cost of funds-based lending rate; EBLR: External benchmark-based lending rate.

2. Data on EBLR pertain to 32 domestic banks.

*: Latest data on EBLR and MCLR pertain to March 2024.

Source: RBI.

Chart IV.26: Outstanding Floating Rate Rupee Loans of SCBs across Interest Rate Benchmarks



Notes: 1. 'Others' include benchmark prime lending rate, base rate and other internal benchmarks.
2. Data pertain to 73 scheduled commercial banks.
Source: RBI.

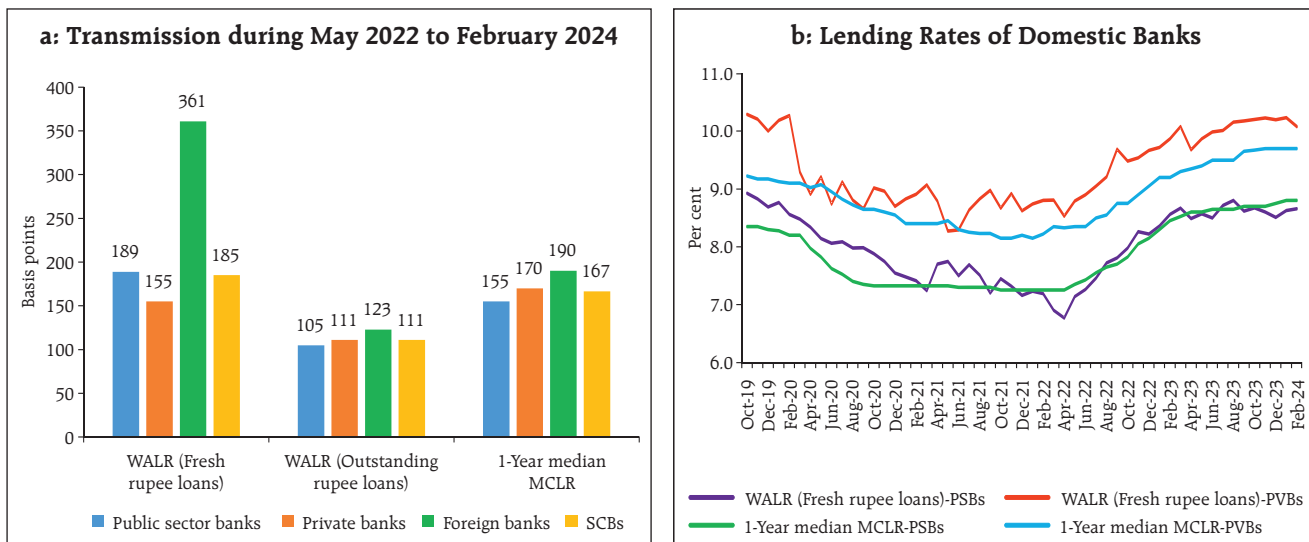
it was higher for PVBs (Chart IV.27a). The lending rates of PVBs remained above those of PSBs (Chart IV.27b). The maximum pass-through to lending rates was witnessed in the case of foreign banks, reflecting their higher share of low-cost and wholesale deposits

of lower maturity. The share of EBLR-linked loans has been the highest for foreign banks, facilitating monetary policy transmission⁹.

The combination of tight liquidity conditions and robust credit demand prompted banks to increase their term deposit rates in order to raise fresh deposits (Chart IV.28a). Across bank groups, the pass-through to WADTDRs on fresh and outstanding deposit rates was higher for PSBs than PVBs (Chart IV.28b).

During the period May 2022 to February 2024, the transmission to WALRs on fresh and outstanding loans has been broad-based across sectors. The highest increase in the WALRs on fresh rupee loans was witnessed in case of large industries (185 bps) followed by agriculture (167 bps), infrastructure (155 bps), education (154 bps) and other personal loans (152 bps) (Chart IV.29a). In case of floating rate loans, which are mandatorily linked to EBLR, the WALRs on fresh loans

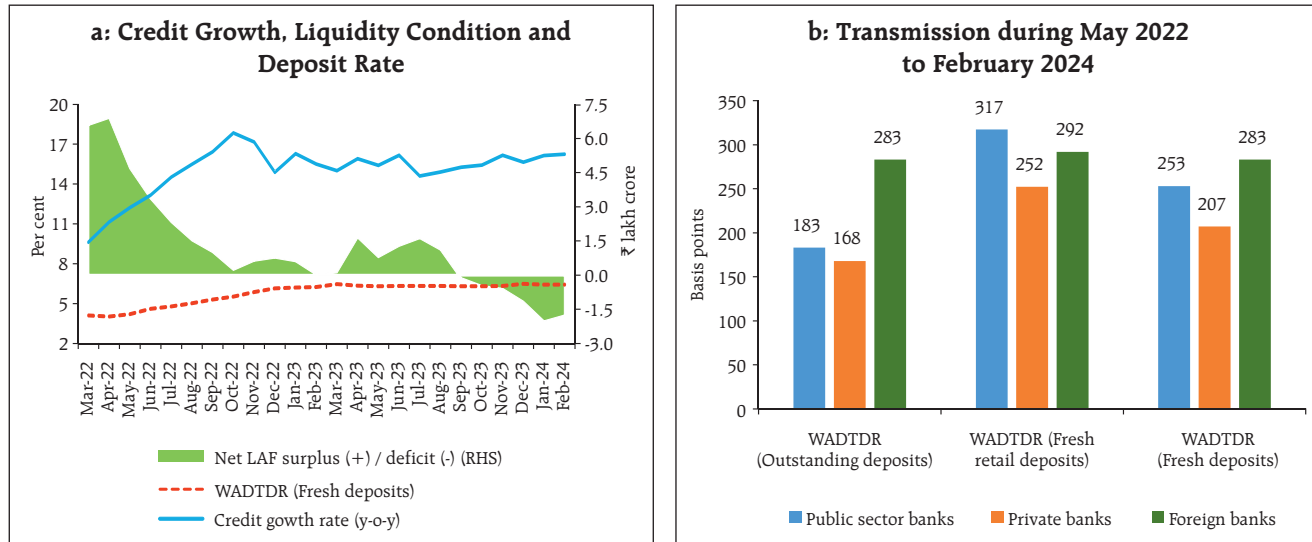
Chart IV.27: Bank Group wise Transmission to Lending Rates



Source: RBI.

⁹ The proportion of EBLR-linked loans was the highest for the foreign banks (88.9 per cent), followed by private banks (PVBs) (82 per cent) and public-sector banks (PSBs) (38.5 per cent) as at end-December 2023.

Chart IV.28: Liquidity and Credit Conditions and Transmission to Deposit Rates



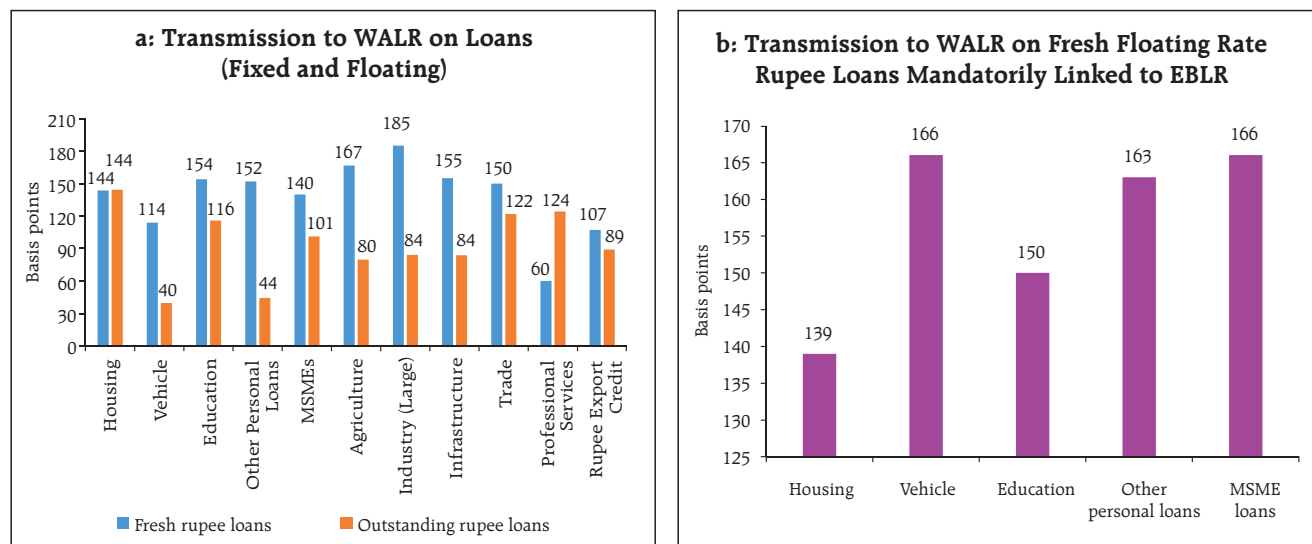
Source: RBI.

of domestic banks increased by 166 bps for vehicle loans, 166 bps for MSME loans, 150 bps for education loans and 139 bps for housing loans (Chart IV.29b).

The spreads (WALRs on fresh floating rate rupee loans over the policy repo rate) have narrowed in the recent period, thereby moderating the extent of transmission to WALRs on fresh rupee loans (Table IV.6).

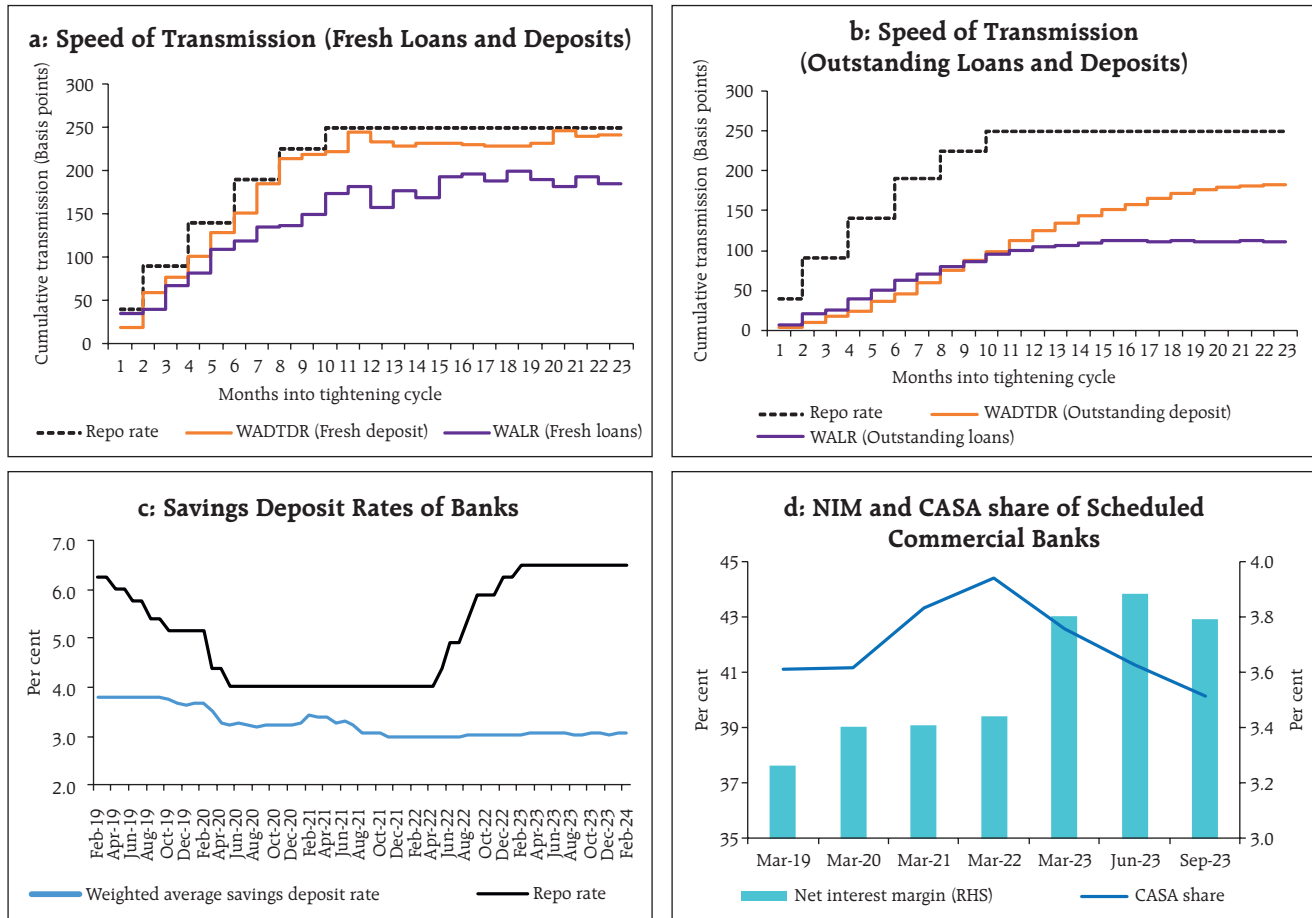
In the current tightening cycle, the extent of transmission to term deposit rates has remained higher than lending rates (Chart IV.30a and b). Though the savings deposit rates of banks have remained almost unchanged, the declining share of current account and savings account (CASA) deposits in total deposits along with the higher transmission to term deposit rates as compared to lending rates, has exerted

Chart IV.29: Sector-wise Transmission to WALRs of Domestic Banks (May 2022 to February 2024)



Source: RBI.

Chart IV.30: Speed of Transmission to Lending and Deposit Rates and Bank's Profitability



Source: RBI.

downward pressure on net interest margins (NIMs) of banks in the recent quarter (Chart IV.30c and d).

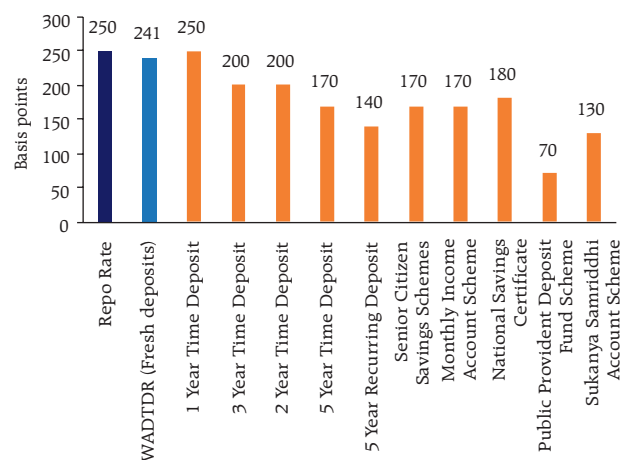
Table IV.6: Loans linked to External Benchmark-Spread of WALR (Fresh Loans) over the Repo Rate

Sectors	Apr-22			Feb-24		
	Public sector banks	Private sector banks	Domestic banks	Public sector banks	Private sector banks	Domestic banks
MSME Loans	4.27	3.93	4.04	3.36	3.15	3.20
Personal Loans						
Housing	2.91	3.32	3.21	2.12	2.09	2.10
Vehicle	3.37	4.39	3.55	2.63	3.05	2.71
Education	4.42	5.71	4.71	3.77	3.64	3.71
Other personal loans	3.54	7.35	4.01	3.22	2.80	3.14

Note: Other personal loans include loans other than housing, vehicle, education and credit card loans.

Sources: RBI; and RBI staff estimates.

Chart IV.31: Increase in Interest Rates on Small Savings Schemes (May 2022 to March 2024)



Sources: Government of India; and RBI.

Table IV.7: Interest Rates on Small Savings Instruments – Q1:2024-25

Small Savings Scheme	Maturity (years)	Spread (Percentage point) \$	Average G-sec Yield (%) of Corresponding Maturity (Dec 2023 to Feb 2024)	Formula based Rate of Interest (%) (applicable for Q1:2024-25)	Government Announced Rate of Interest (%) in Q1:2024-25	Difference (percentage points)
(1)	(2)	(3)	(4)	(5) = (3) + (4)	(6)	(7) = (6) - (5)
Savings Deposit	-				4.0	-
Public Provident Fund	15	0.25	7.27	7.52	7.1	-0.42
Term Deposits						
1 Year	1	0	6.81	6.81	6.9	0.09
2 Year	2	0	6.86	6.86	7.0	0.14
3 Year	3	0	6.92	6.92	7.1	0.18
5 Year	5	0.25	7.03	7.28	7.5	0.22
Recurring Deposit Account	5	0	6.92	6.92	6.7	-0.22
Monthly Income Scheme	5	0.25	6.99	7.24	7.4	0.16
Kisan Vikas Patra	115 Months#	0	7.27	7.27	7.5	0.23
NSC VIII issue	5	0.25	7.22	7.47	7.7	0.23
Senior Citizens Saving Scheme	5	1	7.03	8.03	8.2	0.17
<i>Sukanya Samridhi</i> Account Scheme	21	0.75	7.27	8.02	8.2	0.18

\$: Spreads for fixing small saving rates as per Government of India Press Release of February 2016.

#: Current maturity is 115 months.

Note: Compounding frequency varies across instruments.

Sources: Government of India; FBIL; and RBI staff estimates.

Interest rates on various small savings instruments (SSIs) have been cumulatively increased by the Government of India in the range of 70-250 bps since Q3:2022-23 (Chart IV.31). With these revisions, the rates on most of the instruments are now aligned with the formula-based rates, except for those on public provident funds and post office recurring deposits (Table IV.7).

IV.3 Liquidity Conditions and the Operating Procedure of Monetary Policy

The Reserve Bank of India (RBI) Act, 1934 requires the RBI to place the operating procedure relating to the implementation of monetary policy and changes thereto from time to time, if any, in the public domain (Box IV.1). During H2:2023-24, the monetary policy committee (MPC) kept the policy repo rate unchanged at 6.5 per cent and continued with the stance of withdrawal of accommodation.

Drivers and Management of Liquidity

Among the autonomous factors, currency in circulation (CiC) drained liquidity from the banking system in H2 as it expanded by ₹2.26 lakh crore due to festival demand and state elections. This was more than offset by the drawdown of government cash balances (₹1.43 lakh crore) and net forex purchases¹⁰ by the Reserve Bank (₹1.95 lakh crore). OMO sales through the NDS-OM¹¹ withdrew liquidity from the banking system while the phased unwinding of the incremental cash reserve ratio (I-CRR)¹² augmented liquidity. Overall, net injection under the LAF narrowed

¹⁰ The return-leg of a USD/INR sell buy swap auction for US\$ 5 billion conducted by the Reserve Bank on March 8, 2022, injected liquidity amounting to ₹42,800 crore on March 11, 2024.

¹¹ Negotiated Dealing System – Order Matching.

¹² I-CRR was imposed on increase in NDTL following RBI's decision to withdraw 2000 denominated notes from the banking system, impounding ₹1.1 lakh crore from the banking system. The I-CRR was reviewed on September 8, 2023, and was discontinued in a phased manner, ending October 7, 2023.

Box IV.1: Liquidity Management Framework

Liquidity management is the implementation of monetary policy decisions on a day-to-day basis through market operations. The liquidity management framework of the Reserve Bank is continuously reviewed and, as and when deemed appropriate, suitably modified to ensure efficient transmission of monetary policy signals (RBI, 2021). Changes in the framework are complemented with operational modifications to provide flexibility to banks in their own liquidity management. The revised liquidity management framework was announced on February 6 (RBI, 2020a) and operationalised on February 14, 2020. The salient features of the framework are given below:

Liquidity Adjustment Facility (LAF)

The weighted average call rate (WACR) remains the operating target of monetary policy. The objective of liquidity management operations is to keep the WACR around the policy repo rate, which is the single policy rate under the LAF and is decided by the Monetary Policy Committee (MPC) of the Reserve Bank. Under the LAF, the standing facilities are (i) the marginal standing facility (MSF) through which the Reserve Bank provides liquidity to banks against collateral; and (ii) the standing deposit facility (SDF) wherein banks park surplus funds with the Reserve Bank at the end of the day without collateral backing.¹³ Both the standing facilities are available on all days of the week throughout the year. Thus, the liquidity management corridor is characterised by the rates on the standing facilities – the MSF rate as its upper bound (ceiling) and the SDF rate as the lower bound (floor) – with the policy repo rate within and ordinarily in the middle of the corridor.¹⁴ At present, the MSF and SDF rates are equidistant from the policy repo rate – 25 bps above and below, respectively – thus rendering the liquidity management corridor symmetric with a width of 50 bps. While the facilities under the LAF are accessible to banks, standalone primary dealers (SPDs) are allowed to participate directly in all overnight

liquidity management operations, including the SDF. SPDs are, however, not allowed access to the MSF.

Instruments of Liquidity Management

As per the extant framework, instruments of liquidity management include variable rate repo/reverse repo (VRR/VRRR) auctions of various maturities (1-14 days), outright open market operations (OMOs), buy/sell forex swaps and other instruments as may be deployed from time to time. In order to facilitate the development of a term money market and with a view to nudge banks towards taking a view on interest rates beyond the overnight rate, a 14-day term VRR/VRRR operation at a variable rate and conducted to coincide with the cash reserve ratio (CRR) maintenance cycle¹⁵ is the main liquidity management tool.¹⁶ The main liquidity operation is supported by fine-tuning operations, overnight and/or of longer tenor, to tide over any unanticipated frictional liquidity changes during the reserve maintenance period. In addition, the RBI may conduct, if required, longer-term variable rate repo/reverse repo operations of more than 14 days.

Operational Refinements

To provide eligible LAF/MSF participants greater flexibility in managing their end of the day CRR balances, the Reserve Bank has introduced an optional automated sweep-in and sweep-out (ASISO) facility in its e-Kuber system effective August 6, 2020 (RBI, 2020b). Under the facility, banks can set the amount (specific or range) that they wish to keep as balances in their current accounts with the Reserve Bank at the end of each day. Depending upon this pre-set amount, access to the MSF and the SDF, as the case may be, are generated automatically without any manual intervention at the end of the day. This facility is optional and is in addition to the existing mechanism of placing manual bids in the SDF and MSF windows through the e-Kuber portal.

(Cont.)

¹³ The margin requirements under the LAF (haircut on eligible collateral) are reviewed on a periodic basis; the margin requirement for reverse repo transactions with the Reserve Bank continue to be 'Nil'.

¹⁴ Prior to April 8, 2022, the fixed rate reverse repo (FRRR) acted as the floor of the LAF corridor. Since then, the FRRR – retained at 3.35 per cent – continues to remain as part of the Reserve Bank's toolkit to be used at its discretion for purposes specified from time to time (RBI, 2022).

¹⁵ Currently, banks are required to maintain a minimum of 90 per cent of the prescribed CRR on a daily basis.

¹⁶ The daily fixed rate repo was withdrawn with effect from February 14, 2020.

Taking cognisance of banks' higher recourse to the MSF while simultaneously parking large surplus funds under the SDF, reversal of liquidity facilities under both the SDF and the MSF was allowed even during weekends and holidays, effective December 30, 2023.¹⁷ This facility provides banks greater flexibility in their operations, alleviates tightness in liquidity conditions during weekends and imparts greater efficiency to liquidity management.

Communication

In order to improve communication on the Reserve Bank's liquidity management framework and procedures, the (i) daily press release detailing Money Market Operations (MMO) was modified suitably to show the impact of both

daily flow as well as stock of liquidity operations; and (ii) the Reserve Bank started publishing a quantitative assessment of durable liquidity conditions in the banking system on a fortnightly basis with a lag of one fortnight. In addition, periodic consultations are conducted with market participants and other stakeholders.

References:

1. RBI (2020a), Statement on Developmental and Regulatory Policies, February 6.
2. RBI (2020b), Statement on Developmental and Regulatory Policies, August 6.
3. RBI (2022), Statement on Developmental and Regulatory Policies, April 8.
4. RBI (2023), Governor's Statement, December 8.

to ₹0.53 lakh crore as on March 29, 2024, from ₹0.97 lakh crore on September 29, 2023 (Table IV.8).

The Reserve Bank's liquidity management encompassed two-way operations during H2:2023-24. System liquidity turned into deficit mode for the first time in mid-September 2023 after a gap of nearly

four and a half years and the deficit persisted in the wake of elevated government cash balances during H2.¹⁸ The Reserve Bank injected liquidity through twenty-nine variable rate repo (VRR) operations – six main and twenty-three fine tuning auctions – to ease liquidity tightness in H2 (Chart IV.32a). The demand

Table IV.8: Liquidity – Key Drivers and Management

(₹ crore)

	2022-23		2023-24	
	H1	H2	H1	H2
Drivers				
(i) CiC [withdrawal (-) / return (+)]	-24,604	-2,20,200	89,356	-2,26,367
(ii) Net Forex [Purchases (+) / Sales (-)]	-2,73,554	28,750	1,44,667	1,94,861
(iii) GoI Cash Balances [build-up (-) / drawdown (+)]	-1,99,861	2,83,889	-4,17,851	1,42,695
(iii) Excess Reserves [build-up (-) / drawdown (+)]	95,719	21,674	34,925	-46,886
Management				
(i) Net OMO [Purchases (+) / Sales (-)]	-21,080	-10,280	-8,480	-10,025
(ii) Required Reserves [including both change in NDTL and CRR]	-1,17,000	-45,701	-1,35,220	7,503
<i>Memo Item</i>				
Net Absorption (+) / Injection (-) as at end-period	54,110	1,28,497	-97,015	-52,918

CiC: Currency in Circulation. GoI: Government of India

Note: (+) / (-) sign suggests accretion/depletion in banking system liquidity.

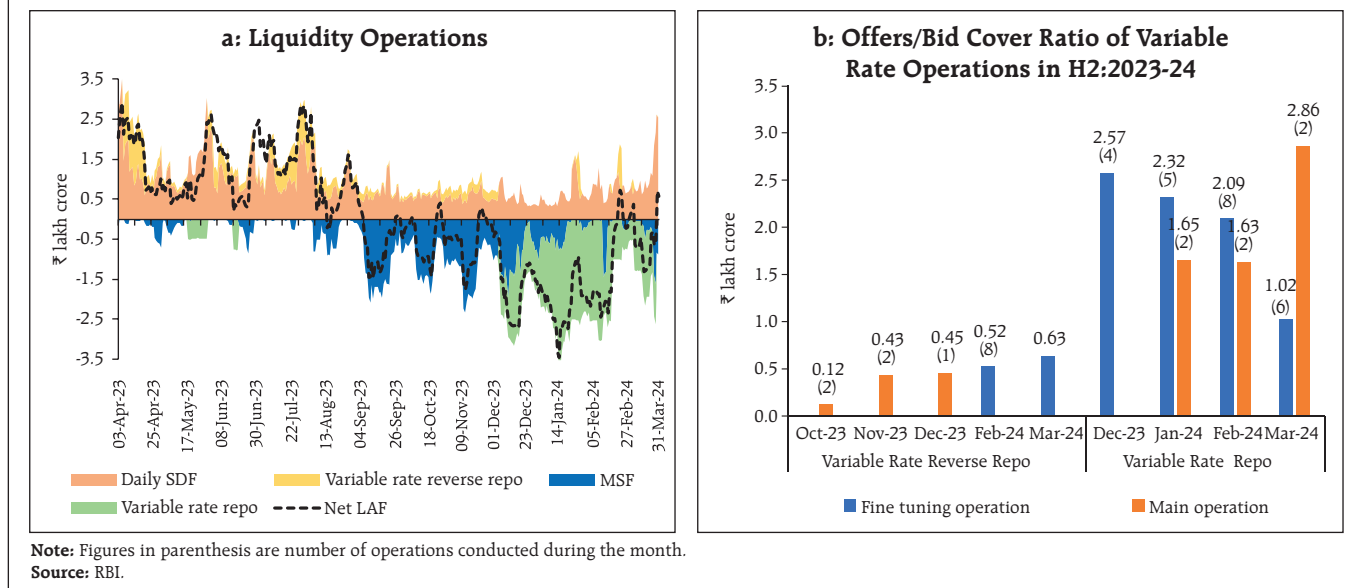
Data pertains to the last Friday of the respective period.

Source: RBI.

¹⁷ This measure will be reviewed after six months or earlier, if needed (RBI, 2023).

¹⁸ The correlation between net LAF and GoI increased to (-)0.82 in H2 from (-)0.65 in H1.

Chart IV.32: Liquidity Conditions



for these funds was robust as reflected in high bid-cover ratios (Chart IV.32b). Additionally, banks took recourse to the MSF and borrowed funds – ₹0.72 lakh crore in H2 – higher than ₹0.29 lakh crore in H1. Daily MSF borrowings scaled an all-time high of ₹2.34 lakh crore on November 22, 2023. Of the average total absorption under the LAF at ₹0.76 lakh crore during H2, average placement under the SDF constituted about 88.2 per cent (₹0.67 lakh crore), while the remaining was absorbed through VRRR auctions. During H2, six fine tuning VRRR auctions were conducted between February 2-7, 2024, to absorb surplus liquidity engendered by the pick-up in government spending, followed by eight more in the remaining part of February and March. In view of banks' likely preference for holding liquidity in the wake of deficit conditions, eleven of these operations were of overnight maturity. On a net basis, average daily injection amounted to ₹1.06 lakh crore in H2 as against net absorption of ₹1.07 lakh crore in H1. Adjusted for government cash balances, however, average potential liquidity in the banking system remained in surplus (₹2.34 lakh crore) during H2.

Reserve money (RM) expanded by 6.7 per cent (y-o-y) (adjusted for the first-round impact of the change in the CRR) as against 7.4 per cent a year ago. The growth in currency in circulation (CiC) decelerated to 4.1 per cent from 7.8 per cent a year ago, reflecting the withdrawal of ₹2000 banknotes. Money supply (M3) increased by 11.2 per cent (y-o-y) as at end-March 2024 from 9.0 per cent during the corresponding period of the previous year, led by double digit growth in aggregate deposits (Table IV.9).

Table IV.9: Banking and Monetary Aggregates

(Y-o-y growth, per cent)

Indicator	March 2022	March 2023	September 2023	March 2024
Reserve money (Adjusted for CRR changes)	13.0 (10.3)	9.7 (7.4)	6.4 (5.0)	6.7 (6.7)
Broad money (M3)	8.8	9.0	10.8	11.2
Currency in circulation	9.8	7.8	4.1	4.1
Aggregate deposits	8.9	9.6	12.4	12.9
Demand deposits	11.4	5.2	11.3	12.1
Time deposits	8.6	10.2	13.5	13.7
Bank credit	9.6	15.0	15.3	16.3

Source: RBI.

Note: Data on broad money, deposit and credit growth exclude the impact of merger of a bank with a non-bank.

Other policy measures

Based on an assessment of the liquidity conditions and its impact on PDs, the Reserve Bank of India made available an aggregate amount of ₹5,000 crore, over and above the existing limit of ₹5,000 crore, to Standalone Primary Dealers (SPDs) under the Standing Liquidity Facility (SLF) at the prevailing repo rate effective January 31, 2024. Moreover, as a special case, SPDs were also allowed to participate in the 6-day VRR auction of ₹75,000 crore conducted on March 27, 2024.

IV.4 Conclusion

Domestic financial market conditions evolved in an orderly manner in H2:2023-24, notwithstanding

volatility in global market conditions. Money market rates moved in consonance with the monetary policy stance. While short-term rates fluctuated in reflection of liquidity developments, long-term rates remained largely stable, reflecting better anchoring of inflation expectations. Equity market scaled new highs, supported by inflows from domestic investors. The INR exhibited lower volatility than its emerging market peers. Monetary transmission continued amidst robust credit growth outpacing deposit expansion. The evolution of liquidity conditions was in alignment with the monetary policy stance. Going forward, the Reserve Bank will remain agile and nimble in conducting market operations to ensure financial stability while providing liquidity to meet the productive requirements of the economy.

V. External Environment

The global economy remained resilient. Inflation eased, although it still rules above targets in several economies prompting central banks to maintain monetary policy restraint as they tread the 'last mile' of disinflation. Geopolitical tensions, elevated public debt amidst tight financial conditions, weak recovery in China, geoeconomic fragmentation and extreme weather events pose downside risks to the outlook.

Since the October 2023 MPR, the global economy has exhibited resilience amidst several headwinds. Global growth is projected to remain steady in 2024 but with divergent trajectories across countries. Both headline and core inflation (headline excluding food and energy) are easing although headline inflation still rules above targets in several economies. Major central banks have maintained monetary policy restraint as they tread the last mile of disinflation. Global financial markets remain volatile in response to fluctuating perceptions on the monetary policy trajectory. Global equity markets corrected in October 2023 over expectations of 'higher for longer' monetary policy paths but rallied subsequently as prospects of reversal of monetary policy cycles appeared brighter. Bond yields have moderated since October. The US dollar pared gains in Q4:2023 but strengthened in Q1:2024. Emerging market economy (EME) currencies broadly strengthened since the last MPR. Risks to global growth outlook are broadly balanced.

V.1 Global Economic Conditions

In H2:2023, global activity remained resilient but with cross-country divergences. Growth was stronger than anticipated in the United States, and in several major emerging market and developing economies (EMDEs)¹. It was subdued in the Euro area and many low-income economies, reflecting weak consumer

¹ As per the latest update of the *World Economic Outlook* (WEO) of the IMF released on January 30, 2024.

sentiment and sluggish interest-rate-sensitive manufacturing and business investment amidst elevated borrowing costs. High frequency indicators for Q1:2024 point to rebound in manufacturing and sequential improvement in service sector activity. The International Monetary Fund (IMF) in its *World Economic Outlook* (WEO) update of January 2024 revised up global growth projection for 2024 by 20 bps to 3.1 per cent and retained the projection for 2025 at 3.2 per cent².

Among major economies, the US economy grew at a resilient pace of 3.4 per cent (quarter-on-quarter, seasonally adjusted annualised rates (q-o-q, saar)) in Q4:2023 (lower than the Q3 outturn of 4.9 per cent) reflecting the support from consumer spending, government spending, exports and non-residential fixed investment (Table V.1). The unemployment rate remained low with a better balance in labour demand and supply than Q3. The US composite S&P global purchasing managers' index (PMI³) edged lower to 52.1 in March from 52.5 in February 2024, its highest since June 2023.

The Euro area stagnated in Q4:2023 following a contraction of 0.2 per cent in Q3 (q-o-q, saar), reflecting monetary tightening and the adverse impact of the war in Ukraine. Industrial production declined on a year-on-year (y-o-y) basis for H2:2023 and January 2024 *albeit* with expansion of production in construction sector. Nonetheless, the labour market remained robust with the unemployment rate at a record low of 6.4 per cent in January 2024. The UK economy slipped into technical recession at the end of 2023 as GDP registered a contraction of 0.5 per cent in Q3 and 1.2 per cent in Q4 (q-o-q, saar) due to decline in

² The OECD in its *Economic Outlook Interim Report* (February 2024) revised up the global growth forecast by 0.2 percentage points for 2024 to 2.9 per cent from its November 2023 projection: for 2025 the forecast remained unchanged at 3.0 per cent.

³ The references to PMIs are to S&P Global indices, unless specified otherwise.

Table V.1: Real GDP Growth

(Per cent)								
Country	Q1-2023	Q2-2023	Q3-2023	Q4-2023	2022	2023 (E)	2024 (P)	2025 (P)
Quarter-on-quarter, seasonally adjusted, annualised rate (q-o-q, saar)								
Canada	2.6	0.6	-0.5	1.0				
Euro area	0.2	0.5	-0.2	-0.2				
Japan	4.0	4.2	-3.2	0.4				
South Korea	1.3	2.5	2.5	2.5				
UK	0.7	0.0	-0.5	-1.2				
US	2.2	2.1	4.9	3.4				
Year-on-year								
Advanced Economies								
Canada	1.8	1.0	0.5	0.9	3.8	1.1	1.4	2.3
Euro area	1.3	0.6	0.1	0.1	3.4	0.5	0.9	1.7
Japan	2.6	2.3	1.6	1.2	1.0	1.9	0.9	0.8
South Korea	0.9	0.9	1.4	2.2	2.6	1.4	2.3	2.3
UK	0.3	0.2	0.2	-0.2	4.3	0.5	0.6	1.6
US	1.7	2.4	2.9	3.1	1.9	2.5	2.1	1.7
Emerging Market Economies								
Brazil	4.2	3.5	2.0	2.1	3.0	3.1	1.7	1.9
China	4.5	6.3	4.9	5.2	3.0	5.2	4.6	4.1
India	6.2	8.2	8.1	8.4	7.0	7.6	6.5	6.5
Indonesia	5.0	5.2	4.9	5.0	5.3	5.0	5.0	5.0
Philippines	6.4	4.3	6.0	5.6	7.6	5.3	6.0	6.1
Russia	-1.8	4.9	5.5		-1.2	3.0	2.6	1.1
South Africa	0.1	1.8	-0.7	1.2	1.9	0.6	1.0	1.3
Thailand	2.6	1.8	1.4	1.7	2.5	2.5	4.4	2.0
Memo:								
World		2022	2023 (E)	2024 (P)	2025 (P)			
Year-on-year								
Output		3.5	3.1	3.1	3.2			
Trade volume		5.2	0.4	3.3	3.6			

E: Estimate P: Projection

Note: India's annual data correspond to fiscal year (April-March); e.g., 2023 pertains to April 2023-March 2024.**Sources:** Official statistical agencies; Bloomberg; IMF WEO Update, January 2024; and RBI staff estimates.

the volume of net trade, household consumption and gross capital formation. The labour market, however, remained relatively tight but with a moderation in wage growth. The UK composite PMI at around 53 in January-February 2024 was at its highest since June 2023, signalling a robust expansion in business activity in early 2024 before edging down marginally to 52.8 in March. Japan avoided a technical recession as GDP

increased by 0.4 per cent (q-o-q, saar) in Q4:2023 after contracting by 3.2 per cent in Q3, driven by increase in gross fixed capital formation. The unemployment rate remained low at 2.6 per cent in February and nominal wages per employee increased moderately. The composite PMI (*au Jibun Bank*) remained in expansion since the beginning of 2024, increasing to 51.7 in March from 50.6 in February.

Among EMEs, China's real GDP growth moderated to 4.1 per cent (q-o-q, saar) in Q4 from 6.1 per cent in Q3 amidst a deepening property crisis, mounting deflationary risks and tepid demand. Nonetheless, for the full year 2023, the economy grew by 5.2 per cent – propelled higher primarily by base effects – exceeding the official target of 5.0 per cent. The composite PMI (Caixin) accelerated to 52.7 in March from 52.5 in February, signalling an expansion of the overall Chinese business activity for the fifth straight month. The Chinese economy is projected to grow by 4.6 per cent in 2024, according to the IMF. China has set its real GDP growth target for 2024 at 5 per cent. China undertook monetary easing and provided regulatory relaxation for its real estate sector to stimulate the economy.

Amongst other major EMEs, Brazil's GDP growth remained relatively steady at 2.1 per cent (y-o-y) in Q4:2023 *vis-a-vis* 2.0 per cent in Q3, driven by expansion in the industrial sector which was partially offset by a deceleration in its agricultural sector. The labour market, however, remained tight as the unemployment rate declined for nine consecutive months till December 2023 before picking up marginally in January and February 2024. The composite PMI remained unchanged at 55.1 in March 2024 for the second consecutive month its highest joint level since July 2022. The South African economy grew by 1.2 per cent (y-o-y) in Q4:2023 following a contraction of 0.7 per cent in Q3 over expansion in transport, storage and communication industry and

robust mining activity. The composite PMI for South Africa declined to 48.4 in March – down from 50.8 in February – registering its lowest level since July 2023. The Russian economy grew by 5.5 per cent (y-o-y) in Q3:2023, partly driven by soaring military and defence spending. The composite PMI at 52.7 in March, up from 52.2 in February, signalled a modest expansion in private sector business activity.

The south-east Asian economies have shown resilience in the face of large global shocks. To a large extent, this can be attributed to improved monetary and macroeconomic policy frameworks. Growth in the region has remained strong, while inflation has been lower than the OECD average. The ASEAN⁴ economies recorded resilient growth in Q4, amidst higher output but lower new orders. In Q1:2024, growth improved sequentially with increased output, higher employment and reduction in suppliers'

delivery time. The ASEAN manufacturing PMI for March 2024 edged up to an eleven month high of 51.5 with stronger expansion in production, rise in new orders and moderation in price pressures.

In the BRICS economies barring South Africa, GDP growth for 2024 is projected to moderate marginally (Table V.2). The inflation scenario in these countries is expected to improve in 2024 for all barring Russia where inflation has been fuelled by the war, and China which is facing weak prices amidst a property slump and subdued consumer sentiment.

Turning to high frequency indicators, the OECD composite leading indicators (CLIs) for February 2024 registered an uptick for most economies (Chart V.1a). The global composite PMI increased to 52.1 in February 2024 – its highest reading since July 2023 – as manufacturing PMI returned to expansion zone

Table V.2: Select Macroeconomic Indicators for BRICS

Real GDP growth rate (y-o-y, per cent)	Country	2022	2023(E)	2024(P)	General Govt. gross debt (per cent of GDP) [#]	Country	2022	2023(E)	2024(P)
	Brazil	3.0	3.1	1.7		Brazil	85.3	88.1	90.3
	Russia	-1.2	3.0	2.6		Russia	18.9	21.2	21.8
	India	7.0	7.6	6.5		India	81.0	81.9	82.3
	China	3.0	5.2	4.6		China	77.0	83.0	87.4
	South Africa	1.9	0.6	1.0		South Africa	71.1	73.7	75.8
CPI inflation rate (y-o-y, per cent)	Country	2022	2023(E)	2024(P)	Current account balance (per cent of GDP)	Country	2022	2023(E)	2024(P)
	Brazil	9.3	4.7	4.5		Brazil	-2.8	-1.9	-1.8
	Russia	13.8	5.3	6.3		Russia	10.5	3.4	4.0
	India	6.7	5.4	4.6		India	-2.0	-1.8	-1.8
	China	1.9	0.7	1.7		China	2.2	1.5	1.4
	South Africa	6.9	5.8	4.8		South Africa	-0.5	-2.5	-2.8
General Govt. net lending/borrowing (per cent of GDP)	Country	2022	2023(E)	2024(P)	Forex reserves* (in US\$ billion)	Country	2022	2023	2024
	Brazil	-3.1	-7.1	-6.0		Brazil	324.7	355.0	352.7
	Russia	-1.4	-3.7	-2.6		Russia	582.0	598.6	582.6
	India	-9.2	-8.8	-8.5		India	562.7	622.5	642.6
	China	-7.5	-7.1	-7.0		China	3306.5	3449.7	3437.5
	South Africa	-4.7	-6.4	-6.5		South Africa	60.6	62.5	61.2

E: Estimate P: Projection

*: Forex reserves for 2024 pertain to February 2024 for all countries except South Africa (January 2024) and India (March 2024).

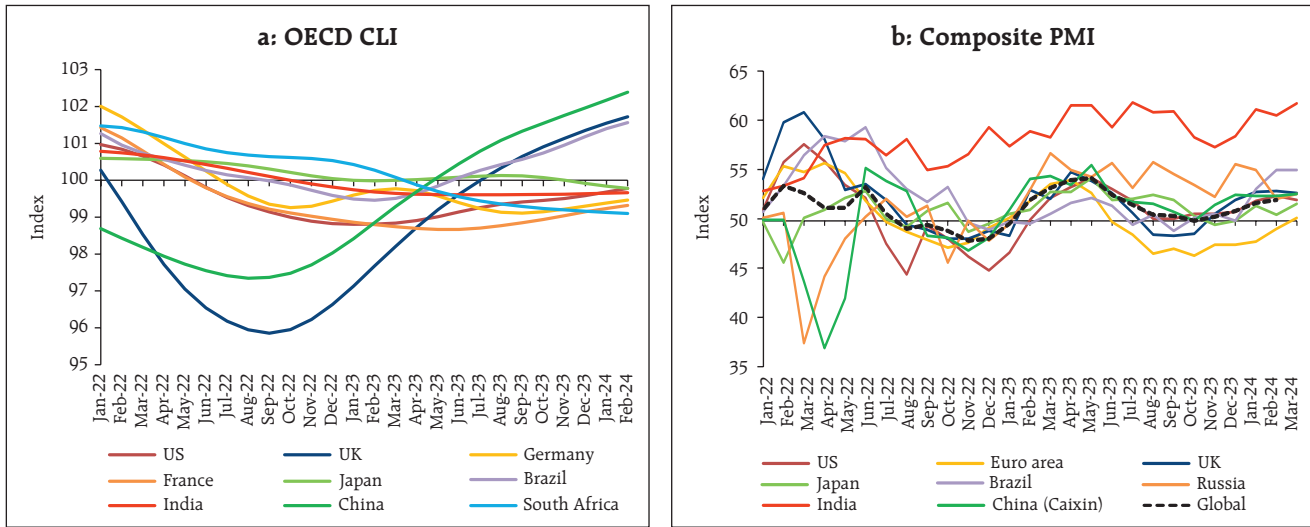
#: Gross debt refers to the nonfinancial public sector, excluding Eletrobras and Petrobras, and includes sovereign debt held by the central bank.

Notes: India's data correspond to fiscal year (April-March) except data on forex reserves which are as per calendar year. India's inflation data for 2023 is from April 2023-February 2024.

Sources: Official statistical agencies; WEO October 2023 database and January 2024 Update. IMF; International Reserve and Foreign Currency Liquidity (IRFCL), IMF; and RBI.

⁴ Association of Southeast Asian Nations (ASEAN) includes Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam.

Chart V.1: Survey Indicators



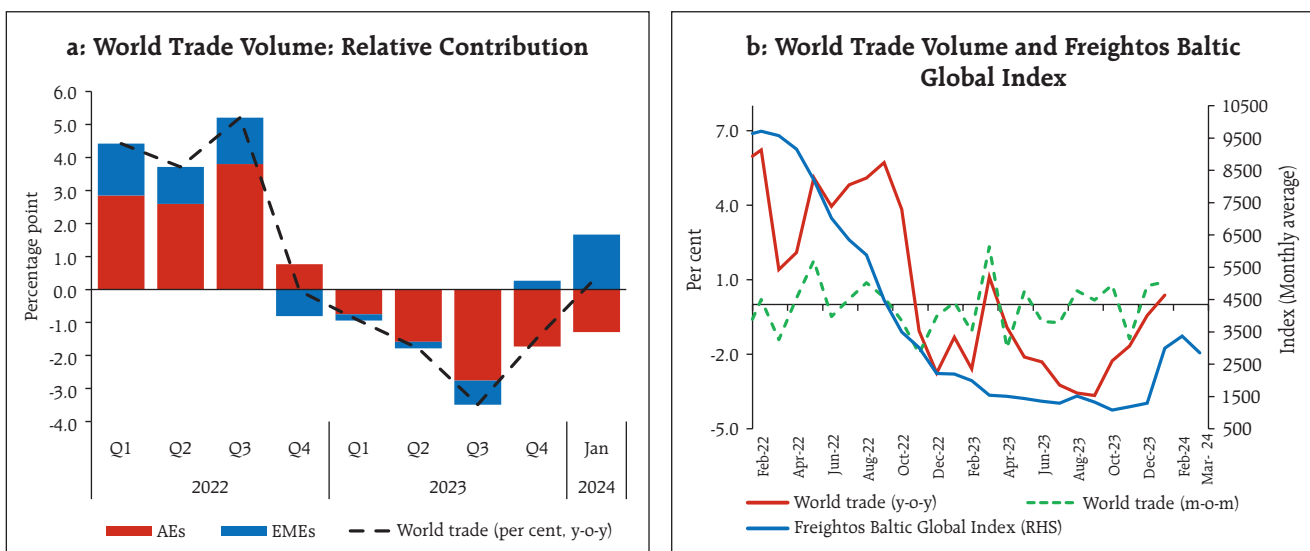
Note: For PMI indices a reading above 50 indicates an overall increase compared to the previous month, and below 50 an overall decrease. The indices are seasonally adjusted.
Sources: OECD; and Bloomberg.

in February 2024 and the services PMI improved sequentially. The global manufacturing PMI accelerated in March to 50.6, its highest reading since July 2022 as new orders, output and employment expanded (Chart V.1b).

Global merchandise trade volume recorded a modest recovery of 0.4 per cent (y-o-y) in January 2024, as strong trade recovery in EMEs more than offset the

contraction in AEs, following a contraction in 2023 (Chart V.2a). The momentum continued to be positive for the second month, with world trade volume rising by 0.9 per cent (m-o-m) in January (Chart V.2b). The Freightos Baltic Global Index, the global ocean freight container pricing index that measures 40-foot container prices, seemed to be losing momentum in March (-14.9 per cent, m-o-m) after a surge in

Chart V.2: World Trade Volume



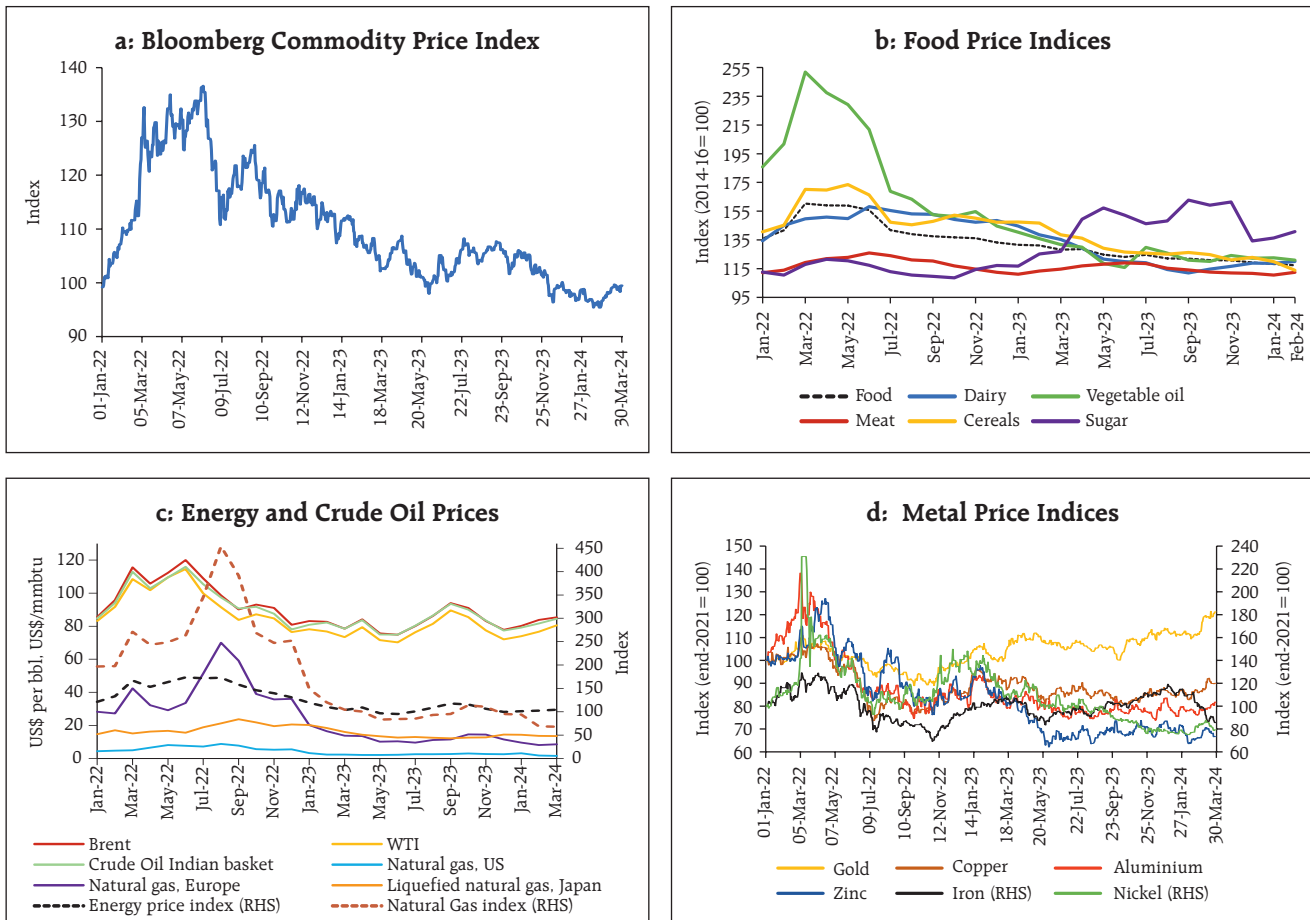
Sources: CPB Netherlands; Refinitiv Eikon; and RBI staff estimates.

January and February due to the impact of attacks on commercial ships in the Red Sea trade route. The attacks necessitated rerouting of maritime trade, *inter alia*, Europe and Asia via the South African Cape of Good Hope, leading to higher transit times, freight costs and war-risk premia. The latest reading of the WTO's goods trade barometer (100.6 in December 2023 slightly above the baseline value of 100) suggests that the merchandise trade could witness a modest recovery in early 2024; however, these gains could reverse due to geopolitical risks. In its WEO update (January 2024), the IMF projected world trade volume (goods and services) to grow at 3.3 per cent in 2024, lower than the historical average of 4.9 per cent, on account of rising trade distortions and geoeconomic fragmentation.

V.2 Commodity Prices and Inflation

Global commodity prices softened by 5.9 per cent (in terms of the Bloomberg commodity price index) during Q4:2023, reflecting moderation in the energy sub-index (Chart V.3a). The commodity prices, however remained volatile in Q1:2024 due to easing in the agriculture sub-index, especially grains and hardening in energy sub-index. Global food prices, according to the Food and Agriculture Organization (FAO), softened by 2.2 per cent in Q4:2023 and edged down further by 1.6 per cent in Q1:2024 (up to February), primarily driven by correction in the prices of sugar, cereals and meat (Chart V.3b). Sugar prices, however, firmed up partially in Q1:2024. In contrast, the prices of dairy increased steadily throughout Q4:2023 and Q1:2024.

Chart V.3: Commodity Prices



Sources: FAO; World Bank; Bloomberg; and PPAC, Ministry of Petroleum & Natural Gas, GoI.

After staying elevated at US\$ 90 per barrel in September-October due to output cuts by the OPEC+ and onset of the Israel-Hamas war, crude oil prices declined in Q4:2023 largely reflecting increase in non-OPEC supply, particularly from the US and Brazil, deteriorating demand prospects, and a seasonal moderation in demand (Chart V.3c). Oil prices ticked up in Q1:2024 in response to the Red Sea crisis, risk of conflagration of geopolitical tensions in the Middle East and the OPEC+ announcement of extension of voluntary cut for Q2:2024. Natural gas prices (according to World Bank's natural gas index) remained volatile in Q4:2023 as rising geo-political tensions pushed the prices, which was offset by increased supply, especially from the US. The price of natural gas moderated in Q1:2024 reflecting higher inventory levels and an improving supply outlook (Chart V.3c).

Prices of base metals like iron and copper firmed up in Q4:2023 as demand conditions improved in China, the top consumer of base metals. Nickel prices, however, declined in Q4:2023 due to a supply glut, especially in Indonesia, before a marginal recovery in prices on improvement in demand for electronic vehicles lent support to prices in Q1:2024. Most base metals, including aluminium, iron and zinc, softened in Q1:2024 as supply of these metals increased amidst looming demand concerns, uncertainty over rate cuts by the US Fed and a cloudy growth outlook for China. Gold prices rallied in Q4 as financial markets priced in deeper policy rate cuts for 2024 as reflected in lower bond yields and a weaker US dollar. The hardening of gold prices continued in Q1:2024 to record high in March on growing expectations of interest rate cuts by the US Fed, coupled with demand by central banks and Chinese investors (Chart V.3d).

Consumer Price Inflation

Consumer price inflation eased with recent prints nearing the pre-pandemic average for both headline and core inflation. In most countries, supply

chain disruptions corrected, and central banks kept their monetary policy restrictive. Easing inflationary pressures also reflect fading energy price shocks and attenuating labour market tightness with a decline in job vacancies and a modest rise in unemployment. Wage growth has remained generally muted forestalling the formation of wage-price spirals. Notwithstanding the decline, inflation rules above target in most inflation-targeting AEs and about half of inflation-targeting EMDEs⁵ (Table V.3). Moreover, the inflation momentum (m-o-m change in the price

Table V.3: Consumer Price Inflation

(Y-o-y, Per cent)						
Country	Inflation Target	Q1:2023	Q2:2023	Q3:2023	Q4:2023	Q1:2024
Advanced Economies						
Canada	2.0 ± 1.0	5.1	3.5	3.7	3.2	2.9
Euro area	2.0	8.0	6.2	4.9	2.7	2.6
Japan	2.0	3.5	3.3	3.0	2.6	2.4
South Korea	2.0	4.6	3.3	3.2	3.4	3.0
UK	2.0	10.2	8.4	6.7	4.2	3.7
US	(2.0)	5.8 (5.0)	4.0 (3.9)	3.5 (3.3)	3.2 (2.7)	3.2 (2.5)
Emerging Market Economies						
Brazil	3.0 ± 1.5	5.3	3.8	4.6	4.7	4.5
Russia	4.0	8.8	2.7	5.2	7.2	7.6
India	4.0 ± 2.0	6.2	4.6	6.4	5.4	5.1
China		1.3	0.1	-0.1	-0.3	-0.1
South Africa	3.0-6.0	7.0	6.2	5.0	5.5	5.5
Mexico	3.0 ± 1.0	7.5	5.7	4.6	4.4	4.6
Indonesia	3.0 ± 1.0	5.3	4.0	2.9	2.7	2.8
Philippines	3.0 ± 1.0	8.3	6.0	5.4	4.3	3.1
Thailand	1.0-3.0	3.9	1.1	0.5	-0.5	-0.9
Turkey	5.0 ± 2.0	54.5	40.5	56.1	62.7	66.8
Memo:						
		2022	2023 (E)	2024 (P)	2025 (P)	
World consumer price inflation		8.7	6.8	5.8	4.4	

E: Estimate P: Projection

- Notes:** (1) Figures in the parentheses for US are year-on-year change in personal consumption expenditure (PCE) price index.
 (2) Brazil's inflation target for 2024 is 3.0 ± 1.5 per cent and was 3.25 ± 1.5 per cent for 2023.
 (3) Inflation numbers for Q1:2024 are up to February 2024 except for Euro Area, South Korea, Indonesia and Turkey (March 2024).

Sources: Central bank websites; IMF; and Bloomberg.

⁵ As per the latest update of the *World Economic Outlook* (WEO) of the IMF released on January 30, 2024.

index) remained volatile, delaying the descent to target. Goods inflation in major AEs has exhibited a notable decline while services inflation has remained

relatively sticky (Box V.1). On the whole, near-term inflation expectations have fallen in major economies, with long-term expectations remaining anchored.

Box V.1: An Analysis of Goods and Services Inflation – A Comparative Study across AEs and EMEs

Prices of services generally tend to increase faster than prices of goods due to their non-tradable nature (Balassa-Samuelson effect); higher income elasticity of demand for services; higher productivity growth in goods production than in services; and rising mark ups (ECB, 2009). In the long-run, however, the gap between both the inflation rates tends to close with either a rise in goods inflation or a decrease in services inflation (Peach *et al.*, 2004). The magnitude of the response from goods inflation is generally much greater than the adjustment process for services inflation (Esteve *et al.*, 2006).

Prior to COVID, co-movement of goods and services inflation was evident. Post the pandemic, however, demand-supply imbalances led to high and persistent inflation amidst tight labour markets, contact-intensive services being the worst affected. As consumer spending shifted towards essentials, goods inflation flared up *vis-a-vis* services inflation as demand for services declined, breaking the usual co-movement briefly. With easing of restrictions on movement of people and ebbing supply chain pressures, the demand for services surged again and services inflation replaced goods inflation as the main driver of headline inflation (Atkinson and Zhou, 2022).

A panel regression of 15 economies (comprising both AEs and EMEs) for January 2009 to December 2023 indicates the presence of a cointegrating relationship between goods and services inflation. Accordingly, a vector error correction model (VECM) is estimated by the pooled mean group (PMG) approach (Pesaran *et al.*, 1999). The results indicate that in the pre-COVID period, coefficients of the error correction term in both goods and services inflation equations are negative and statistically significant (Table V.1.1). Thus, in case of a shock leading to deviation from equilibrium, both goods as well as services inflation adjust, with speed of adjustment in goods inflation being somewhat higher. For the full sample period (including COVID and post-COVID period), both services inflation and goods inflation converge towards equilibrium, at

Table V.1.1: Goods and Services Inflation: Co-integration and Error Correction Estimates

Pre-COVID (January 2009- February 2020)			
Variables	Advanced economies (AEs)	Emerging market economies (EMEs)	Combined
ΔServices inflation			
Long run equation: Services inflation = β.Goods inflation + error correction			
L.Goods	0.25 *** (7.26)	0.38 *** (4.62)	0.28 *** (8.64)
<i>Short run</i>			
Error correction	-0.15 *** (-6.15)	-0.09 *** (-4.65)	-0.13 *** (-7.03)
D.Goods	0.07 *** (-2.99)	0.15 *** (4.40)	0.10 *** (4.63)
ΔGoods inflation			
Long run equation: Goods inflation = β.Services inflation + error correction			
L.Services	0.52 ** (2.03)	0.89 *** (6.09)	0.77 *** (5.66)
<i>Short run</i>			
Error correction	-0.09 *** (-6.35)	-0.09 * (-1.65)	-0.09 *** (-5.17)
D.Services	0.23 ** (2.25)	0.28 *** (3.70)	0.25 *** (3.50)
Full Sample (January 2009- December 2023)			
ΔServices inflation			
Long run equation: Services inflation = β.Goods inflation + error correction			
L.Goods	0.52 *** (13.34)	0.59 *** (8.62)	0.54 *** (15.69)
<i>Short run</i>			
Error correction	-0.10 *** (-7.36)	-0.06 *** (-3.99)	-0.09 *** (-8.12)
D.Goods	0.07 *** (-6.24)	0.10 *** (9.88)	0.08 *** (9.32)
ΔGoods inflation			
Long run equation: Goods inflation = β.Services inflation + error correction			
L.Services	-0.44 (-0.98)	0.03 (0.07)	-0.23 (-0.74)
<i>Short run</i>			
Error correction	-0.05 *** (-10.44)	-0.04 *** (-5.91)	-0.05 *** (-11.08)
D.Services	0.31 *** (5.13)	0.31 ** (2.42)	0.31 *** (5.55)

Notes: (1) Figures in parentheses are t-statistics.
* p<0.1, ** p<0.05, ***p<0.01.
(2) L refers to first lag and D refers to first difference of the corresponding variable.

Source: RBI staff estimates.

(Contd.)

least in the short run. The long-run coefficient of services inflation in the goods inflation equation, is, however, insignificant possibly due to a huge shift towards goods consumption during COVID and surge in services consumption post COVID as mobility restrictions were lifted.

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According to the IMF's WEO update of January 2024, global inflation is projected to fall from 6.8 per cent in 2023 to 5.8 per cent in 2024 and further to 4.4 per cent in 2025.

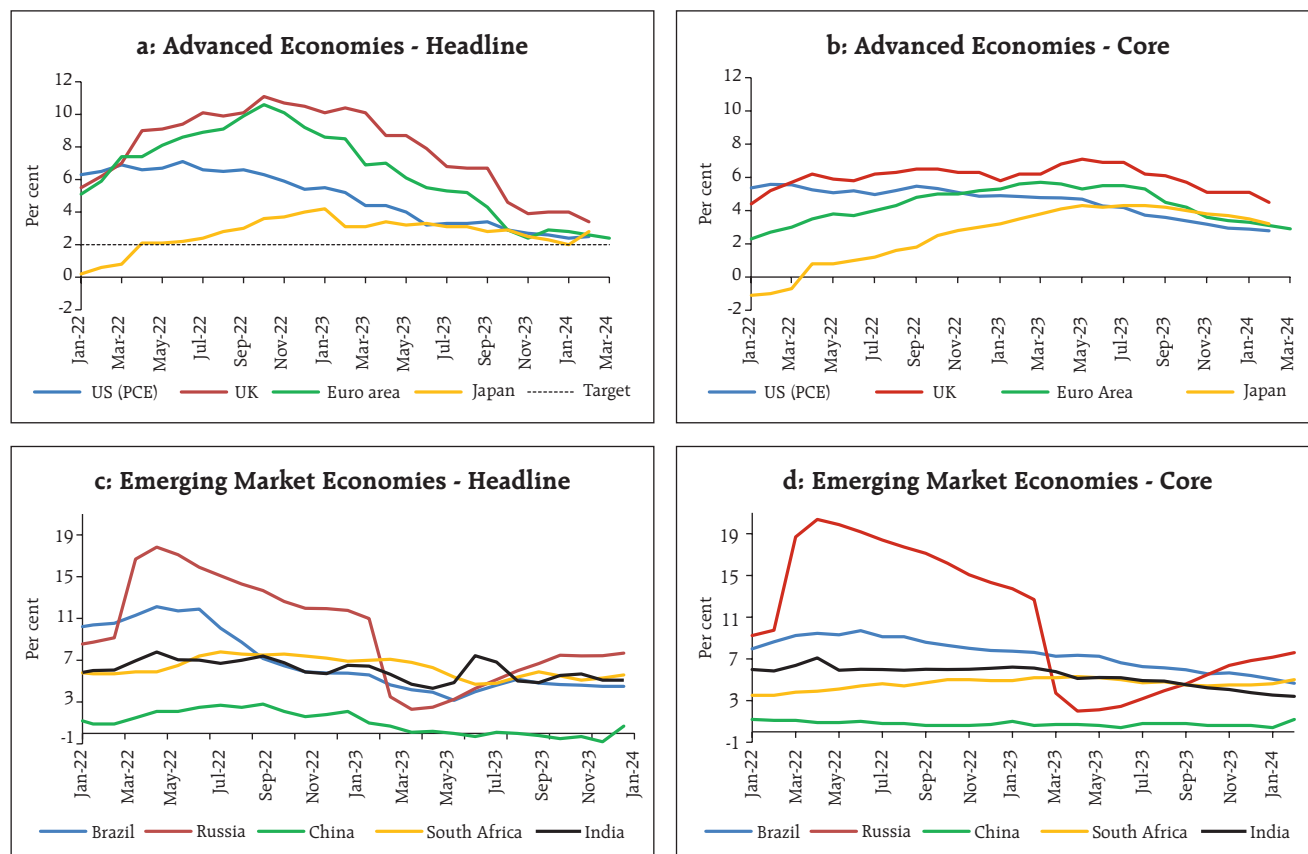
In the US, headline CPI inflation receded from 3.7 per cent in September 2023 to 3.2 per cent in February 2024, primarily due to decline in energy prices which were partially offset by rise in shelter prices. Core CPI inflation also moderated at a tardy pace from 4.1 per cent in September 2023 to 3.8 per cent in February 2024. Inflation in terms of the personal consumption expenditure (PCE) price index – the Fed's preferred measure of inflation – moderated from 3.4 per cent in September to 2.5 per cent in February (Chart V.4a), while core PCE inflation fell from 3.6 per cent to 2.8 per cent over the same period (Chart V.4b).

In the Euro area, CPI inflation eased by 190 bps to 2.4 per cent in March 2024 from 4.3 per cent in September 2023. Core inflation (inflation excluding energy, food, alcohol and tobacco) also moderated by 160 bps over the same period to 2.9 per cent in March, with non-energy industrial goods inflation declining more (from 4.1 per cent in September to 1.1 per cent in March) than services inflation (from 4.7 per cent in September to 4.0 per cent in March). In the UK, CPI headline inflation eased to 3.4 per cent in

February 2024 from 6.7 per cent in September 2023, with core inflation declining by 160 bps to 4.5 per cent in February from 6.1 per cent in September. In Japan, CPI inflation (all items less fresh food), the Bank of Japan's inflation target metric, moderated steadily from 2.9 per cent in October 2023 to 2.0 per cent in January 2024, but reversed sharply to 2.8 per cent in February driven by inflation in prices of culture & recreation, and communication. Core inflation (inflation excluding both fresh food and energy) declined to 3.2 per cent in February from 4.2 per cent in September.

Amongst major EMEs, CPI inflation in Brazil softened to 4.5 per cent in February 2024 from 5.2 per cent in September 2023 (Chart V.4c). In Russia, it edged up to 7.7 per cent in February from 6.0 per cent in September, partly due to soaring government spending on defence. In South Africa, CPI inflation has remained volatile within the upper tolerance band of the central bank's target since September 2023, reaching 5.6 per cent in February 2024. China, on the other hand, has been experiencing deflation (fall in price level, y-o-y) – from the no-inflation point in September 2023 to a deflation of 0.8 per cent in January 2024 – reflecting subdued consumption spending and weak consumer confidence amidst the

Chart V.4: CPI Inflation (y-o-y) – Select Economies



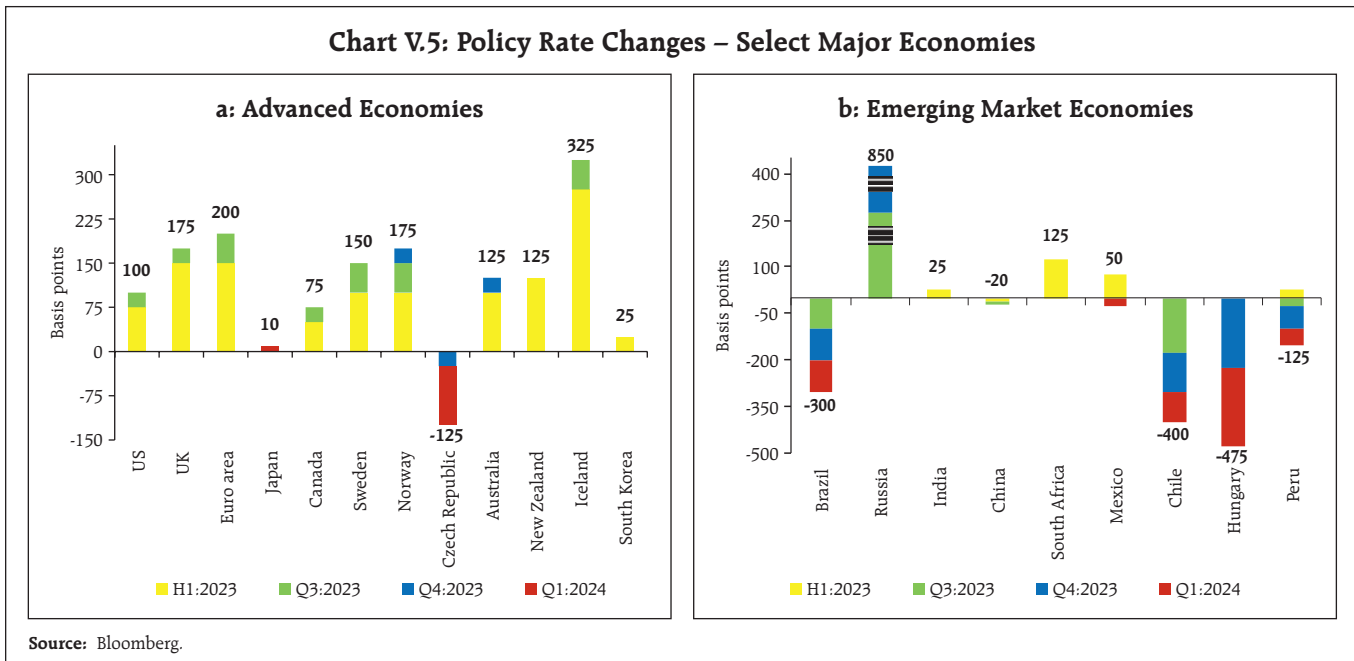
Notes: 1. For India, core CPI, i.e., CPI excluding food and fuel is worked out by eliminating the groups 'food and beverages' and 'fuel and light' from the headline CPI.
 2. Japan's data in Chart V.4a refers to CPI inflation in all items less fresh food – the Bank of Japan's target measure, while data in Chart V.4b refers to CPI inflation in all items less fresh food and energy.
Sources: Official statistical agencies; Bloomberg; and RBI staff estimates.

property sector crisis. In February, however, China exited deflation as inflation rose to 0.7 per cent on robust spending during the Lunar New Year holiday. Like AEs, core inflation in EMEs also remained elevated (Chart V.4d).

V.3 Monetary Policy Stance

During Q4:2023 and Q1:2024, monetary policy cycles diverged with the growing deviation in growth-inflation dynamics. Most central banks across AEs maintained their policy rates at restrictive levels. On the other hand, major central banks across EMEs either paused or cut their policy rates, as convergence of inflation towards the target on a durable basis appeared to be in sight.

The US Fed had started its tightening cycle in March 2022, but paused it in September 2023 and has continued to maintain the target range for the federal funds rate at 5.25-5.50 per cent in all its subsequent meetings (Chart V.5a). As per the Summary of Economic Projections released in March 2024, the majority of Federal Open Markets Committee (FOMC) participants expected the federal funds rate to be in the range of 4.50-4.75 per cent by end-2024, indicating a rate cut of 75 bps in 2024. The FOMC members, however, agreed that it would not be appropriate to reduce the target range until they gained greater confidence that inflation is moving sustainably towards the 2 per cent target. The US Fed also continued with its balance sheet reduction policy.



The ECB also kept its three key interest rates unchanged in each of its October and December 2023, and January and March 2024 policy meetings. It indicated that it would continue to follow a data-dependent approach to determine the appropriate level and duration of restriction and to maintain the policy rates at sufficiently restrictive levels for as long as necessary. Besides, the Asset Purchase Programme (APP) portfolio continues to decline as principal payments from maturing securities are no longer reinvested. It, however, intends to continue to reinvest, in full, the principal payments from maturing securities purchased under the Pandemic Emergency Purchase Programme (PEPP) during the first half of 2024 and to reduce the PEPP portfolio by €7.5 billion per month on average in H2:2024 before discontinuing reinvestments at the end of 2024. The ECB announced changes in operational framework for implementing monetary policy on March 13, 2024 that sets out how Governing Council would steer short-term money market rates in line with its monetary policy decisions as Eurosystem normalises its balance sheet⁶. After pausing its rate hike cycle in September 2023, the Bank of England (BoE) maintained its policy

rate at 5.25 per cent in all its subsequent policy meetings in November and December 2023 and February and March 2024 and judged that monetary policy will need to remain restrictive for sufficiently long to return inflation to the target.

Amongst other major AEs, the Bank of Canada, the Sveriges Riksbank, the Reserve Bank of New Zealand, the Bank of Korea and the Central Bank of Iceland maintained *status quo* in all their meetings during Q4:2023 and Q1:2024. After keeping its policy rate unchanged since July 2023, the Reserve Bank of Australia raised the cash rate by 25 bps in November and maintained *status quo* in its subsequent meetings of December 2023 and February and March 2024. Similarly, the Norges Bank paused its rate hike in November 2023, but raised its policy rate by 25 bps in December 2023 before pausing again in its January and March 2024 meetings. The Czech National Bank, which had maintained a pause since August 2022,

⁶ The ECB would reduce the spread between Deposit Facility Rate (DFR) and Main Refinancing Operations (MRO) to 15 bps from 25 bps effective September 18, 2024. Liquidity will be provided through various instruments, including (i) short-term credit operations (*i.e.*, MROs); (ii) three-month longer-term refinancing operations (LTROs); and (iii) structural longer-term credit operations. Both MROs and three-month LTROs will continue to be conducted through fixed-rate tender procedures with full allotment.

embarked on monetary easing cycle by cutting its key rate by 25 bps in December 2023 and 50 bps each in February and March 2024 policy meetings. The Swiss National Bank also began its easing cycle with a 25 bps rate cut in its March meeting. At the same time, the Bank of Japan (BoJ) maintained an accommodative stance with the overnight interest rate on hold at minus 0.1 per cent till late-March 2024. In its October 2023 meeting, the BoJ increased flexibility in the conduct of yield curve control (YCC) with the upper bound of 1.0 per cent for the yields as reference *vis-a-vis* 0.5 per cent earlier. In its March 2024 meeting, however, the BoJ became the last central bank to exit the negative rate as it switched from interest rate of (-) 0.1 per cent on Policy Rate Balances to encouraging the uncollateralized overnight call rate to remain at around 0 to 0.1 per cent. It also abandoned the policy of Quantitative and Qualitative Easing (QQE) with YCC⁷.

In the BRICS, the *Banco Central do Brasil* cut the Selic rate in November and December 2023 and January and March 2024 by 50 bps each after it had embarked on an easing cycle in August 2023. The South African Reserve Bank and the People's Bank of China (PBoC) kept their policy rates unchanged in all their meetings held in Q4:2023 and Q1:2024. The PBoC, however, continued its accommodative stance by lowering the reserve requirement ratio by 50 bps in February 2024, to provide a liquidity boost to the financial system. It also lowered its benchmark five-year loan prime rate by 25 bps, the largest cut since it was introduced in 2019, to boost real estate demand. The Bank of Russia (BoR) continued its tightening cycle that started in July 2023 by increasing the policy rate by 200 bps and 100 bps in October and December

2023 meetings, respectively, prompted by inflationary pressures and a depreciating rouble. It, however, kept the policy rate unchanged at 16.0 per cent in its February and March 2024 meetings (Chart V.5b).

Among Asian EMEs, the Bank of Thailand kept the benchmark rate unchanged in its November 2023 and February 2024 meetings. The Bank Indonesia raised its key rate in October 2023 by 25 bps before maintaining a pause in all its subsequent meetings. In Latin America, the central bank of Mexico held its policy rate unchanged in all meetings since May 2023, before embarking on a policy easing cycle in March 2024 with a 25 bps rate cut. After keeping the key rate unchanged since June 2023, the central bank of Colombia commenced a monetary policy easing cycle by cutting its benchmark rate by 25 bps each in December 2023 and January 2024 and 50 bps in March. Chile lowered its policy rate by 225 bps to 7.25 per cent during October 2023 - February 2024. Peru cut its policy rate by 25 bps each in all the 6 meetings held during October 2023 - February 2024, before maintaining a pause in its March meeting. Among European EMEs, Hungary switched gears by commencing an easing cycle in October 2023, reducing the policy rate by 75 bps in each of the meetings held in October, November and December 2023 and January 2024, followed by a rate cut of 100 bps in February and 75 bps in March. Poland cut its policy rate by 25 bps in October 2023 and kept it on hold in all its subsequent meetings. The central bank of Turkey, on the other hand, raised its policy rate by 1500 bps cumulatively between October 2023 and January 2024 on the top of 2150 bps hike during June-September 2023 before holding it unchanged at 45.0 per cent in its February 2024 policy as it fights elevated and rising inflation and a weakening currency. It, however, increased its policy rate again by 500 bps in March meeting citing the continuing need to counter climbing inflation (68.5 per cent in March 2024 from 61.5 per cent in September 2023).

⁷ The BoJ decided to (i) continue its Japanese Government Bond (JGB) purchases of broadly the same amount as before, while making nimble operations in case of a rapid rise in long-term interest rates, (ii) discontinue purchases of exchange-traded funds (ETFs) and Japan real estate investment trusts (J-REITs); and (iii) gradually reduce the amount of purchases of CPs and corporate bonds and discontinue the purchases in about one year.

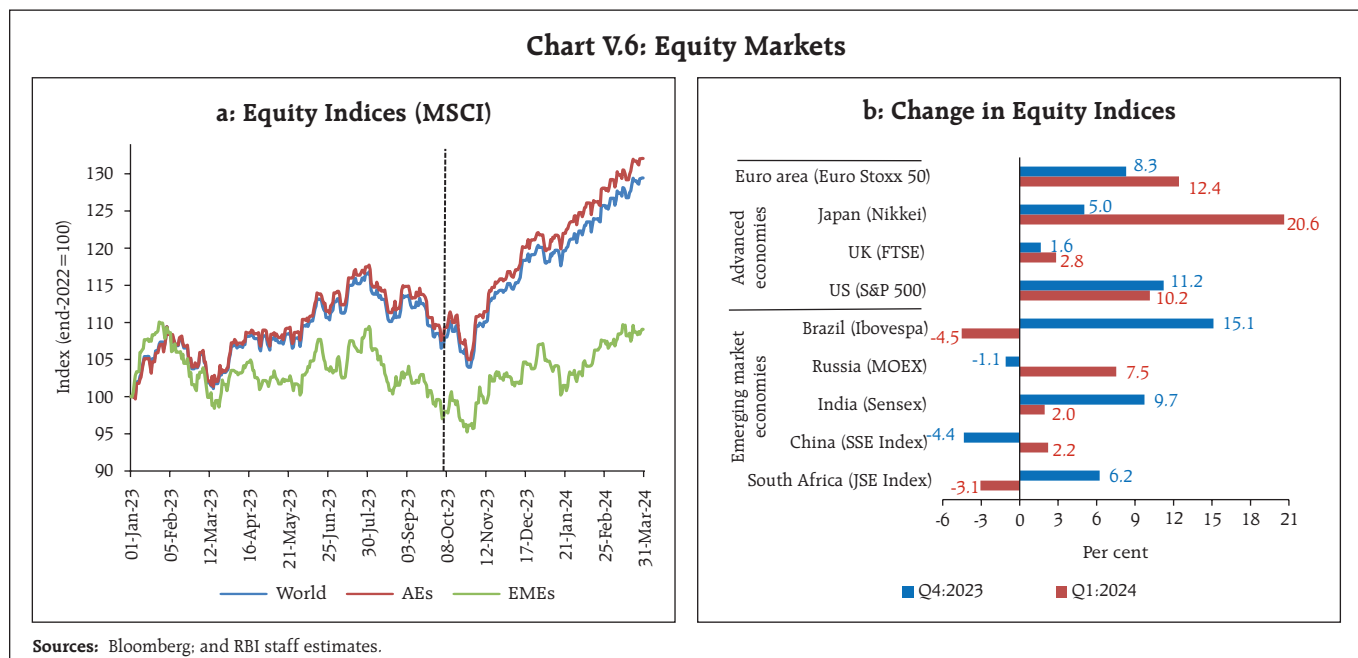
V.4 Global Financial Markets

Global financial markets witnessed large swings in Q4:2023 and Q1:2024 in response to fluctuating perceptions on monetary policy trajectories, stickiness of inflation and strength of economic activity. Global equity markets corrected in October over anticipation of 'higher for longer' monetary policy stances but rallied afterwards as a few systemic central banks signalled interest rate cuts in the near future. Overall, bond yields have moderated since the last MPR. The US dollar pared gains in Q4:2023 but strengthened later in Q1:2024. The EME currencies broadly strengthened since last MPR.

In terms of MSCI world index, equity markets gained 19.3 per cent since end-September, reflecting gains in both AEs and EMEs (Chart V.6a). Among AEs, the US S&P 500 shed gains in October over 'higher for longer' monetary policy stances and tardy pace of disinflation. It, however, gained starting November as the Fed signalled a possible end of its rate hiking cycle and rate cuts in 2024. Overall, the US S&P 500 index rose by 22.5 per cent during October 2023 and March 2024. European stock markets tracked the US markets, paring gains in October and rallying

afterwards with intermittent episodes of volatility as inflation slowed down and the euro area narrowly missed recession. The UK's stock indices gained by 1.6 per cent in Q4:2023 and by 2.8 per cent in Q1:2024 over a sharp drop in consumer prices though the indices exhibited volatility, especially in Q1, over GDP concerns. The Japanese market outperformed its peers on continuation of ultra-accommodative monetary policy by the BoJ. Tracking global cues in Q4:2023, EME equities, barring China and Russia, gained as they reaped benefits of an early commencement of the tightening cycle leading to lower inflation prints (Chart V.6b). Chinese stocks crashed due to its flagging real estate sector, high unemployment and deflation. It has, however, exhibited signs of recovery since early February 2024 as a wide range of support measures eased bearish sentiment and capital inflows in to equity markets resumed. Overall, in Q1:2024, EME equities soared, barring those of Brazil and South Africa.

Sovereign bond yields softened across major AEs in Q4:2023 as systemic central banks signalled the end of tightening cycles and a possible reversal. Yields hardened in Q1:2024 as the likelihood of early rate



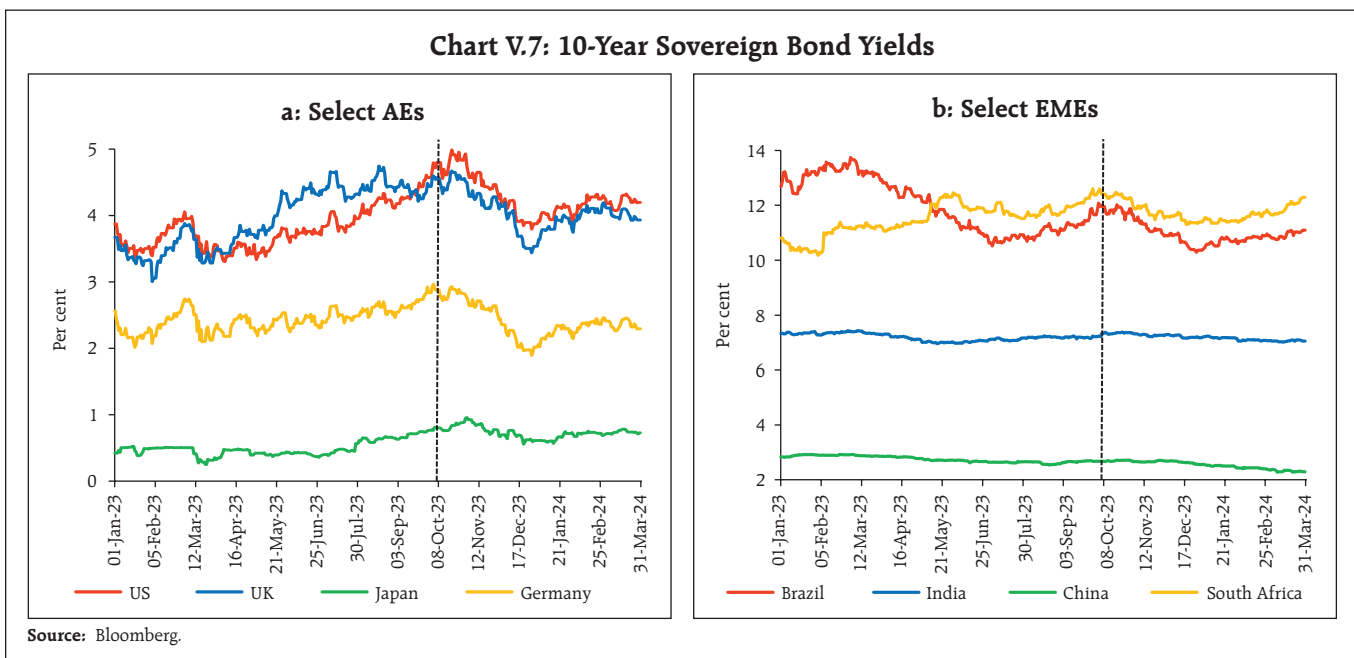
cuts receded due to the sluggish pace of disinflation. The US 10-year treasury yield shot up to a 16-year high in October, reaching the peaks last touched in 2007 due to a surge in Treasury debt issuance and hawkish commentary by the Fed chair. Subsequently, the yields fell precipitously in Q4:2023 on expectations of a rate cut in the early months of 2024 and announcement of a slower pace of long dated issuance. The yields hardened again in Q1:2024 as labour market exhibited strength and market participants priced in expectations of delayed rate cuts (Chart V.7a). The UK 10-year Gilt yield and German 10-year bond yield broadly tracked the US market. The 10-year Japanese Government bond yield hardened throughout October to reach close to 1 per cent as the BoJ incorporated flexibility in the conduct of YCC. The yields fell subsequently in Q4:2023 as BoJ decided to maintain its ultra-loose monetary policy. Yields, however, registered an uptick again in Q1:2024 as the BoJ indicated an exit from its easing measures but softened after the BoJ committed to continue its JGB purchases with broadly the same amount as before the end of YCC. Taking

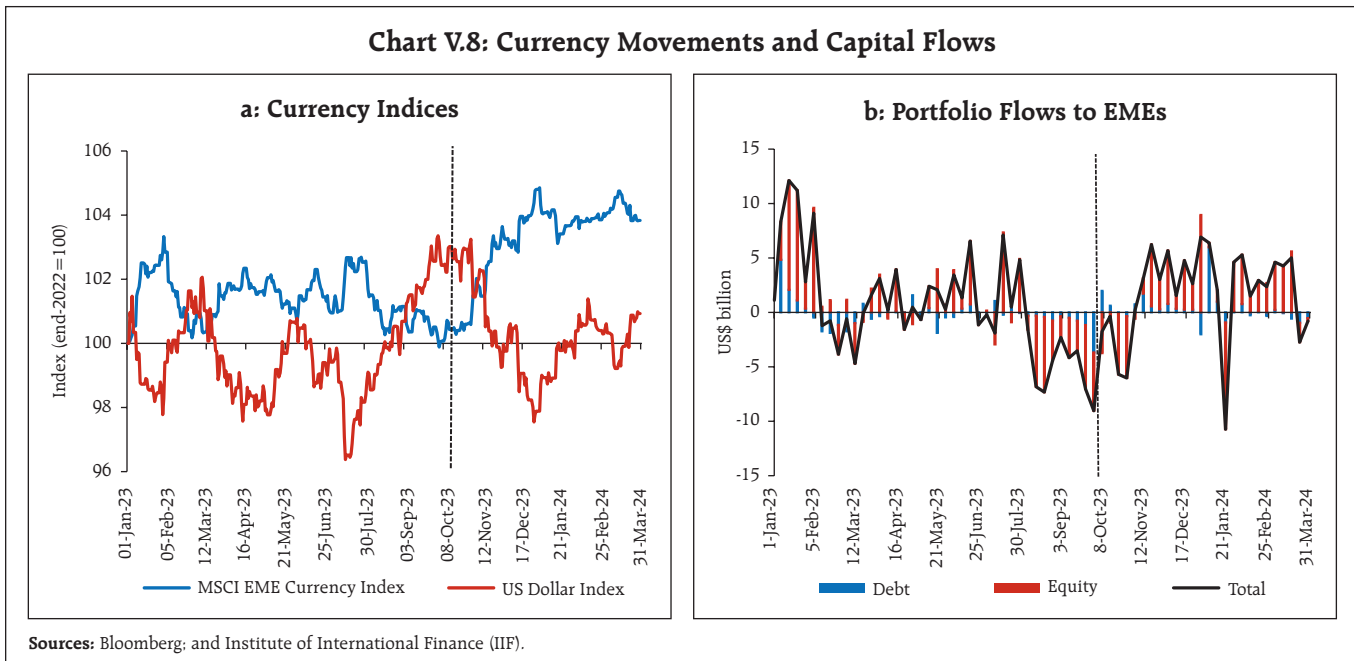
on global cues, bond yields in several EMEs exhibited a hardening bias in October, followed by softening for the rest of Q4:2023 as EMEs pivoted towards maintaining key rates in some cases. Yields remained volatile in Q1:2024 with a hardening bias (Chart V.7b). Bond yields in China, however, treaded down over accommodative monetary policy actions of the PBoC.

In the currency markets, the US dollar weakened in Q4:2023 over optimism about easing US monetary policy. Tight labour market conditions, sticky inflation, and resilient economic growth, however, led market participants to reprice a lower probability of policy cycle reversal by the Fed, thus strengthening the dollar in Q1:2024 (Chart V.8a). The US dollar's movement was mirrored in the EME currencies, exacerbated by swings in capital flows (Chart V.8b). The MSCI Emerging Market Currency Index gained 4.3 per cent in Q4:2023 but fell by 0.9 per cent in Q1:2024.

V.5 Conclusion

Global growth remained resilient, supported by public and private spending and robust labour market





conditions. Going forward, the chances of hard landing have receded and risks to the outlook are in balance. While continuation of geopolitical tensions, elevated public debt amidst tight financial conditions, weak recovery in China, geoeconomic fragmentation and extreme weather events pose downside risks to the outlook, faster disinflation and slower withdrawal of fiscal stimulus may provide upsides. Changing perceptions on the monetary policy trajectory and persistence of geopolitical conflicts are imparting volatility to global financial markets. Growth prospects in EMEs remain bright though weak global demand,

impediments to global trade, volatile capital flows, elevated debt levels, extreme weather events and tight financial conditions pose downside risks to their outlook. While inflation has eased across countries with restrictive policies and easing of supply shocks, it still rules above targets, especially in advanced economies, and the last mile of disinflation is likely to be gradual. Central banks will need to modulate their monetary policies cautiously to support the descent of inflation to the target while supporting the nascent growth recovery.

SPEECHES

Evolution of Financial Markets in India: Charting the Future
Shaktikanta Das

Welcome Address at the RBI@90 Commemoration Function
Shaktikanta Das

The Indian Economy: Opportunities and Challenges
Michael Debabrata Patra

Regulatory Insights into 2024
M. Rajeshwar Rao

Safe Banking Practices – Protecting the Young
Swaminathan J.

*Evolution of Financial Markets in India: Charting the Future**

Shaktikanta Das

It is my pleasure to be here at the FIMMDA-PDAI annual conference. This year (2024-25) is particularly special for the Reserve Bank. The RBI has entered its 90th year on April 1, 2024. I, therefore, thought it appropriate to dwell upon the journey of the Reserve Bank, especially in the context of its role in developing the financial markets in India in the recent period. I also propose to share some of my thoughts on the way forward.

To give a brief background, the Reserve Bank was set up in 1935 on the recommendations of the Hilton Young Commission with the objective of regulating the issue of bank notes, securing monetary stability and operating the country's currency and credit system. The statutory basis for its functioning was provided by the Reserve Bank of India Act, 1934¹. The nationalisation of the Reserve Bank, which had started as a joint stock company took place in 1949.

Over the years, the Reserve Bank has performed a wide range of functions to support the Indian economy. Its developmental role came into focus during the planning period, when one of its major roles was to channelise credit to the needy sectors of the economy. With the commencement of the process of liberalisation in the 1990s, the Reserve Bank focused more sharply on core central banking functions like monetary policy, regulation and supervision of the financial sector, development of financial markets and payment systems. Today, the RBI is a full service central bank and an enabler of the market economy.

* Keynote Address by Shri Shaktikanta Das, Governor, Reserve Bank of India - April 8, 2024 - at the FIMMDA-PDAI Annual Conference, Barcelona.

¹ The Reserve Bank of India Act, 1934.

The journey of the Reserve Bank and its focus on emerging areas has been reflected in the amendments to the RBI Act, 1934 and various other statutes from which the Reserve Bank draws its mandate. The notable changes over the last couple of decades include the statutory amendments for (i) strengthening the legal framework for oversight of non-banking financial companies (NBFCs) (1997)²; (ii) consolidating the laws related to government securities into Government Securities Act (2006)³; (iii) providing the legal framework for regulation of key financial markets (2006)⁴; (iv) enactment of the Payment and Settlement Systems Act to vest the Reserve Bank with the authority to regulate and supervise the payment systems in India (2007)⁵; (v) institutionalisation of the flexible inflation targeting framework (2016)⁶; (vi) vesting the Reserve Bank with the authority to regulate housing finance companies through an amendment of the National Housing Bank Act, 1987 (2019)⁷; (vii) strengthening the regulatory framework for cooperative banks by amendment of the Banking Regulation Act, 1949, (As Applicable to Cooperative Societies) (2020); and (viii) enabling the issuance of the central bank digital currency (2022)⁸. These changing priorities and the quest to keep pace with developments, including technological changes, have been reflected in the Reserve Bank's

² In response to the perceived need for better regulation of the NBFC sector, the Reserve Bank of India (RBI) Act, 1934 was amended in 1997, providing for a comprehensive regulatory framework for NBFCs. The RBI (Amendment) Act, 1997 conferred powers on the RBI to issue directions to companies and its auditors, prohibit deposit acceptance and alienation of assets by companies and initiate action for winding up of companies.

³ The Government Securities Act, 2006.

⁴ The RBI Act was amended to insert Chapter III D (Section 45U, V, W and X), providing Reserve Bank the power to regulate transactions in money market, government securities market and the foreign exchange, rupee interest rate and the credit derivative markets.

⁵ The Payment and Settlement Systems Act, 2007.

⁶ The Act was amended in 2016, to provide for a statutory and institutionalised framework for a Monetary Policy Committee, for maintaining price stability, while keeping in mind the objective of growth.

⁷ The National Housing Bank Act, 1987.

⁸ The Act was amended in 2022 to enable the issuance of the central bank digital currency.

organisational structure, examples of which include the setting up of the Department of Payment and Settlement Systems (2005); the Financial Stability Unit (2010), now called the Financial Stability Department; the Financial Markets Regulation Department (2014); the Financial Market Operations Department (2014); and the FinTech Department (2022).

Financial markets: Fostering trust, stability and innovation

Let me now focus on the journey of our financial markets, a journey in which the Reserve Bank has collaborated with many stakeholders including the FIMMDA and the PDAI who have been valuable partners in the Reserve Bank's endeavor to develop markets, institutions and practices.

The onset of the Global Financial Crisis (2008) altered the way the world looked at financial markets. At that stage, our financial markets were just beginning to develop, buoyed by the needs of a growing economy and in the background of the transition to market-determined interest rates and exchange rates, convertibility in the current account and gradual liberalisation of the capital account. Significant institutional and market infrastructure developments had also taken place. These included the setting up of the Clearing Corporation of India Limited (CCIL) and the operationalisation of RTGS, the NDS-OM platform and a trade repository for derivatives. Nonetheless, the markets remained in the early throes of development. Bank-intermediated finance was the preferred funding option. Diversity in financial products and participants was limited. The approach to foreign participation in domestic markets was guarded. At the same time, the economy's growing aspirations was placing increasing demands on financial markets while successive global crises necessitated prudent risk management. Meanwhile, global interest in the Indian Rupee, and the offshore Rupee markets, continued to grow. The onshore and offshore Rupee markets remained segmented.

Against this backdrop, the Reserve Bank's efforts in recent years to develop the financial markets focused on meeting the needs of a more confident and aspirational economy. Our reform endeavours have also fostered trust, stability and innovation by (i) making capital raising more efficient; (ii) removing segmentation between onshore and offshore markets; (iii) expanding the participation base by easing access to markets for hedging and expressing views on market movements; (iv) promoting innovation through a larger suite of products; (v) ensuring the integrity and resilience of markets and market infrastructure; and (vi) ensuring fair conduct by market participants.

Let me discuss the major reforms undertaken in the recent years.

Markets for Funding

Government securities market

A key objective of the Reserve Bank has been to foster a robust G-sec market and yield curve, which I have often referred to as a public good. A Benchmark Security Issuance Strategy⁹ was introduced in 2020 to facilitate the development of the yield curve by providing liquidity at important tenor points. Last year, monthly (instead of fortnightly) issuance of select G-secs was commenced to widen the window between successive auctions and foster greater liquidity.

The regulatory frameworks for the 'when issued' market¹⁰ and short selling in G-secs¹¹ were liberalised to enable better management of auction risk and price discovery (2018). The Request for Quote (RFQ) dealing mode on NDS-OM was introduced to enable market

⁹ From FY2020-21, the primary market issuance strategy was fine-tuned to issue securities in six "key" tenors viz., 2-year, 5-year, 10-year, 14-year, 30-year and 40-year with each security being issued/reissued once in a fortnight. This strategy was aimed at facilitating the early build-up of sufficient float for trading in the secondary market and provide certainty about the exact tenor of security issuances. Subsequently, securities in 3, 7 and 50 year tenors were also introduced.

¹⁰ When Issued Transactions (Reserve Bank) Directions, 2018 dated July 24, 2018.

¹¹ Short Sale (Reserve Bank) Directions, 2018 dated July 25, 2018.

participants to negotiate trades electronically (2020). Sovereign green bonds were introduced in January 2023. Lending and borrowing of G-secs was also permitted to facilitate wider participation by different classes of investors in the securities lending market¹².

The Reserve Bank, in consultation with the Government, has been progressively liberalising the regulations for foreign investment in G-secs. The Fully Accessible Route (FAR) was introduced to enable Foreign Portfolio Investors (FPIs) to invest in specified G-secs without restrictions (2020)¹³. The suite of specified securities under FAR was enhanced (2022 and 2023)¹⁴. Measures were also taken to facilitate "ease of doing business" by FPIs. For instance, extended timings were allowed for reporting of transactions¹⁵ and banks were permitted to fund margins for G-Sec trades of FPIs¹⁶. These measures contributed to the recent inclusion of Indian G-secs in certain global bond indices reflecting a growing confidence of global investors in the Indian financial markets and the economy.

Measures have been taken to expand retail participation in G-secs. The 'RBI Retail Direct' scheme, launched in 2021, have enabled individuals to directly access the primary and secondary G-sec markets, including sovereign gold bonds and floating rate savings bonds. A market-making arrangement through primary dealers has been put in place. The National Automated Clearing House (NACH) facility has been introduced allowing investors to create a one-

time mandate and use it multiple times for making payments (December 2023). As announced in the recent monetary policy statement on April 5, 2024, a mobile app for accessing the Retail Direct portal will be launched shortly.

Corporate bond market

The Reserve Bank, with co-operation from other stakeholders, has been making efforts to develop a vibrant corporate bond market which is an important enabler of longer-term funding. To attract greater non-resident participation in corporate bonds, the FPI investment limit in corporate debt under the Medium-Term Framework was increased from 9% to 15% of outstanding corporate bonds (2020)¹⁷. The Voluntary Retention Route (VRR) was introduced in 2019¹⁸. The regulatory framework for repo in corporate bonds was rationalised in 2018¹⁹. Legal recognition was provided for bilateral netting of repo in corporate bonds and credit derivative contracts through requisite notifications under the Act for Bilateral Netting of Qualified Financial Contracts, 2020. The regulatory framework for credit derivatives was revised in 2022²⁰. The AMC Repo Clearing Limited was authorised to offer tri-party repos in corporate bonds in 2023. The measures taken by the Reserve Bank during the COVID-19 pandemic, especially the liquidity measures like the Long Term Repo Operations (LTROs), the Targeted Long Term Repo Operations (TLTROs) and the TLTRO 2.0 were also critical in ensuring that the market continued to function smoothly.

Money markets

The regulatory framework for the markets for call, notice and term money; certificates of deposits

¹² Reserve Bank of India (Government Securities Lending) Directions, 2023 dated December 27, 2023.

¹³ 'Fully Accessible Route' for Investment by Non-residents in Government Securities dated March 30, 2020.

¹⁴ 'Fully Accessible Route' for Investment by Non-residents in Government Securities – Additional specified securities dated July 07, 2022 and 'Fully Accessible Route' for Investment by Non-residents in Government Securities – Inclusion of Sovereign Green Bonds dated January 23, 2023 and November 08, 2023.

¹⁵ Transactions in Government securities by Foreign Portfolio Investors: Reporting dated June 7, 2021.

¹⁶ Payment of margins for transactions in Government Securities by Foreign Portfolio Investors dated June 4, 2021.

¹⁷ Investment by Foreign Portfolio Investors (FPI): Investment limits dated March 30, 2020.

¹⁸ 'Voluntary Retention Route' (VRR) for Foreign Portfolio Investors (FPIs) investment in debt dated May 24, 2019.

¹⁹ Repurchase Transactions (Repo) (Reserve Bank) Directions, 2018 dated June 24, 2018.

²⁰ Reserve Bank of India (Credit Derivatives) Directions, 2022 dated February 10, 2022.

(CDs); commercial paper (CP) and non-convertible debentures (NCDs) with original maturity up to one year, was comprehensively rationalised in April 2021, June 2021 and January 2024 respectively. The participant base was widened by extending access to the call, notice and term money markets to Payment Banks, Small Finance Banks²¹ and Regional Rural Banks (RRBs)²². The RRBs were also permitted to issue CDs²³. To foster efficiency, call money market participants have been mandated to obtain membership of the NDS-Call platform²⁴. Banks have been provided the flexibility of setting their own limits for call and notice borrowings within the prudential limits for inter-bank liabilities²⁵ and the option of buying back CDs. The operational requirements for CPs and NCDs with original maturity up to one year have been eased, and compliance and disclosure requirements strengthened²⁶.

Development of OTC Derivative Market

The regulatory framework for OTC transactions in interest rate, FX and credit derivatives has transformed over the last few years²⁷. The revised framework is based on the principles of easing access and operations, enabling flexibility and ensuring fair market conduct, customer protection, transparency

and risk management, while eschewing detailed procedural prescriptions.

Access to financial markets has been eased. Non-residents can now access the domestic markets at par with residents. Large participants (non-retail users) can access derivative markets to hedge their risks as also express views²⁸. The market-maker base has been expanded by granting authorised person licences to standalone primary dealers. Market-makers have been permitted to offer bespoke or custom-made products to enable efficiency and flexibility in hedging, subject to necessary risk management capabilities. Retail customers can only be offered a set of simple products. New products such as interest rate options, swaptions and FX swaptions have been permitted. Non-deliverable FX derivatives can be offered to residents for hedging²⁹. It is expected that market-makers and banks exercise due caution and diligence while designing and offering such products to customers, keeping in mind the profile of customers.

A significant policy initiative has been to permit the banks to access offshore INR markets for (i) FX derivatives (in 2020)³⁰, subject to the presence of an operating IFSC Banking Unit (IBU); and (ii) for interest rate derivatives (in 2022)³¹ with a view to improve the efficiency of price discovery and provide greater opportunities to domestic participants. Market-makers have been permitted to deal in such products beyond domestic markets hours. Rupee derivatives settled in foreign currency have also been permitted

²¹ Payments Banks and Small Finance Banks– access to Call/Notice/Term Money Market dated October 29, 2018.

²² Regional Rural Banks- Access to Call/Notice/Term Money Market dated December 04, 2020.

²³ Reserve Bank of India (Certificate of Deposit) Directions, 2021 dated June 4, 2021.

²⁴ Reserve Bank of India (Call, Notice and Term Money Markets) Directions, 2021 dated April 01, 2021.

²⁵ Reserve Bank of India (Call, Notice and Term Money Markets) Directions, 2021-Review dated June 08, 2023.

²⁶ Reserve Bank of India (Commercial Paper and Non-Convertible Debentures of original or initial maturity upto one year) Directions, 2024 dated January 03, 2024.

²⁷ Interest rate derivatives (2019) - Rupee Interest Rate Derivatives (Reserve Bank) Directions, 2019 dated June 26, 2019, FX derivatives (2020) - Risk Management and Inter-bank Dealings – Hedging of foreign exchange risk dated April 7, 2020, FX derivatives (2024) - Risk Management and Inter-bank Dealings – Hedging of foreign exchange risk dated January 5, 2024, Credit derivatives (2022) – Reserve Bank of India (Credit Derivatives) Directions, 2022 dated February 10, 2022.

²⁸ Authorised dealers can offer FX deliverable derivative products to non-residents for hedging their risks and on non-deliverable FX derivatives to non-residents without restrictions in terms of purposes. Market makers can offer Rupee and foreign currency settled MIBOR-based OISs to non-residents without restrictions in terms of purposes, subject to a risk limit.

²⁹ Risk Management and Inter-Bank Dealings - Non-deliverable derivative contracts (NDDCs) dated June 6, 2023.

³⁰ Risk Management and Inter-bank Dealings- Participation of Banks in Offshore Non-deliverable Rupee Derivative Markets.

³¹ Rupee Interest Rate Derivatives (Reserve Bank) Directions – Review dated February 10, 2022.

in GIFT City, both through OTC markets and on the exchanges.

Integrity of markets and market infrastructure

Ensuring the integrity of financial markets and market infrastructure has underpinned many reform initiatives of the Reserve Bank.

A framework for authorisation of electronic trading platforms was put to place in 2018³² to ensure that only entities adhering to a robust set of conditions function in RBI-regulated financial markets. This framework is being updated in view of the recent developments in technology that have accelerated the electronification of financial markets. Considering the complaints of cheating and fraud by unauthorised trading platforms, necessary cautionary advice has been issued against undertaking forex transactions on such platforms³³. An 'Alert List' of entities offering or promoting unauthorised forex trading facilities has also been issued³⁴.

A risk-based regulatory framework for benchmark administrators was put in place in 2019³⁵ and fine-tuned in 2023³⁶ to ensure robust governance in benchmark administration in RBI-regulated markets. Regulations for market abuse were put in place in 2019³⁷. Similar frameworks have been put in place for (i) governance, risk management and conduct, including customer suitability and appropriateness assessment by market-makers in OTC derivatives (2021)³⁸; and (ii) margins for non-centrally cleared

derivatives. Exchange of variation margin was mandated in 2022³⁹. The framework for exchange of initial margin will be issued shortly.

Requirements for transparency in pricing of OTC derivative products for retail investors were also set out. In 2019, the FX Retail platform was introduced to create a market infrastructure that would ensure fair and transparent pricing⁴⁰.

Way forward

The recent financial market reforms undertaken by the Reserve Bank are aimed at providing a strong bedrock for markets to move to the next trajectory for meeting the growing funding requirements in the economy, providing cost effective hedging options and competing effectively in global markets.

The response to the regulatory measures has been encouraging. The participation base has been widening. Retail participation in G-secs through the Retail Direct scheme has been growing. The VRR scheme has attracted interest from FPIs, especially for corporate bonds. In recent months, robust foreign inflows in G-secs have been witnessed. Non-resident participation in OTC derivative markets has increased, adding to liquidity and diversity. Many of you have started participating in the offshore derivative market for the INR. Prices and spreads in the domestic and overseas markets have converged to a great extent.

There are, however, some areas which call for attention. While lot of progress has been made by banks and other market participants, I wish to highlight six specific areas where more can be done. First, participation of domestic banks in derivative markets remains limited with only a small set of active market-makers. Participation of Indian banks in global markets is growing but it is quite small. Domestic

³² The Electronic Trading Platforms (Reserve Bank) Directions, 2018 dated October 05, 2018.

³³ RBI Cautions against unauthorised forex trading platforms dated February 03, 2022.

³⁴ Alert List, Updated as on November 24, 2023.

³⁵ Financial Benchmark Administrators (Reserve Bank) Directions, 2019 dated June 26, 2019.

³⁶ Reserve Bank of India (Financial Benchmark Administrators) Directions, 2023 dated December 28, 2023.

³⁷ Reserve Bank of India (Prevention of Market Abuse) Directions, 2019 dated March 15, 2019.

³⁸ Reserve Bank of India (Market-makers in OTC Derivatives) Directions, 2021 dated September 16, 2021.

³⁹ Reserve Bank of India (Variation Margin) Directions, 2022 dated June 01, 2022.

⁴⁰ Rollout of the foreign exchange trading platform for retail participants – FX-Retail dated June 20, 2019.

banks are dealing with market-makers in global markets rather than with end clients and are yet to emerge as market-makers of note globally. Of course, banks need to do their own due diligence, assess their risk appetite, and then move forward carefully in this direction. Going forward, our focus should be on enhancing and widening the participation of Indian players in markets for INR derivatives, both domestically and offshore, while being prudent.

Second, liquidity in OTC derivatives markets, especially interest rate derivatives, remains confined to a few products, constraining efficient hedging by the larger economy. The market for credit derivatives which is an important enabler for the lower rated corporate bonds is yet to take off. I am, however, happy to note that the first credit default swap (CDS) transaction after the issuance of the revised guidelines came into effect in May 2022 was undertaken last week. In many ways, all domestic market participants are yet to fully embrace the new regulatory framework and exploit the opportunities it presents.

Third, transparency in pricing remains work in progress and more can be done. The retail customer is yet to get a deal at par with large customers. There is a need for effective market-making and finer pricing for smaller deals on NDS-OM. Divergence in pricing in FX markets for the small and large customers are wider than what can be justified by operational considerations. Banks may need to do more to facilitate the use of the FX Retail platform. We continue to see banking channels being used by certain persons or entities to fund activities on unauthorised FX trading platforms. This warrants enhanced vigilance by the banks.

Fourth, efforts are being made to leverage technology for achieving greater efficiency while also meeting the objectives of market reforms. For example, we are exploring the use of technological platforms to expand the reach of financial markets, in particular

the reach of the RBI Retail Direct and FX Retail. In the derivative markets, efforts are underway to introduce electronic trading platforms for a larger number of derivative products and to expand the central clearing of products. To foster greater efficiency, Application Programming Interfaces (APIs) for reporting trades to NDS-OM and accessing the RFQ dealing mode are being contemplated. Introduction of bond forwards is being considered to enable long-term investors to manage their interest rate risks efficiently – draft guidelines in this regard were issued in December 2023⁴¹. The Reserve Bank remains engaged with stakeholders to assess the need for the introduction of new products and infrastructure based on evolving market developments.

Fifth, bank treasuries need to scale up their dynamism to utilise the opportunities presented in the context of the recent regulatory reforms. This is very critical for achieving efficient market intermediation, effective management of financial risks and alignment of financial variables across different segments and markets. From this financial year (2024-25), the new prudential framework for investment by banks has come into effect. The new regulations provide increased flexibility to banks in managing their treasuries and offer scope for increased efficiency, provided banks manage their treasury function actively. The framework of assessment of a bank's treasury should take into account risks arising out of action and risks arising out of inaction i.e., missed opportunities.

Sixth, appropriate safeguards should be put in place to address the new challenges posed by new products, participants and markets. For example, as sophisticated OTC derivative products are introduced, they must be accompanied by adoption of certain safeguards, both by the market-makers as well as

⁴¹ Draft Reserve Bank of India (Bond Forwards) Directions, 2023 – dated December 28, 2023.

customers. As our markets get integrated with global markets and non-resident participation increases, transmission channels from global developments will become stronger and speedier. This will require greater watchfulness and proactive management of the associated risks by market participants even as the opportunities are grabbed.

Conclusion

To conclude, the Reserve Bank's efforts in recent years has been to develop the financial markets in a manner that can continue to meet the needs of a growing and globally connected economy while fostering trust, stability and innovation. Trust in financial markets has been sought to be promoted through market reforms which have focused on ensuring fair market conduct by preventing market abuse; fair customer conduct through robust market-marking regulations and ensuring price transparency; and enhanced disclosures by market participants. Stability in financial markets has been made possible

by ensuring orderly functioning of the financial markets and financial market infrastructure⁴². Innovation has been sought to be promoted through a move towards principle-based regulation, widening of the participant base, introduction of new products and platforms as well as enabling access to offshore markets.

The achievement of desired outcomes will be contingent on financial institutions and market participants taking forward the reform agenda so that we have vibrant and internationally competitive financial markets. Market participants and their associations including FIMMDA and PDAI will have to play a critical role in this.

As we look forward to the next decade coinciding with RBI@100, we have to work together and usher in the next generation reforms to place India at a position it rightly deserves.

Thank you.

⁴² These include trade reporting, central clearing, trading platforms and benchmark administrators.

*Welcome Address at the RBI@90 Commemoration Function**

Shaktikanta Das

Hon'ble Prime Minister, Hon'ble Governor of Maharashtra, Hon'ble Finance Minister, Hon'ble Chief Minister of Maharashtra, Hon'ble Union Ministers of State for Finance, Hon'ble Deputy Chief Ministers of Maharashtra, Distinguished invitees, Media representatives, and My colleagues from the Reserve Bank, past and present.

Today, the Reserve Bank of India enters the 90th year from its establishment on April 1, 1935. The journey of the Reserve Bank over the last nine decades has been one of efficient functioning and contribution to the nation's progress. On this momentous occasion, it is my proud privilege on behalf of the Reserve Bank, to welcome the Honourable Prime Minister to this commemorative event. Sir, your presence here amidst your busy schedule is a source of great inspiration for all of us. I also welcome the Honourable Finance Minister, who has been a source of support and guidance. Further, I welcome all the distinguished dignitaries on the dais and all our invitees who have made it convenient to be here today.

The Reserve Bank's evolution as an institution has been closely intertwined with the development of the Indian economy. From being a central bank primarily concerned with allocation of scarce resources during the planning period, the Reserve Bank has transitioned into being an enabler for the market economy. We are a full-service central bank with our functions spanning multiple dimensions.

It has been our endeavour to promote a financial sector that is robust, resilient and future ready.

* Welcome Address by Shri Shaktikanta Das, Governor, RBI at the RBI@90 commemoration function on April 1, 2024, Mumbai.

The path-breaking structural reforms, such as the enactment of the Insolvency and Bankruptcy Code (IBC) and the adoption of Flexible Inflation Targeting in the recent years, have helped us to deal with the challenges in the banking system and the task of maintaining price stability more effectively.

Given the rapid changes taking place in today's world, especially in the areas of technology, innovation, business practices and growing complexities in the financial sector, the Reserve Bank is constantly evaluating the emerging trends and taking necessary policy measures to remain in sync with the evolving situation. Our effort is to anticipate situations and take proactive action.

The global turmoil arising from the COVID-19 pandemic and the ongoing geopolitical hostilities have tested the resilience of every economy in the world, including India. The well-calibrated and co-ordinated monetary and fiscal policies adopted in our country went a long way in shielding our economy from these shocks and helped us emerge even stronger than before. It is a matter of satisfaction that today our GDP growth is robust; inflation is moderating; the financial sector is stable; the external sector remains resilient; and the forex reserves are at an all-time high.

Over the years, the Reserve Bank has emerged as a symbol of stability, resilience, and commitment to the welfare of our citizens. This has been possible due to the contributions made by generations of Team RBI. As we move towards RBI@100, the Reserve Bank remains focused on ensuring a stable and strong financial system that would act as a bedrock for our country's economic progress.

With these words, let me once again welcome the Hon'ble Prime Minister and the other dignitaries to this commemorative event. I also extend a warm welcome to each one of you in the audience.

Thank you. Namaskar!

*The Indian Economy: Opportunities and Challenges**

Michael Debabrata Patra

I am honoured to be invited to Nomura's 40th Central Bankers Seminar. The discussions here assume topical relevance in the context of the tectonic shifts underway in the global economy that present new challenges for the conduct of central banking. Besides divergent growth pathways and the varying speeds and magnitudes of disinflation, regime shifts impart their own layers of uncertainty.

In the parlance of the game of cricket, with which India is seen as synonymous and this also true of the game of baseball, there is a spot in the middle of the blade of a bat from which the ball rebounds with maximum acceleration and minimal vibration in the batter's hands to usually race across the field or sail over it. It's called the sweet spot. The Indian economy is at a sweet spot in its evolution. Real GDP is growing at the fastest pace among major economies. Inflation is approaching its target *albeit* unevenly. The external balance sheet is stronger than ever before, underpinned by ebullient capital inflows, a modest current account deficit and large foreign exchange reserves. Fiscal consolidation is into its third consecutive year after the pandemic. The corporate sector has deleveraged and is poised to launch a new cycle of capital investment. The financial sector is sounder and more resilient, as it prepares for intermediating the resource requirements of a rising growth trajectory over the next few decades. Reflecting these developments, financial markets are ignited with robust optimism even as investors are already positioning themselves to buy into the unfolding India narrative.

* Keynote Address delivered by Michael Debabrata Patra, Deputy Governor, Reserve Bank of India - March 25, 2024 - at the Nomura's 40th Central Bankers Seminar at Kyoto, Japan.

Against this backdrop, I thought I would present to you a few facets of the state of the Indian economy, some exciting opportunities and the main challenges to India's aspirational goals. In the interest of time, I will be selective rather than enumerative. For instance, I will not speak of the transformative social change that is taking place in lifting 415 million (the combined population of the US and Japan) of its people out of poverty between 2005 and 2021, or the world leadership India has already attained in the production of a wide range from various agricultural commodities to tractors to smartphones to IT services, digital payments and satellite launching space technology.

The State of the Economy

India's growth trend is on the cusp of a post-pandemic upshift, with early signs of it rising above 7 per cent recorded during the 2000s before COVID-19 struck. While private consumption typically accounts for about 60 per cent of India's GDP, it is investment and exports that provide the turning points. In the period 2021-24, the export lever has been muted by global headwinds, but public expenditure on infrastructure is taking over as the locomotive of the step-up in the growth trend. Recent surveys indicate that private investment is getting crowded in.

India's recent growth performance has surprised many, triggering a flurry of upgrades. For instance, the International Monetary Fund (IMF) has cumulatively revised its forecast for 2023 upwards by 80 basis points between April 2023 and January 2024. In its latest update, it expects India to contribute 16 per cent of global growth, the second largest share in the world in terms of market exchange rates by which metric, India is the fifth largest economy in the world and positioned to overtake Germany and Japan within the ensuing decade. In purchasing power parity (PPP) terms the Indian economy is already the third largest in the world. According to the OECD's December 2023

update, India will overtake the US by 2045 in PPP terms to become the world's second largest economy. This underlying strength will also be reflected in the PPP value of the Indian rupee (INR).

Opportunities

In this setting, let me cite a few tailwinds that will likely power India's take-off.

First, demographics favour the rising profile of growth. Currently, India has the world's largest population and the youngest. The median age is around 28 years; not until the mid-2050s will aging set in. Thus, India will enjoy a demographic dividend window of more than three decades, driven by a rising working age population rates and labour force participation rate. This is a striking contrast to a world widely confronted with the challenge of aging.

Second, India's growth performance has been historically anchored by domestic resources, with foreign savings playing a minor and supplementary role. In fact, India bears out the puzzle of high correlation between domestic saving and investment rates that was observed by Martin Feldstein and Charles Horioka way back in 1980. This is also reflected in the current account deficit (CAD) which remains within a sustainable threshold of about 2.5 per cent of GDP. Currently, the CAD averages about 1 per cent and this is associated with various indicators of external sector resilience – illustratively, external debt is below 20 per cent of GDP and net international investment liabilities are below 12 per cent. Debt servicing absorbs less than 7 per cent of current receipts, with principal repayments due over 12 months accounting for less than 48 per cent of international reserves. Reflecting these innate strengths, the INR has been among the least volatile currencies in 2023; it has, in fact, been appreciating in both nominal and real terms during the early part of 2024.

Third, the response to the COVID-19 pandemic through a large fiscal stimulus took the general

government fiscal deficit to 13.1 per cent of GDP and public debt to 89.3 per cent of GDP in 2020. A gradualistic path of fiscal consolidation was adopted beginning 2021-22 that has brought the general government deficit to 8.6 per cent of GDP and public debt to 81.6 per cent of GDP by March 2024. Employing a dynamic stochastic general equilibrium (DSGE) model, it is estimated that reprioritising fiscal spending by targeting productive employment-generating sectors, embracing energy-efficient transition and investing in digitalisation could lead to a decline in general government debt to 73.4 per cent of GDP by 2030-31. In contrast, the debt-GDP ratio is projected by the IMF to rise to 116.3 per cent in 2028 for advanced economies and to 75.4 per cent for emerging and middle-income countries.

Fourth, India's financial sector is predominantly bank-based. In 2015-2016, the overhang of asset impairment in the wake of the global financial crisis and the ensuing years was addressed through a deep surgery in the form of asset quality review (AQR). A massive recapitalisation was undertaken during 2017-2022. The beneficial effects started to show up from 2018 – gross and net non-performing assets ratios declined to 3.9 per cent and 1 per cent, respectively, by March 2023, with large capital buffers and liquidity coverage ratios well above 100 per cent. An Insolvency and Bankruptcy Code (IBC) has created the institutional environment for addressing stress in banks' balance sheets. On-site supervision is complemented with off-site surveillance, which harnesses SupTech, big data analytics and cyber security drills. More recently, a virtuous credit upswing has taken root alongside a strong improvement in bank profitability. Stress tests for credit risk and interest rate risk reveal that banks would remain above minimum capital requirements even under severe stress scenarios. Macroeconomic and financial stability are providing the foundation for medium-term growth prospects.

Fifth, India is undergoing a transformative change leveraged on technology. The trinity of JAM – Jan Dhan (basic no-frills accounts); Aadhaar (universal unique identification); and Mobile phone connections – is expanding the ambit of formal finance, boosting tech start-ups and enabling the targeting of direct benefit transfers. India's Unified Payments' Interface (UPI), an open-ended system that powers multiple bank accounts into a single mobile application of any participating bank, is propelling inter-bank, peer-to-peer, and person-to-merchant transactions seamlessly. Payment systems in India operate on a 24 by 7 by 365 basis. Functionalities like offline payments, feature phone payments and conversational payments have been incorporated. The internationalisation of the UPI is progressing rapidly.

Sixth, inflation in India is moderating after surging on multiple and overlapping supply shocks from the pandemic, weather-induced food price spikes, supply chain disruptions and global commodity price pressures following the Russia-Ukraine conflict. Notably, however, inflation in India peaked early in response to coordinated monetary-fiscal policies to anchor inflation expectations and dissipate idiosyncratic food price pressures. As a result, inflation has fallen back into the tolerance band since September 2023, with core inflation steadily ebbing to even below the target. The coordinated approach allowed the RBI to look through the first-round effects of food price shocks so that supply management balanced supply with demand. This minimised the financial stability and growth risks of monetary policy tightening.

Challenges

India has emerged from the pandemic scarred but resilient and poised to make a tryst with its developmental ambitions by riding the thermals that these opportunities are generating. Take-off will have to contend with the headwinds posed by several

challenges. Again, I propose to be selective in the interest of time.

Reaping the demographic dividend hinges around expanding the contribution of the workforce to GDP growth. Currently, the contribution of labour to value added in India compares poorly in a cross-country perspective – in terms of appropriate skills for a specific job, only 51 per cent is employable, highlighting the criticality of the upskilling missions that are underway such as Skill India that aims to bridge the skill gap and enhance employability. Startup and entrepreneurship support initiatives foster innovation and job creation. Digital transformation through the Digital India campaign opens up new avenues for employment. Rural employment programmes and women empowerment schemes also promote the contribution of labour to value added. More than 80 per cent of the workforce is employed in the informal sector, which I shall address shortly. Furthermore, India ranks low in women's participation in the workforce¹. Increasing female labour participation is a key challenge, needing social norms in favour of working women; incentivising diversity in educational institutions and work places; flexible working hours and women friendly policies and facilities at work places; and promoting work-life balance – metaverse² may offer exciting opportunities.

A qualified labour force contributes best when supported by high quality infrastructure. India's per capita investment in infrastructure at US \$ 90.6 in constant 2015 dollars terms in 2020 needs to be scaled up by lifting infrastructure investment growth from around 3.5 per cent to at least 6 per cent to achieve world class standards. This will require transparent

¹ According to the World Bank (World Development Indicators), India ranked 170 among 186 countries in terms of the Female Labour Force Participation rate in 2022.

² The metaverse refers to virtual worlds in which users represented by avatars interact usually in 3D, facilitated by the use of virtual reality (VR), augmented reality (AR) headsets and blockchain technology.

regulations, faster clearances, smooth land acquisition and climate clearance policies, and adequate finance. The sustained infrastructure spending and logistics push across successive union budgets is creating the environment for financing India's infrastructure goal. Infrastructure creation has been a key focus of public policy, with flagship schemes like the National Infrastructure Pipeline (NIP) and PM Gati-Shakti Mission, complemented by a jump in the share of public investment in total investment 2015-16 onwards. Sub-national governments and the private sector have also been empowered through interest free loans for capex and through the Production Linked Incentive (PLI) Scheme to step up their capital expenditure. The infrastructure push encompasses roads, railways, ports, electricity, digital infrastructure, and rooftop solarisation.

The essence of expanding the role of the workforce in India's future lies in the formalisation of jobs, which bring the role of the manufacturing sector to centre-stage. India largely bypassed manufacturing in its developmental journey - services account for two-thirds of India's economy today. India's manufacturing sector as a proportion to GDP (in constant 2015 US dollar terms) remains much below the world average. Since the 1990s, the average growth of manufacturing has been 7 per cent³. With 8.5 per cent growth, manufacturing's share would rise to 20 per cent of GVA by 2030-31, and to 25 per cent if the growth rate can be pushed up to 12.5 per cent – making India a global manufacturing hub with forward and backward linkages for other sectors of the economy. To achieve this, India must adapt to the fourth industrial revolution (automation; data exchange; cyber-physical systems, the Internet of things; cloud computing; cognitive computing and creating the smart factory, advanced robotics). A skilled labour force will hold the key.

³ Current share of manufacturing is 17 per cent.

India's manufacturing and services must find expression in global markets – make in India for the world. Intensified efforts need to be made to raise India's exports of goods and services from US \$ 768 billion or 2.4 per cent of the world total to US \$ 1 trillion each for merchandise and service exports or 5 per cent of the global total by 2030. The potential exists in the form of sectors such as IT and digital services, value-added agricultural products; high-value tourism; financial services; retail and e-commerce. Global Capability Centers (GCCs) are already exploiting this potential by offering unique opportunities to multinational enterprises (MNEs) to lead product innovation, drive technological advancements, create next-gen intellectual property (IP) and spearhead digitalisation initiatives on a global scale. India is preparing for this export thrust through initiatives such as its production-linked incentive scheme, districts as export hubs; and by supporting the export potential of micro, small and medium enterprises (MSMEs).

As India emerges as an export powerhouse backed by a strong manufacturing base, a natural corollary will be the full internationalisation of the Indian rupee. Several factors are already in place. The Indian diaspora is the biggest in the world and India is the top recipient of remittances. The Indian rupee trades three times more offshore than onshore. India has local currency settlement arrangements with several countries in Asia and the middle east and interlinking of payment systems is underway. Deep and liquid financial markets are developing. The international financial centre in GIFT city, Gujarat is emerging as global financial and technology hub with a thriving financial ecosystem. The imminent inclusion of Indian sovereign bonds in global bond indices is also likely to spur demand for exposure to India. The policy emphasis on macroeconomic and financial stability is also a positive for the INR. If the INR's turnover equals the share of non-US non-Euro currencies in global

forex turnover (4 per cent), the INR will have arrived as an international currency.

The last challenge I will dwell upon is the greening of the Indian economy for sustainable development. At the Conference of the Parties 26 (COP26), India's commitment towards the environment by 2030 included: (i) 500 GW non-fossil energy capacity; (ii) energy mix comprising 50 percent renewable energy; (iii) reducing total projected carbon emissions by one billion tonnes; (iv) reducing the carbon intensity of its economy by 45 per cent; and (v) achieving net zero by 2070. It is estimated that a cumulative investment of US\$ 10.1 trillion is needed along with adequate access to technology to meet the net zero target.

Conclusion

According to the distinguished British economist, Angus Maddison, who specialised in the measurement

and analysis of economic growth and development, India was the largest economy of the world with the highest share in world GDP during 1 to 1000 AD. Over the next 600 years, India intermittently fell to the second position, but reclaimed the position of the world's largest economy by 1700 AD with a share of 24.4 per cent of world GDP. After that came the colonial rule and a long retrogression.

Given the innate strengths I described and the energies and transformation that are driving the nation to overcome its challenges and achieve its aspirational goals, it is possible to imagine India striking out into the next decade with a growth rate of 10 per cent. If this is achieved, India will become the second largest economy in the world not by 2045 as shown earlier, but by 2032 and the largest economy by 2050.

Thank you.

*Regulatory Insights into 2024**

M. Rajeshwar Rao

Good Evening,

It is indeed a pleasure to be here amidst this distinguished gathering. The theme of the summit, 'Rise of the Indian Spring', is both contextual and inspiring, reflecting not just the rising trajectory and profile of the Indian economy, but also the sentiments prevailing within the country and across the world.

As a Regulator, our endeavour always is to promote a robust and resilient financial intermediation system with an appropriate regulatory and supervisory framework. During my address today, I therefore intend to share some perspectives on how are we building the enabling regulatory frameworks to prepare Indian financial system and entities to support the nation's growth aspirations as well as building guardrails for ensuring financial stability.

The technological developments and innovations, which we are currently witnessing hold great promise for the financial sector. They have immense potential to increase the reach of financial firms, enhance the range of product offerings and conveniences for customers, expand the ambit of finance to hitherto excluded segments with the added benefit of lower costs for delivering them. At the same time, we need to be alert to the possibilities that the new entrants into the financial services space, including FinTech firms, could significantly alter the universe of financial services providers. This could affect the degree of market concentration and competition and may give rise to new challenges.

* The inputs provided by Pradeep Kumar, Peshimam Khabeer Ahmed and Pramanshu Rajput are gratefully acknowledged.

Special Address - delivered by Shri M. Rajeshwar Rao, Deputy Governor, Reserve Bank of India - March 30, 2024 - at the India Investment Summit & Awards organised by Mint in Mumbai).

Regulatory Principles

Regulations can be thought of as cornerstones for building trust, enabling integrity and ensuring stability in the financial sector. Regulations define the boundaries of industry conduct, while ensuring a fine balance between fostering innovation and safeguarding public interest.

Before I touch upon the specific areas of our potential focus going forward, I would like to outline a few guiding principles that usually guides us in deciding our regulatory approach. While each policy formulation focusses on addressing a specific set of requirements, having its own schema and flavour, policy makers should be guided by three broad guiding principles namely – Prudence, Proportionality and Proactiveness. Given the dynamics of the Indian financial landscape and the institutional set-up, one more principle relevant for us at the Reserve Bank is a "harmonised approach to regulations".

Prudence in Regulations

Prudence in financial regulations refers to being cautious and sensible in managing risks within the financial system. It involves ensuring that financial institutions maintain adequate capital, hold sufficient provisions and make sound financial decisions to prevent excessive risk-taking that could lead to instability or systemic failures in the financial system.

Time and again, episodes of crisis have demonstrated that lack of prudent behaviour by one or a few entities can impact not just the entity concerned but can potentially snowball into a systemic crises. Therefore, when risk management and prudence takes a back seat vis-à-vis growth ambitions, there is an onus on the regulator to ensure effective functioning of safety nets in the form of prudential regulations to preserve financial stability and protect larger interests.

A key aspect of the RBI's prudential approach to regulation is having strong processes for supervision

and monitoring of banks and other regulated entities. Through this, RBI endeavours to have a thorough assessment of the entities' financial health, risk management practices, as well as compliance with regulatory requirements. This proactive approach is intended to help the RBI to identify potential vulnerabilities and address them promptly, thereby enhance the resilience of the financial system.

Proportionality in Regulations

The principle of proportionality is a concept we have flagged previously and implemented in some of our recent regulations. It has to be recognized that overregulation in any sector could lead to increased compliance costs affecting efficiency and innovation among the market players. Accordingly, the focus is on achieving a delicate equilibrium that addresses the critical concerns without imposing undue burden on the regulated entities.

The principle of proportionality is synonymous with a nuanced strategy to ensure that the intensity of regulations correspond with identified risks. Our policy measures such as the scale-based regulations for NBFCs, tiered regulations for UCBs and tailored regulations for differentiated banks, i.e., small finance banks and payments banks are reflective of this approach.

Proactiveness in Regulations

Adopting a pro-active approach to regulations is a necessity in current times. A forward-looking approach in regulation entails identifying and analysing emerging trends so as to proactively preempt any build-up of risks. Additionally, it facilitates the recognition of the evolving landscape and provides valuable inputs for regulators to accommodate new developments amid evolving challenges and uncertainties.

Being proactive also means remaining attuned to market innovations and global trends. Reserve Bank

has always supported and encouraged responsible innovations. However, there is always the possibility of a trade-off between regulation and innovation. As regulators of an evolving financial landscape, we need to remain alert to the spawning of new ideas/trends in the markets, try and understand their scale, assess their potential to disrupt the market and consider interventions where and if necessary. For example, Regulatory Sandbox is one such initiative where pilot programs can be tested in a controlled environment without any fallouts. This ensures that regulations evolve concomitantly with new products/services rather than being pre-emptive or reactive to innovations.

Harmonised approach to Regulations

Indian financial system is characterised by different types of financial institutions. Many of these entities are niche players with varying risk profiles. Therefore, they require differentiated regulatory treatment. While recognising the need to allow for differentiated regulatory treatment, we are increasingly looking to adopt the approach of "same activity", "same risk", and "same regulations".

This approach enhances our oversight capabilities by providing a holistic view of the activity across the financial system. It allows for identification of systemic risks, monitoring of cross-sectoral linkages, and initiation of pre-emptive measures to address potential vulnerabilities. However, let me reiterate a point I had made earlier¹ that harmonisation does not mean prescribing uniform set of regulations. In fact harmonisation entails a risk-based perspective, wherein regulatory requirements are tailored to the specific risks associated with each type of financial entity and activity. The idea is that regulatory arbitrage can not be an option exercisable by the regulated entity.

¹ RBI Speech: No More a Shadow (of a) Bank - available at https://rbi.org.in/Scripts/BS_SpeechesView.aspx?Id=1416

While we remain guided by these principles in framing regulations, it needs to be emphasized that in any maturing economy, the regulations must eventually graduate from a rule-based approach to a principle-based approach. The Reserve Bank too has been endeavouring to adopt principle-based regulations which means regulator would focus on setting broad principles, thereby allowing for a nuanced approach to risk management by the regulated entities. It helps in balancing flexibility with achieving regulatory objectives. However, an essential pre-requisite for the success of such an approach is a financial landscape which values discipline and compliance in both - letter and spirit. Else, the flexibility available under a principle-based mechanism might be misused. Therefore, in their own interest, the market players should support such regulatory endeavours through suitably strengthening their compliance culture and governance frameworks.

Emerging areas of Regulatory Focus

Now, let me focus on the emerging areas which are engaging our attention at present. These are not just limited to the growth of FinTechs but traverse across the spectrum of the financial services sector.

A few areas of the focus going forward would include issues of how to go about harnessing the benefits of technology, ensuring good customer service and conduct, enabling a strong governance and compliance framework within the regulated entities, reinforcing and fine-tuning existing prudential regulations and contain the risks from procyclicality in lending.

Harnessing the benefits of technology

The key area where a lot of work is underway is evaluating the use of technology in financial services and assessing how RBI as a regulator can harness the benefits of technology for greater public good. The foundation of the digital revolution of today has been

built on the digitalisation push of Government of India and enabling regulations by the Reserve Bank. To give an example, the Financial Stability and Development Council - Sub Committee (FSDC-SC) had set up a Working Group in April 2016 to look into the granular aspects of FinTech and its implications so as to review and reorient the regulatory framework. Sequel that on the framework for peer to peer (P2P) lending was issued in April 2016. Further, guidelines for Account Aggregators were also introduced in September 2016. Moreover, the RBI established its Regulatory Sandbox in August 2019. All of us here are well aware about the transformation of payments space in India where we can be proud of the country's progress and prowess.

Post covid, digital economy had got a push and adaptation rates have increased multi-fold. This has brought up newer challenges, especially in digital lending products such as issues pertaining to coercive practices, dark patterns and excessive interest and other financial charges. To address some of these issues RBI issued digital lending guidelines in 2022 to regulate such practices. Further, when industry innovated through structures like loss default guarantees, RBI supported such initiatives by issuing suitable regulations in June 2023. Reserve Bank has thus strived to remain ahead of many of its global peers in nurturing fintech innovations by way of regulations to support them from time to time.

As I have alluded to previously² that with newer players entering the financial services space and disrupting the rules of the game, banks may become but one amongst host of entities competing to win customer's business. Therefore, the focus of the banks as well as regulators has to pivot from intermediation paradigm to marketplace paradigm. As the consumer preferences change, banking and financial services industry would have to reorient their business models,

² Changing Paradigms in the Financial Landscape - available at https://rbi.org.in/Scripts/BS_SpeechesView.aspx?Id=1397.

processes and products. To cater to this change, the RBI has started its groundwork on enhanced use of technology in banking such as use cases of artificial intelligence, digital ledgers, and so on. Let me also add here that technology brings its own set of challenges in the form of data protection, cyber security, and technology-induced frauds. These are in fact areas which are increasingly engaging the attention of regulators not just in India, but also at a global level.

Strengthening Customer Service and Conduct

You all may have noticed that there has been a renewed focus on strengthening the conduct related aspects of our regulated entities. Over the last one year we have issued instructions on the responsibilities of regulated entities employing recovery agents, strengthening of conduct regulations relating to pricing for loan related products, return of loan related security documents, addressing customer grievances related to reporting of credit scoring, among others. The recent announcement for lenders to provide their borrowers a Key Fact Statement (KFS), which will be issued shortly, is also an endeavour in this direction. These regulatory initiatives are expected to foster more responsible lending conduct in lending by REs.

These efforts on regulatory front are being complemented by suitable supervisory examination of the conduct of regulated entities to ensure fair, sound, efficient and transparent delivery of banking products and services.

As we further strengthen our approach towards addressing the concerns in framing and enforcing conduct-based regulations, the guiding philosophy would be to set out minimum regulatory expectations, with the option for entities to adopt higher standards depending upon their size, proportionality and customer focus. The regulations should ensure that customers are not misled by false promises and /or do not fall prey to unfair practices.

Improving Governance and Compliance & Risk Management

Another area of focus is on improving governance in the regulated entities. If one were to choose a single expression that epitomizes banking business, it has to be 'risk management'. This arises from multiple factors including bank's fiduciary role in respect of depositors, their critical interaction with real economy and their role in ensuring financial stability. A strong governance framework and a robust risk management system coupled with effective oversight by the Board and the senior management provides a greater degree of complementarity to the objectives of the Regulator.

Recognising that governance is the bedrock of a sound banking system, guidelines have been issued to address several operative aspects with regard to the composition of the Board and certain committees of the Board; age, tenure and remuneration of directors, etc. The Reserve Bank has also issued guidelines on supervisory expectations and for providing sufficient authority, resources and independence to three critical assurance functions of risk management, compliance and internal audit. The Boards are expected to take an active role in identifying/ approving the head of control and assurance functions and to establish clear lines of communication between the Board and these assurance functions. Continuous assurance vetted by an independent process should give succour to the institutions managements and not just the Regulators.

Reinforcing prudential regulations

RBI will continue to rationalise and wherever required, reinforce prudential regulations to ensure that banks recognise risks in their balance sheets and proactively manage them. For example given that our financial system is largely bank driven, to make it more resilient, RBI is introducing the expected credit

loss (ECL) based framework for loan loss provisioning in banks which is a forwarding looking measure and leading identifier of stress. When issued, it is expected to transform assessment of credit risk and ensure that banks build sufficient buffers through the business cycle to be able to withstand any impacts of the cyclical downturns.

Further, to facilitate the diversification of credit risk and ensure market-based credit products, enabling regulatory frameworks have been put in place. The Directions on 'Securitisation of Standard Assets' issued on September 24, 2021, focusing on traditional securitisation structures. Further, with a view to develop a robust secondary market in stressed loans segment, a framework for securitization of stressed assets is on the unveil.

These reforms combined with the planned rollout of revised Basel III guidelines would provide a fillip to individual institution's capacity to support the credit needs of a growing economy and aid stability of the financial system.

Containing risks from pro-cyclical lending

Unbridled credit growth and any laxity in credit discipline or underwriting standards can be deleterious to the health of the financial entity concerned and if widespread, could give rise to systemic concerns.

From this perspective, in recent times, credit-offtake towards the consumer credit segment, especially the unsecured portfolio was observed to be quite substantial. Also, increasing dependency of NBFCs on bank borrowings was leading to regulatory concerns. Although asset quality at broader portfolio level was not exhibiting any major signs of stress, the consistent high credit growth reported in the above segments warranted regulatory intervention. Accordingly, certain quantitative and qualitative measures were undertaken from a macro-prudential perspective.

As regulators, we would want to ensure continuous vigil to mitigate risks emerging from both within and the periphery of the financial eco-system. For example, the digital lending guidelines issued by the Reserve Bank envisage that regulated entity undertakes the due diligence required for lending decisions even when the loan is being sourced through a lending service provider (LSP). The increased reliance of banks/NBFCs to identify and onboard borrowers through fintech partners should not mean lowering of underwriting standards and improper pricing of risks.

As a regulator and supervisor, we are examining the prevailing models and practices to see how best they could be leveraged for effective credit delivery, without compromising on risk management and prudential credit underwriting standards.

Concluding thoughts

I would like to stress here that what has been shared so far is an illustration of some of the key areas of regulatory focus. At the same time, there are several other aspects which continue to be on the regulatory radar. I am sure, through a collective, consultative and collaborative approach, it would be possible to frame appropriate set of policy measures to address the current and emerging challenges. Through this process, we should be able to build a stable and resilient financial system which shall meet the emerging needs of our country in an effective manner.

To conclude, let me emphasize once again that even as the financial landscape evolves and transforms, the underlying principles of good governance, robust risk management, effective compliance, customer protection and responsible business conduct will be increasingly relevant. A robust culture within the organisation which delivers financial services while embracing these principles will stand the system and the Institutions in good stead in the long run.

Namaskaar!!

*Safe Banking Practices – Protecting the Young**

Swaminathan J.

Mr. Yoshiki Takeuchi, Deputy Secretary General, OECD, Ms. Mairead McGuinness, European Commissioner for Financial Services, Ms. Magda Bianco, Chair of OECD INFE and G20 GPMI, Mr. Connor Graham, youth representative from Enactus, assembled regulators from across the world, ladies and gentlemen. A very warm good morning to all of you. It gives me immense pleasure to speak to you today on a highly relevant topic - *safe banking practices and protecting the young*.

As we are all aware, the COVID-19 pandemic accelerated digitalisation in financial services, prompting a swift transition to online mode by service providers and customers. Accompanying this surge in digitalisation was also the proliferation of fintech platforms. Often operating outside the regulatory envelope and unconstrained by legacy systems that typically encumber traditional banks, fintech companies exhibit remarkable agility and adaptability in offering customised financial products.

These developments are indeed welcome. However, while they offer immense benefits such as accessibility and hyper-personalization, they also heighten the risk of misuse and fraud. They can expose consumers to risk of cyberattacks, data breaches, and often times, some financial harm. Consumers may struggle to resolve disputes or obtain compensation due to lack of transparency on the part of such players. These new risks must be addressed through robust regulatory frameworks, enhanced cybersecurity measures, and increased consumer awareness initiatives.

* Speech by Shri Swaminathan J, Deputy Governor, Reserve Bank of India - March 18, 2024 - at the Global Money Week 2024 in Paris, France).

In this context, I would like to share some of the approaches adopted in India through regulation, supervision and most importantly, enhanced consumer awareness.

Regulation and Supervision

In India, regulated entities are required¹ to implement multi-factor authentication for all payments through electronic modes and fund transfers, except for some explicitly exempted small value transactions. At least one of the authentication methodologies should be generally dynamic or non-replicable such as one-time password, mobile device binding, biometric, etc. Regulated entities are required to put in place security controls for internet banking, mobile payments application and card payments security.

Regulated Entities are also required to conduct risk assessment of the safety of digital payment products as well as suitability and appropriateness of the same *vis-a-vis* the target users, both prior to establishing the service and regularly thereafter. Further, they are required to have systems to identify suspicious transaction behaviour and mechanisms in place to alert customers of the same.

To protect customers, regulations² provide for zero liability for customers for losses due to negligence by the bank or a third-party breach. Where it is due to customer negligence, the liability is limited to the point of reporting.

RBI has also issued Guidelines on Digital Lending³ which require regulated entities to provide a Key

¹ Please refer Master Direction on Digital Payment Security Controls available at <https://rbi.org.in/scripts/NotificationUser.aspx?Mode=0&Id=12032>.

² Please refer to RBI circular dated July 6, 2017 on Customer Protection – Limiting Liability of Customers in Unauthorised Electronic Banking Transactions available at <https://rbi.org.in/scripts/NotificationUser.aspx?Id=11040&Mode=0>.

³ RBI 'Guidelines on Digital Lending' issued on September 2, 2022, available at <https://rbi.org.in/scripts/NotificationUser.aspx?Id=12382&Mode=0>.

Fact Statement to the borrower before the execution of the contract. This statement must disclose the Annual Percentage Rate, the recovery mechanism, the grievance redressal mechanism, etc. Any fees or charges, including penal charges, which are not mentioned in the Key Fact Statement cannot be charged to the borrower.

Regulatory requirements are backed by a strong supervisory framework that *inter-alia* evaluates business conduct and IT system controls. Where warranted, RBI takes appropriate supervisory actions including imposition of business restrictions.

One of the notable initiatives of the Government of India is the Indian Cyber Crime Co-ordination Centre (I4C) for better coordination amongst law enforcement agencies. Under this initiative a National Cyber Crime Reporting Portal⁴ has been set up with a 24×7×365 national helpline number to allow victims of cyber-fraud to report such crimes.

Customer awareness

Despite all these measures, instances of unauthorised transactions due to compromised credentials from phishing attacks or customer negligence are not uncommon.

RBI therefore, makes concerted efforts to foster a culture of financial prudence and resilience through customer awareness and education campaigns. In consultation with other financial sector regulators, a National Strategy for Financial Education has been drawn up to enhance financial literacy. We have intensive awareness campaigns running across multiple mediums including print, radio and television under the banner of 'RBI Kehta Hai' ('RBI says'). Apart from integration with school curricula,

initiatives such as the RBI All-India Quiz for school children on financial literacy aim to instil financial acumen from an early age. The RBI website hosts a microsite⁵ on Financial Education in English, Hindi, and 11 vernacular languages, offering comic books, films, games, messages on financial planning, etc.

In collaboration with our regulated entities, innovative approaches such as street plays ('*nukkad nataks*'), flash mobs, folk arts, sports rallies and marathons have also been tried with much success. In partnership with banks and NGOs, Centres for Financial Literacy are being established at grassroot levels to boost community driven financial literacy.

Last month, RBI organised a 'Financial Literacy Week' on the theme '*Make a Right Start – Become Financially Smart*' targeted towards young adults, mainly students. The idea was to increase awareness on the advantages of inculcating financial discipline from an early age with inputs on saving, budgeting, power of compounding, banking essentials and cyber hygiene.

As we focus on safeguarding the young, let us not forget the vulnerability of our senior citizens to financial frauds and cybercrime. It is incumbent upon us to extend our efforts to ensure their financial security and well-being as well.

In conclusion, it is imperative that we remain vigilant and proactive in addressing the emerging risks and challenges. By implementing robust regulatory frameworks, enhancing cybersecurity measures, and promoting consumer awareness and financial literacy, we can mitigate the risks associated with digitalization and protect consumers from exploitation and fraud. Thank you for this opportunity, and I wish you fruitful discussions at the Global Money Week.

⁴ <https://cybercrime.gov.in/>

⁵ <https://www.rbi.org.in/FinancialEducation/>

ARTICLES

State of the Economy

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*State of the Economy**

Global growth momentum has been sustained in the first quarter of 2024 and the outlook for global trade is turning positive. Treasury yields and mortgage rates are ticking up in major economies as expectations of interest rate cuts are being pared. In India, conditions are shaping up for an extension of a trend upshift in real GDP growth, backed by strong investment demand and upbeat business and consumer sentiments. CPI inflation has gravitated to 4.9 per cent in March after averaging 5.1 per cent in the preceding two months. In the near term, however, extreme weather events may pose a risk to inflation along with prolonged geo-political tensions that could keep crude oil prices volatile.

I. Introduction

There is a sizzle in the spring of 2024. Global weather agencies are in agreement that March 2024 was the warmest March since record-keeping began in 1850 – global surface temperature was at 1.6 degrees Celsius (3.01°F) above the 1880-1899 period. More on the weather later, but economic activity also appears to be quickening across the world. After a surge in the last quarter of 2023, global growth momentum has been sustained in the first quarter of 2024; even our nowcast presented in the next section suggests only a mild moderation. Everywhere except for a technical recession in the UK, GDP is being revised above initial releases and official targets. Despite being a touchy issue, immigration is helping to sustain activity in several advanced economies (AEs), capping inflationary pressures

* This article has been prepared by Michael Debabrata Patra, G. V. Nadhanael, Biswajeet Mohanty, Satyam Kumar, Shashi Kant, Kunal Priyadarshi, Garima Wahi, Thangzason Sonna, Pankaj Kumar, Harendra Behera, Jessica Maria Anthony, Rishabh Kumar, Satyendra Kumar, Khushi Sinha, Akash Raj, Ettem Abhignu Yadav, Pratibha Kedia, Sai Dheeraj Vayugundla Chenchu, Yuvraj Kashyap, Arti Sinha, Sourajyoti Sardar, Aratrika Kundu, Shreya Gupta, Akshara Awasthi, Asish Thomas George, Samir Ranjan Behera, Vineet Kumar Srivastava, and Rekha Misra. Views expressed in this article are those of the authors and do not represent the views of the Reserve Bank of India.

and expanding the workforce. April is the month of global forecast updates, and it is no surprise that forecasters of eminence are surprised by the strength of the global economy. Perhaps the outcome for 2024 will defy them, as it did in 2023. As set out in the next section, the outlook for global trade is turning positive, according to the United Nations Conference on Trade and Development (UNCTAD), reversing the contraction seen in 2023 although broader risks from logistics and transport disruptions cannot be underplayed. The World Trade Organisation (WTO) revised down its merchandise trade volume growth for 2024 from its October 2023 forecast but expected demand to rebound as inflationary pressures ease and real household incomes improve. The prospects for trade in commercial services are set to maintain strength as seen in 2023 and offset some of the risk factors associated with the merchandise trade outlook.

Central banks continue to speak in understandably cautious tones about growth prospects in 2024 as they deal with the interest rate conundrum, but like Freudian slips, sometimes their actions give away their assessment of the underlying global pulse. Regime shifts are underway in the form of exits from negative interest rates and their unintended consequences. Expectations of interest rate cuts are being pared where they have not yet commenced in recognition of the risk of moving too fast and turning disruptive if inflation moves up again with the lift provided by buoyant economic activity. Switzerland became the first AE to cut interest rates, reflecting a wariness of currency appreciation and an eagerness to join the growth party, given that inflation is well within the tolerance band.

Emerging economies, long considered the weakest links in the global economy, have weathered the turbulence of recent years. Markets are starting to reward them for their success as they reform their way to post-pandemic recovery. They include not

just the rising powerhouses such as Indonesia and India, but also those which until 2022 were battered by high inflation, debt, fiscal deficits and the fleeing of capital which caused foreign exchange reserves to dwindle and their currencies to wobble. Perhaps it is their strength that is now reinforcing the global economy's resilience. An increasing number of passive investors are reallocating to emerging market exchange traded funds – the Morgan Stanley Capital International (MSCI) EM ex-China index is outperforming its counterpart sub-indices. The Bloomberg Emerging Market Capital Flow Proxy index is already 150 points above its ten-year average. As capital flows return, bond premia decline and currency discounts diminish in the emerging world, the global economy feels less fragile.

In financial markets, treasury yields and mortgage rates are ticking up as markets realise that their bets on cuts are being pushed back in time. Corporates are rushing to issue bonds to take advantage of the highest yields in years and tight spreads, including for junk paper that are at multi-year lows – making hay while the sun shines. Even though some commodity prices – edible oils being a notable exception – have been easing, crude oil prices have firmed up as geopolitical tensions rise and OPEC+ chose to stick with supply cuts for the first half of the year. Although analysts believe that OPEC+ has regained control over the market, fuel demand remained surprisingly resilient which is expected to sustain world oil demand at 2.25 million barrels per day in 2024. This presents another dampener for the easing of monetary policy. Accordingly, the US dollar has surged on the back of safe haven demand. On the charts, its near-term outlook remains positive, with support from 104 for the dollar index (DXY) keeping the upside open. As other currencies struggle to recover from this bounce, the shine is back in gold prices. In 2024, global stock markets have recorded their best first quarter performance in five years,

apparently fuelled by the artificial intelligence (AI) boom best exemplified by stocks of chip designer Nvidia, and by growing confidence in economic performance. The MSCI world equity index has already gained close to 10 per cent, outperforming bonds by the biggest margin in any quarter since 2020.

The World Meteorological Organisation (WMO) sounded a red alert about global warming in its latest report "State of the Global Climate 2023", stating that there is a high probability that 2024 will breach the threshold set in 2023 as the hottest year on record even as the world careens towards a freshwater shortage crisis. According to the WMO report, "data from the Indian Meteorological Department (IMD) reflects a worrying escalation in extreme weather events necessitating an urgent and collective response." Amidst these dire forecasts, there is also hope. According to Australia's Bureau of Meteorology and the US National Oceanic and Atmosphere Administration, the chances of *La Nina* - which results in heavy rainfall in India – emerging after June have increased even as *El Nino* is dissipating. For the longer-term outlook, the evolution of renewable energy has surpassed expectations. According to the International Energy Agency, renewables are poised to account for 90 per cent of global electricity expansion over the next five years while becoming the largest source of global electricity generation by 2025. India has been a leader in this transition, having increased its renewable energy capacity by 250 per cent between 2014 and 2021 in its ambition of achieving 500 gigawatts by 2030. India is redoubling its efforts towards achieving its renewable energy goals so as to decouple emissions from economic growth. Harnessing regional variations in renewable energy production capacity will involve tailoring strategies to suit the specific characteristics and potential of each state. Among a slew of initiatives, the national green hydrogen mission, the production-

linked incentive (PLI) scheme for high efficiency solar photovoltaic cell modules and the green energy corridor inter-state transmission system stand out in the transformation of India's energy sector that is underway. In an influential view, climate change is one of the biggest crises of our time, but it is also the biggest opportunity to change the development paradigm.¹

In India, conditions are shaping up for an extension of the trend upshift that took the average real GDP growth above 8 per cent during 2021-24. In order to achieve its developmental aspirations over the next three decades, the Indian economy must grow at a rate of 8-10 per annum over the next decade to reap the demographic dividend that started accruing from 2018 and, as calculations show, will last till 2055. So far, capital deepening is powering the step-up in the growth trajectory, led by sustained public investment, and supported by productivity improvements. More recently, a resurgence of private investment has become visible, according to the Asian Development Bank (ADB), which is shifting its investment strategy to expand space for private capital.² The conditions are apposite, with the credit quality of Indian corporates having strengthened on the back of deleveraged balance sheets, sustained domestic demand and public capital expenditure – rating upgrades have continued to surpass downgrades.³ Analysis within the India's KLEMS⁴ growth accounting framework shows that the contribution of fixed capital stock to the growth of gross value added (GVA) in India has started improving from the low to which it had declined during the pandemic. By 2021-22, its contribution to the growth of GVA had recovered to

32 per cent, although there is still catch-up to attain *vis-a-vis* pre-pandemic levels. If this is augmented by the quality of the capital stock embodied in its composition, the contribution goes up close to 34 per cent. Total factor productivity (TFP) has become the most important driver of GVA growth in the post-pandemic period after declining during 2018-21. By 2021-22, it accounted for close to 45 per cent of the growth of GVA. TFP growth improved across all the sectors of the economy, with the sharpest enhancement observed in services.

For India to harness its favourable demographics and achieve the escape velocity required to breach the low middle income barrier, the developmental strategy over the next few decades must centre around extracting the maximum possible contribution of its young and rising labour force to the growth of GVA. Raising employability – the set of skills that makes a person more likely to gain employment in a chosen occupation to benefit the person, the workforce, the community and the economy – with a focus on the formalisation of employment opportunities for the youth and women should continue to be the hallmark of the strategy. With the working age population set to expand at the rate of about 9.7 million per annum during 2021-31 and 4.2 million per annum during 2031-41, the cutting edge of the growth strategy will be provided by a focus on labour quality. While labour quality has grown slowly in past years, *i.e.*, at the rate of 0.7 per cent per annum between 1980 and 2021, there is growing evidence that the growth rate of aggregate labour quality has improved since 2017-18. The services sector has been driving this improvement, although labour quality in the manufacturing sector has maintained growth after moderating from a spike in 2019-20. In both sectors, it has been supported by increases in wage earnings (viewed as returns on education) in almost every educational category, but especially

¹ Mrutyunjay Mohapatra, Director General, IMD, and Caitlin Wiessen, Resident Representative, UNDP, India.

² ADB, Asian Development Outlook (ADO) April 2024.

³ CRISIL Ratings credit ratio.

⁴ Capital, labour, energy, materials and services.

among those with secondary education and above. Global capability centres (GCCs) are increasingly looking to tap into revenue opportunities embedded in India's talent pool and are focused on converting this advantage into delivering exceptional values in the form of innovations, high quality services and solutions and data-driven business models on a worldwide scale. Consequently, hiring by GCCs has maintained a positive trend.

An important development that favours India's growth ambitions is the evolution of inflation dynamics in recent prints. Starting in January 2024, the softening of headline inflation is providing a tailwind to growth impulses. As Section III will point out, consumer price index (CPI) inflation has gravitated to 4.9 per cent in March after averaging 5.1 per cent in the preceding two months following the recent peak at 5.7 per cent in December 2023. This trajectory was along anticipated lines, with Q4:2023-24 inflation outcome of 5.0 per cent in alignment with projections. The softening of core (CPI excluding food and fuel) inflation to historic lows in March, driven by moderation across goods and services components, gives credence to the conduct of disinflationary monetary policy. With 4 per cent inflation finally being sighted, there is greater confidence now that the descent of inflation to the target is imminent. Food inflation, despite some signs of moderation, remains elevated and a potential source of risk to the disinflation trajectory. Careful monitoring during the summer is warranted as overlapping food price shocks play out, before an above normal Southwest monsoon this year, as projected by the India Meteorological Department (IMD), enabling an easing of food price pressures. In the near term, however, extreme weather events may pose a risk to inflation along with prolonged geo-political tensions that could keep crude oil prices

volatile. Overall, the projection indicates further easing of headline inflation in the coming months before unfavourable base effects kick in during the second half of the year which have to be seen off. While alignment with the inflation target is gradually occurring, incoming data will provide greater clarity and confidence on the disinflation path.

On April 1, 2024 the Reserve Bank of India (RBI) commemorated the commencement of its 90th year. It has been an eventful journey from its origins as a private joint stock institution to the modern full service central bank it is today. Several distinguishing aspects of its evolution have already been noted in public discourse. Perhaps two facets deserve mention in this article.

The institutional deepening of India's financial sector owes a lot to the RBI's developmental role. Besides promoting and facilitating rapid expansion of banking services to every corner of the country, several national-level development financial institutions have been incubated within the RBI as its departments or as subsidiaries in which the RBI has had a major share; nurturing them and eventually spinning them off from the RBI has led to their independent existence. State Finance Corporations (SFCs) were set up to cater to the long-term financial intermediation needs of industry at the state level. The Unit Trust of India (UTI) came into existence in 1964, sponsored by the RBI to provide a channel for retail investors for participating in the capital market. The RBI also established the Credit Guarantee Corporation of India Limited which later became the Deposit Insurance and Credit Guarantee Corporation (DICGC). This institution building role goes on in the form of development of central counterparties for financial markets, financial benchmark setting, bank note printing, IT and cyber security resilience of the banking industry, financial technology and allied

services, several institutions for the FinTech sector⁵, and more recently, an innovation hub.

Another area which marks a significant contribution of the RBI is the development and regulation of a spectrum of financial markets. The initial enabling conditions were put in place through *inter alia* the deregulation of interest rates, phasing out of *ad hoc* treasury bills as an instrument of automatic monetisation of fiscal deficits, sharp reduction of statutory pre-emptions through reserve requirements, the introduction of auctions for market determined pricing for government securities, the introduction of new market instruments and the establishment of a modern liquidity management framework and toolkit. In the foreign exchange market, the exchange rate regime evolved from a single currency fixed-exchange rate system to a basket of currencies regime and eventually to a market-determined floating exchange rate system. The rupee has been made fully convertible for current account transactions and substantial liberalisation of the capital account has been undertaken as an ongoing process to pave the way for the internationalisation of the rupee. Looking ahead as Governor Shri Shaktikanta Das prophesied, "As we progress towards RBI@100, the upcoming decade is going to be a transformational journey".

Set against this backdrop, the remainder of the article is structured into four sections. Section II covers the rapidly evolving developments in the global economy. An assessment of domestic macroeconomic conditions is set out in Section III. Section IV encapsulates financial conditions in India, while the last Section sets out concluding remarks.











⁵ These institutions include: (i) establishment of the Institute for Development and Research in Banking Technology (IDRBT) in 1996, which has been playing a crucial role in shaping the digital transformation of the Indian banking industry; (ii) creation of the National Payment Corporation of India Ltd (NPCI) in 2008, which has emerged as a pivotal organization driving the transformation of retail digital payments in India; (iii) setting up of the Indian Financial Technology & Allied Service (IFTAS), an institution to design, deploy & provide essential IT-related services; (iv) setting up of the Reserve Bank Information Technology Pvt. Ltd. (ReBIT) in 2016 to strengthen cyber resilience of the Reserve Bank and that of the banking sector; (v) establishment of the Reserve Bank Innovation Hub (RBIH) to promote innovation in financial services.

II. Global Setting

Global growth remains resilient, with easing inflationary pressures and tight employment conditions in spite of geopolitical and extreme weather event risks. The International Monetary Fund (IMF) in its latest world economic outlook (WEO April 2024), raised global growth forecast for 2024 to 3.2 per cent, 10 bps higher than its January 2024 Update and expected the global economy to grow at the same pace in 2025 (Table II.1). For AEs, the growth forecast has been revised up for 2024 by 20 bps to 1.7 per cent due to a significant upward revision in the US growth forecast while for Emerging Market and Developing Economies (EMDEs), the forecast has been revised up by 10 bps to 4.2 per cent. Global headline inflation is expected to fall from an annual average of 6.8 per

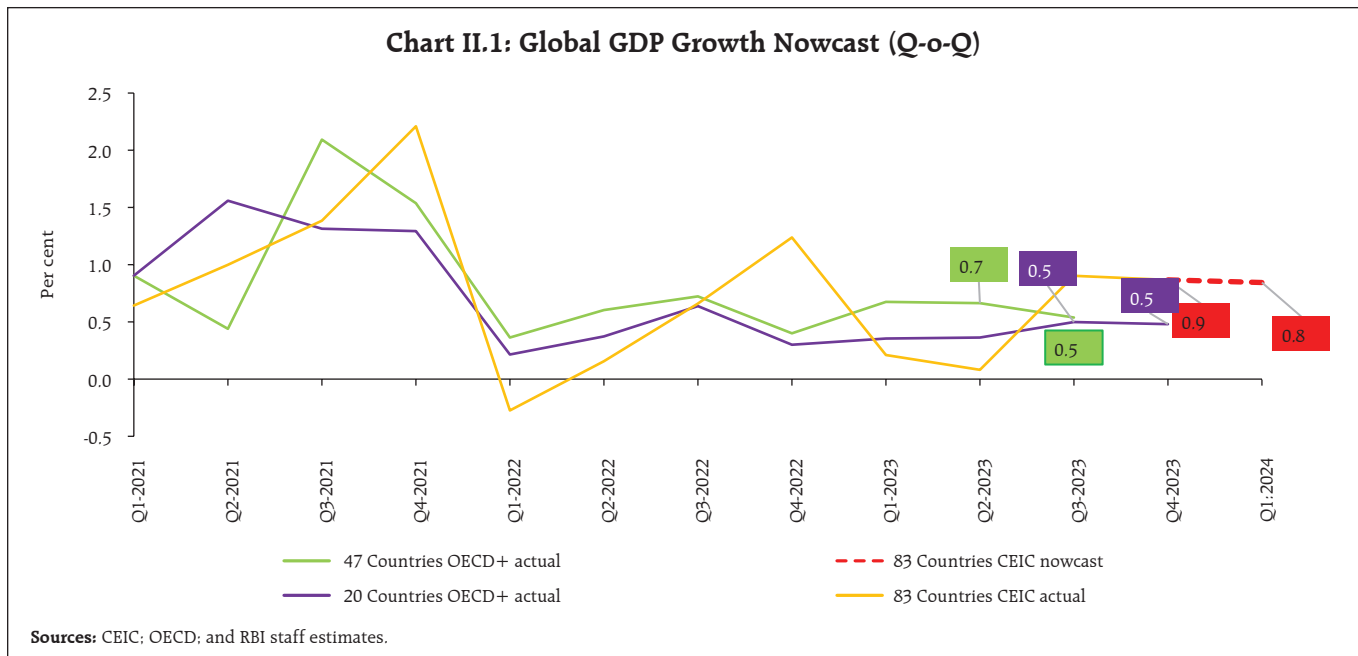
Table II.1: GDP Growth Projections – Select AEs and EMEs

(Per cent)

Projection for	2024		2025	
	April 2024	January 2024	April 2024	January 2024
 World	3.2	3.1	3.2	3.2
AEs				
 US	2.7	2.1	1.9	1.7
 UK	0.5	0.6	1.5	1.6
 Euro area	0.8	0.9	1.5	1.7
 Japan	0.9	0.9	1.0	0.8
Emerging Market Economies (EMEs)				
 Brazil	2.2	1.7	2.1	1.9
 Russia	3.2	2.6	1.8	1.1
 India [#]	6.8	6.5	6.5	6.5
 China	4.6	4.6	4.1	4.1
 South Africa	0.9	1.0	1.2	1.3

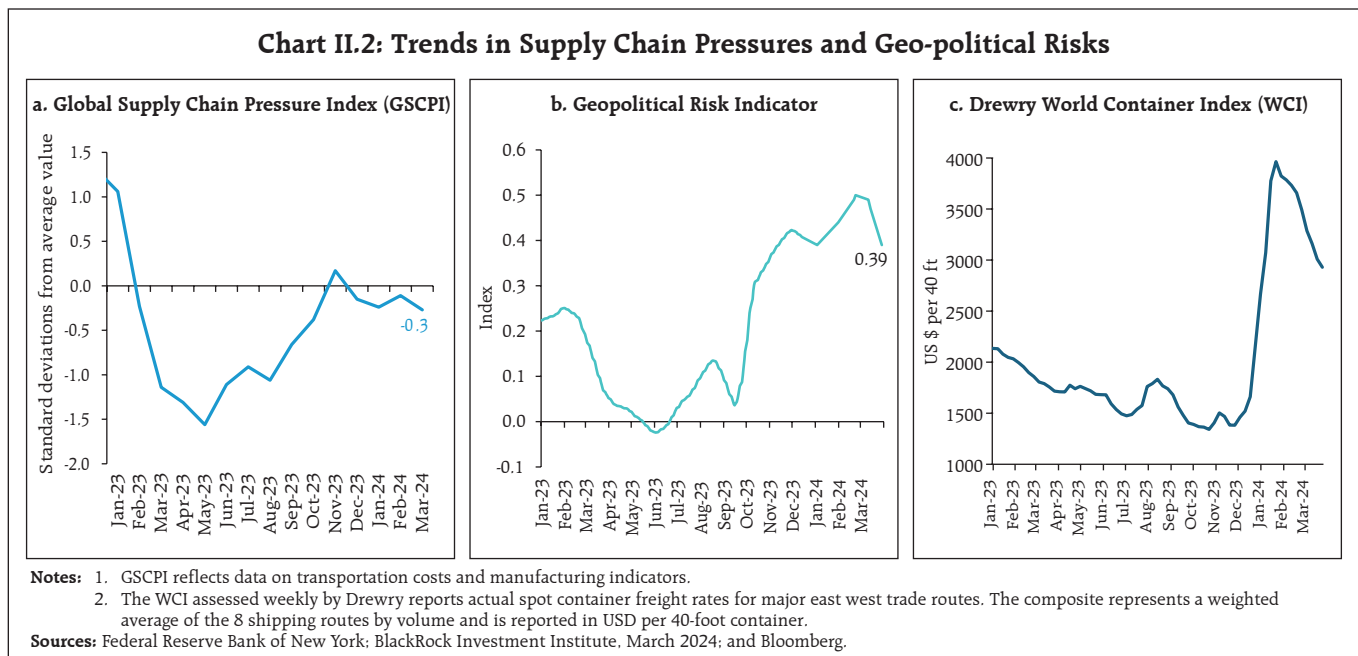
[#]: Data is on a fiscal year basis.

Source: IMF.

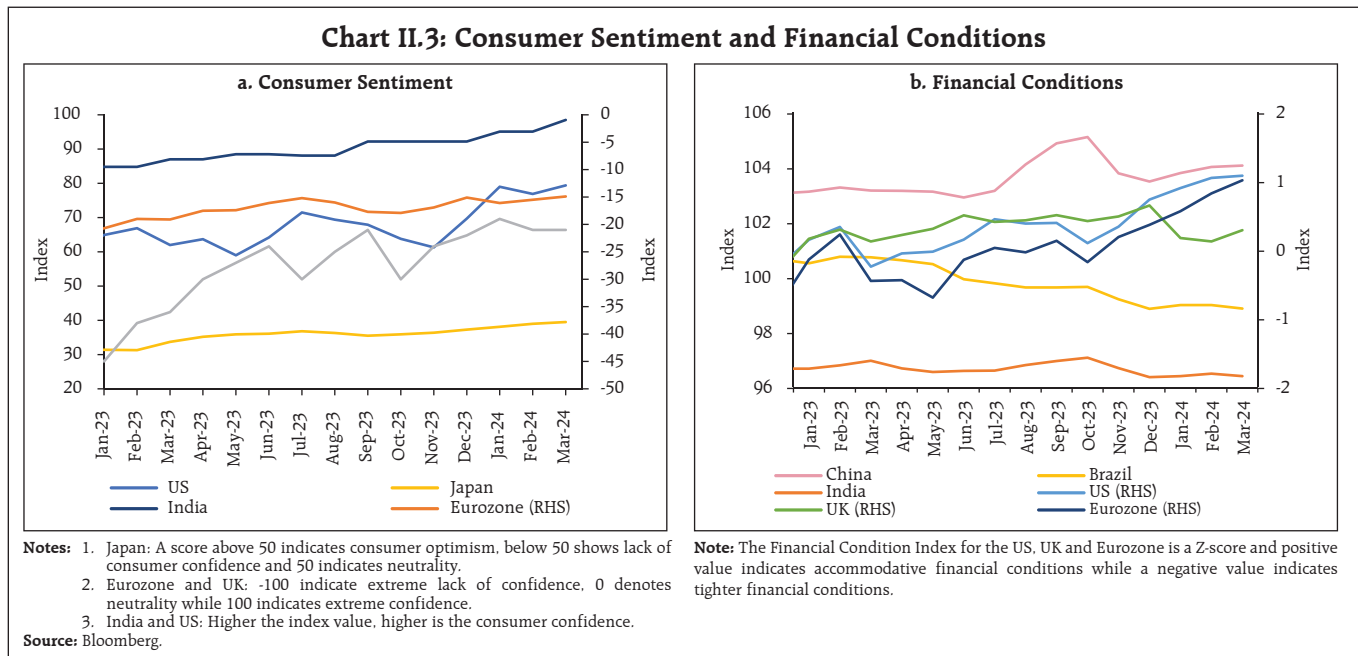


cent in 2023 to 5.9 per cent in 2024 and further to 4.5 per cent in 2025 (both revised up by 0.1 percentage points from previous projections), with AEs returning to their inflation targets sooner than EMDEs. Our model-based nowcast points to sustained momentum of global growth during Q1:2024, *albeit* a marginal blip sequentially (Chart II.1).

The global supply chain pressures index (GSCPI) eased below its historical average and the geopolitical risks index dipped in March 2024 (Chart II.2 a and b).⁶ Container shipping costs have shot up due to ongoing hostilities in the Red Sea and remained elevated in March despite the correction witnessed since February (Chart II.2c).

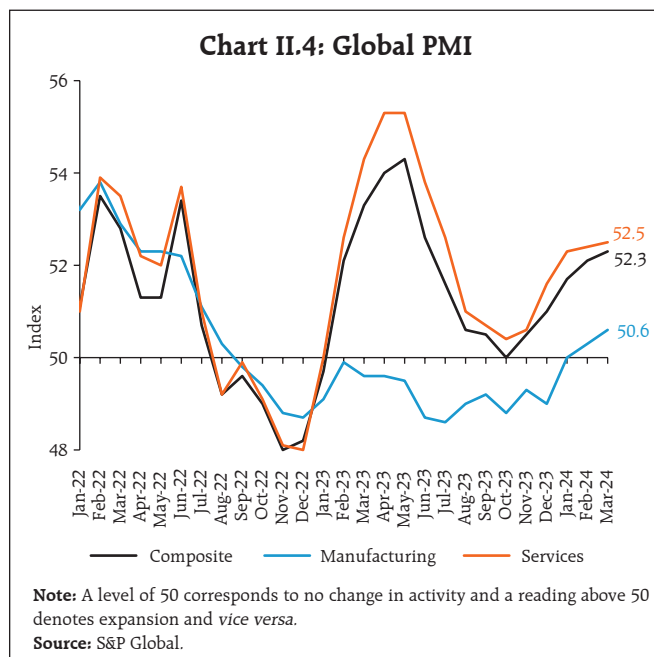


⁶ Blackrock Geopolitical Risk Dashboard, March 29, 2024.



Consumer sentiments continued to improve across geographies as inflationary pressures receded from year ago highs, supported by broadly stable employment prospects (Chart II.3a). Financial conditions remained accommodative on the back of strong equity market performance (Chart II.3b).

The global composite purchasing managers index (PMI) recorded a sequential uptick in March 2024,



supported by continued expansion in both services and manufacturing activity (Chart II.4). The services PMI rose to an eight-month high in March, driven by new businesses and gains in exports. The global manufacturing PMI accelerated to its highest reading since July 2022 as new orders, output and employment expanded.

According to the UNCTAD Global Trade Update of March 2024, global trade is expected to gain momentum in 2024 after a decline of 3 per cent in 2023 (Chart II.5a). The fillip to global trade is expected from sustained global growth and increased demand for environmental goods, although geopolitical tensions and shipping disruptions remain major risks. WTO in its Global Trade Outlook and Statistics – April 2024 projected world merchandise trade volume to grow by 2.6 per cent in 2024 and 3.3 per cent in 2025, following a larger-than-expected decline of -1.2 in 2023. Mirroring this outlook, the composite PMI for export orders maintained its uptrend in March (Chart II.5b). The manufacturing component reached a 20-month high; services export orders index has remained in expansionary territory since January 2024.

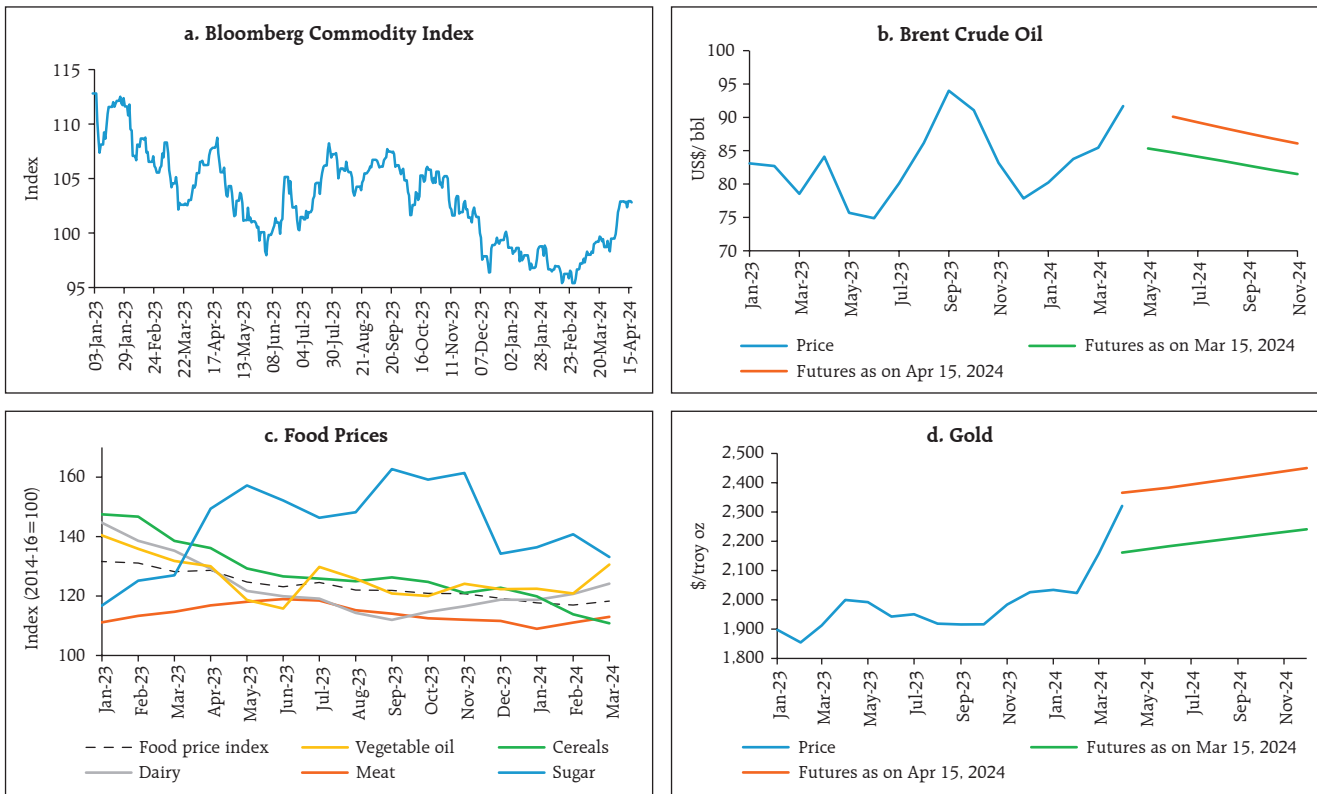
Chart II.5: Global Trade Growth and PMI Export Orders



Notes: 1. Q-o-Q growth is on a seasonally adjusted values. Values for Q4:2023 are estimates and Q1:2024 is a nowcast.
 2. A level of 50 corresponds to no change in activity and a reading above 50 denotes expansion and vice versa.
Sources: UNCTAD; and S&P Global.

Global commodity prices surged in March, driven by crude oil and metals. Consequently, the Bloomberg commodity price index increased by 2.9 per cent (m-o-m) [Chart II.6a]. The commodity prices continued

Chart II.6: Commodity and Food Prices

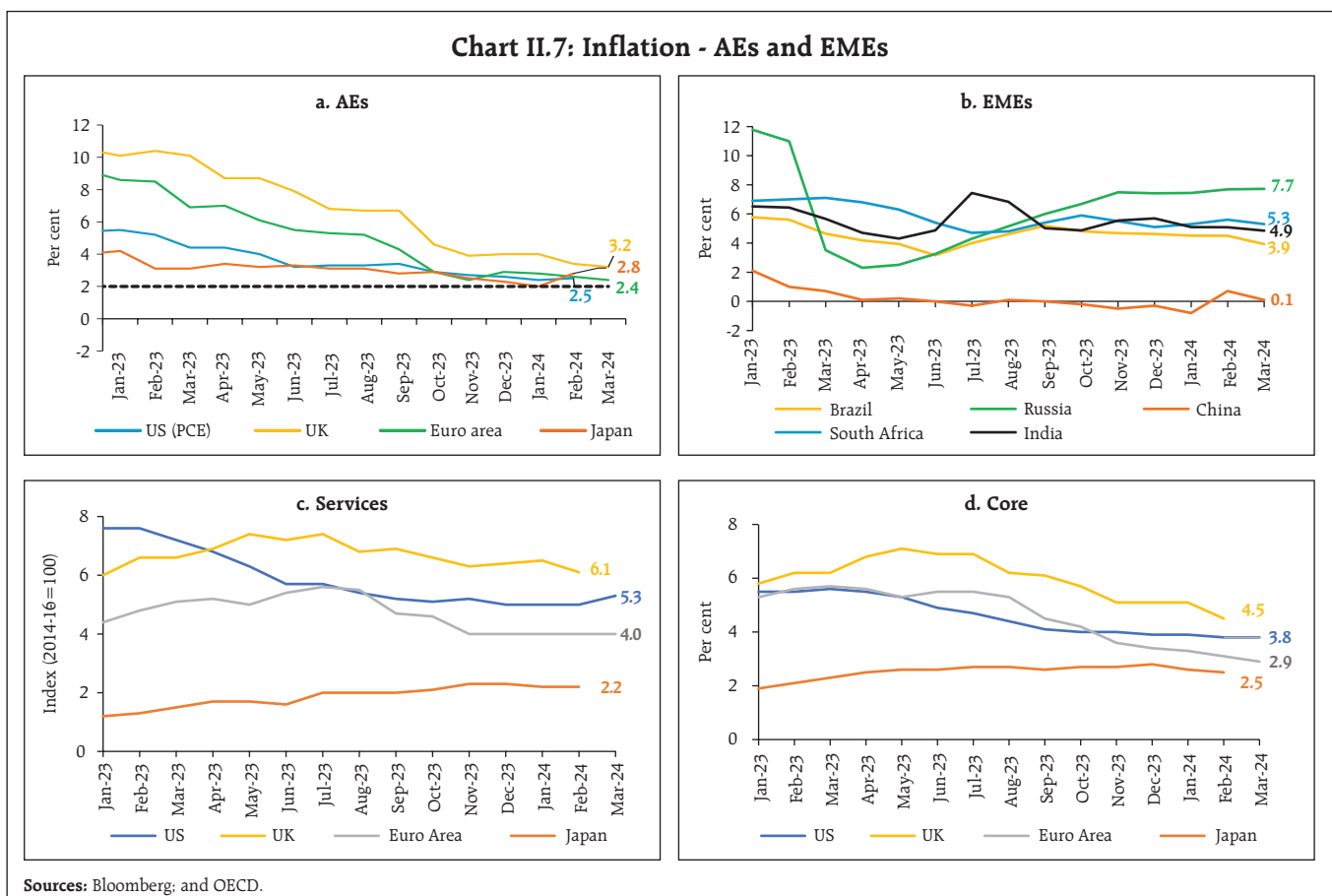


Sources: Bloomberg; World Bank Pink Sheet; and FAO.

their ascent in April as crude oil and gold prices shot up further. Brent crude oil prices rose by 2.9 per cent in March amidst flaring tensions in the Middle East and predictions of oil market deficit on account of expected voluntary cuts by OPEC+ members in 2024 (Chart II.6b). The prices went up further in April as market priced in the new geopolitical conflicts in Syria and Israel. The Food and Agriculture Organization's (FAO's) food price index rose by 1.1 per cent (m-o-m) in March 2024, the first uptick since July 2023. This was primarily driven by a rise in the prices of vegetable oils (8.0 per cent), partially offset by a fall in sugar prices (-5.4 per cent) [Chart II.6c]. Gold prices soared in March, ending 8.6 per cent higher *vis-à-vis* February and continued their ascent in April propelled by safe haven demand (Chart II.6d).

Headline inflation receded significantly from levels recorded a year ago in most economies, although it remained above targets. In the US, CPI inflation rose to 3.5 per cent in March from 3.2 per cent in February, while the headline personal consumption expenditure (PCE) inflation increased to 2.5 per cent in February. Euro area inflation moderated to 2.4 per cent in March from 2.6 per cent in February (Chart II.7a). In the UK, CPI inflation softened to 3.2 per cent in March. Japan's inflation (CPI excluding fresh food) eased to 2.6 per cent in March from 2.8 per cent in February.

Among EMEs, inflation moderated in Brazil, China and South Africa in March (Chart II.7b). Inflation in Russia remained steady for the second consecutive month in March. Core and services



inflation also moderated across major AEs but remained higher than headline inflation (Chart II.7c and II.7d).

Global equity markets surged in March on robust corporate earnings, optimism over prospects relating to AI, brighter growth prospects in the Euro area, and return of foreign inflows in China. The MSCI world equity index increased by 2.9 per cent in March, reflecting gains in AEs and EMEs to the tune of 3.0 per cent and 2.2 per cent, respectively (Chart II.8a). Equity markets, however, shed these gains in April after the release of higher-than-expected non-farm payroll data, rise in US CPI inflation and escalation of geopolitical tensions.

US government security (G-sec) yields – both 10-year and 2-year remained range bound in March but hardened in April amidst rising inflation and the Institute for Supply Management’s (ISM) PMI manufacturing index moving into the expansion zone (Chart II.8b). In the currency markets, the US dollar index strengthened from mid-March on the back of hotter than expected CPI data spurring lower probability of rate cuts by the Fed and continued to appreciate in April. The MSCI currency index for EMEs mirrored the greenback’s movements. EMEs witnessed capital inflows, in early March but the trend reversed in late March and April as dollar strengthened (Chart II.8c and II.8d).

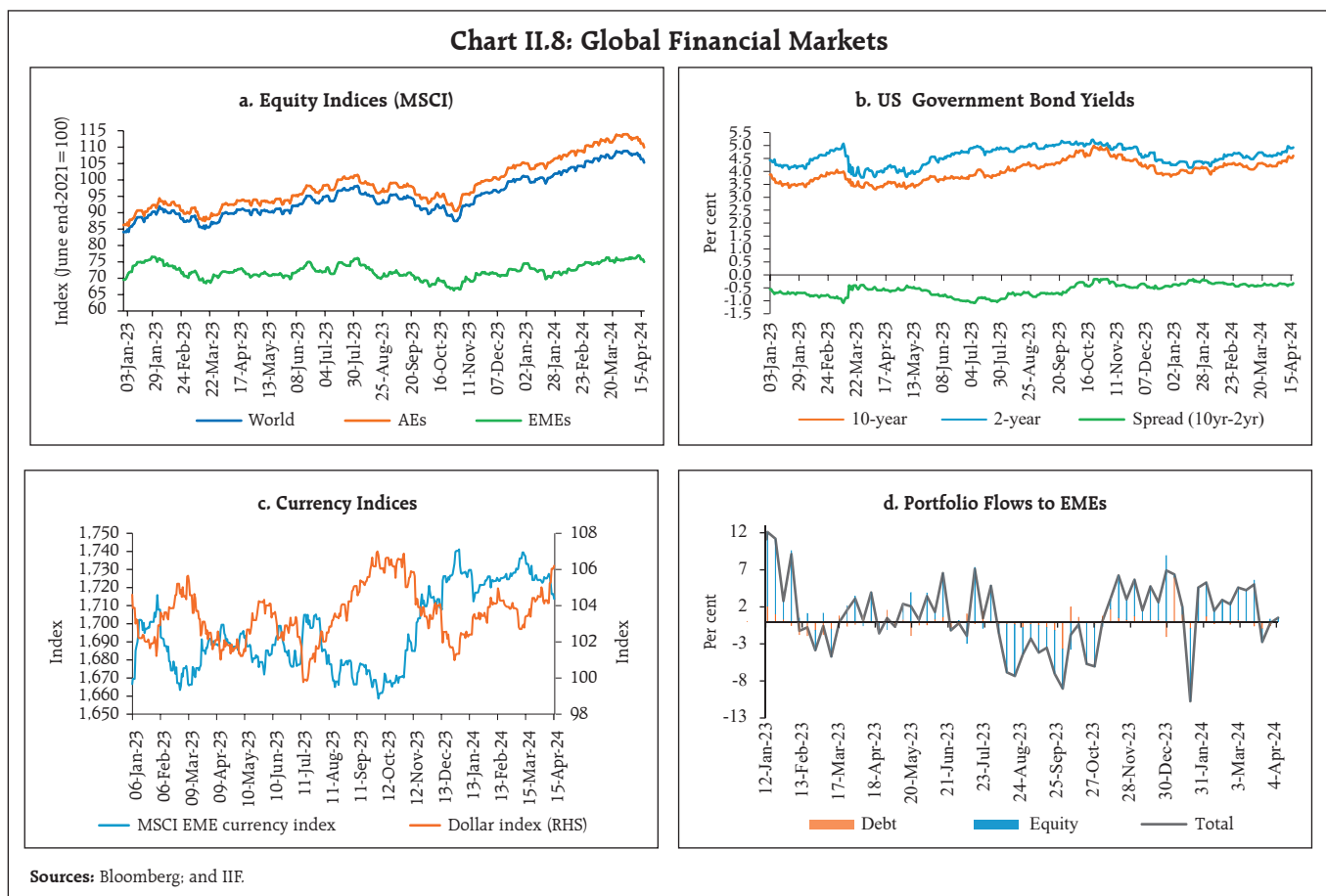
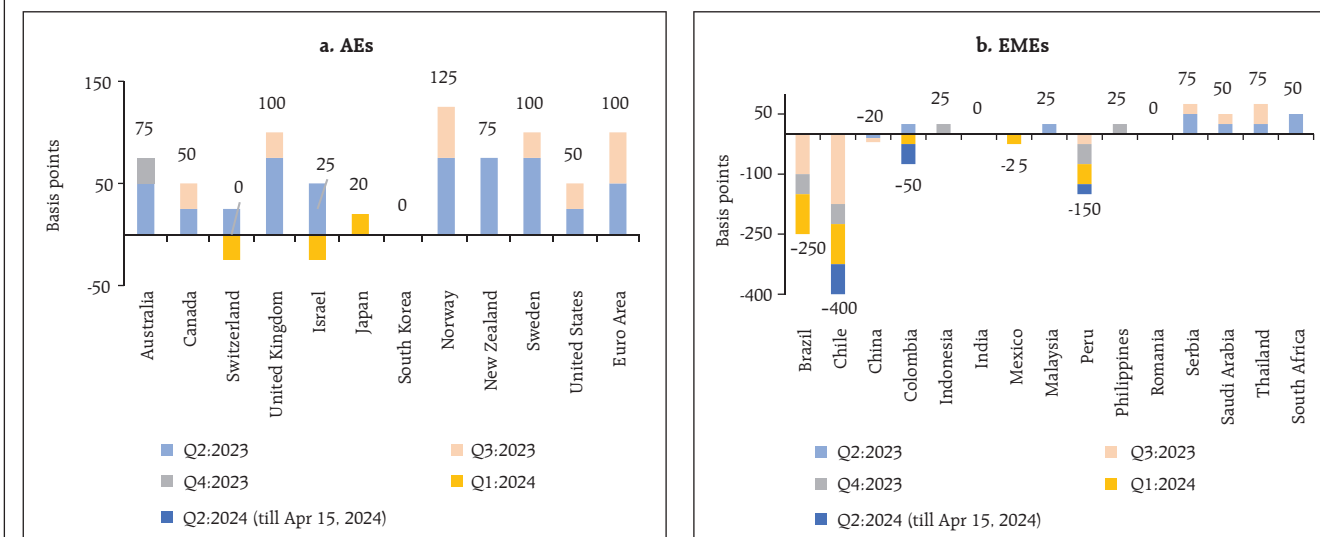


Chart II.9: Changes in Policy Rates



Source: Bloomberg.

Major central banks, especially in AEs, remained cautious, balancing the risks of cutting too soon against maintaining a restrictive stance for too long and hurting economic activity with financial stability risks. Most AE central banks held their policy rates constant in their latest meetings (Chart II.9a). The Czech Republic and Switzerland lowered their policy rates by 50 bps and 25 bps, respectively. Amongst EME central banks, Chile and Hungary cut their benchmark rates by 75 bps each in their April and March meetings; Brazil and Colombia continued easing with a 50 bps rate cut in March; and Mexico started its easing cycle with a 50 bps rate cut in March (Chart II.9b). Peru continued with its easing cycle cutting the benchmark rate by 25 bps in its April meeting.

III. Domestic Developments

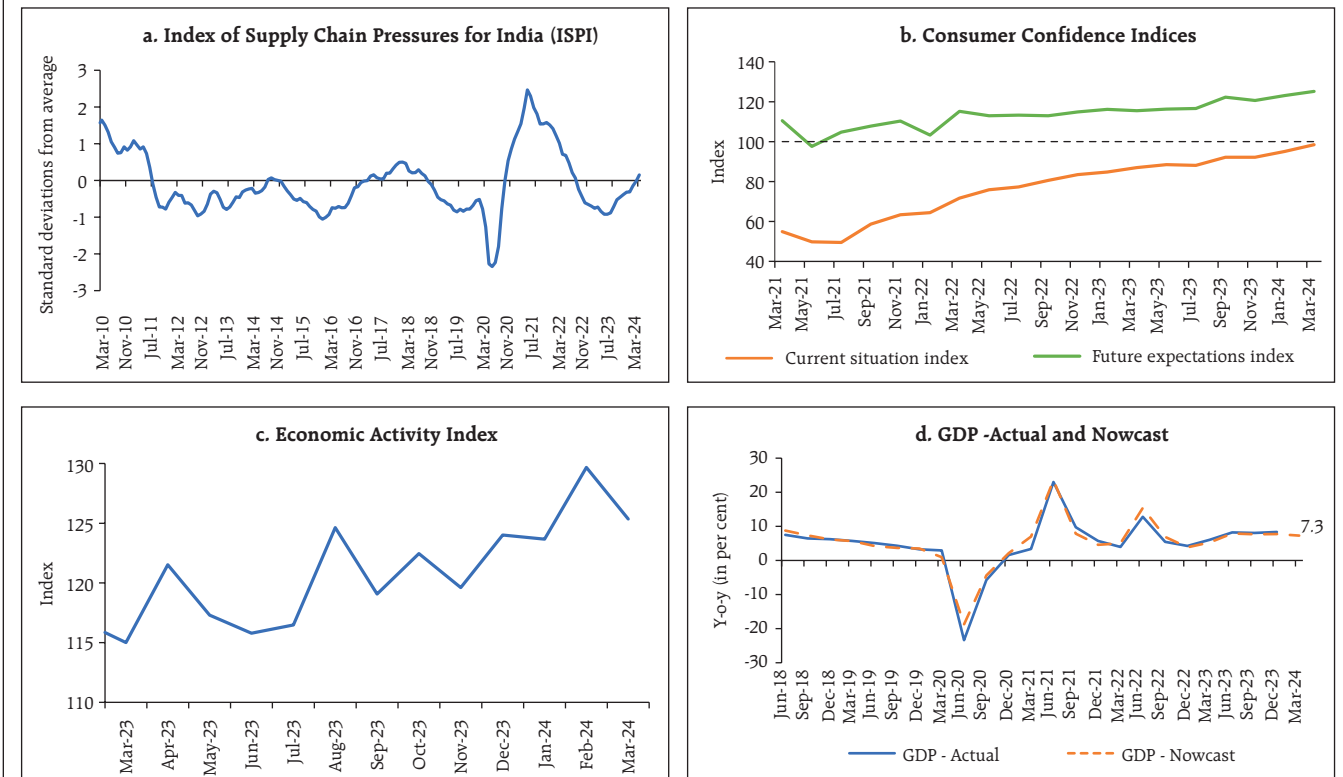
The Indian economy continued to exhibit resilience amidst external headwinds which led to the build-up of supply chain pressures

(Chart III.1a). Consumer confidence strengthened across parameters set out in the RBI's latest survey of households (Chart III.1b). Enterprise surveys indicate that business assessment and expectations remain in positive terrain, with optimism on production, capacity utilisation (CU), order books, employment and overall business conditions (Annex 1). According to the economic activity index (EAI), economic activity remained resilient in Q4:2023-24, although available data indicate some moderation in March *vis-à-vis* the previous month on a seasonally adjusted basis (Chart III.1c). Using the EAI, GDP growth for Q4:2023-24 is placed at 7.3 per cent (Chart III.1d)

Aggregate Demand

High frequency indicators point to sustained momentum in domestic demand conditions in March 2024. E-way bills reached all time high of 10.35 crore (13.9 per cent y-o-y growth) in March 2024 (Chart III.2a). Toll collections increased by 17.2 per cent (y-o-y) in March 2024 (Chart III.2b).

Chart III.1: Economic Activity and GDP Growth Nowcast

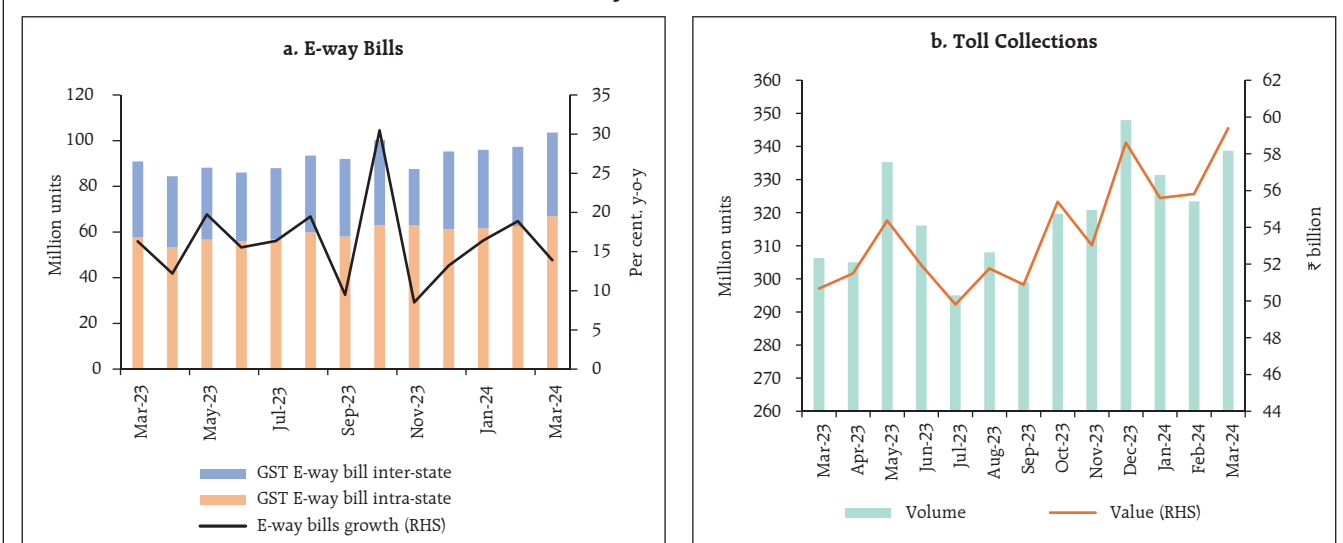


Note: The economic activity index (EAI) was constructed by extracting the common trend underlying twenty seven high frequency indicators of economic activity using a Dynamic Factor Model. EAI was scaled to 100 in February 2020 and 0 in April 2020, the worst affected month due to mobility restrictions.
Sources: Consumer Confidence Survey (CCS), RBI; National Statistical Office (NSO); and RBI staff estimates.

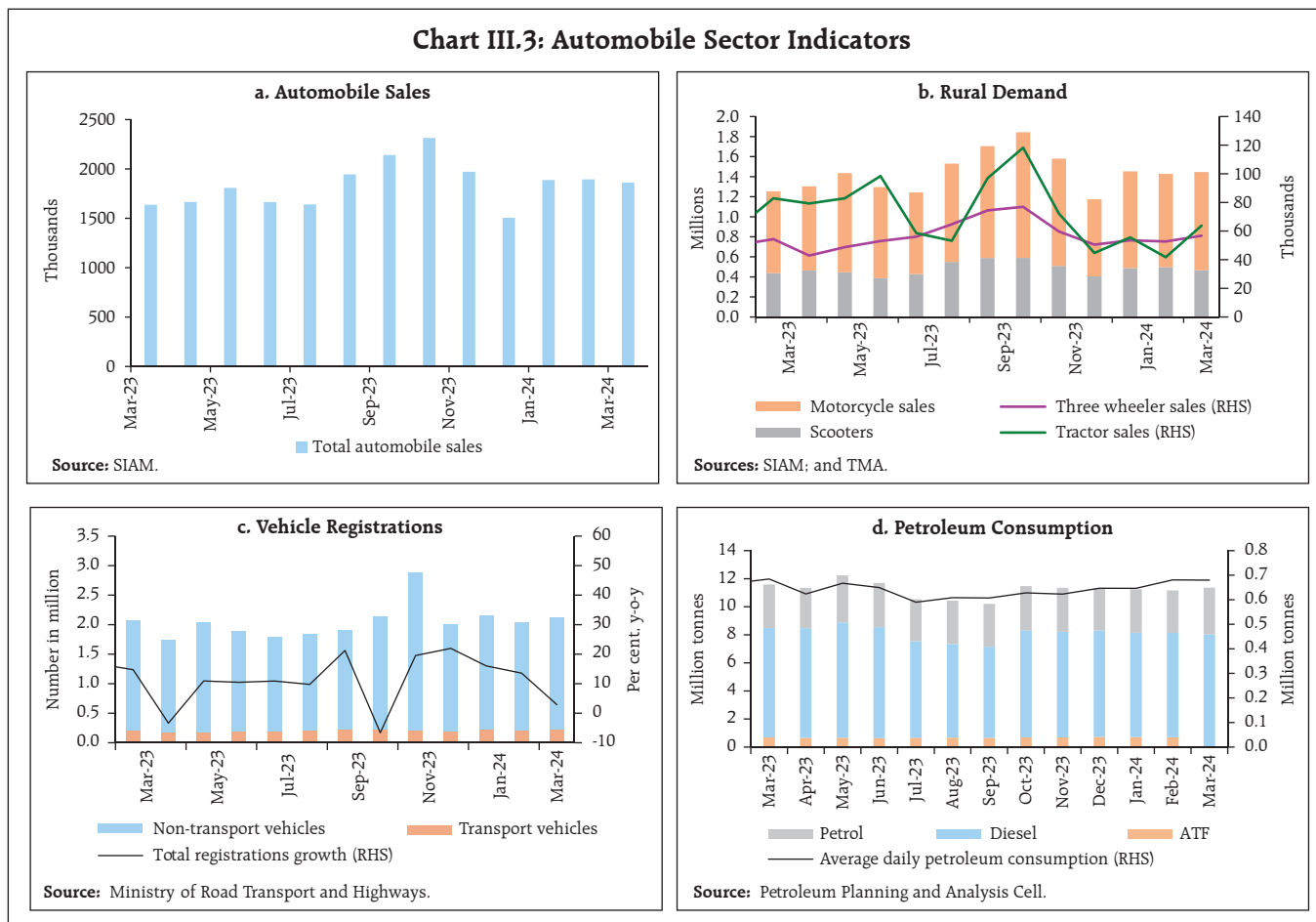
Automobile sales increased by 13.8 per cent (y-o-y) in March 2024, led by two wheelers and passenger

vehicle sales. While tractor exports recorded robust growth, domestic sales showed some improvement

Chart III.2: E-way Bills and Toll Collections



Sources: GSTN; and RBI.



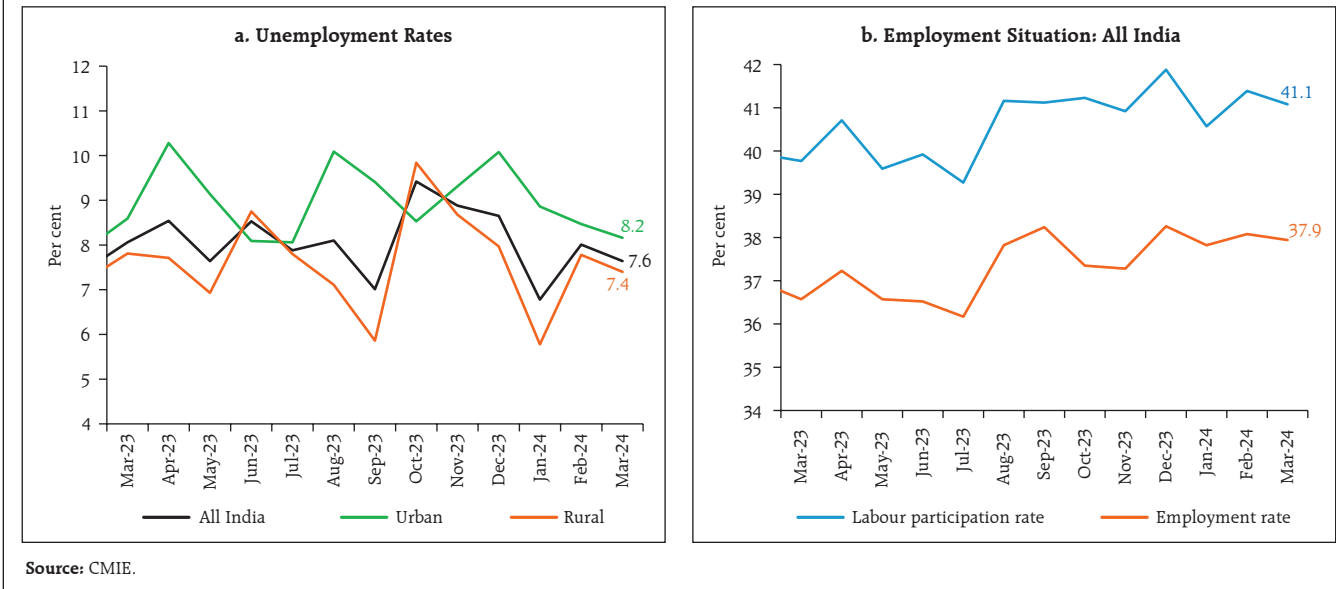
(Chart III.3a and III.3b). Vehicle registrations continued to rise in March 2024, driven by the non-transport vehicles segment (Chart III.3c). Average daily petroleum consumption, however, fell by 0.7 per cent (y-o-y) in March (Chart III.3d).

As per the data from the Centre for Monitoring of Indian Economy (CMIE), the all-India unemployment rate (UR) fell to 7.6 per cent in March, declining across both urban and rural regions (Chart III.4a). The labour force participation rate (LFPR) and employment rate (ER) fell marginally *vis-à-vis* the previous month (Chart III.4b).

The employment outlook in the organised sector, as polled by the PMIs for manufacturing and services, improved in March 2024. While manufacturing employment recorded expansion after two months of contraction, services job creation expanded to a seven-month high (Chart III.5).

With the commencement of the *rabi* harvest, the demand for work under the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) tapered off on a sequential basis, indicative of expansion in job opportunities in the rural farm market (Chart III.6a). With effect from

Chart III.4: Labour Market Conditions



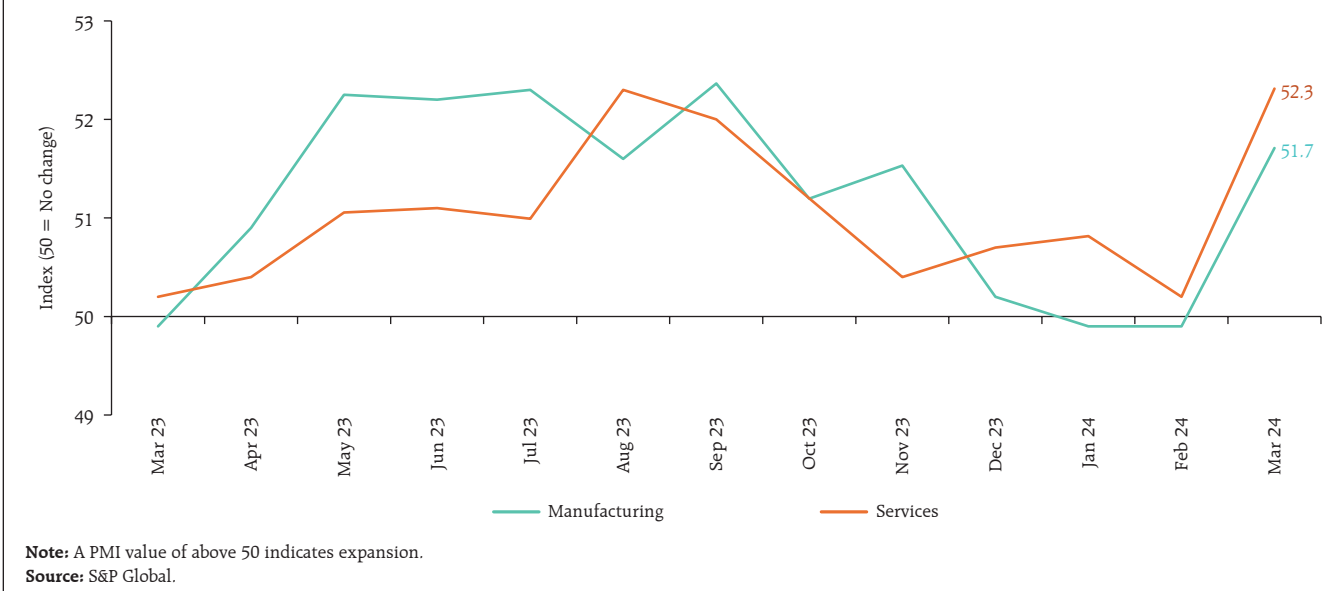
April 01, 2024 the daily wages under the MGNREGS have been increased between 3 per cent to 10.6 per cent (₹7 - ₹34/day) across states (Chart III.6b).

India's merchandise exports at US\$ 41.7 billion in March 2024 were at their highest in any month in 2023-24. A positive momentum of about 1.0 per cent notwithstanding, exports declined by 0.7 per

cent on a y-o-y basis, due to unfavourable base effect (Chart III.7). Sequentially, while petroleum exports contracted by more than a third, non-POL exports expanded.

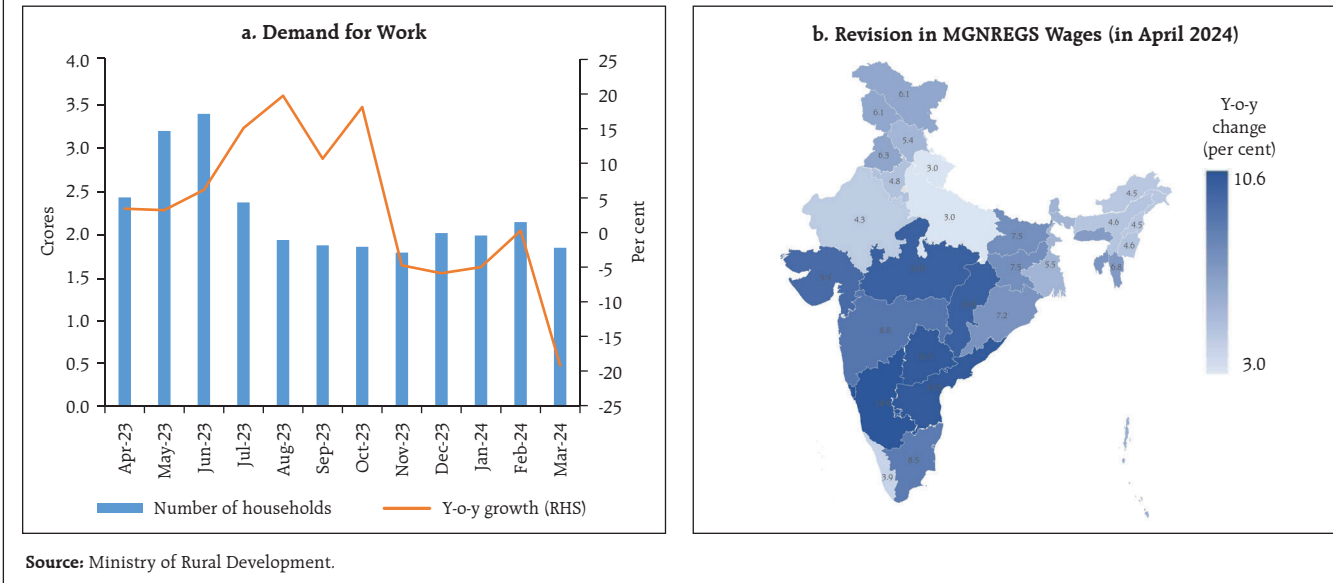
On a y-o-y basis, out of 30 major export commodities, 13 commodities accounting for a share of 35.8 per cent in the export basket⁷ registered

Chart III.5: PMI Employment Indices



⁷ Share in 2023-24.

Chart III.6: Demand for Work and Wage Revision under MGNREGS

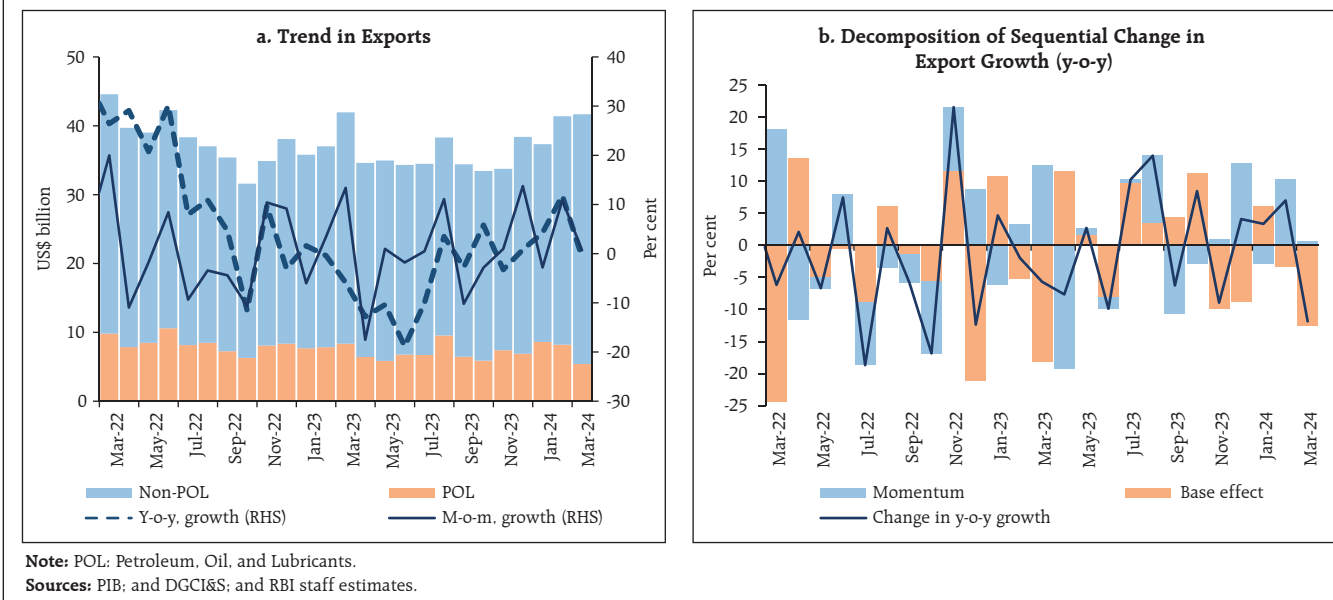


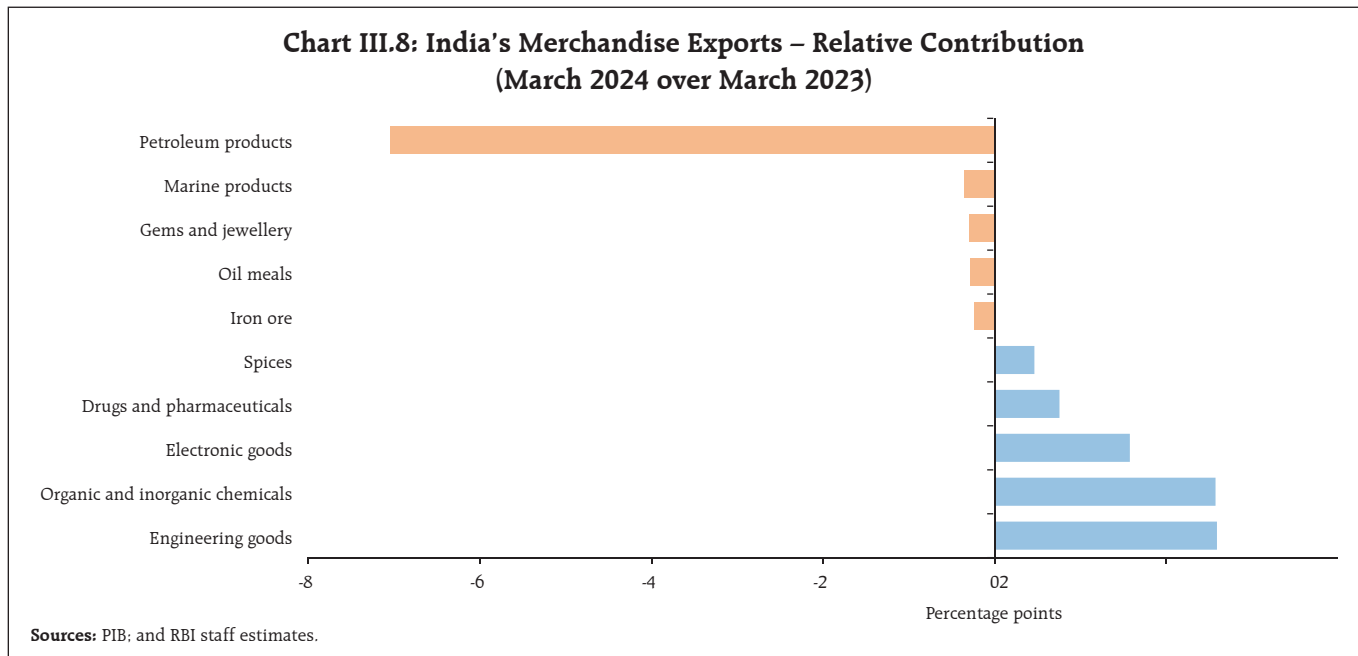
contraction in March. Petroleum products, marine products, gems and jewellery, oil meals and iron ore dragged exports down, whereas engineering goods, organic and inorganic chemicals, electronic goods, drugs and pharmaceuticals and spices supported export growth (Chart III.8).

Merchandise imports at US\$ 57.3 billion declined by 6.0 per cent (y-o-y) due to both negative momentum and an unfavourable base effect in March 2024 (Chart III.9).

Among 30 major import commodities, 18 commodities accounting for 67 per cent share in the

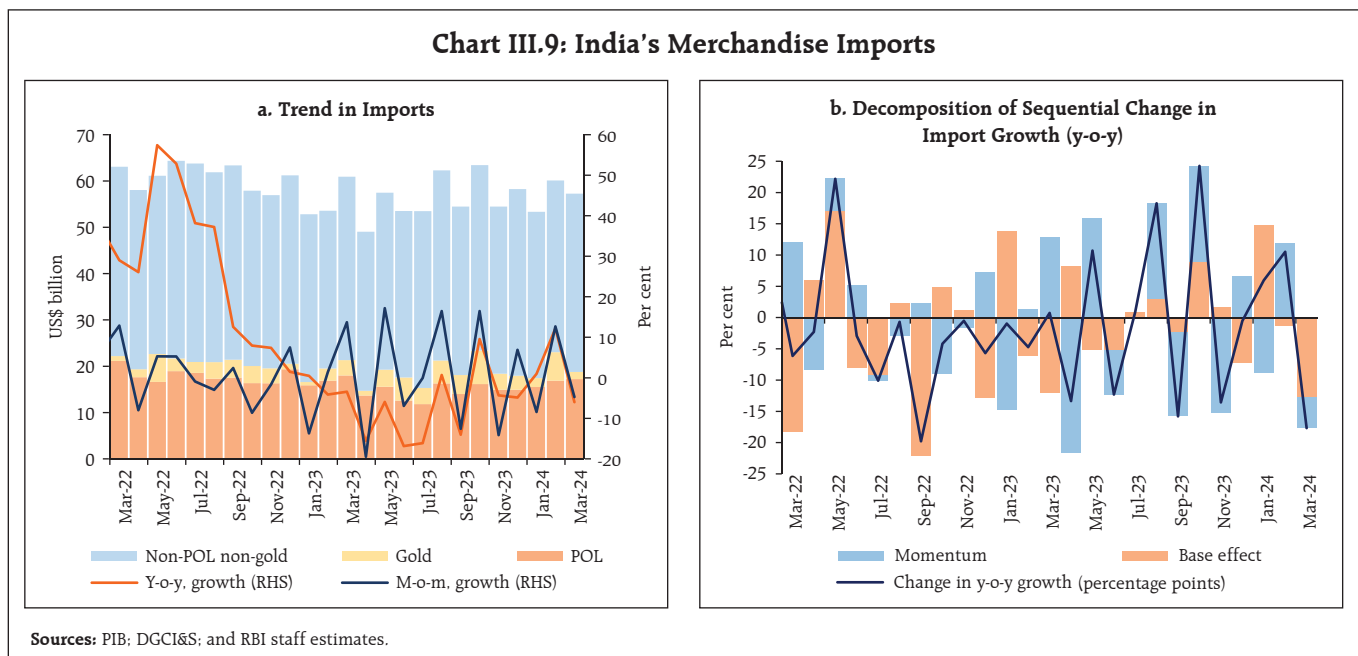
Chart III.7: India's Merchandise Exports

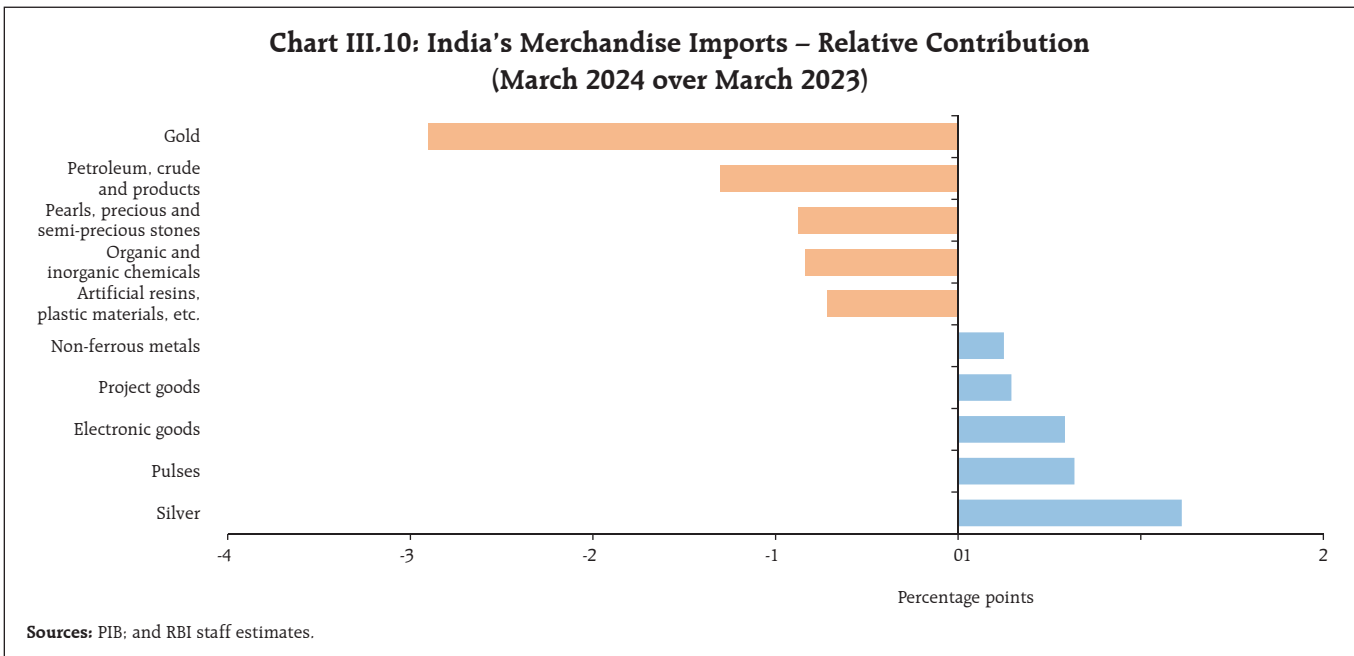




import basket registered contraction on y-o-y basis in March. Gold, petroleum, crude and products, and precious and semi-precious stones dragged import down, while silver, pulses and electronic goods supported growth (Chart III.10).

The merchandise trade deficit was at an 11-month low of US\$ 15.6 billion in March 2024, due to the sharp contraction in imports. The non-oil deficit narrowed to US\$ 3.8 billion in March 2024 from US\$ 10.1 billion in February. In contrast, the oil deficit widened to US\$

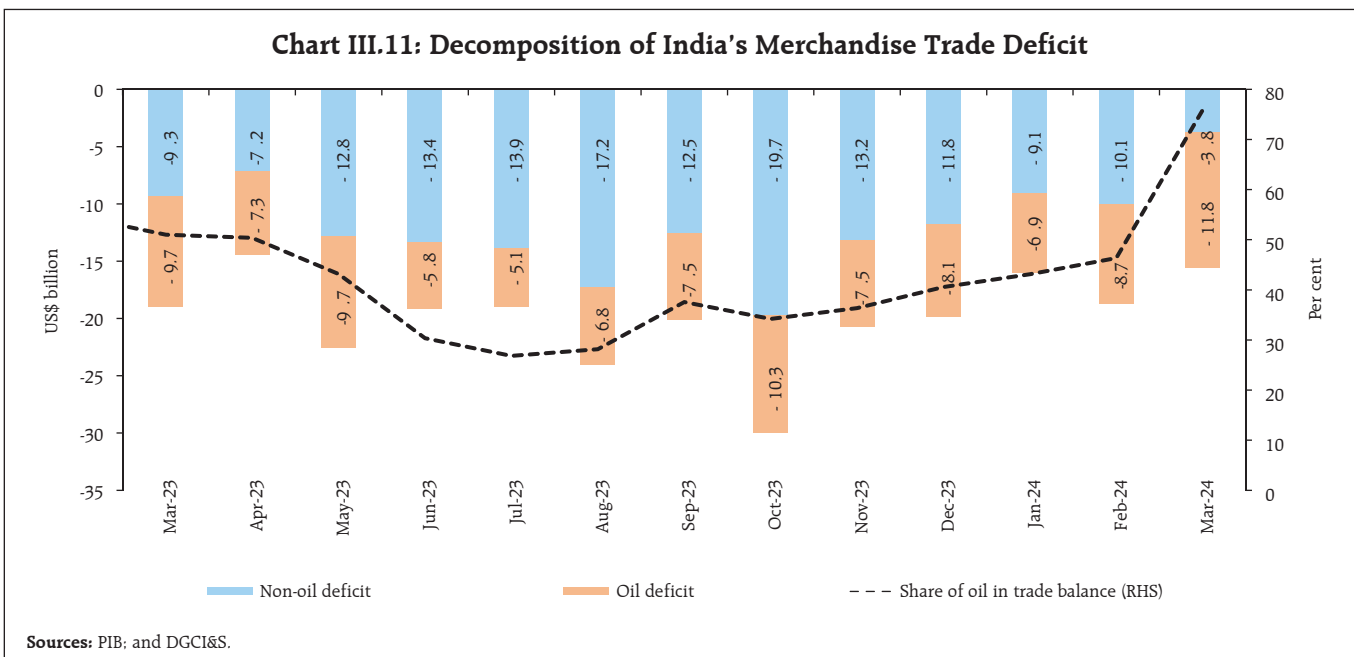


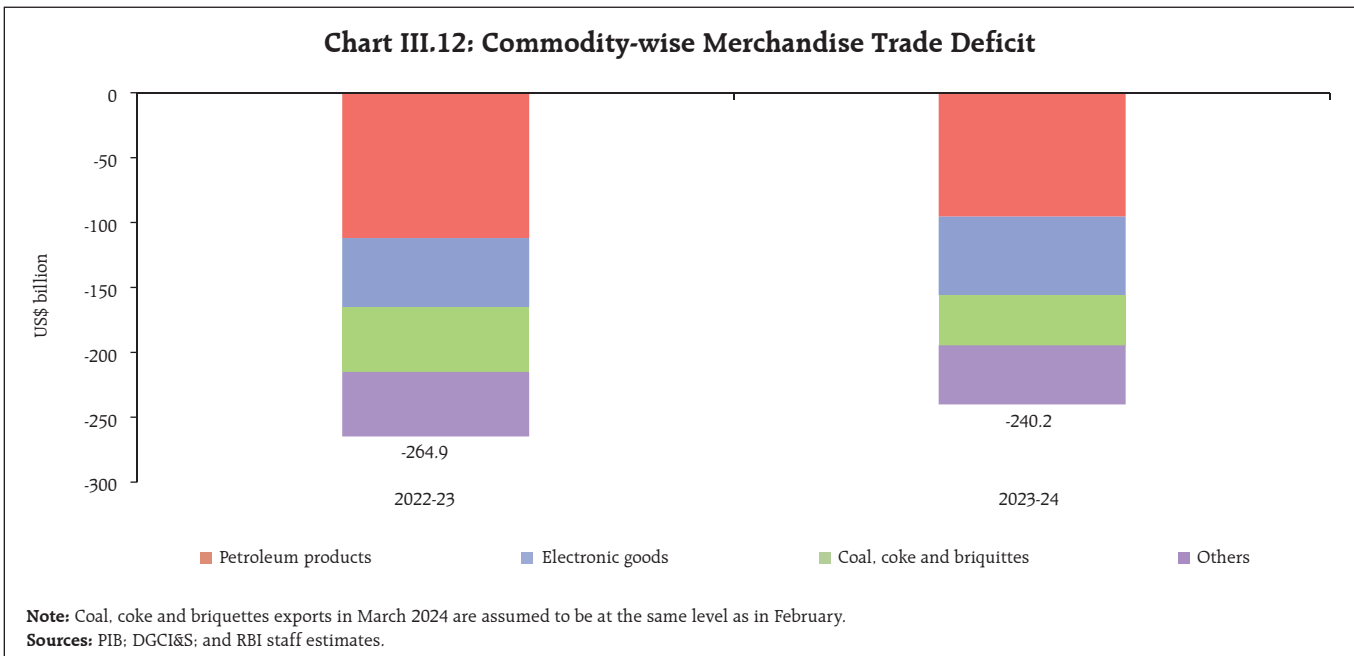


11.8 billion in March from US\$ 8.7 billion a month ago. Concomitantly, the share of the oil deficit in the total merchandise trade deficit rose to 75.9 per cent (Chart III.11).

while merchandise imports declined by 5.4 per cent to US\$ 677.2 billion. The merchandise trade deficit narrowed to US\$ 240.2 billion in 2023-24 as compared with US\$ 264.9 billion a year ago. Petroleum products were the largest source of the deficit, followed by electronic goods (Chart III.12).

During 2023-24, India's merchandise exports at US\$ 437.1 billion contracted by 3.1 per cent (y-o-y),





In February 2024, services exports rose by 3.5 per cent (y-o-y) to US\$ 28.3 billion, primarily driven by growth in software, business services, travel and transportation. Services imports at US\$ 15.2 billion registered a growth of 1.8 per cent (y-o-y), mainly due to a rise in business, software, travel and transport

imports (Chart III.13). Consequently, net services exports earnings grew by 5.5 per cent (y-o-y) to US\$ 13.1 billion in February 2024.

As per the latest data released by the Controller General of Accounts (CGA), the gross fiscal deficit

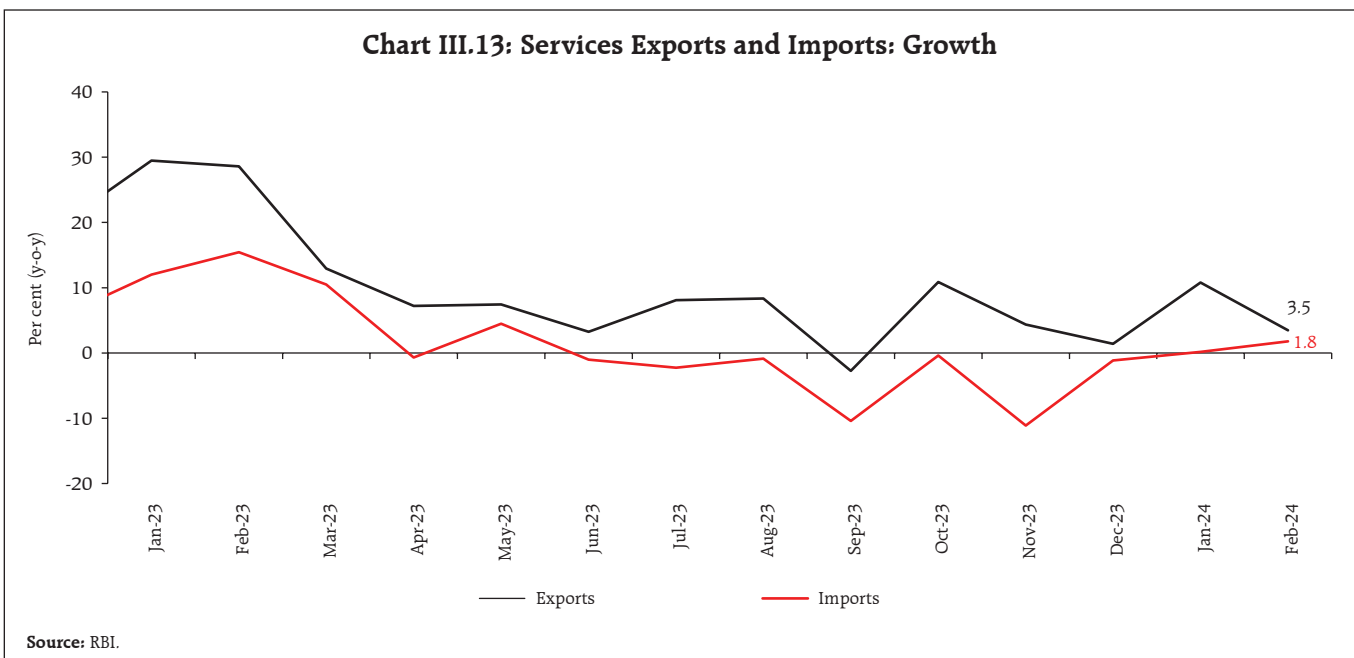
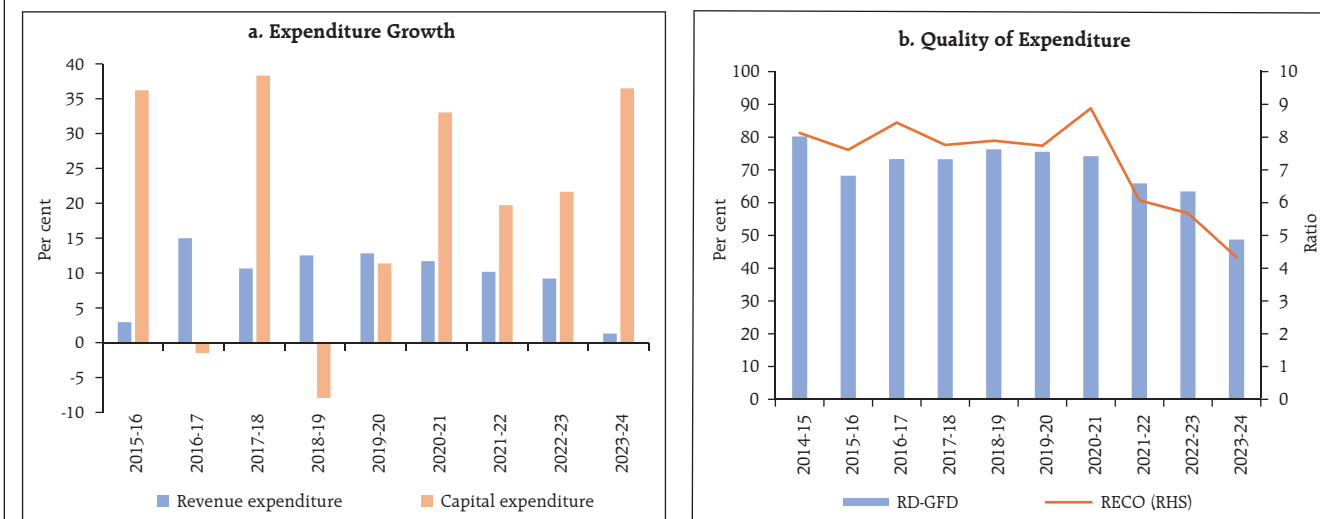


Chart III.14: Government Expenditure (April-February)



Note: RD-GFD: Revenue deficit to gross fiscal deficit ratio; RECO: Revenue expenditure to capital outlay ratio.

Source: CGA.

(GFD) of the Union government stood at 86.5 per cent of the revised estimates (RE) during April-February 2023-24. On the expenditure side, capital spending recorded an increase of 36.5 per cent (y-o-y) while revenue expenditure growth remained contained at 1.3 per cent (y-o-y) [Chart III.14a]. Capital outlay (*i.e.*, capital expenditure excluding loans and advances) recorded an increase of 32.8 per cent, resulting in a marked improvement in the quality of spending of the central government (Chart III.14b).

On the receipts side, direct tax collections grew by 21.6 per cent (y-o-y) during April-February 2023-24, with income tax and corporate tax collections growing at 25.8 per cent and 17.3 per cent, respectively. The robust double digit growth in direct tax collections is attributable to increased compliance, higher advance tax collections and widening of the tax base.^{8,9,10} Indirect tax collections

grew by 4.8 per cent (y-o-y), with goods and services taxes (GST) and customs revenues recording a growth of 8.4 per cent and 3.9 per cent, respectively. On the other hand, excise duties registered a contraction of 5.8 per cent. Overall, gross tax revenue grew by 13.4 per cent over the corresponding period of the previous year, led by growth in direct tax collections (Chart III.15).

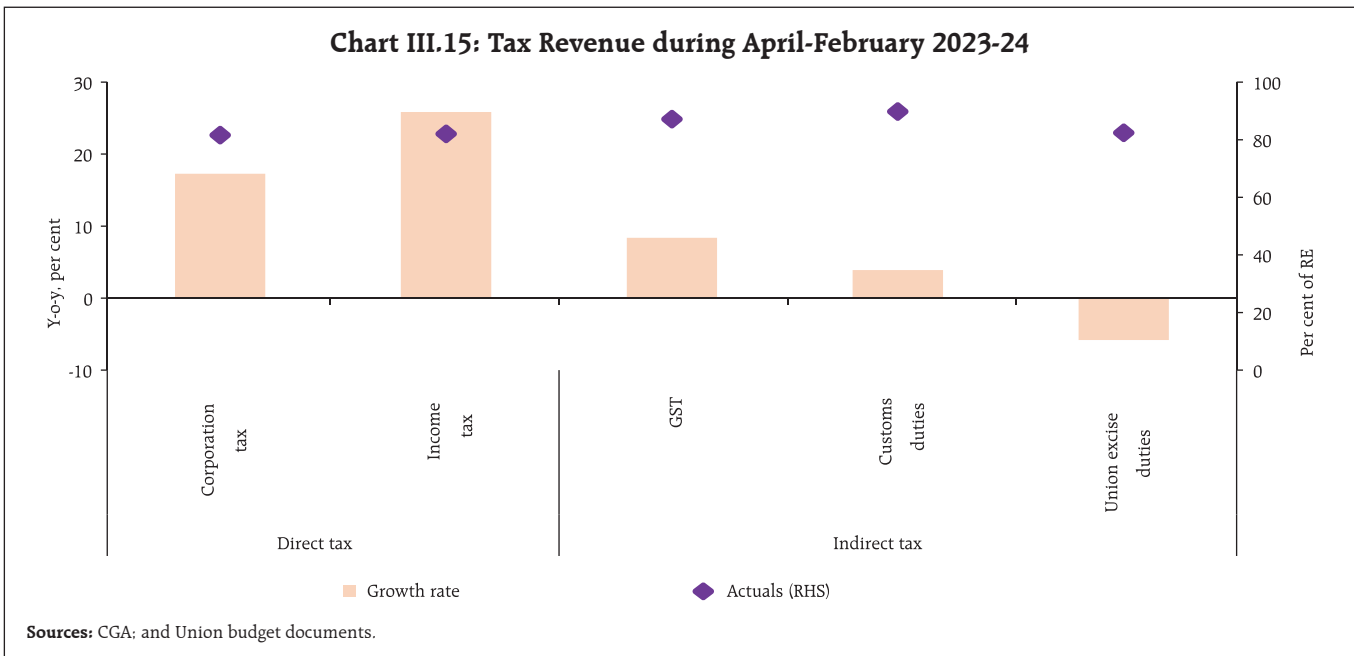
Non-tax revenue collections grew by 44.9 per cent (y-o-y) during April-February 2023-24, largely due to the higher than budgeted surplus transfer from the RBI¹¹ and dividends from public sector enterprises (Chart III.16). On the other hand, non-debt capital receipts contracted by 38.6 per cent (y-o-y). Total receipts (comprising of revenue receipts and non-debt capital receipts) of the Union government expanded by 10.1 per cent (y-o-y).

⁸ Press Information Bureau (PIB), Ministry of Finance, March 19, 2024.

⁹ PIB, Ministry of Finance, January 1, 2024.

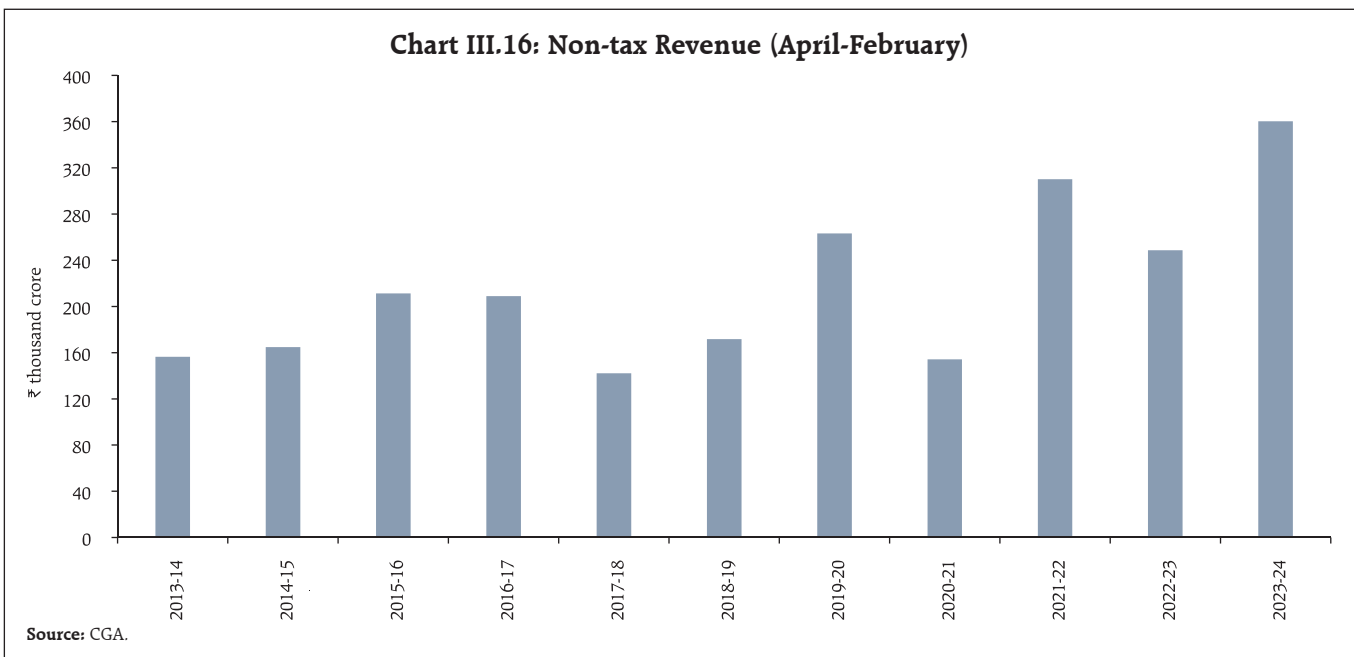
¹⁰ PIB, Ministry of Finance, October 26, 2023.

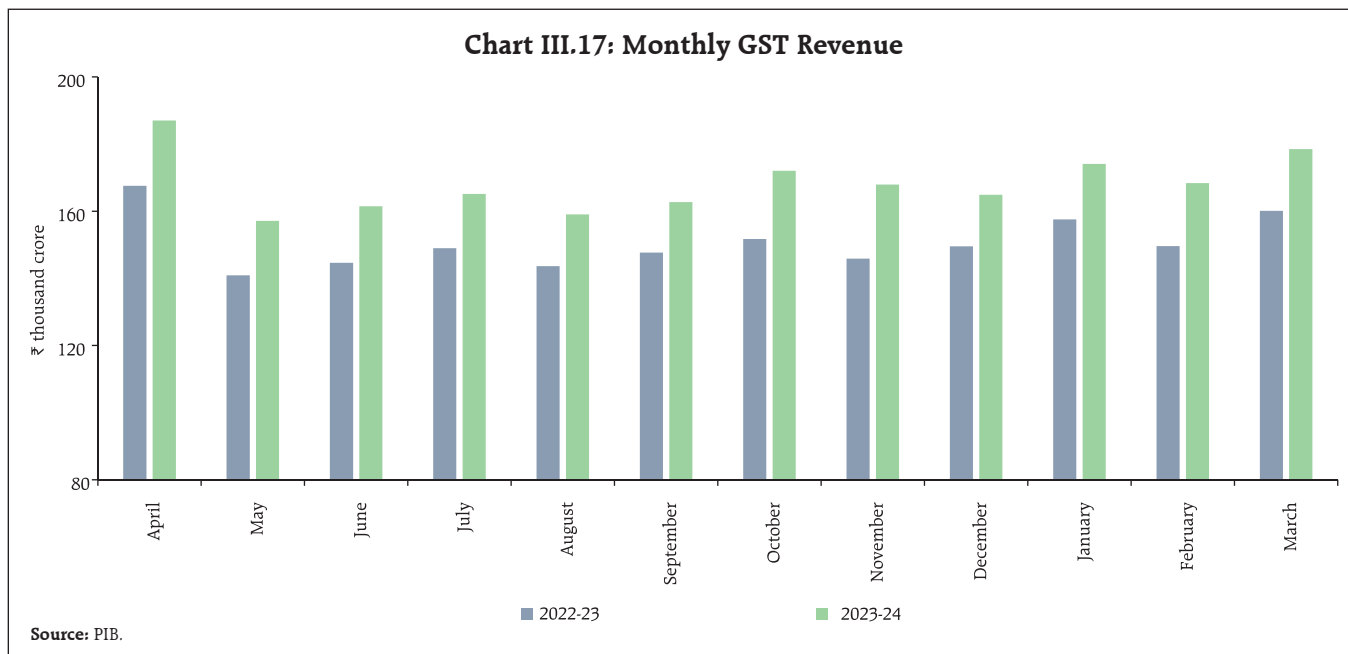
¹¹ During 2023-24, the Reserve Bank transferred a surplus of ₹87,416.22 crore to the Union government which was higher than both the amount transferred last year (₹30,307.45 crore) and the budgeted amount under dividend/surplus transfer of RBI, Nationalised Banks and Financial Institutions in the Union Budget 2023-24 (₹48,000 crore).



GST collections (Centre *plus* States) at ₹1.78 lakh crore in March 2024, recorded the second highest monthly amount since its inception in 2017. The gross GST collection during 2023-24 was 11.6 per cent higher than in 2022-23 (Chart III.17).

As per the data available for April-February 2024, States' combined GFD reached 65.9 per cent of budget estimates (BE), 6.1 percentage points higher than in the corresponding period of the previous year (Chart III.18a). This increase was primarily driven by





a slowdown in the growth of revenue receipts and an increase in capital expenditure (Chart III.18b). On the receipts front, States' overall tax revenue increased due to higher devolution, while own tax revenue growth decelerated. Non-tax revenues recorded a sharp rise, mainly driven by land monetisation and mining royalty/premiums in certain

States. Grants from the Union government contracted on account of cessation of GST compensation and the tapering of finance commission grants (Chart III.19a). Within States' own tax revenue, growth in SGST, sales tax/VAT and state excise moderated y-o-y (Chart III.19b).

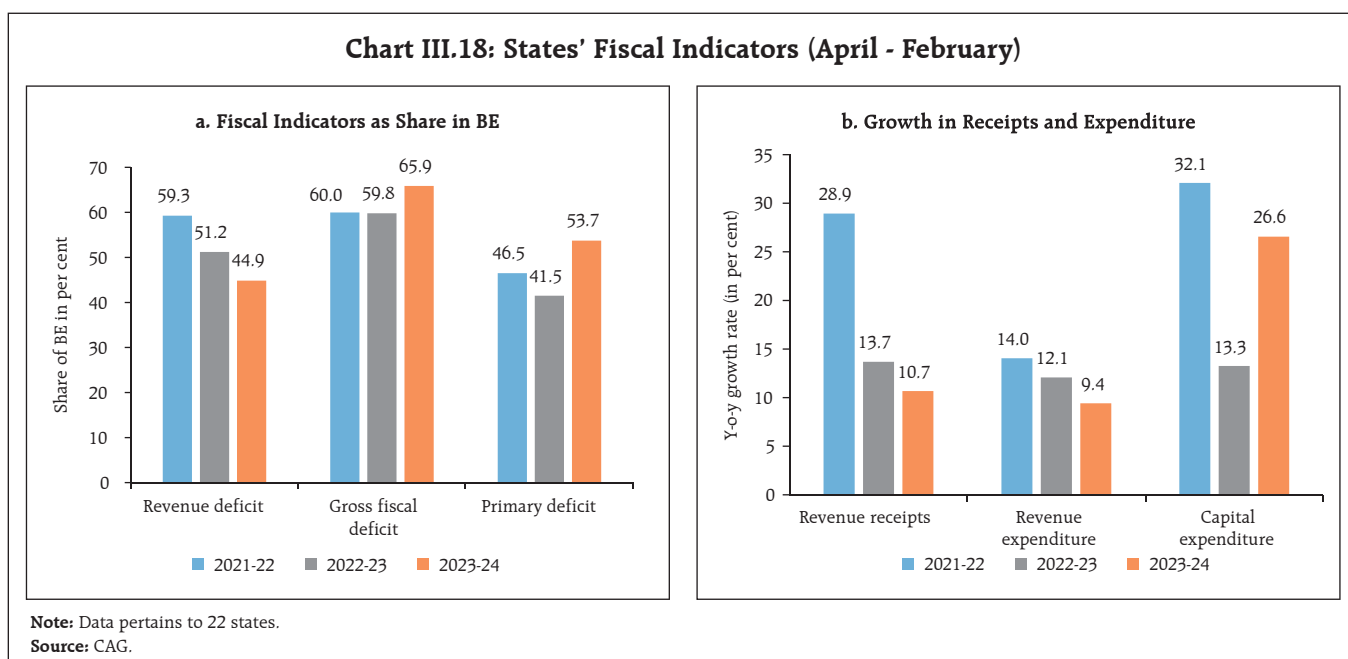
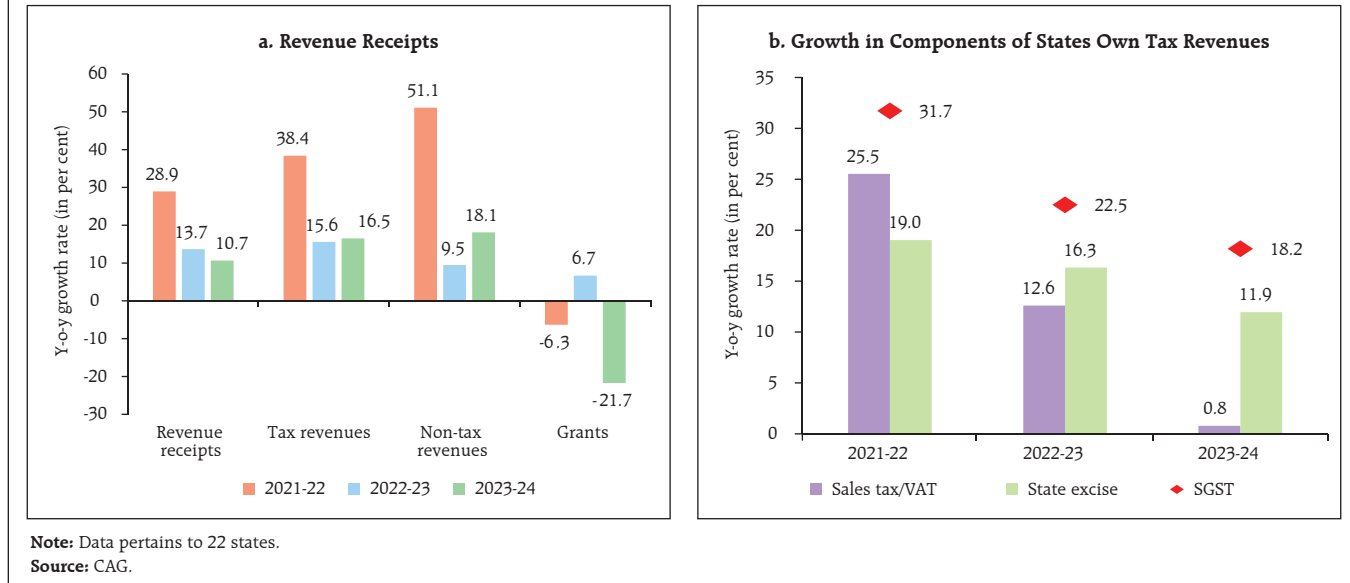


Chart III.19: Key Fiscal Performance Indicators (April - February)



States' thrust on capital spending continued, with a 26.6 per cent growth in capital expenditure. This was aided by the Scheme for Special Assistance to States for Capital Investment under which ₹95,225.77 crore has already been disbursed by the Union government till February 2024.¹²

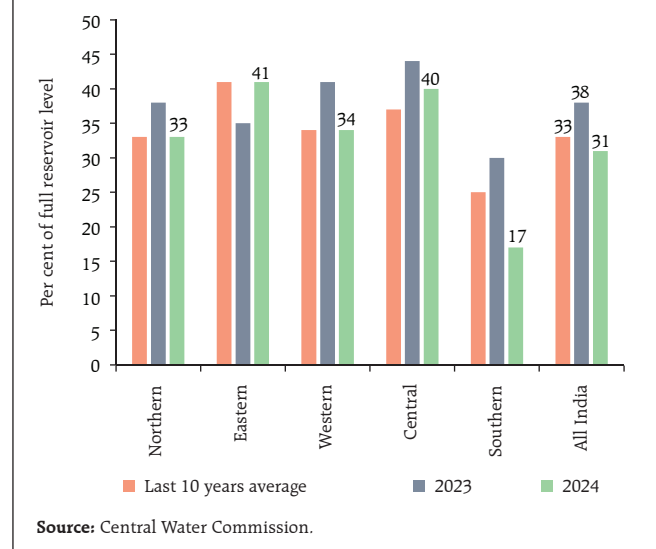
Aggregate Supply

Agricultural prospects are expected to receive a boost amidst the IMD's forecast of an above normal monsoon - the rainfall during Southwest monsoon season during June-September 2024, is most likely to be above normal this year at 106 per cent of the long period average (LPA) with a model error of ±5 per cent. The likely transition towards *La Nina*, positive Indian Ocean Dipole and below-normal snow cover over the northern hemisphere would generally be favourable for the monsoon. This augurs well for replenishment of the water level in 150 major reservoirs of the country which is down to 31 per cent of total capacity as on April 18, 2024 (Chart III.20). Water available in

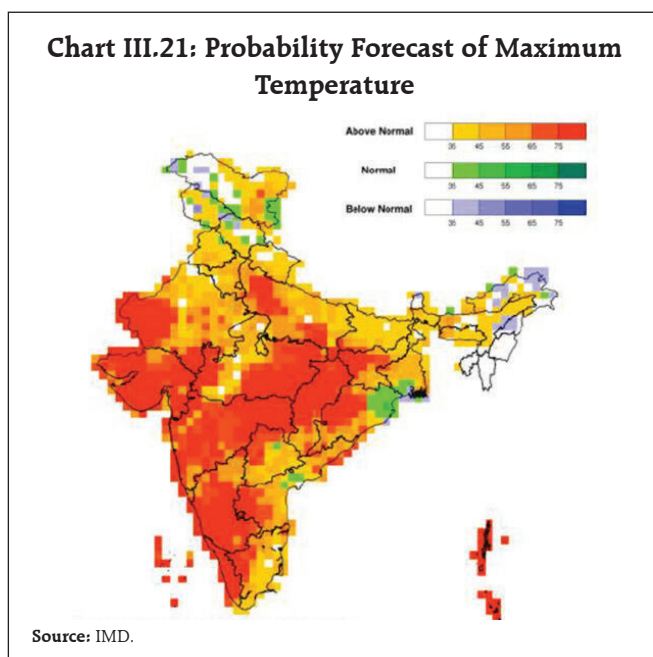
these reservoirs was 17.0 per cent lower than last year and 3.6 per cent below the decadal average.

Higher than normal maximum temperatures, however, are likely over most parts of the country for the hot weather season (April to June 2024)

Chart III.20: Reservoir Level (as on April 18, 2024)



¹² https://doe.gov.in/files/whats_new_documents/Monthly_Summary_Report_of_DoE_for_February_2024.pdf

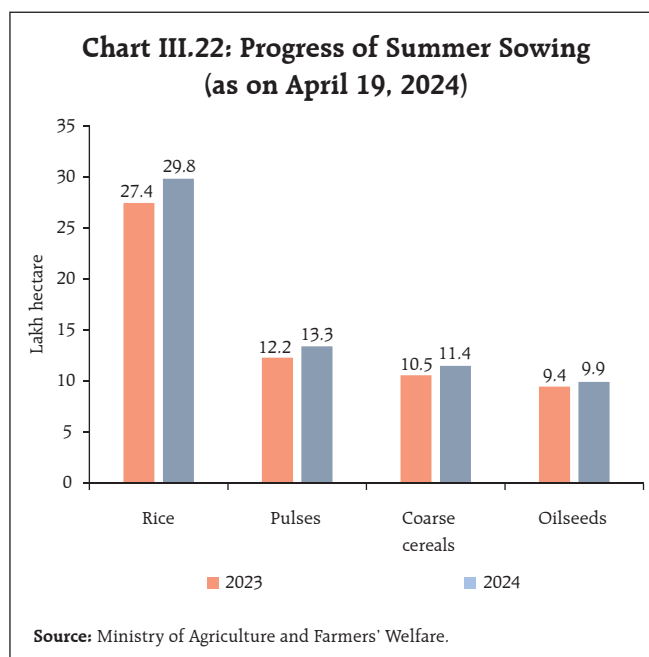


[Chart III.21]. Above normal heatwave days are likely to occur over most parts of the south peninsula, central India, east India, and plains of northwest India. Unlike the heatwave episode of 2022 that began in March, the heatwaves in 2024 are likely to occur from April by when the harvesting of majority of the key *rabi* crops (*viz.*, wheat, rapeseed, mustard and chana) is expected to be complete.

As of April 19, 2024, 64.5 lakh hectares (preliminary estimates) of the summer crop area¹³ have been sown so far, registering an increase of 8.2 per cent over a year ago. Higher acreage has been achieved under rice (8.7 per cent), pulses (9.1 per cent), coarse cereals (8.7 per cent) and oilseeds (4.9 per cent) [Chart III.22].

After interventions in the wheat market through open market sales (OMS) to curb inflationary pressures, government procurement for the *rabi*

¹³ While the summer season accounts only for around 5 per cent of the total food grain production (2022-23), it accounts for higher share of annual production for a few individual crops *viz.*, moong (50.3 per cent), bajra (9.5 per cent), urad (8.7 per cent), rice (7.5 per cent) and maize (7.1 per cent). Under oilseeds, summer season accounts for 11.8 per cent of total sunflower production.



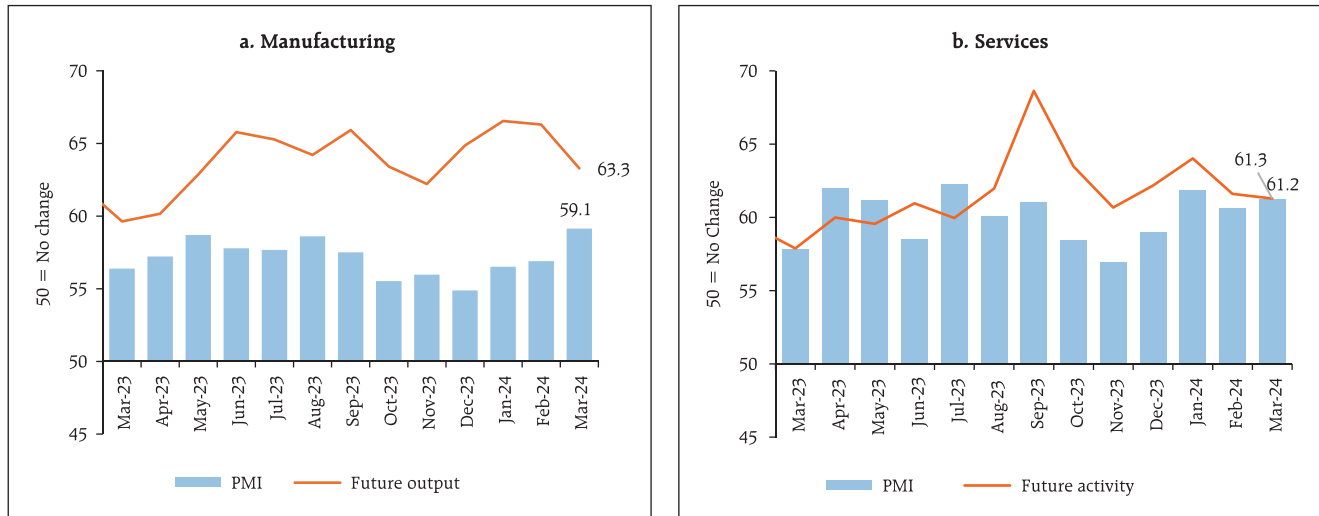
marketing season (RMS) of 2024-25 has commenced earlier in 2024 (the usual date is April 01) in order to replenish declining stocks. The target for the season is set at 300-320 lakh tonnes¹⁴; as of April 19, 2024, the cumulative procurement stood at 7.1 million tonnes.

The cumulative procurement of rice in the kharif marketing season (KMS) so far (October 01, 2023 – April 19, 2024) stood at 462.9 lakh tonnes, 6.8 per cent lower than in the corresponding period of the previous season. As of April 1, 2024 the public stock of rice stood at 531.5 lakh tonnes (3.9 times the buffer norms).

The headline PMI for the manufacturing sector reached a 16-year high of 59.1 in March 2024, backed by new orders and output (Chart III.23a). The PMI for services rose to 61.2 in March (one of the strongest in 13 years), driven by solid expansion in new business and employment (Chart III.23b).

¹⁴ <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=2009984>

Chart III.23: Purchasing Managers' Index (PMI)

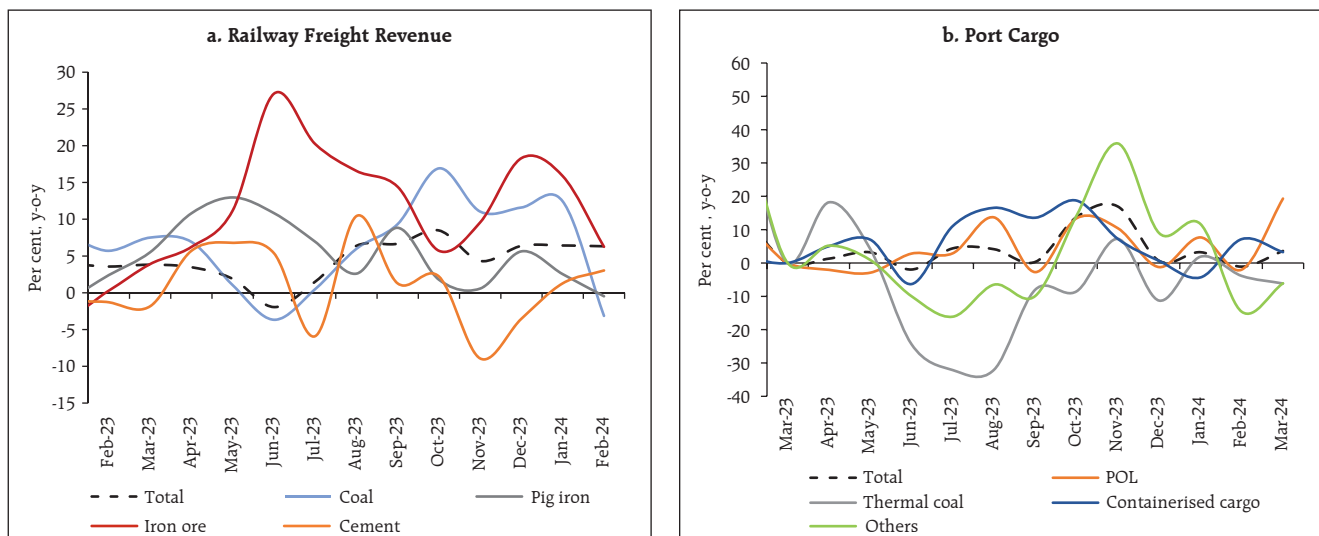


Note: A level of 50 corresponds to no change in activity and a reading above 50 denotes expansion and vice versa.
Source: S&P Global.

Indicators of freight transport exhibited a mixed picture. Railway freight revenue recorded a growth of 6.3 per cent (y-o-y) in February 2024, contributed by growth in freight movement of

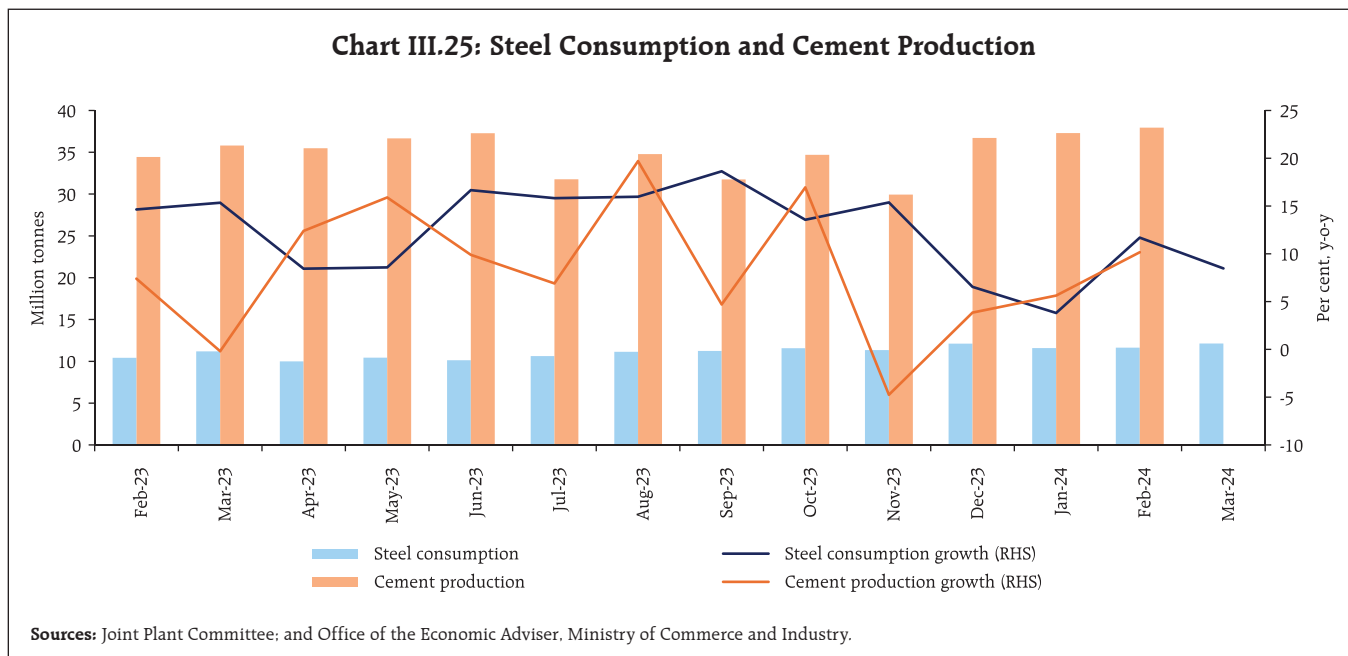
cement (Chart III.24a). Cargo traffic at major ports rose by 3.6 per cent in March 2024 driven by POL (Chart III.24b).

Chart III.24: Railway Traffic and Port Cargo



Source: Rail Drishti.

Source: Indian Ports Association.



Construction sector indicators reflected sustained growth in steel consumption and cement production (Chart III.25)

Available high frequency indicators for the services sector exhibited an optimistic picture in March 2024 (Table III.1).

Table III.1: High Frequency Indicators Services

		Growth (y-o-y, per cent)										
Sector	Indicator	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
Urban demand	Passenger Vehicles Sales	14.9	1.6	2.9	11.6	3.1	17.3	4.3	3.2	13.9	5.7	8.9
Rural demand	Two Wheeler Sales	17.4	1.7	-7.2	0.6	0.8	20.1	31.3	16.0	26.2	30.0	15.3
	Three Wheeler Sales	70.4	98.6	78.9	68.8	47.0	42.1	30.8	30.6	9.5	4.6	4.3
	Tractor Sales	1.2	4.2	6.1	1.1	-14.7	-4.3	6.4	-19.8	-15.3	-33.0	-23.1
Trade, hotels, transport, communication	Commercial Vehicles Sales	-3.3		6.9			3.2			-3.8		
	Railway Freight Traffic	1.9	-1.9	1.5	6.4	6.7	8.5	4.3	6.4	6.4	6.3	
	Port Cargo Traffic	3.5	0.4	4.3	4.4	0.3	13.8	17.0	0.7	3.2	-1.1	3.6
	Domestic Air Cargo Traffic*	-4.5	-5.6	-4.1	6.0	-4.5	10.6	9.0	8.7	10.0	7.6	2.1
	International Air Cargo Traffic*	2.7	2.7	1.0	7.4	2.7	15.0	4.9	12.2	19.3	25.7	15.6
	Domestic Air Passenger Traffic *	15.7	19.2	26.3	23.6	19.3	10.7	8.7	8.1	5.0	2.2	4.1
	International Air Passenger Traffic *	37.2	26.5	23.6	21.5	19.6	17.5	19.8	18.1	17.0	15.2	14.6
	GST E-way Bills (Total)	19.7	15.5	16.4	19.5	9.5	30.5	8.5	13.2	16.4	18.9	13.9
	GST E-way Bills (Intra State)	23.0	18.8	20.8	22.6	12.4	30.0	22.7	14.2	17.9	21.1	15.8
	GST E-way Bills (Inter State)	14.3	9.9	9.1	14.4	4.9	31.2	-16.2	11.4	13.8	15.0	10.7
	Hotel occupancy rate@	61.9	64.0	60.9	60.9	61.0	62.5	63.0	70.0			
	Average revenue per room	15.8	14.0	14.2	13.9	18.3	14.8	15.9	12.8			
	Tourist Arrivals	41.25055	24.0	13.6	22.6	17.5	19.8	16.8	7.8			
Construction	Steel Consumption	8.6	16.7	15.8	16.0	18.6	13.6	15.4	6.5	3.8	11.7	8.5
	Cement Production	15.9	9.9	6.9	19.7	4.7	17.0	-4.0	3.8	5.6	10.2	
PMI Index#	Services	61.2	58.5	62.3	60.1	61.0	58.4	56.9	59.0	61.8	60.6	61.2

<< Contraction ----- Expansion >>

Note: #: Data in levels. *: March 2024 data are based on the monthly average of daily figures. @: Data in rate, not in y-o-y rate of growth. The heat-map is constructed for each indicator for the period July-2021 till date.

Sources: CMIE; CEIC; IHS Markit; SIAM; Airports Authority of India; and Joint Plant Committee.

Inflation

Headline inflation, as measured by y-o-y changes in the all-India CPI¹⁵, moderated to 4.9 per cent in March 2024 from 5.1 per cent in February 2024 (Chart III.26). In terms of index levels, food and core (excluding food and fuel) groups registered a m-o-m increase of around 0.2 per cent each which was offset by a m-o-m decline in fuel prices by (-) 2.6 per cent.

Food inflation moderated to 7.7 per cent in March 2024 from 7.8 per cent in February as a positive price momentum of 16 bps was more than offset by a favourable base effect of 23 bps. In terms of sub-groups, notable declines in inflation was observed in respect of fruits, vegetables, pulses, and spices (Chart III.27). Inflation in cereals, meat and fish prices increased while the rate of deflation in oils and fats narrowed.

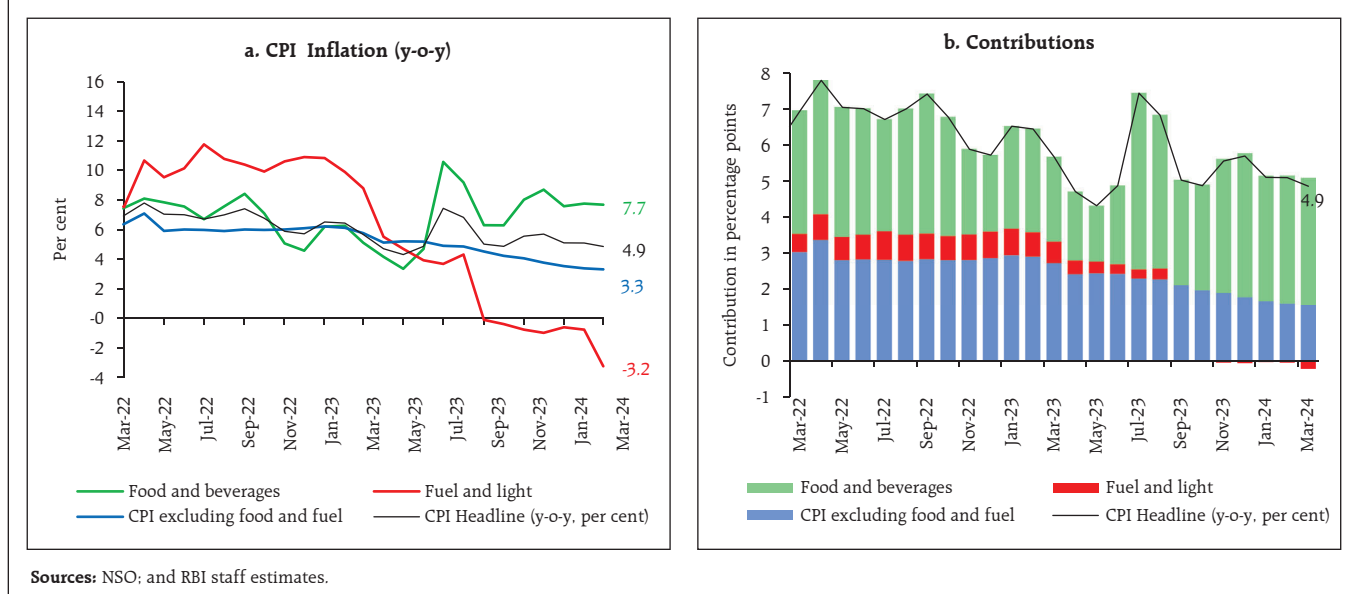
Deflation in prices of fuel and light group deepened to (-) 3.2 per cent in March from (-) 0.8 per cent in February, reflecting the LPG price cut in March which

translated to a y-o-y price decline of (-) 22.3 per cent. Kerosene prices also registered a decline of (-) 2.8 per cent (y-o-y).

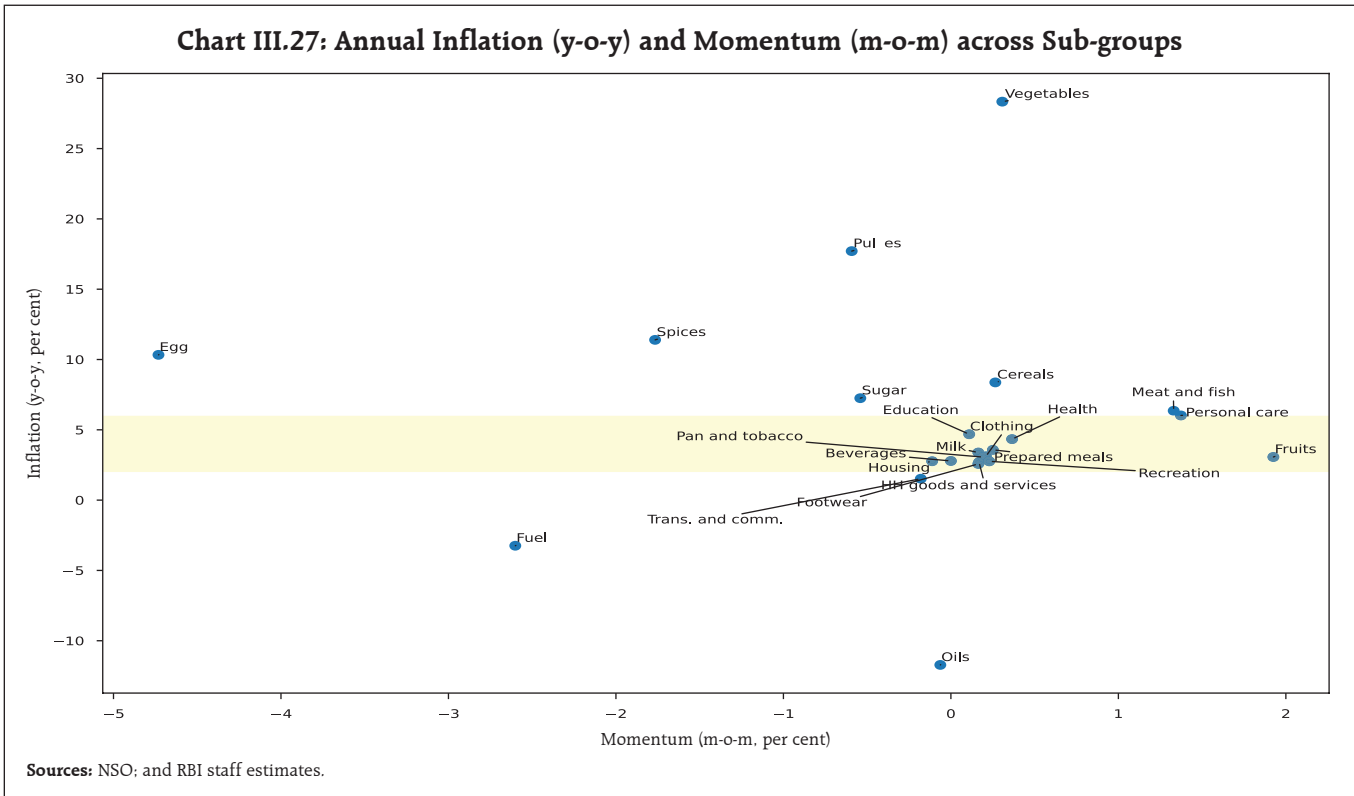
Core inflation eased further to 3.3 per cent in March from 3.4 per cent in February, the lowest in the current CPI (2012=100) series. The moderation was broad-based, with inflation softening across various sub-groups barring personal care and effects, and recreation and amusement (Chart III.28). The softening in transport and communications inflation reflected largely the impact of the cut in petrol and diesel prices in mid-March. Inflation in personal care and effects edged up due to a pick-up in gold prices.

In terms of regional distribution, while CPI-rural inflation increased by around 10 bps to 5.4 per cent in March, CPI-urban inflation moderated by 64 bps to 4.1 per cent. Most of the states continued to record inflation in the range of 4-6 per cent (Chart III.29).

Chart III.26: Trends and Drivers of CPI Inflation



¹⁵ As per the provisional data released by the NSO on April 12, 2024.



High frequency food price data for April so far (up to 19th) show that while cereal prices registered a modest

decline, pulses prices continued to edge up. Edible oil prices, which were on a declining trajectory since

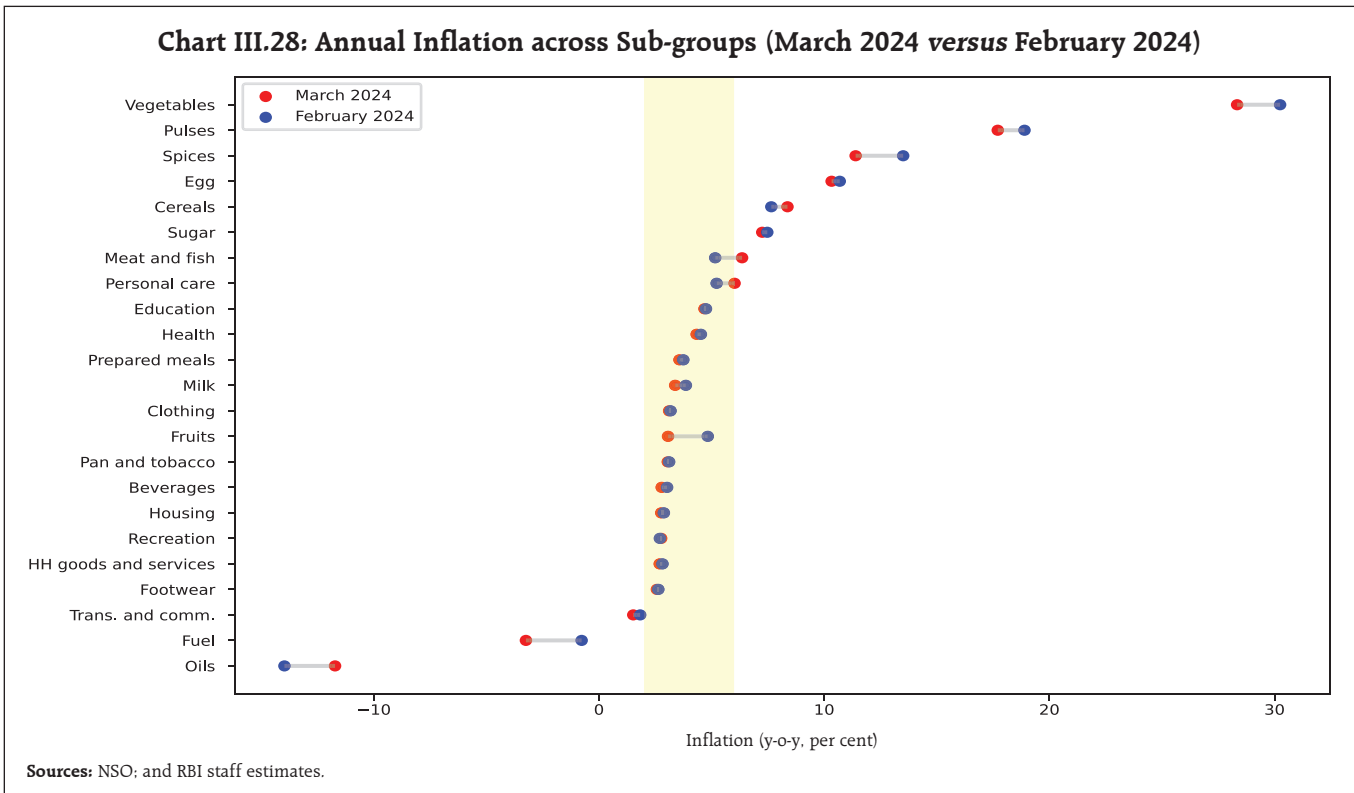
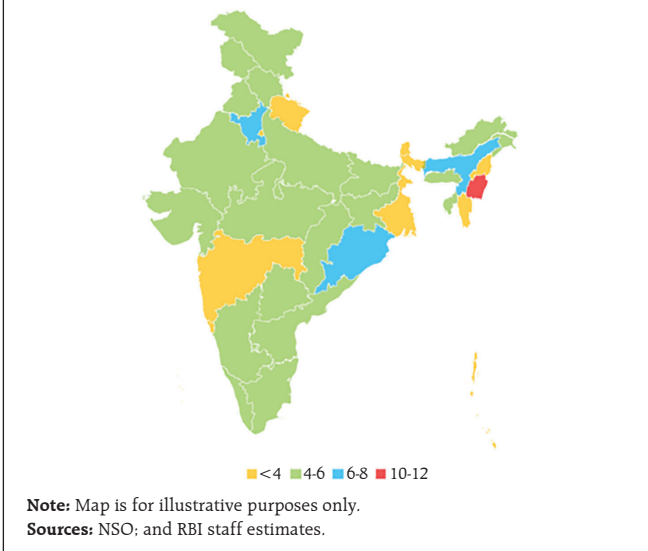


Chart III.29: Spatial Distribution of Inflation: March 2024 (CPI-Combined, y-o-y, per cent)

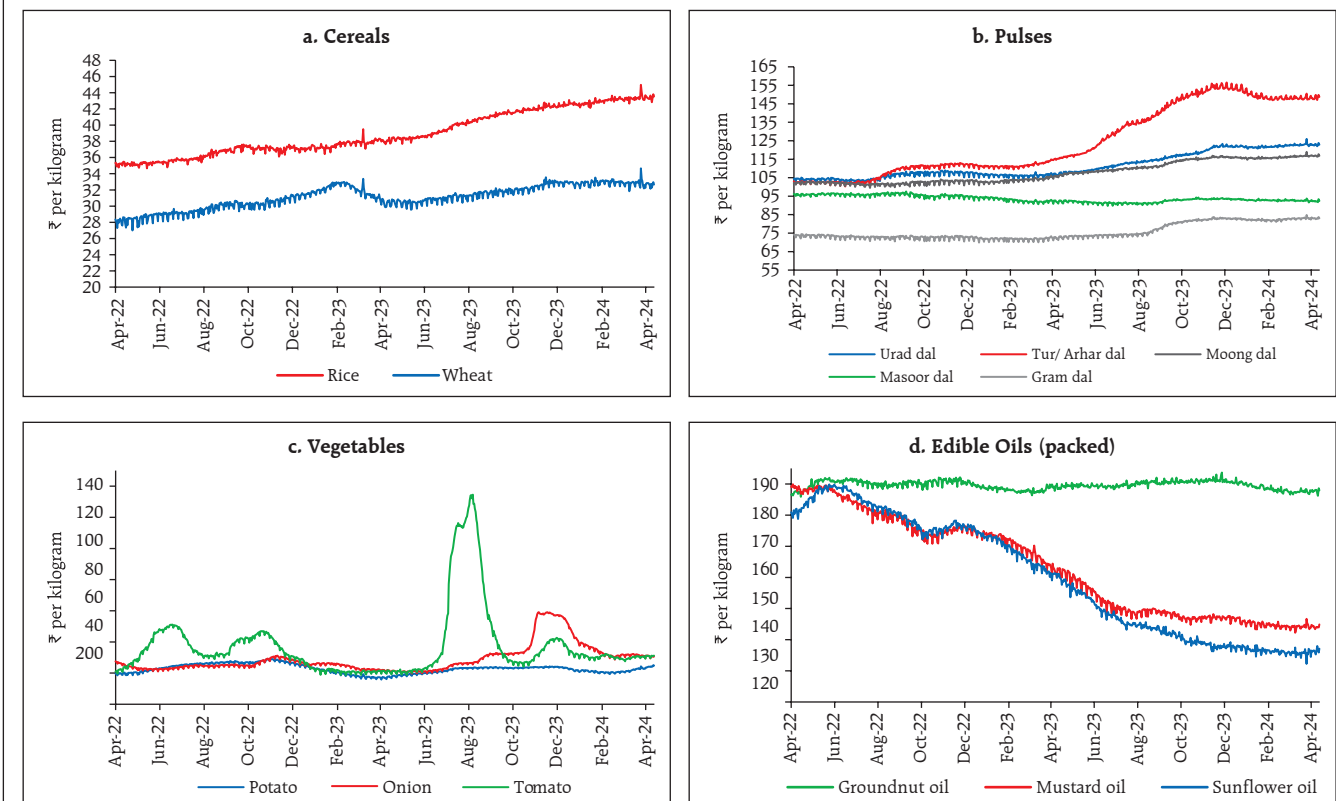


December 2022, witnessed a broad-based pick-up in prices in April. Among key vegetables, while tomato

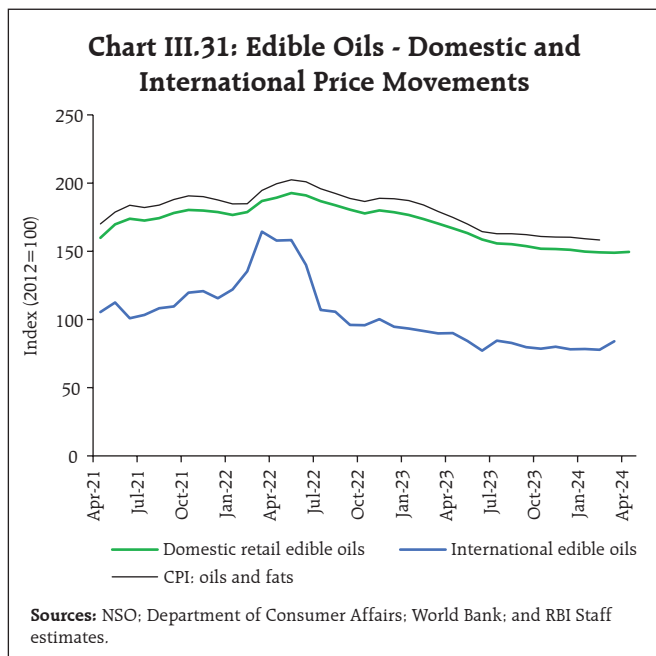
and potato prices displayed an uptick in April, onion prices corrected further (Chart III.30). In order to keep onion prices under check, the Government has directed the National Cooperative Consumers' Federation of India Ltd. (NCCF) and National Agricultural Cooperative Marketing Federation of India Ltd. (NAFED) to initiate procurement of 5 lakh tonnes of onion for buffer building directly from the farmers as *rabi* harvest started arriving in the market.

Domestic prices of edible oils were easing since December 2022 in line with moderation in international edible oil prices (Chart III.31). The sharp rise in international prices in March 2024 across all major edible oils has, however, led to an uptick in import prices. Risks also remain from the potential rise in local consumption of edible oils due to implementation of biodiesel mandates by major

Chart III.30: DCA Essential Commodity Prices



Sources: Department of Consumer Affairs, GoI; and RBI staff estimates.



exporters (e.g., Indonesia) which would constrain their exports and have implications for global prices.

Retail selling prices of petrol and diesel were reduced by ₹2 per litre each from March 15, 2024. Kerosene price, however, registered a modest increase in March. In April so far (up to 19th April), while kerosene prices declined marginally, other petroleum product prices remained unchanged (Table III.2).

Table III.2: Petroleum Products Prices

Item	Unit	Domestic Prices			Month-over-month (per cent)	
		Feb-24	Mar-24	Apr-24 [^]	Mar-24	Apr-24 [^]
Petrol	₹/litre	102.92	100.91*	100.91	-2.0	0.0
Diesel	₹/litre	92.72	90.72*	90.72	-2.2	0.0
Kerosene (subsidised)	₹/litre	49.43	49.79	49.57	0.7	-0.44
LPG (non-subsidised)	₹/cylinder	913.25	813.25**	813.25	-10.9	0.0

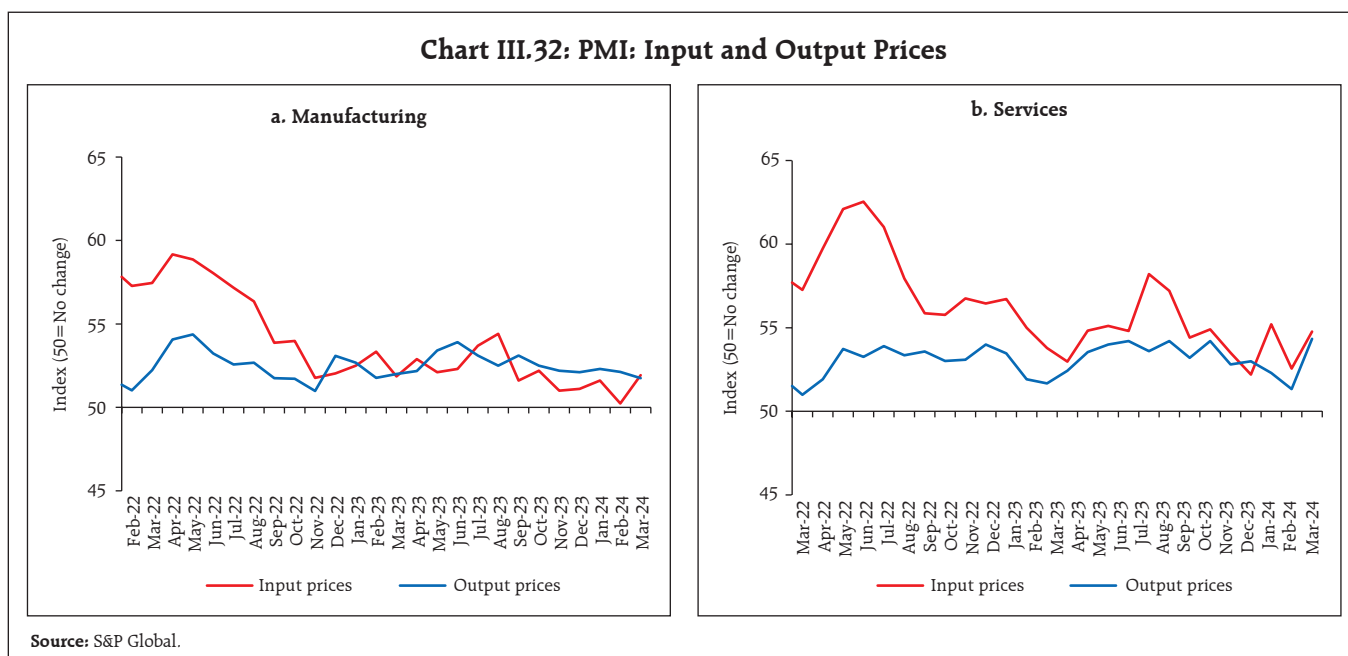
[^]: For the period April 1-19, 2024. *: Effective from March 15, 2024

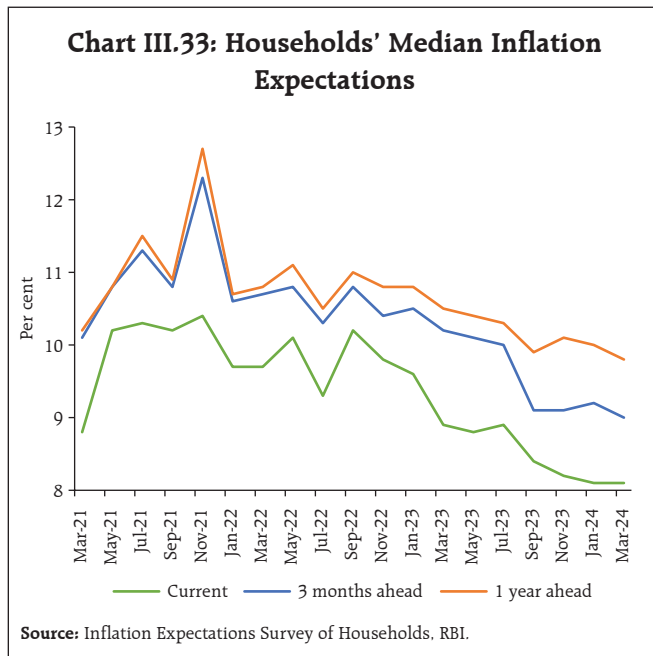
** : Effective from March 9, 2024

Note: Other than kerosene, prices represent the average Indian Oil Corporation Limited (IOCL) prices in four major metros (Delhi, Kolkata, Mumbai and Chennai). For kerosene, prices denote the average of the subsidised prices in Kolkata, Mumbai and Chennai. **Sources:** IOCL; Petroleum Planning and Analysis Cell (PPAC); and RBI staff estimates.

The PMIs for March 2024 indicated an uptick in input costs across manufacturing and service firms. Selling price increases for manufacturing firms slowed down in March, whereas price increases across services firms were at their fastest pace in six-and-a half years (Chart III.32).

In the latest bi-monthly round of the RBI's inflation survey, inflation expectations of households eased by 20 bps each for 3-month and one-year ahead horizons (Chart III.33).





IV. Financial Conditions

Liquidity conditions eased in March, with net liquidity adjustment facility (LAF) [including marginal standing facility (MSF)] injection narrowing to ₹0.29 lakh crore from ₹1.78 lakh crore in February 2024. Increased government spending and the RBI's market

operation smoothed system liquidity. While the buildup of government cash balances on account of GST collections and advance tax payments tightened liquidity intermittently, liquidity conditions turned into surplus towards March-end and early April in response to the increase in government spending. On a net basis, average absorption under the LAF amounted to ₹1.07 lakh crore during April 2024 (up to April 19) [Chart IV.1]. Anticipating the seasonal tightening of liquidity at end-March, the Reserve Bank injected liquidity through variable rate repo (VRR) main and fine-tuning operations. Overall, the Reserve Bank injected ₹4.16 lakh crore cumulatively into the banking system during March 16 - April 19, 2024. As a special case, standalone primary dealers (SPDs) were also allowed to participate in the 6-day VRR auction of ₹75,000 crore conducted on March 27, 2024 along with other eligible participants.

In April, the Reserve Bank conducted one main variable rate reverse repo (VRRR) of 14 days maturity and seven fine-tuning VRRR auctions of overnight

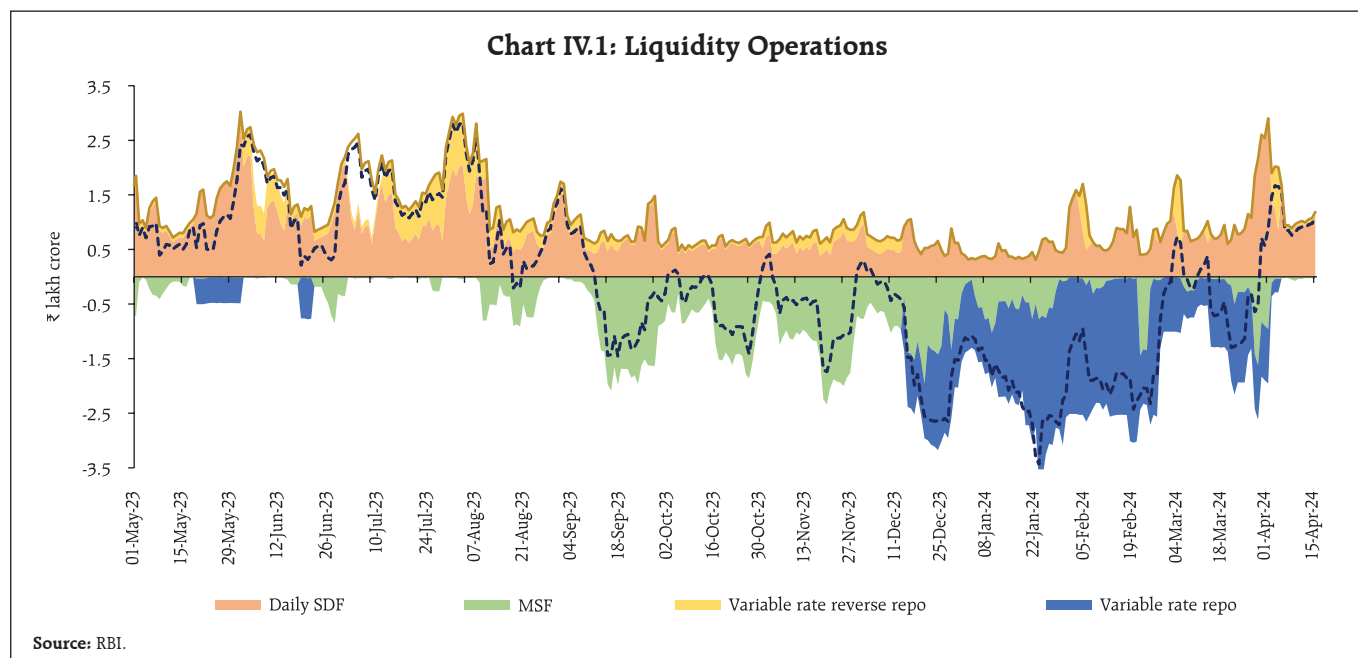
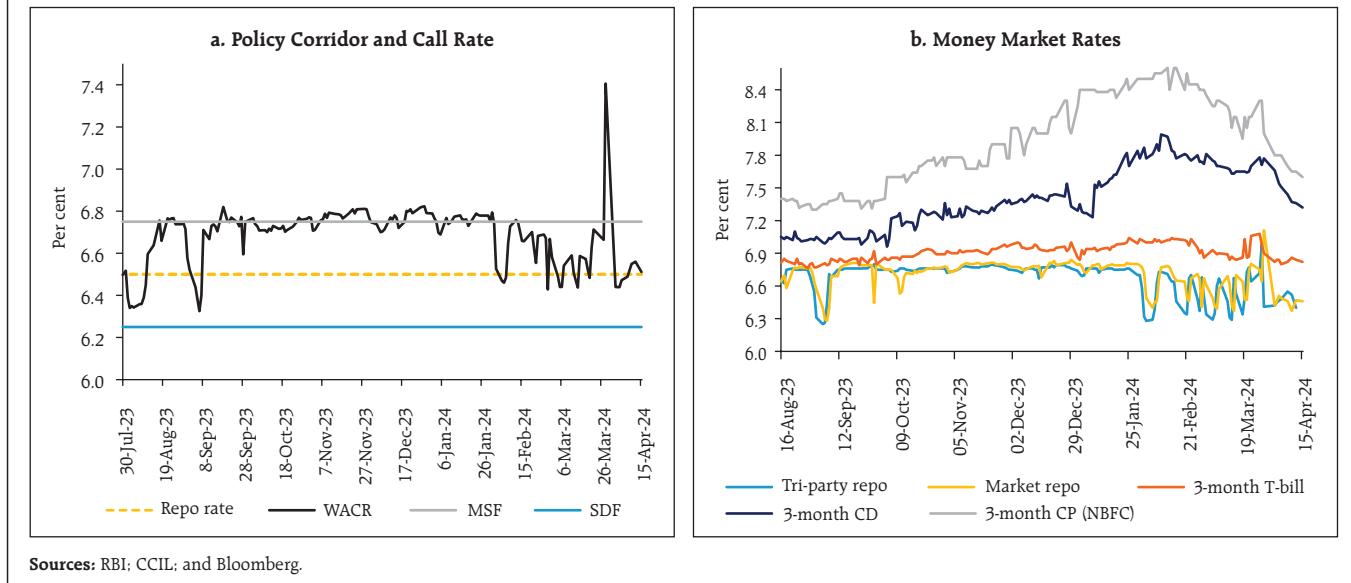


Chart IV.2: Policy Corridor and Money Market Rates



to three days maturity (up to April 19), cumulatively mopping up ₹2.29 lakh crore. As noted in an earlier edition of this article, banks have preferred to place funds under the overnight standing deposit facility (SDF) instead of long tenor VRRRs. Reflecting reluctance of banks to park surplus funds in longer tenors, the 14-day VRRR auction conducted on April 5, 2024 elicited a lukewarm response (offers received of ₹0.05 lakh crore as against the notified amount of ₹1.25 lakh crore). Of the average total absorption at ₹1.29 lakh crore during the second fortnight of March through April 19, 2024, placement of funds under the SDF constituted 90 per cent (₹1.16 lakh crore), while the remaining was absorbed through VRRR operations.

Reflecting these liquidity developments, the weighted average call rate (WACR) – the operating target of monetary policy – has remained within the policy corridor since the February policy meeting, barring the usual year-end spike. The WACR averaged 6.58 per cent during March 16 - April 19, 2024 as against 6.57 per cent during February 16-March 15,

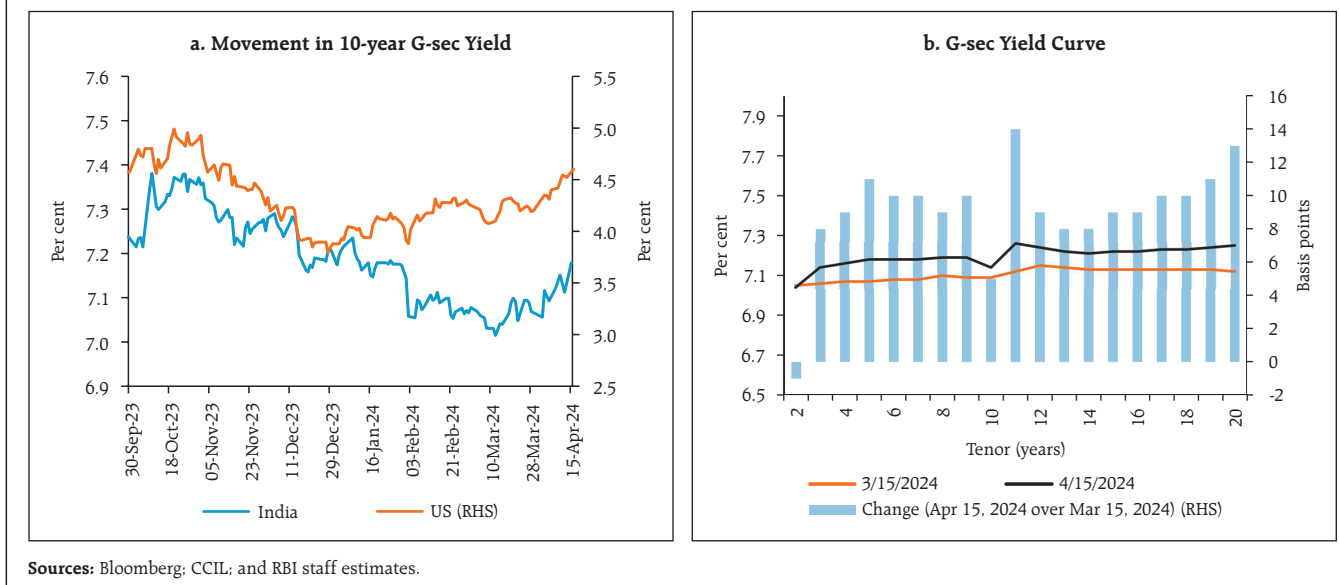
2024 (Chart IV.2a). Rates in the collateralised segment – the triparty and market repo rates – moved in tandem with the WACR (Chart IV.2b).

Across the term money market segment, yields on 3-month treasury bills (T-bills), certificates of deposit (CDs) and commercial papers (CPs) for non-banking financial companies (NBFCs) eased towards end-March and early April (Chart IV.2b). The average risk premia in the money market (3-month CP *minus* 91-day T-bill) reduced to 98 bps during March 16 - April 19, 2024 from 141 bps during February 16 - March 15, 2024. While short-term rates moved in tandem with the evolving liquidity developments, long-term rates remained largely stable.

In the primary market, resource mobilisation through CD issuances surged to ₹8.58 lakh crore during 2023-24, from ₹6.74 lakh crore a year ago, as deposit growth trailed credit growth. CP issuances remained largely steady at ₹13.75 lakh crore during 2023-24 (₹13.73 lakh crore in the previous year).

The yield on the Indian benchmark 10-year G-sec increased to 7.23 per cent on April 19, 2024 from 7.06

Chart IV.3: Developments in the G-sec Market



per cent on March 15, taking cues from the rise in US treasury yields (Chart IV.3a). The yield curve shifted upwards but remained relatively flat across the mid-to-long end of the term structure of maturities (Chart IV.3b).

Corporate bond yields generally softened and risk premia narrowed during March 16 to April 19, 2024. The average risk premia in the bond market

(the spread of AAA-rated 3-year corporate bond over 3-year G-sec yields) eased to 68 bps from 79 bps during February 16 - March 15, 2024 (Table IV.1). Funds mobilised through corporate bond issuances during 2023-24 (up to February) were higher at ₹7.4 lakh crore as compared to ₹6.7 lakh crore during the same period last year. Financial conditions remained conducive, as reflected in reduced term spread in the G-sec and bond market.

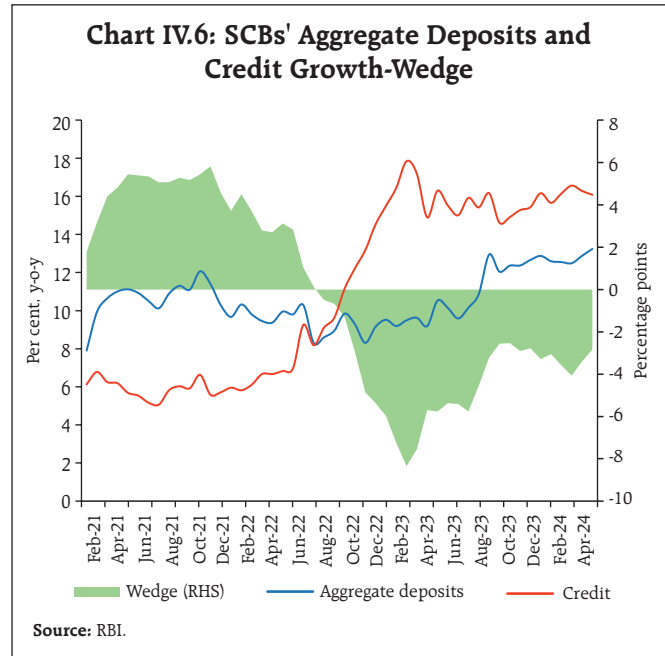
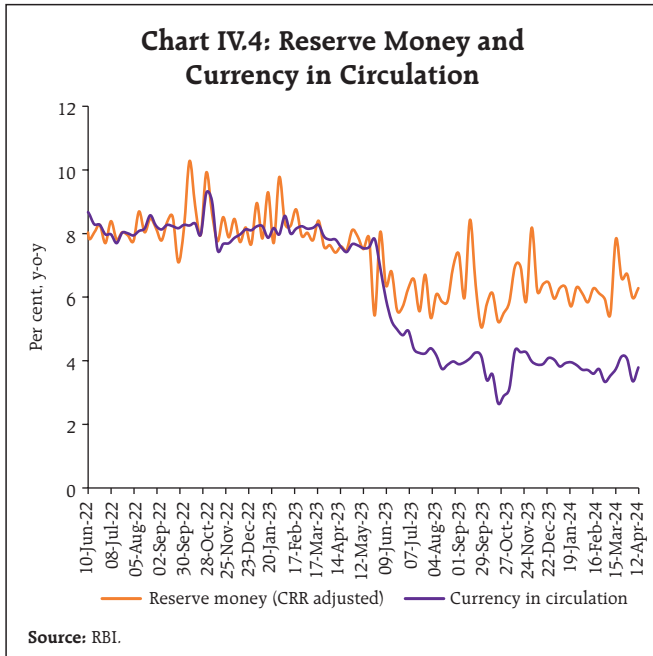
Reserve money (RM), excluding the first-round impact of changes in the cash reserve ratio (CRR) recorded a growth of 6.3 per cent (y-o-y) as on April 12, 2024 (7.5 per cent a year ago) [Chart IV.4]. Growth in currency in circulation (CiC), the largest component of RM, decelerated to 3.8 per cent from 7.4 per cent a year ago, reflecting the withdrawal of ₹2000 banknotes¹⁶ – 97.7 per cent has been returned to the banking system, mostly in the form of deposits (as on March 29, 2024).

Table IV.1: Financial Markets - Rates and Spread

Instrument	Interest Rates (per cent)			Spread (bps) (Over Corresponding Risk-free Rate)		
	Feb 16, 2024 – Mar 15, 2024	Mar 16, 2024 – Apr 19, 2024	Variation	Feb 16, 2024 – Mar 15, 2024	Mar 16, 2024 – Apr 19, 2024	Variation
1	2	3	(4 = 3-2)	5	6	(7 = 6-5)
Corporate Bonds						
(i) AAA (1-year)	8.01	7.86	-15	79	70	-9
(ii) AAA (3-year)	7.96	7.89	-7	79	68	-11
(iii) AAA (5-year)	7.81	7.79	-2	63	55	-8
(iv) AA (3-year)	8.54	8.48	-6	138	126	-12
(v) BBB- (3-year)	12.19	12.09	-10	502	487	-15

Note: Yields and spreads are computed as averages for the respective periods.
Sources: FIMMDA; and Bloomberg.

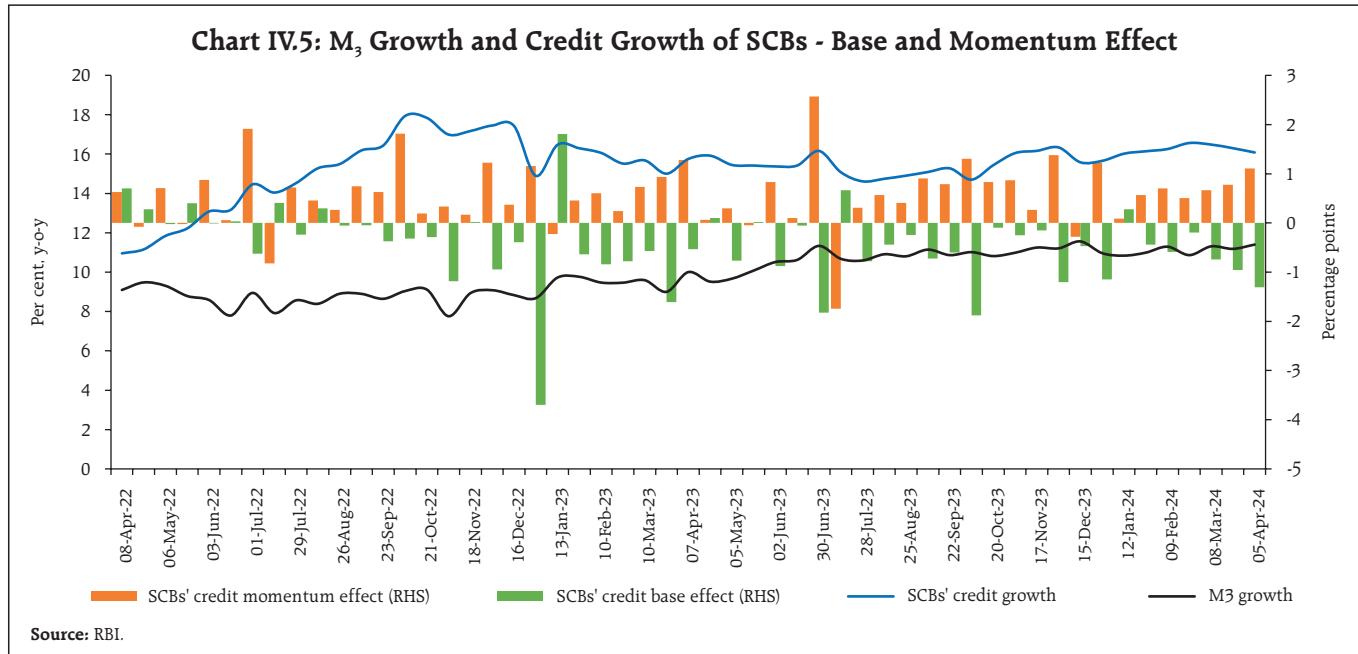
¹⁶ Announced on May 19, 2023.



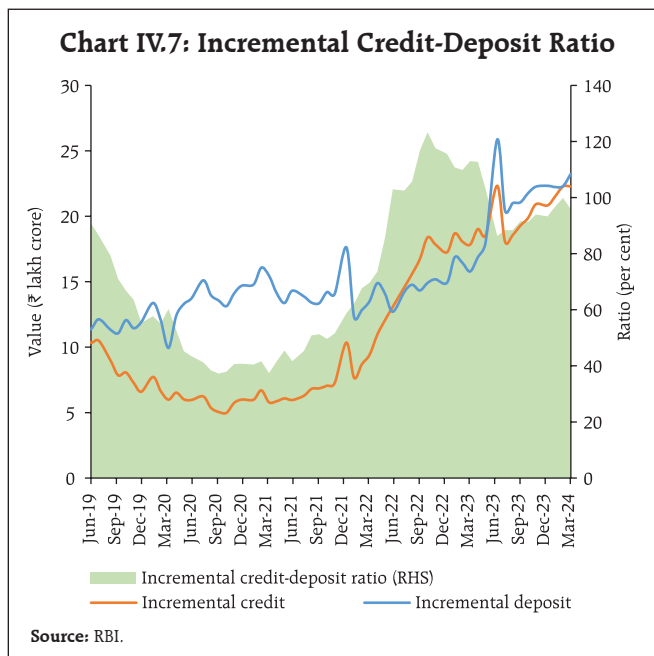
Money supply (M_3) rose by 11.4 per cent (y-o-y) as on April 5, 2024 (10.0 per cent a year ago).¹⁷ Aggregate deposits with banks, the largest component of M_3 , increased by 12.6 per cent (9.8 per cent a year ago). Scheduled commercial banks' (SCBs') credit growth

stood at 16.1 per cent as on April 5, 2024 (15.8 per cent a year ago) [Chart IV.5].

SCBs' deposit growth (excluding the impact of the merger) remained in double digits in March 2024 (Chart IV.6). As on March 22, 2024, the system level



¹⁷ Excluding the impact of the merger of a non-bank with a bank (with effect from July 1, 2023).



incremental credit-deposit ratio stood at 95.9 per cent (Chart IV.7).

With the statutory requirements for CRR and Statutory Liquidity Ratio (SLR) at 4.5 per cent and 18 per cent, respectively, around 77 per cent of deposits were available with the banking system for funding credit expansion as on March 31, 2024. The deposit base was supplemented by CD issuances (Chart IV.8).

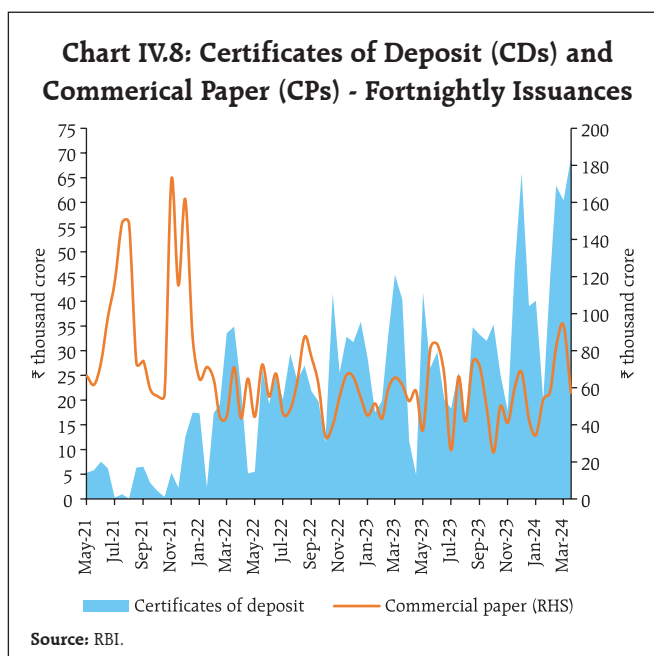


Table IV.2: Transmission to Banks' Deposit and Lending Rates

(Variation in bps)

Period	Repo Rate (bps)	Term Deposit Rates		Lending Rates			
		WADTDR - Fresh Deposits	WADTDR - Outstanding Deposits	EBLR	1-Yr. MCLR (Median)	WALR - Fresh Rupee Loans	WALR - Outstanding Rupee Loans
Easing Period Feb 2019 to Mar 2022	-250	-259	-188	-250	-155	-232	-150
Tightening Period May 2022 to Feb 2024	+250	241	183	250*	167*	185	111

Notes: Data on EBLR pertain to 32 domestic banks.

*: Data on EBLR and MCLR pertain to March 2024.

WALR: Weighted Average Lending Rate. WADTDR: Weighted Average Domestic Term Deposit Rate; MCLR: Marginal Cost of Funds-based Lending Rate; EBLR: External Benchmark based Lending Rate.

Source: RBI.

In response to the 250 bps increase in policy repo rate, the external benchmark-based lending rate (EBLR) increased by a similar magnitude. Concomitantly, the weighted average lending rate (WALR) on fresh and outstanding rupee loans increased by 185 bps and 111 bps, respectively, during May 2022 to February 2024. In case of deposits, the weighted average domestic term deposit rates (WADTR) on fresh and outstanding deposits increased by 241 bps and 183 bps, respectively, during the same period (Table IV.2). The 1-year median marginal cost of funds-based lending rate (MCLR) increased by 167 bps, during May 2022 to March 2024.

Transmission across bank groups indicates that the increase in the deposit and lending rates was higher in the case of public sector banks (PSBs), except for outstanding loans, during May 2022 to February 2024 (Chart IV.9). The lending rates of PSBs continued to remain lower than those of private banks while their deposit rates were higher.

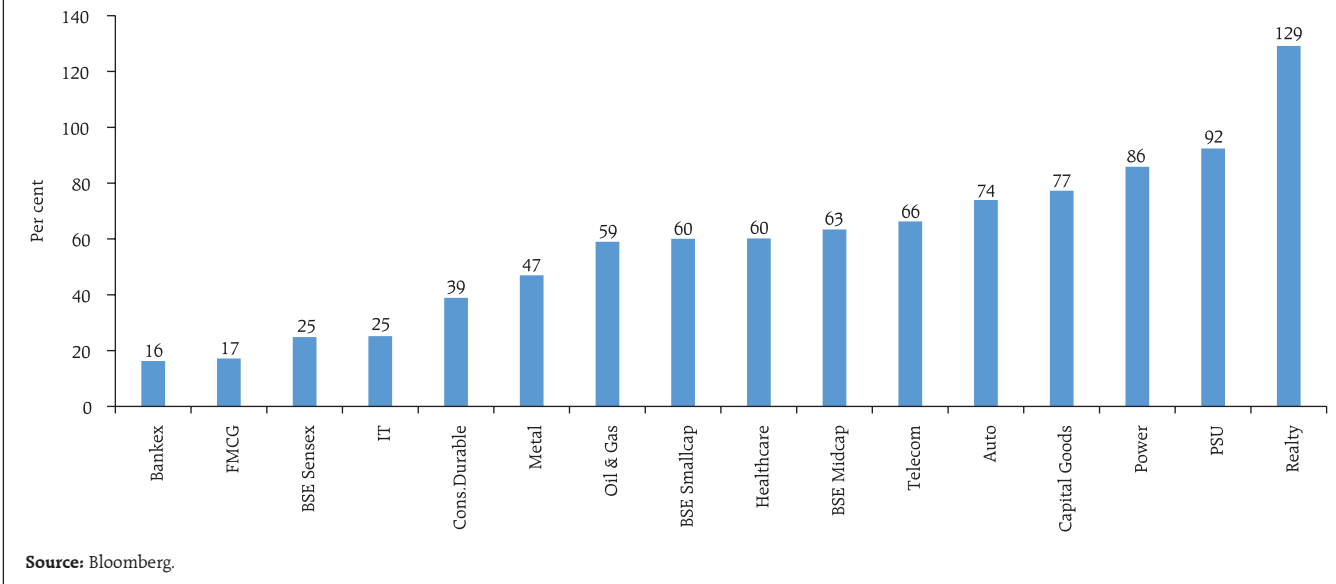
Chart IV.9: Transmission across Bank-groups (May 2022 to February 2024)



On March 08, 2024 the Government of India kept interest rates on small savings schemes unchanged for Q1:2024-25. Based on the moderation in G-Sec yields of comparable maturity, the announced rates are now aligned to the formula-based rates. However, they remained lower for public provident funds and 5-year recurring deposit accounts.¹⁸

Domestic equity markets declined initially during the second half of March amidst caution ahead of the Fed’s monetary policy decision but recovered subsequently following dovish signals from the US Fed. Equity markets witnessed stellar gains in 2023-24 across sectors, with realty and PSU indices registering the maximum gains (Chart IV.10). Markets

Chart IV.10: Performance of Equity Market Indices in 2023-24

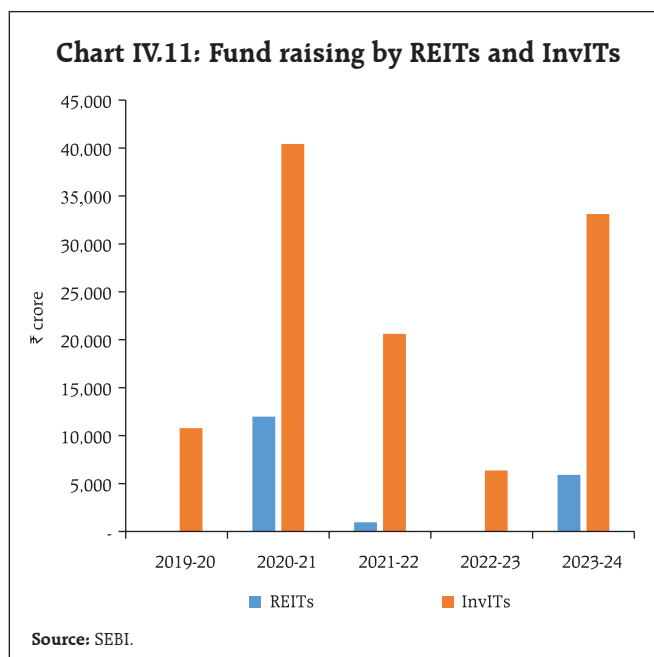


¹⁸ Monetary Policy Report- April 2024.

started the new financial year on a positive note and scaled fresh highs amidst strong domestic and global macroeconomic readings along with optimism over the corporate earnings season. However, markets declined thereafter, tracking negative global cues following higher-than-expected inflation figures in the US and escalation of geopolitical tensions in the Middle East. Overall, the BSE Sensex increased by 0.6 per cent since March 15, 2024 to close at 73,088 on April 19, 2024.

India has been a late adopter of real estate investment trusts (REITs) and infrastructure investment trusts (InvITs); however, the market is flourishing - REITs and InvITs have mobilised ₹1.3 lakh crore since 2019-20 (up to March 2024) [Chart IV.11]. March witnessed the listing of an InvIT, which raised ₹2,500 crore through a public issue, attracting substantial interest from foreign investors.¹⁹

The SEBI has progressively reduced the minimum investment size and trading lot, enabling greater retail



¹⁹ <https://economictimes.indiatimes.com/markets/stocks/news/fpis-lap-up-reits-invits-wrap-up-earlier-commitments/articleshow/108477719.cms?from=mdr>

participation in these hybrid instruments. To further develop this space, the market regulator notified regulations for small and medium REITs²⁰ on March 8, 2024. This is expected to facilitate pooled investment in a wider range of real estate assets as a regulated financial product, thereby facilitating further growth of REITs in India.

India has introduced a beta version of the T+0 rolling settlement cycle on an optional basis, in addition to the existing T+1 settlement cycle in equity cash markets for a limited set of scrips effective from March 28, 2024.²¹ This marks a landmark in the progress of settlement and clearing timelines relative to global financial markets, showcasing India's Market Infrastructure Institutions' (MIIs) global leadership in the digital ecosystem.

Investment in the equity segment by mutual funds (MFs) witnessed a new record in March 2024 on the back of consistent net inflows in equity-oriented MF schemes²², especially in the smallcap and midcap schemes in the recent period (Chart IV.12). Stress tests of the liquidity profile of the portfolios of these schemes suggest that midcap schemes are relatively better placed than smallcap schemes to meet sudden redemption pressures.²³

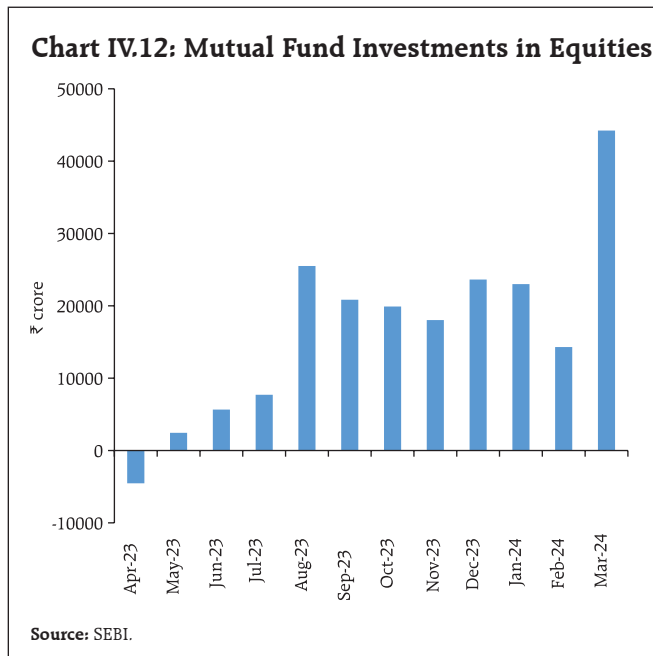
Gross inward foreign direct investment (FDI) stood at US\$ 65.0 billion during April-February 2023-24 compared to US\$ 66.8 billion in the corresponding period a year ago (Chart IV.13a). More than 60

²⁰ https://www.sebi.gov.in/legal/regulations/mar-2024/securities-and-exchange-board-of-india-real-estate-investment-trusts-amendment-regulations-2024_82138.html

²¹ https://www.sebi.gov.in/legal/circulars/mar-2024/introduction-of-beta-version-of-t-0-rolling-settlement-cycle-on-optional-basis-in-addition-to-the-existing-t-1-settlement-cycle-in-equity-cash-markets_82455.html

²² https://www.business-standard.com/markets/mutual-fund/mutual-funds-pump-record-rs-45-000-crore-into-domestic-stocks-in-march-124040200995_1.html

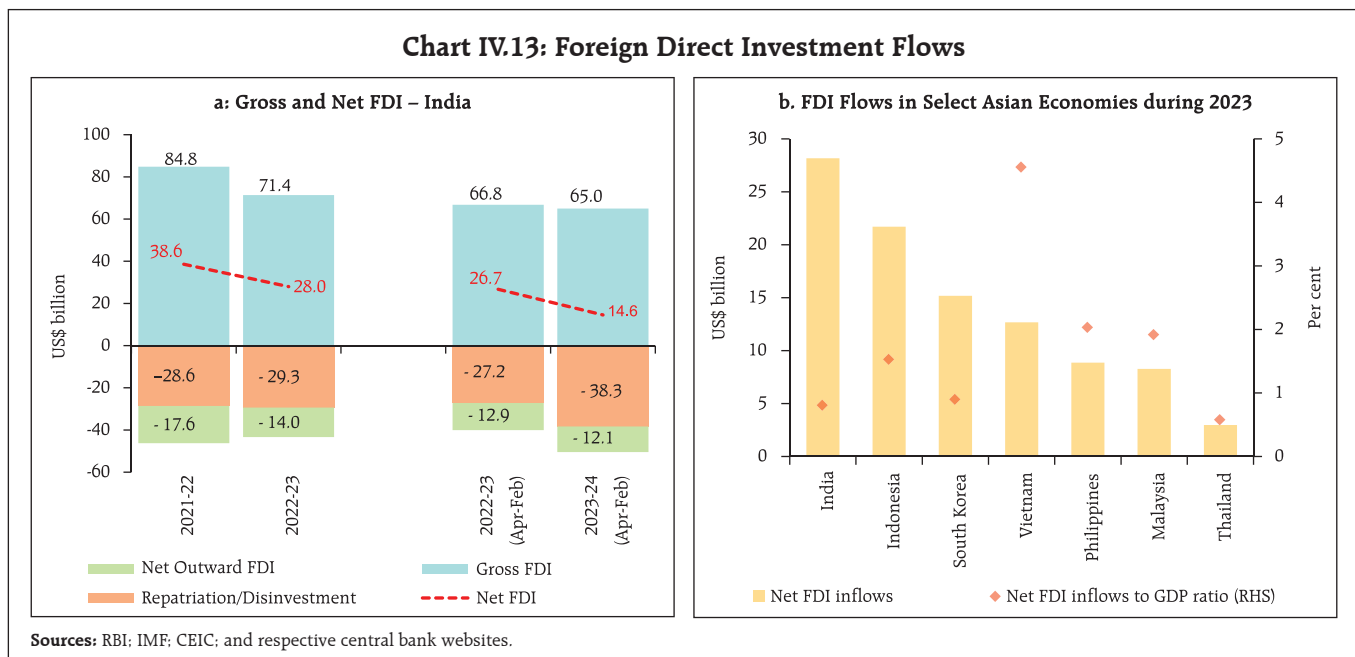
²³ <https://www.moneycontrol.com/news/business/personal-finance/stress-test-of-mutual-funds-winners-and-losers-in-round-1-12469231.html>



per cent of the FDI equity flows were directed towards manufacturing, computer services, electricity and other energy, retail and wholesale trade, and financial services. The major source countries were

Singapore, Mauritius, the US, the Netherlands, Japan and the UAE, accounting for around 80 per cent of the flows. Net FDI stood at US\$ 14.6 billion during April-February 2023-24 compared to US\$ 26.7 billion a year ago, primarily due to an increase in repatriation.

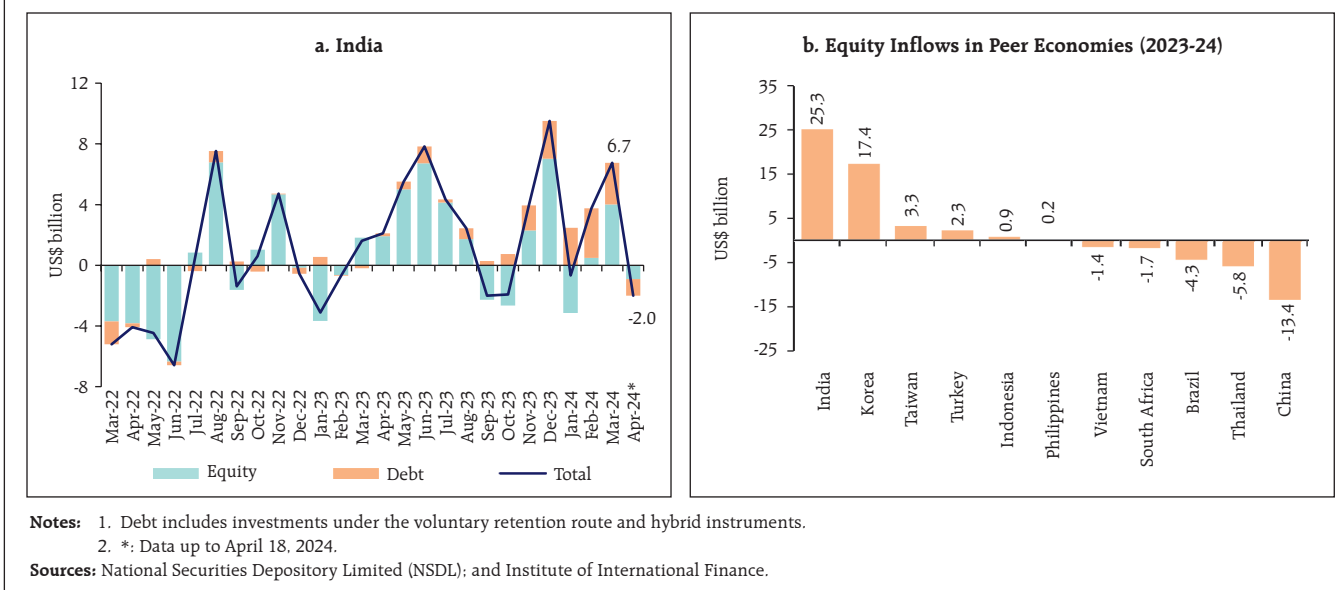
A recent UNCTAD report estimated a modest rise in global FDI flows in 2023 over 2022, driven by two European countries²⁴; however, excluding these countries, global FDI flows declined by about 18 per cent in 2023. Amidst an uncertain global investment environment, India held its position as a favourable investment destination among peer Asian economies in 2023 (Chart IV.13b). India ranked fourth among EMEs in the 2024 FDI Confidence Index²⁵, reflecting continued optimism over its growth potential. Additionally, India has signed a Trade and Economic Partnership Agreement (TEPA)



²⁴ According to the UNCTAD Global Investment Trends Monitor (January 2024), global FDI flows rose modestly by 3 per cent in 2023 over 2022, due to high FDI inflows in certain European economies, including Luxembourg and the Netherlands.

²⁵ As per Kearney's Global Business Policy Council Research report.

Chart IV.14: Net Portfolio Investments



with the European Free Trade Association (EFTA), which includes investment commitments.²⁶

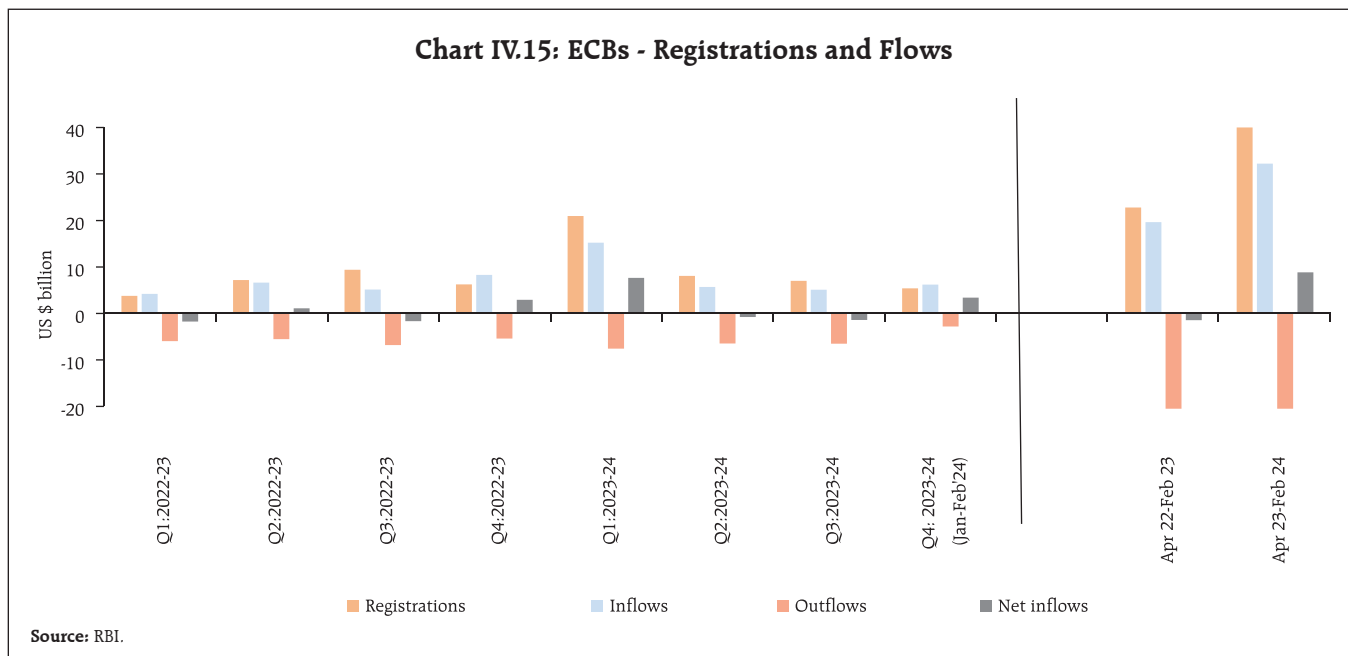
Foreign portfolio investment (FPI) flows to India remained positive in March 2024. Net FPI inflows were to the tune of US\$ 6.7 billion in March 2024, with inflows in both equity (US\$ 4.0 billion) and debt (US\$ 2.7 billion) segments (Chart IV.14a). Cumulatively, net FPI inflows at US\$ 41.6 billion in 2023-24 were the highest since 2015-16. The debt segment recorded net inflows of US\$ 16.4 billion during 2023-24, the highest since 2018-19, while net FPI inflows in the equity segment were to the tune of US\$ 25.3 billion, the highest among emerging market peers (Chart IV.14b). Financial services, automobile and auto components, healthcare, and capital goods were the major sectors attracting equity inflows during 2023-24. In April 2024 (up to April 18), net FPI outflows were recorded to the tune of US\$ 2.0 billion.

²⁶ The recently signed TEPA with EFTA, comprising of Switzerland, Norway, Liechtenstein and Iceland includes commitment of investment worth US\$ 100 billion and 1 million direct jobs in the coming 15 years.

Net accretions to non-resident deposits at US\$ 11.8 billion during April - February 2023-24 were higher than US\$ 6.4 billion a year ago, mainly led by an increase in net accretions to Foreign Currency Non-Resident [FCNR(B)] accounts and Non-Resident (External) Rupee Accounts [NR(E)A].

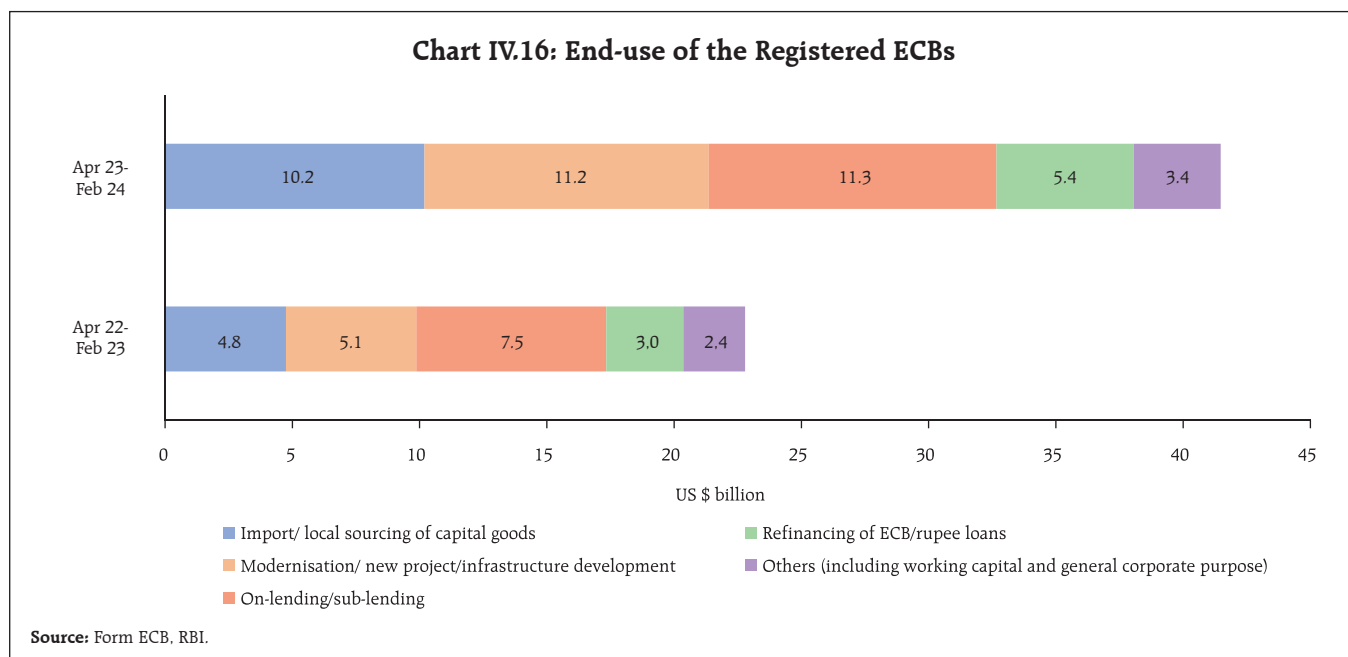
During Q4:2023-24 so far (up to February), external commercial borrowing (ECB) registrations amounted to US\$ 5.4 billion and net ECBs turned positive after two successive quarters of negative flows. On a cumulative basis, ECB registrations (US\$ 41.5 billion) and gross disbursements (US\$ 32.2 billion) during the first eleven months of 2023-24 were higher than the corresponding period of the previous year. On a net basis, ECB inflows stood at US\$ 8.8 billion as compared with net outflows of US\$ 1.5 billion in the corresponding period last year (Chart IV.15).

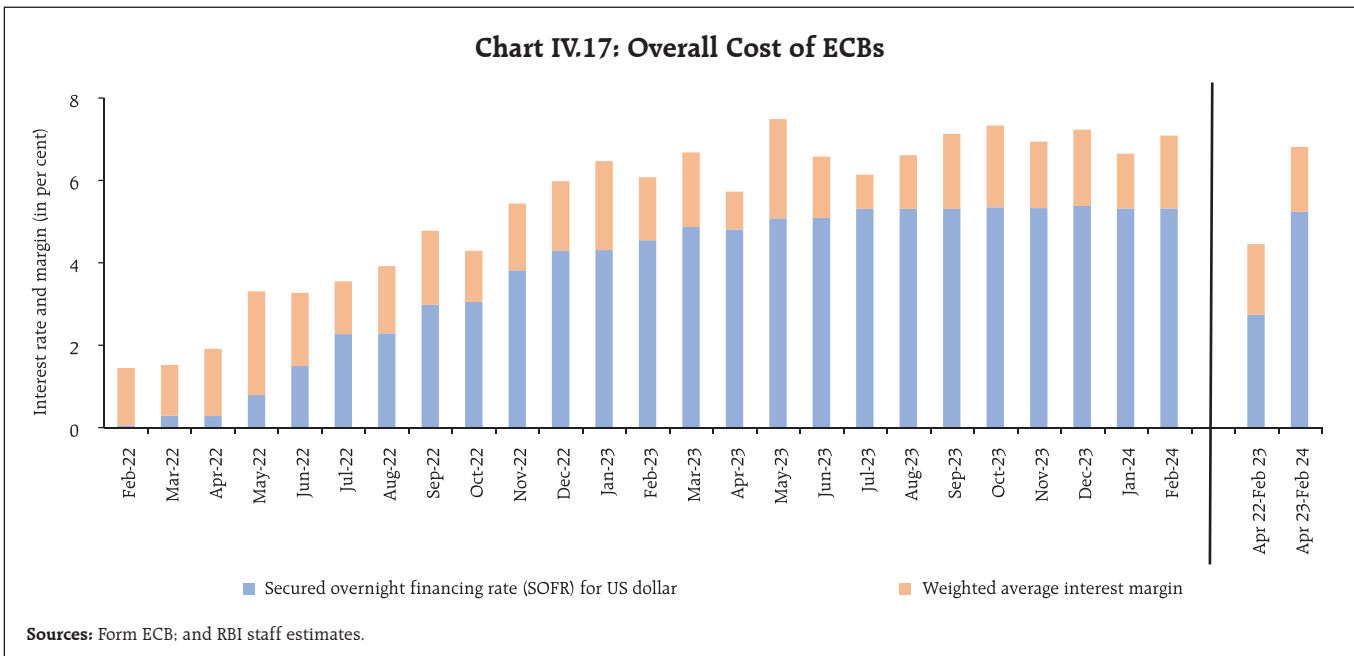
Of the total ECBs registered during April 2023 - February 2024, nearly 80 per cent were related to capital expenditure (including on-lending and sub-lending) [Chart IV.16].



Global benchmark rates such as the secured overnight financing rate (SOFR) have stabilised, *albeit* at elevated levels. The monthly weighted average interest margins (WAIM) over the benchmark rates, however, have moved in a wider range of 0.83-1.98 per cent since July 2023 relative to the benchmark rates (Chart IV.17).

India's net international investment position improved by US\$ 12.2 billion to US\$ (-) 370.4 billion during October-December 2023 on the back of a rise in Indian residents' overseas financial assets (Chart IV.18). As a result, the ratio of India's international financial assets to international financial liabilities improved to 72.4 per cent in

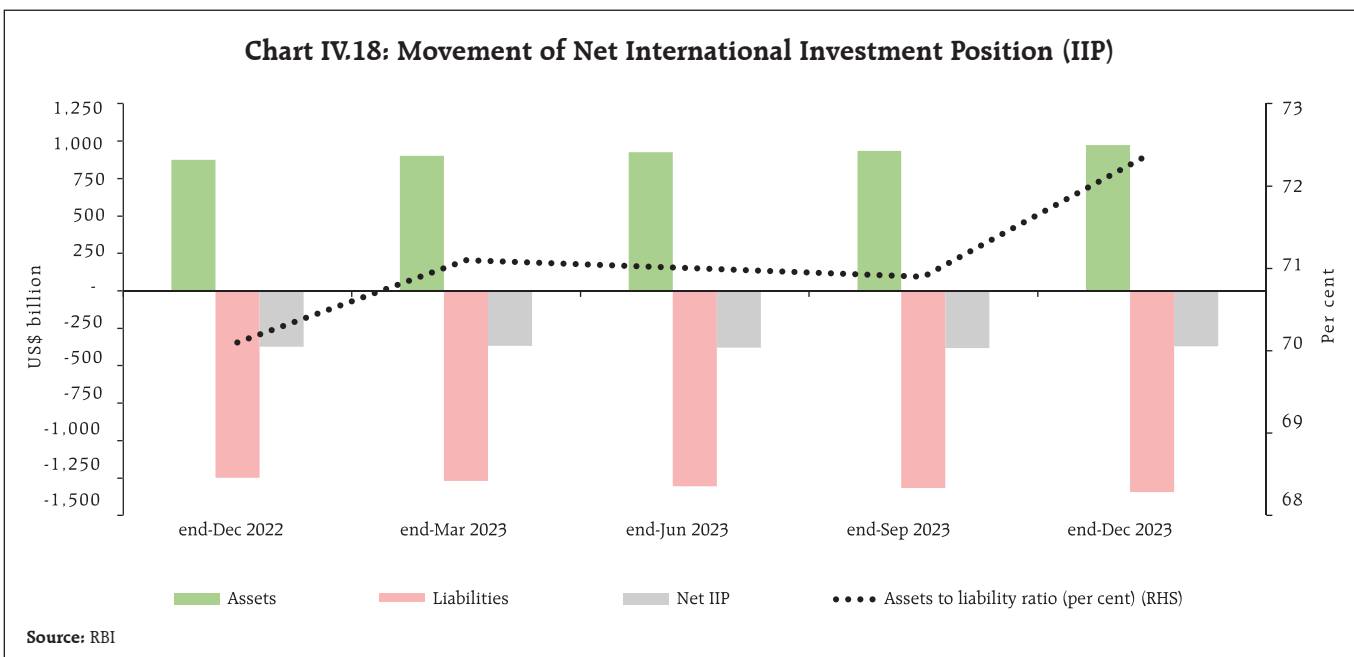


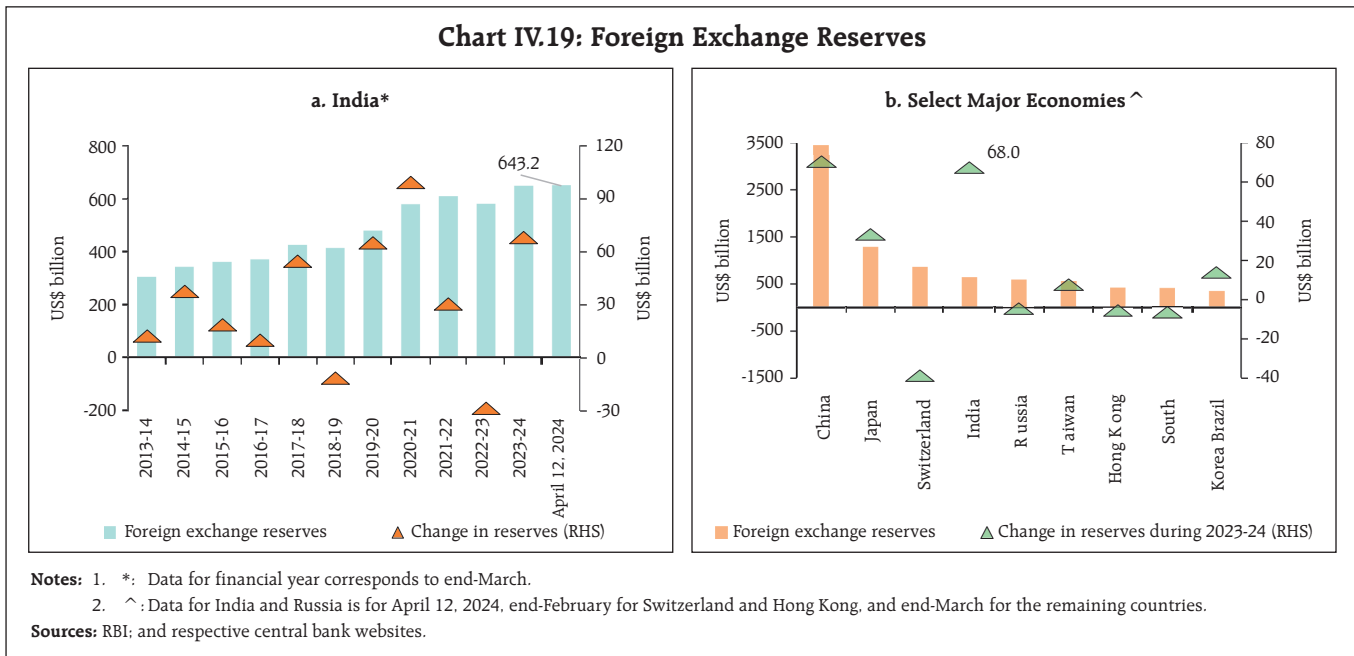


December 2023 from 70.9 per cent a quarter ago. Reserve assets recorded a significant rise (US\$ 34.8 billion) during Q3:2023-24 and accounted for 63.9 per cent of India's international assets in December 2023.

India's foreign exchange reserves reached an all-time high of US\$ 648.6 billion on April 5, 2024. As on April 12, 2024, India's foreign exchange reserves

stood at US\$ 643.2 billion, sufficient to cover for 99 per cent of total external debt outstanding at end-December 2023. (Chart IV.19a). India's foreign exchange reserves increased by US\$ 68.0 billion during 2023-24, the second highest increase among major foreign exchange reserves holding countries (Chart IV.19b).





The Indian rupee (INR) depreciated marginally by 0.04 per cent (m-o-m) *vis-à-vis* the US dollar in March 2024 while remaining one of the least volatile major currencies (Chart IV.20).

The INR depreciated by 0.3 per cent (m-o-m) in terms of the 40-currency real effective exchange rate (REER) as negative relative price differentials more

than offset the appreciation of the INR in nominal effective terms in March 2024 (Chart IV.21).

India's current account deficit (CAD) improved to 1.2 per cent of GDP in Q3:2023-24 from 1.3 per cent in Q2:2023-24 and 2.0 per cent in Q3:2022-23. Robust services exports and strong remittance receipts eased merchandise import pressures on the current account

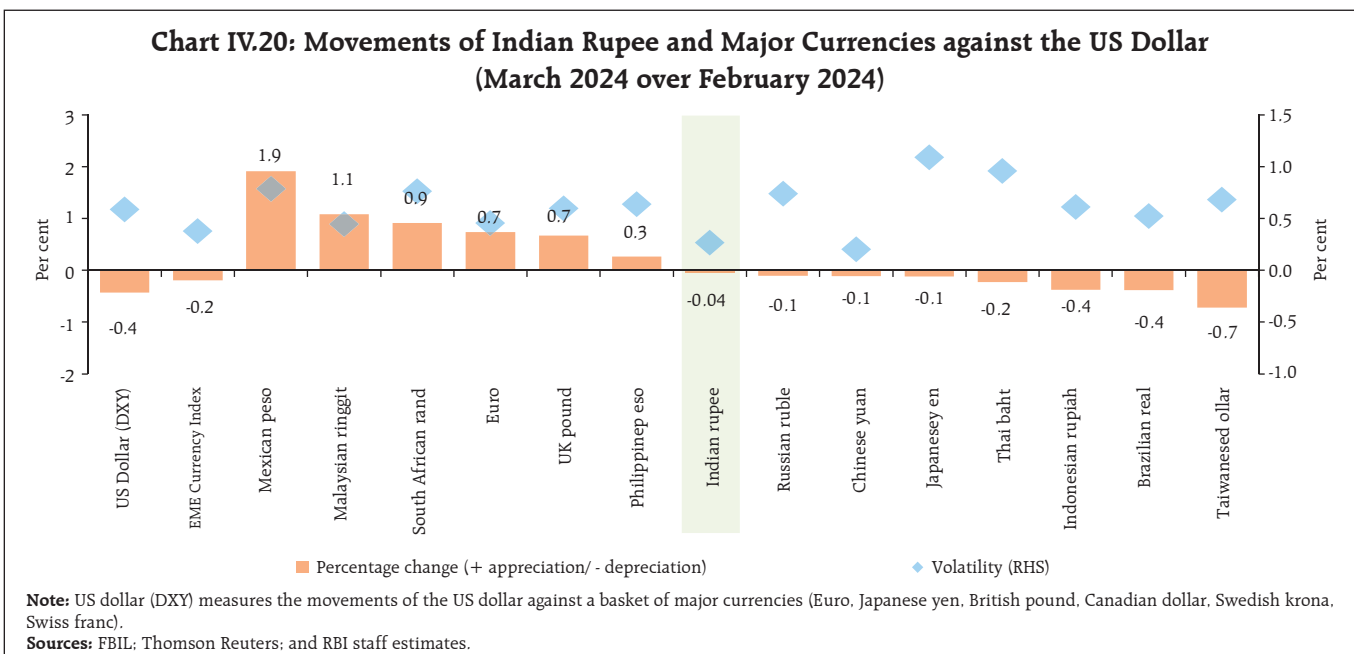
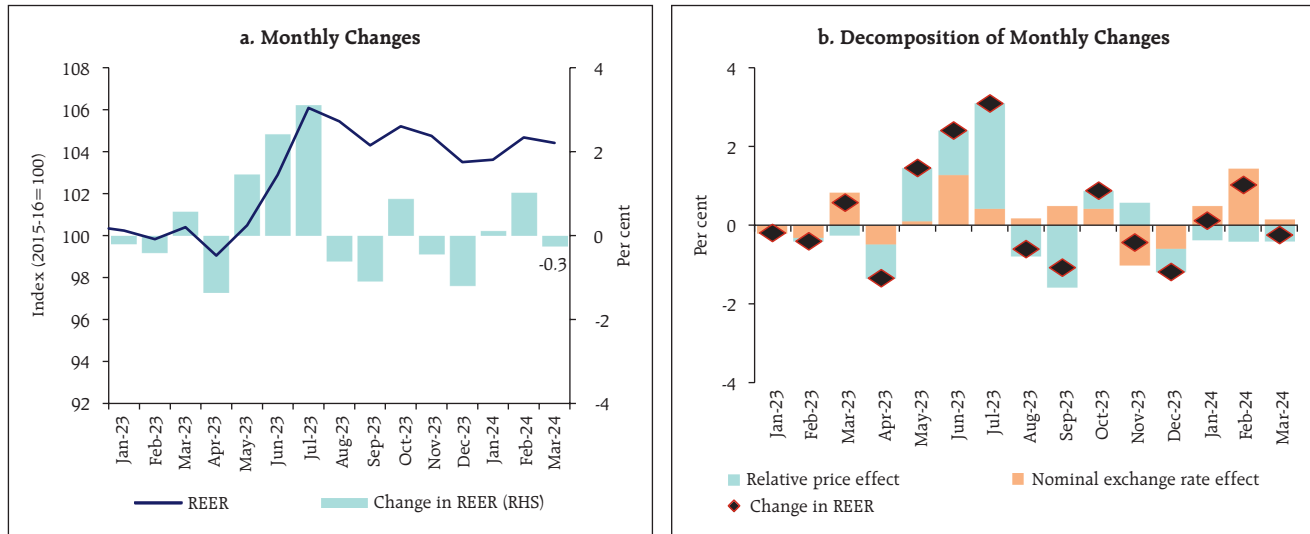


Chart IV.21: Movements in the 40-Currency Real Effective Exchange Rate

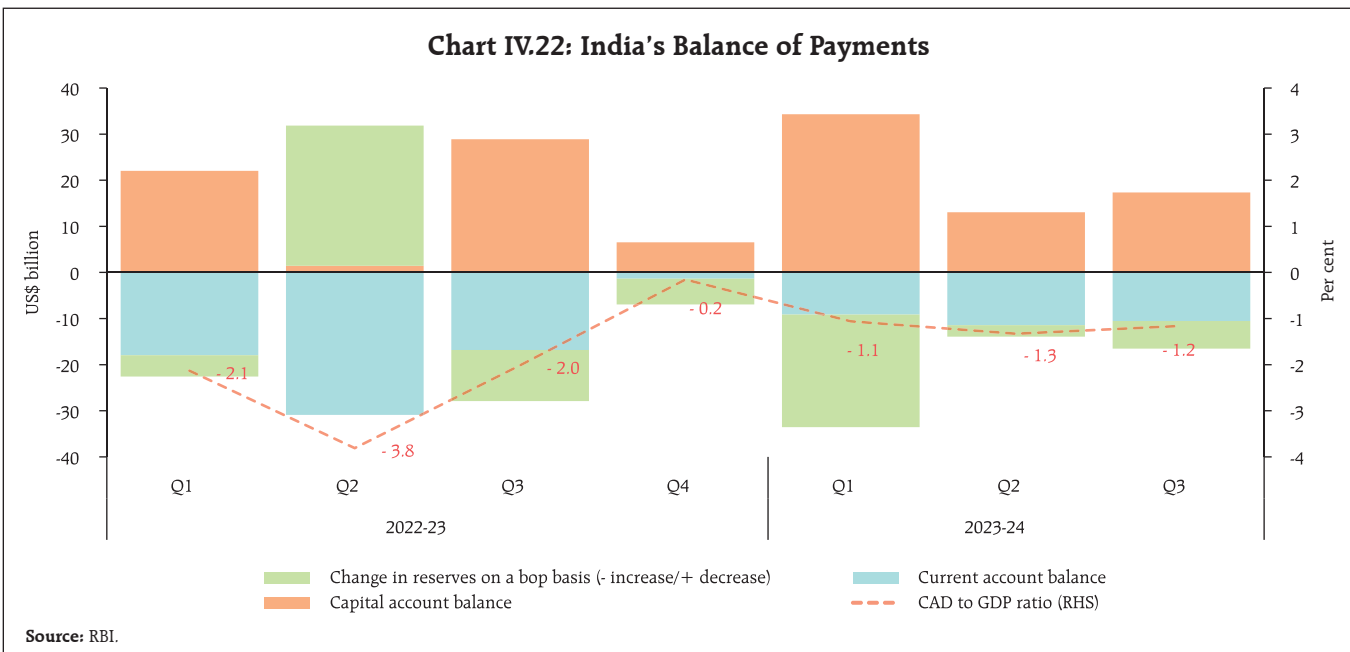


Source: RBI.

in Q3:2023-24. Net capital inflows exceeded the CAD, supported by robust FPI and banking capital, leading to an accretion of foreign exchange reserves on a balance of payment (BoP) basis (excluding valuation effects) to the tune of 6.0 billion during the quarter (Chart IV.22).

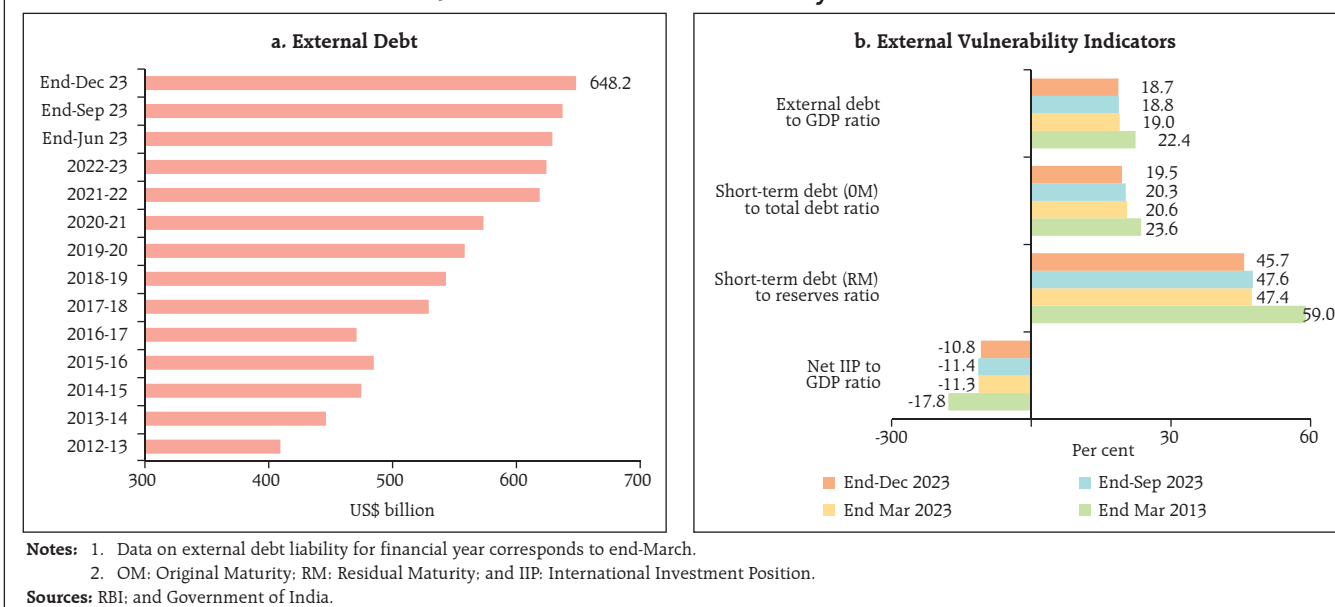
At end-December 2023, India's external debt stood at US\$ 648.2 billion (Chart IV.23a); the external debt to GDP ratio declined to 18.7 per cent at end-December 2023 (at end-September 2023 it was 18.8 per cent). India's external sector exhibited resilience, indicated by sustainable levels of key

Chart IV.22: India's Balance of Payments



Source: RBI.

Chart IV.23: External Sector Vulnerability Indicators: India



vulnerability indicators at end-December 2023 (Chart IV.23b).

Payment Systems

Digital transactions grew across different payment modes in March 2024, led by retail transactions through the Unified Payments Interface (UPI), the National Electronic Funds Transfer (NEFT) and the Bharat Bill Payment System (BBPS) [Table IV.3]. Large-value transactions through the Real Time Gross Settlement (RTGS) showed accelerated growth

(y-o-y) in volume and value terms. UPI achieved a significant milestone of 13.4 billion transactions in March 2024, thereby adding another billion to its tally. Mobile transactions in the retail segment experienced consistent growth, propelled by person-to-merchant (P2M) transactions which accounted for 61.7 per cent of the total volume compared to 55.6 per cent a year ago. The transaction category upto ₹500 drove this surge, leading to a fall in the average UPI transaction size.²⁷ This indicated heightened digital payment

Table IV.3: Growth in Select Payment Systems

(y-o-y in per cent)

Payment System Indicators	Transaction Volume				Transaction Value			
	Feb-23	Feb-24	Mar-23	Mar-24	Feb-23	Feb-24	Mar-23	Mar-24
RTGS	11.2	18.8	7.8	12.3	16.7	21.2	11.5	12.4
NEFT	28.7	47.3	26.8	45.2	12.1	25.1	7.4	15.2
UPI	66.4	60.6	60.0	55.3	49.5	47.9	46.3	40.8
IMPS	6.4	19.4	1.0	16.8	21.9	21.2	18.2	16.2
NACH	67.3	13.1	22.2	22.8	35.2	15.6	35.0	15.8
NETC	18.4	12.1	13.3	10.6	29.0	19.2	23.7	17.2
BBPS	54.1	29.8	56.5	25.4	63.4	85.8	61.6	82.8

Note: RTGS: Real Time Gross Settlement; NEFT: National Electronic Funds Transfer; UPI: Unified Payments Interface; IMPS: Immediate Payment Service; NACH: National Automated Clearing House; NETC: National Electronic Toll Collection; BBPS: Bharat Bill Payment System.

Source: RBI.

²⁷ The average ticket size declined by 9.4 per cent (y-o-y) in March 2024.

usage at smaller merchant outlets. Under the BBPS, the average ticket size for transactions increased by 45.7 per cent in March 2024, driven by a sharp growth (y-o-y) in the value of transactions. In February 2024, credit card transactions volume and value grew (y-o-y) by 34.0 per cent and 25.7 per cent, respectively. The number of outstanding credit cards of SCBs surpassed the 10-crore mark in February 2024 (equivalent to 26.6 per cent of total number of credit accounts of SCBs²⁸). During 2023-24 (April-February), nearly 14.6 per cent of the increase (y-o-y) in personal loans can be attributed to the transactions on credit cards (in value terms).

National Payments Corporation of India (NPCI)'s wholly owned subsidiary NPCI International Payments Ltd. (NIPL) in partnership with Nepal's Fonepay Payment Service Ltd., has now made UPI operational for cross-border payments between the two countries. This enables Indian consumers to make P2M payments across several merchant locations in Nepal through QR codes.

In the statement on developmental and regulatory policies dated April 5, 2024 the Reserve Bank proposed facilitating cash deposits *via* UPI and extending UPI access to Prepaid Payment Instruments (PPIs) through third-party applications. Additionally, the Reserve Bank proposed enabling non-bank payment system operators to provide Central Bank Digital Currency (CBDC) wallets to enhance and diversify user access and also test the resiliency of the CBDC platform.

V. Conclusion

Against this backdrop, the RBI's monetary policy committee (MPC) met during April 3-5, 2024 and voted to maintain the policy rate at 6.5 per cent with the stance of withdrawal of accommodation. The MPC

expected that a normal Southwest monsoon should support agricultural activity even as manufacturing would sustain profitability and services activity would likely grow above the pre-pandemic trend. In respect of demand conditions, the MPC expected private consumption to gain steam from a further pick-up in rural activity and steady urban demand as consumer confidence improves. The Committee felt that prospects for fixed investment remain bright with business optimism, healthy corporate and bank balance sheets, robust government capital expenditure and signs of upturn in the private capex cycle. On the downside, it took note of headwinds from geopolitical tensions, volatility in international financial markets, geoeconomic fragmentation, rising Red Sea disruptions, and extreme weather events. Gauging that risks are evenly balanced, the MPC projected real GDP growth for 2024-25 at 7.0 per cent and laid out a quarterly path for its likely evolution. Furthermore, in its assessment, food price uncertainties continue to weigh on the inflation outlook with the increasing incidence of climate shocks a key upside risk for food prices. It noted that early indications of a normal monsoon augur well for the *khariif* season. On the other hand, cost push pressures faced by firms are showing an upward bias and the recent firming up of international crude oil prices poses an upside risk to the path of inflation going forward. Accordingly, the MPC projected CPI inflation for 2024-25 at 4.5 per cent with risks evenly balanced.

In the MPC's view, domestic economic activity remains resilient, backed by strong investment demand and upbeat business and consumer sentiments. Headline inflation has come off the December peak; however, food price pressures have been interrupting the ongoing disinflation process even as shocks from adverse climate events and geopolitical tensions add uncertainties to the outlook.

²⁸ As on December 2023, Banking Statistical Returns (BSR-1).

In this environment, the MPC resolved that the path of disinflation needs to be sustained till inflation reaches the 4 per cent target on a durable basis. Monetary policy must remain actively disinflationary to ensure anchoring of inflation expectations as price stability sets the foundations for growth. In the words of Governor Shri Shaktikanta Das, "*it is essential, in*

the best interest of the economy, that CPI inflation continues to moderate and aligns to the target on a durable basis. Till this is achieved, our task remains unfinished...Our effort is to ensure price stability on an enduring basis, paving the way for a sustained period of high growth... Our goal is in sight and we must remain vigilant".²⁹

²⁹ Governor's Statement: April 5, 2024, Bi-monthly Monetary Policy Statement, 2024-2025.

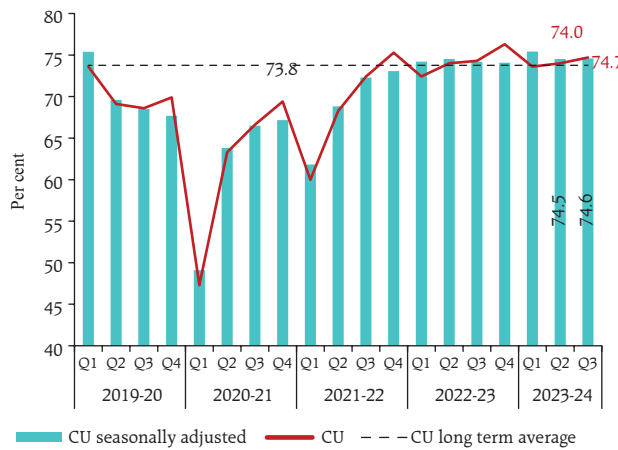
Annex 1: Major Takeaways from the RBI's Enterprise Surveys

Key takeaways from the Reserve Bank's quarterly enterprise surveys conducted during Q4:2023-24 are:

- Capacity utilisation (CU) in the manufacturing sector increased to 74.7 per cent in Q3:2023-24 from its level of 74.0 per cent in Q2:2023-24 with seasonally adjusted CU increasing by 10 bps to 74.6 per cent.
- Manufacturers maintain a positive outlook on CU in the ensuing quarters (Charts A1 and Chart A2).

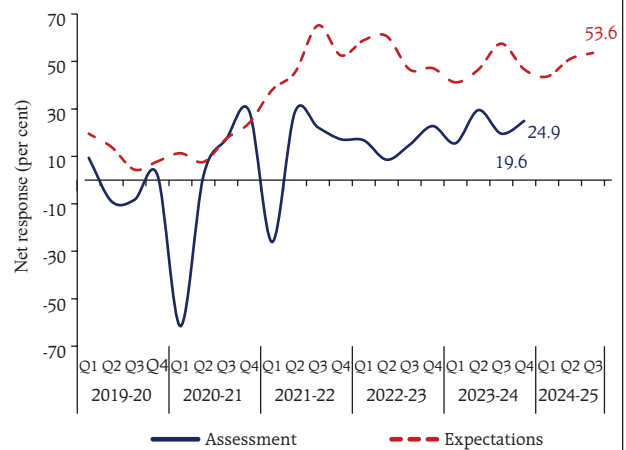
- Manufacturing firms expect that production optimism is anticipated to improve in Q3:2024-25 after a seasonal moderation in Q1:2024-25.
- The outlook for turnover of services companies over the next three quarters is highly positive (Chart A3).
- Overall business sentiments among services sector companies remain highly optimistic till end-2024 (Chart A4).

Chart A1: Capacity Utilisation in Manufacturing Sector



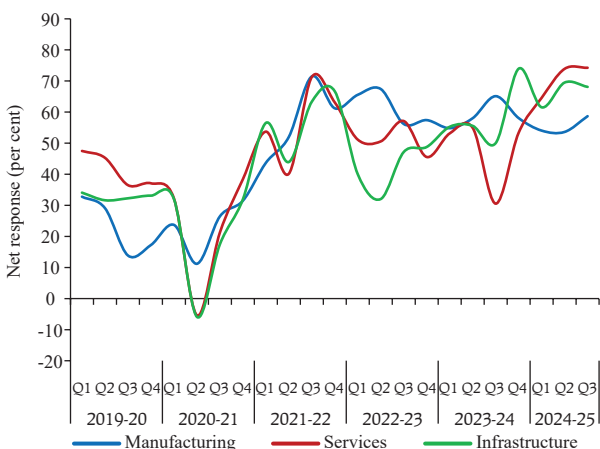
Source: Order Books, Inventories and Capacity Utilisation Survey, RBI.

Chart A2: Manufacturers' Assessment and Expectations on Capacity Utilisation



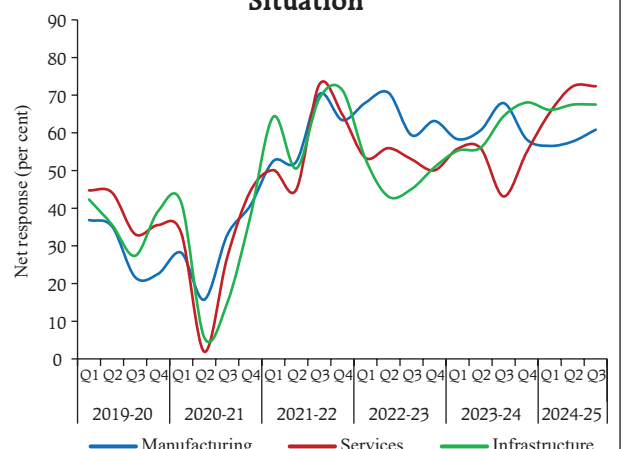
Source: Industrial Outlook Survey, RBI.

Chart A3: Expectations on Production/Turnover



Sources: Industrial Outlook Survey; and Services and Infrastructure Outlook Survey, RBI.

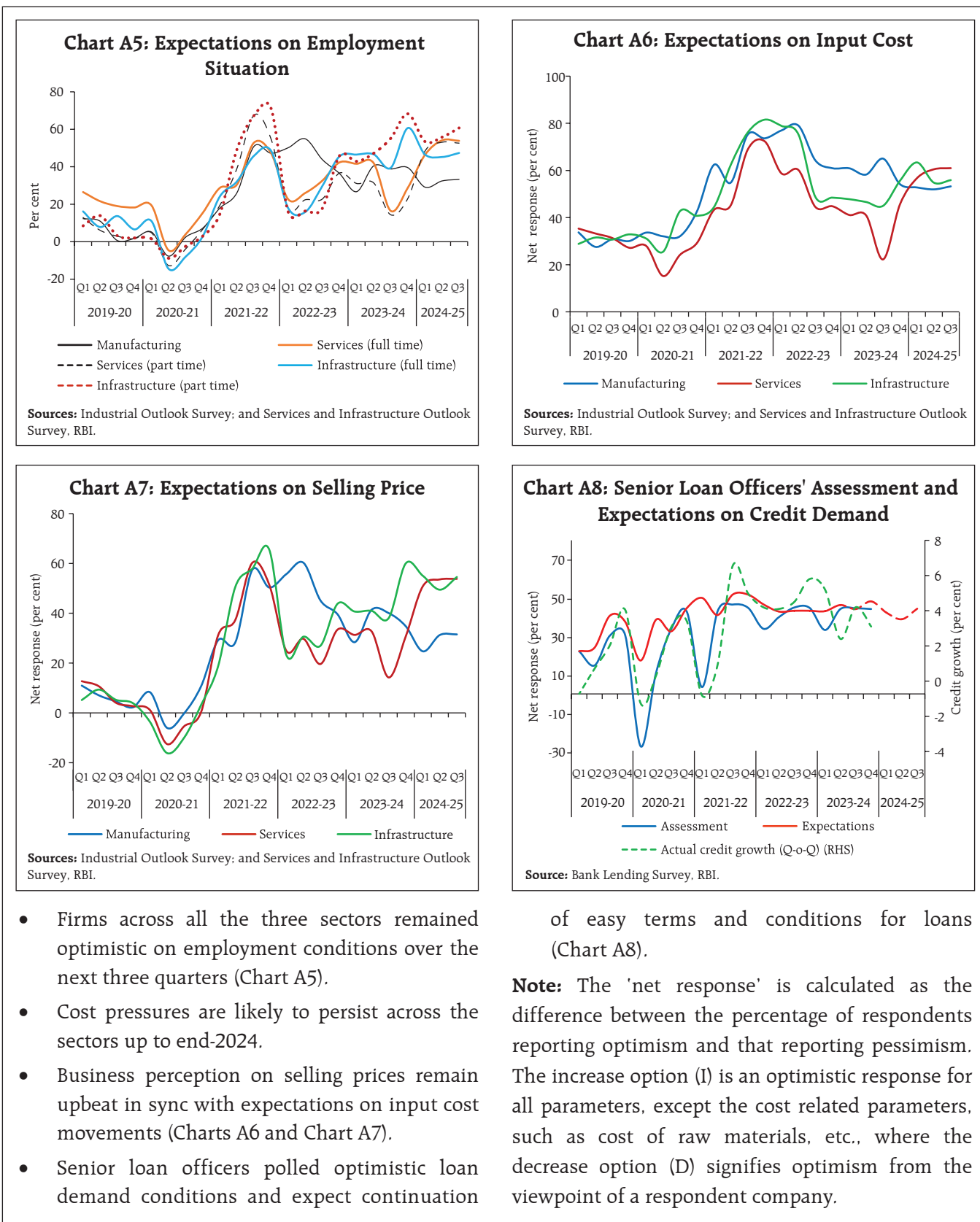
Chart A4: Expectations on Overall Business Situation



Sources: Industrial Outlook Survey; and Services and Infrastructure Outlook Survey, RBI.

(Contd..)

Annex 1: Major Takeaways from the RBI's Enterprise Surveys (Concl'd.)



- Firms across all the three sectors remained optimistic on employment conditions over the next three quarters (Chart A5).
- Cost pressures are likely to persist across the sectors up to end-2024.
- Business perception on selling prices remain upbeat in sync with expectations on input cost movements (Charts A6 and Chart A7).
- Senior loan officers polled optimistic loan demand conditions and expect continuation

of easy terms and conditions for loans (Chart A8).

Note: The 'net response' is calculated as the difference between the percentage of respondents reporting optimism and that reporting pessimism. The increase option (I) is an optimistic response for all parameters, except the cost related parameters, such as cost of raw materials, etc., where the decrease option (D) signifies optimism from the viewpoint of a respondent company.

What Drives India's Services Exports?

by Dhirendra Gajbhiye, Sujata Kundu, Rajas Saroy, Deepika Rawat, Alisha George, Omkar Vinherkar and Khushi Sinha[^]

Over the last three decades, India's services export growth has not only outpaced merchandise export growth but has also captured a larger share of world exports. Moreover, the robust growth in services exports continued in the post-pandemic period. Against this backdrop, this article undertakes a disaggregated analysis of India's major services exports, covering issues such as price versus volume effects, long-term trend, and revealed comparative advantage. Empirical estimates suggest that global demand and relative prices are significant determinants of India's services exports in the post-global financial crisis period.

I. Introduction

India's services exports in US dollar terms grew at a robust compound annual growth rate (CAGR) of more than 14 per cent over the last 30 years (between 1993 and 2022), significantly higher than India's merchandise export growth (10.7 per cent) as well as world services export growth (6.8 per cent). As a result, the share of India's services exports in world services exports rose more than 8 times from 0.5 per cent in 1993 to 4.3 per cent in 2022. Today, India is the 7th largest services exporting country in the world, a phenomenal rise from the 24th position in 2001.¹ India ranks 2nd in the world in case of telecommunication, computer and information services exports, 6th in personal, cultural and recreational services exports,

8th in other business services exports, 10th in transport services exports, and 14th in travel services exports. Robust growth and stability in services exports has imparted strength to India's balance of payments (BoP) by offsetting a significant part of the economy's merchandise trade deficit.

Services trade has been relatively more dynamic benefitting from mutually reinforcing factors including an accelerating pace of technological change and policy reforms aiming to make domestic services market more competitive (World Bank and World Trade Organisation, 2023). With the advent of digitalisation and technological advancements, emerging market economies (EMEs), including India, have witnessed newer opportunities to expand exports of services and to improve their participation and competitiveness in global value chains (GVCs). Services inputs, whether imported or locally produced by foreign or domestically owned enterprises, are increasingly used in the production of manufactured products that are subsequently exported, thus leading to a growing servicification of manufacturing exports. In the case of India, domestic services value-added share stood at 17.7 per cent in gross manufacturing exports in 2020 as compared with 13.4 per cent in 2011.² Additionally, services have formed their own value chains due to the fragmentation of inputs at different stages of production and in different locations (Nano and Stolzenburg, 2021). Around 69 per cent of global services trade consists of trade in intermediates with the rest being trade in services for final consumption (World Bank and World Trade Organisation, 2023).

The outbreak of the pandemic in 2020 severely impacted services activities and, therefore, their delivery both at the domestic and global fronts. While the impact on merchandise trade turned out to be almost transitory, the adversities were sharper for global services trade as around 40 per cent is

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¹ Ranks are based on the value of exports in US\$ terms sourced from WTO Statistics and the RBI.

² Trade in Value Added (TiVA) 2023 ed. Principal Indicators, OECD Stat.

constituted by travel and transportation services, wherein the pandemic-induced restrictions on social distancing and cross-border mobility inflicted a severe blow. Therefore, while global merchandise exports dipped by 7.2 per cent in 2020, the decline in services exports was much sharper at 17.2 per cent. In contrast, in case of India, services exports stood resilient, primarily owing to the larger share of telecommunication, computer and information services exports, which gained from digitalisation and the government's Digital India initiative providing the infrastructure needed for growth of services exports, especially information technology (IT) and IT-enabled services (ITeS). India's rising software and other business services exports through Global Capability Centres (GCCs) are a testament to its growing dominance in high-skilled and high-value services exports. The wave of big data, Artificial Intelligence (AI), Machine Learning (ML), Internet of Things (IoT) and advancements in compatible hardware, generative AI, and spatial computing has opened up newer dimensions for Indian software exports. Generative AI is projected to become a US\$ 1.3 trillion market by 2032 (Bloomberg, 2023). India is also experiencing the generative AI boom with currently around 60 start-ups and a projected market size of US\$ 4.2 billion in 2030.³ Furthermore, by 2035, integration of AI into economic processes is expected to boost India's annual GVA growth from the baseline projection of 5.8 per cent to 7.1 per cent (Statista, 2023).

India's services exports, both traditional and modern,⁴ are conditional on an array of factors including world demand, exchange rate, manufacturing exports, infrastructure, robust institutions, foreign direct investment (FDI) and financial development (Sahoo *et al.*, 2013). Exports of telecom and computer services are not constrained by distance, and are driven, *inter*

alia, by the English-speaking skills of the workforce (Tharakan *et al.*, 2005; Hyvonen and Wang, 2012), the number of graduates, and the quality of infrastructure relating to information and communication technology (ICT) (Nasir and Kalirajan, 2014). Foreign income is seen as an important driver of services exports for certain Asian economies (Ahmad *et al.*, 2017). The income elasticity of demand for services exports is higher than that for imports (Thomas, 2015). Sahoo *et al.* (2013) and Ahmad *et al.* (2017) found that exchange rate movements affect India's services exports, while Thomas (2015) found no such impact. The networking effect from manufacturing exports accelerates growth of services exports (Dehejia and Panagariya, 2014). Services also show potential to raise their value-added contribution to manufacturing exports, particularly in high-value sectors like IT services (Chakrabarty, 2019). The 1990s witnessed growth in India's services exports owing to a policy shift from import substitution to export promotion, which was further boosted by India joining the WTO in 1995 (Thomas, 2015). Post-GFC, world services trade has witnessed more resilience than merchandise trade which provides an upside potential for growth in low labour cost economies like India (RBI, 2022).

Against this backdrop, this article explores the potential drivers behind India's robust services export growth. First, it analyses the contribution of the volume and price effects in services exports, and the underlying trend and cyclical components. Second, it undertakes a revealed comparative advantage (RCA) analysis of major services categories in a cross-country setting. Third, it estimates the income and price elasticities of India's services exports. The article is organised as follows. Following the introduction, Section II presents key stylised facts concerning the volume and price effects, trend, cycle and residual components and the RCA analysis. Section III provides a disaggregated analysis of India's major services export categories. Section IV presents the empirical methodology and results on the major determinants of India's services exports, followed by the concluding Section V.

³ Statista, 2023.

⁴ Traditional services comprise communications, insurance, transportation, travel, construction, and personal, cultural and recreational services, while modern services include finance, computer and information, royalties and license fees, and other business services (Eichengreen and Gupta, 2009; Anand *et al.*, 2012; Anand *et al.*, 2015).

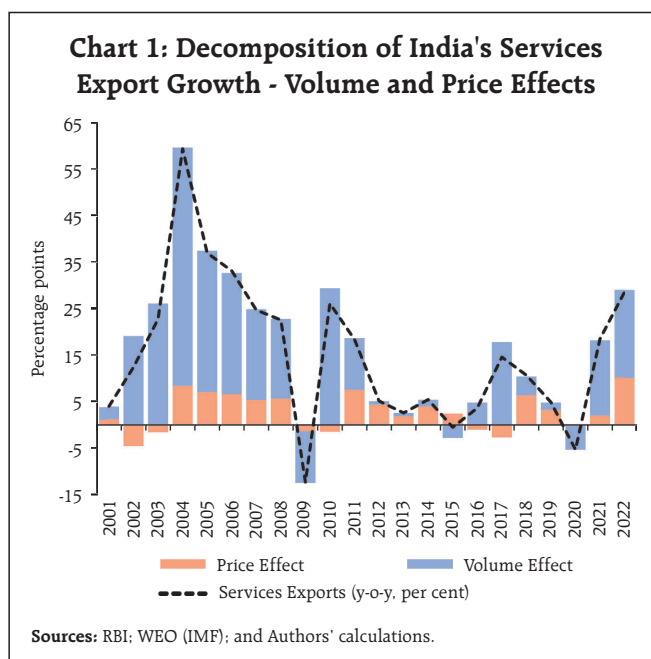
II. Stylised Facts

II.1 India's Services Exports: Volume vis-à-vis Price Effects

The decomposition of India's services export growth into volume and price effects⁵ reveals that volume effects have majorly dominated the export performance (Chart 1). During 2020, with the outbreak of the pandemic, the crash in exports was totally on account of a decline in export volume. However, as commodity prices shot up and stayed elevated during 2021 and 2022, the price effect also contributed to the rise in services export growth.⁶

II.2 India's Services Exports: Trend vis-à-vis Cycle

An analysis of the trend, cycle and residual components⁷ of India's services export growth suggests a moderately increasing trend in services export



growth. The dominating trend component during the early 2000s boom of the services sector moderated post the global financial crisis (GFC), which reversed around 2016, benefiting from improvements in infrastructure (transport/logistics/IT), technological advancements and disaggregation of services value chains supported by pro-active government policies.⁸ The contraction in export growth during 2020 was primarily an outcome of the residual component pulling down export growth and offsetting the positive impact of the trend and the cyclical components (Chart 2). In the wake of the COVID-19 pandemic, digital trade has become an important tool for enhancing resilience by maintaining business operations, delivering goods and services amidst physical restrictions and diversifying supply chains. Digital technologies have been instrumental in coping with and recovering from the pandemic, and exports in sectors with more digitally enabled remote work suffered less from the COVID-19-related supply disruptions.⁹ This favoured a quick recovery of India's services exports.

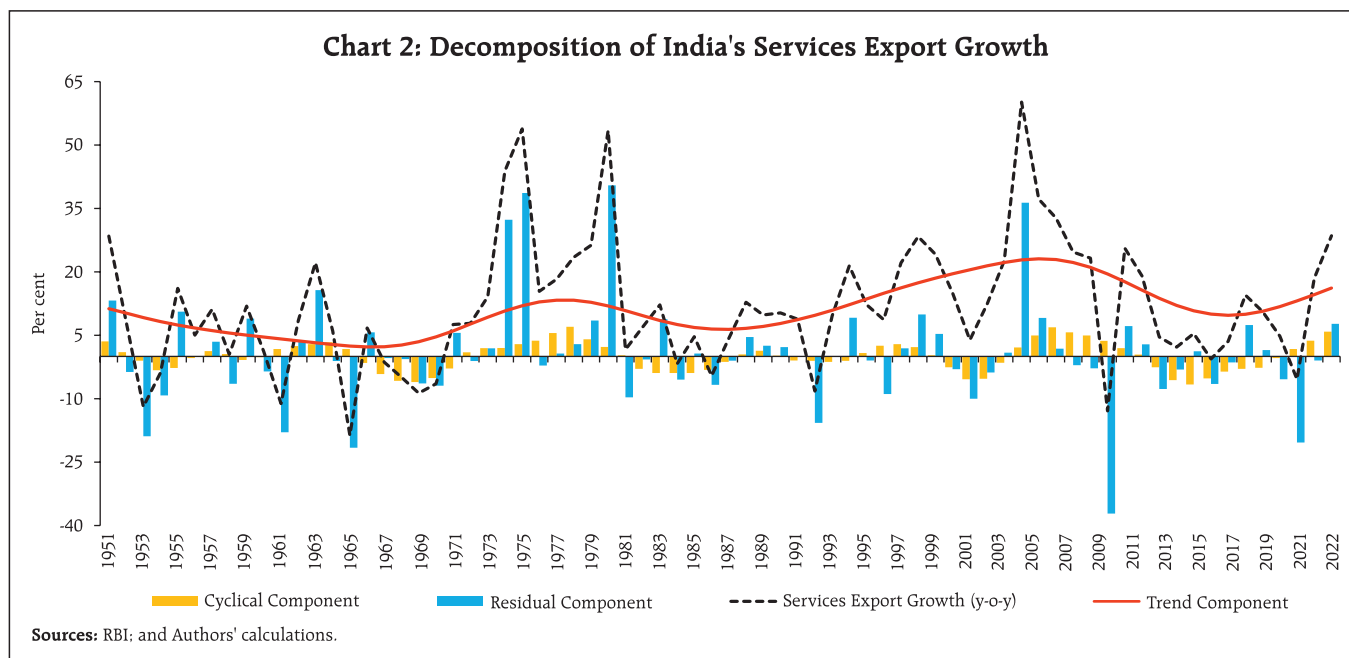
⁵ Data on the growth in volume of goods and services exports (combined) and growth in volume of goods exports are obtained from the IMF's World Economic Outlook (WEO) database, and data on the value of services and goods exports are from India's Balance of Payments statistics. Growth in the volume of India's services exports is derived using the following methodology. First, the growth rate of services export volume ($g_{volume}^{services}$) is calculated using $g_{value}^{goods+services} = w_{value}^{goods} \cdot g_{value}^{goods} + w_{value}^{services} \cdot g_{value}^{services}$, where g is the growth rate; and w are the shares of goods/services in the total value of exports. Then, the growth rate of price of services ($g_{price}^{services}$) is estimated using $(1 + g_{price}^{services}) = (1 + g_{value}^{services}) / (1 + g_{volume}^{services})$. Note that an improvement in quality of services exports may also reflect as higher price effects. This could be true for India as evidenced by the higher CAGR of value-added in total services (8.7 per cent) compared to that of the world (3.7 per cent), OECD (2.4 per cent) and ASEAN (7.3 per cent) between 2005 and 2020 as per the OECD TiVA database.

⁶ Rise in global commodity prices raises the general price level in the economy, majorly through cost of living and production cost channels (Hofmann B. *et al.*, 2023). This also holds true for price of services. For example, in case of a rise in global crude oil prices, there are direct effects via freight costs on the price of transportation services, and indirect effects through the cost-of-living channel on travel services.

⁷ In order to appropriately capture the effect of exogenous shocks such as the GFC and the pandemic in India's services exports growth, a two-step approach was used to decompose services export growth into its trend, cycle and residual components. In the first step, seasonal-trend decomposition using LOESS (STL) was used to decompose India's services export growth into its time series components using a longer time series of exports data from 1951 to 2022. The method is considered to be robust in the presence of exogenous shocks as it helps to capture the underlying trend-cycle component (combined into one component) that is not distorted by transient and aberrant behaviour in the data (Cleveland, *et al.*, 1990). However, such shocks will impact the residual component of the time series. As a second step to the analysis, an adjusted services export growth series has been obtained by subtracting the residual component derived from the STL decomposition from the original services export growth series. The adjusted export growth is then decomposed into its trend and cyclical components using the Hodrick-Prescott filter.

⁸ India's score in World Bank's Logistics Performance Index (LPI) improved markedly to 3.40 in 2023 from 3.18 in 2018. Further, as per United Nations Telecommunication Infrastructure Index, India's index improved from 0.2 to 0.4 between 2018 and 2022.

⁹ Digital Trade for Development (IMF, OECD, UNCTAD, World Bank and WTO, 2023).



II.3 Revealed Comparative Advantage Analysis

To understand the comparative advantage underlying India's services exports, RCA analysis of major services categories was undertaken. The Ricardian theory of trade posits that patterns of trade among countries are governed by their relative differences in productivity. The RCA uses the observable pattern of trade to infer unobservable differences in relative productivity between countries. The RCA for a product i and country A is defined as:

$$RCA_{A,i} = \frac{X_{A,i} / \sum_{j \in P} X_{A,j}}{X_{W,i} / \sum_{j \in P} X_{W,j}}$$

where, P is the set of all products, $X_{A,i}$ is the country A 's exports of product i , $X_{W,i}$ is the world's exports of product i , $\sum_{j \in P} X_{A,j}$ is country A 's total exports of all products, and $\sum_{j \in P} X_{W,j}$ is the world's total exports of all products. A country is considered to have an export strength in a product if the RCA for that product exceeds one. The higher the value of the RCA, the higher is the export strength. It is to be noted that the RCA index assumes that trade is frictionless, which may not be the case due to the presence of regional trade agreements and protectionist measures.

An analysis of RCA for leading exporters shows that India has a revealed comparative advantage in telecommunication, computer and information services (Table 1). Indeed, India has established a stronghold in this service over the past two decades. In telecommunication, computer and information services, Ireland remains the leader by RCA score, which may be attributed, *inter alia*, to its favourable corporate tax regime (Deloitte, 2017). RCA scores of nearly all leading exporters, including India, in this category have moderated since 2010 due to increasing competition from other countries. India's RCA has improved for other business and transport services in 2022 over 2010. The higher RCA score in other business services exports highlights the untapped potential in the sector. The comparative advantage for India is relatively low in transport services. In the case of travel exports, India has displayed significant recovery post-pandemic. Moreover, with better rank than some of its major Asian peers, India's travel services export has potential for further growth.

After this brief overview of India's services trade, a sectoral deep dive is provided in the next section on the four key services export categories – travel, transport, telecommunication, computer and

Table 1: Revealed Comparative Advantage of Top Services Exporters by Category

		China	France	Germany	India	Ireland	Israel	Singapore	Spain	UK	US
Transport	Rank	1	5	2	10	37	25	3	19	13	4
	2010	0.95	1.06	1.20	0.56	0.27	0.84	1.91	-	0.49	0.65
	2022	1.95	1.26	1.28	0.60	0.11	0.74	1.71	0.66	0.32	0.48
Travel	Rank	25	5	8	14	37	40	23	2	3	1
	2010	1.08	0.97	0.63	0.52	0.19	0.81	0.59	2.15	0.53	0.94
	2022	0.18	1.24	0.51	0.49	0.12	0.45	0.29	3.04	0.97	1.03
Telecommunication, Computer and Information Services	Rank	3	8	6	2	1	-	9	13	5	4
	2010	0.71	0.84	1.09	5.60	5.14	4.09	0.43	-	0.88	0.55
	2022	1.03	0.50	0.67	3.21	3.99	3.61	0.55	0.66	0.59	0.50
Other Business Services	Rank	3	5	4	8	9	-	6	13	2	1
	2010	1.23	1.39	1.40	0.90	1.13	1.16	0.97	-	1.32	0.87
	2022	1.05	1.12	0.98	0.99	0.73	0.86	1.17	0.84	1.52	1.06

Note: Rank is by value of services exports in 2022.

Sources: IMF; WTO; and Authors' calculations.

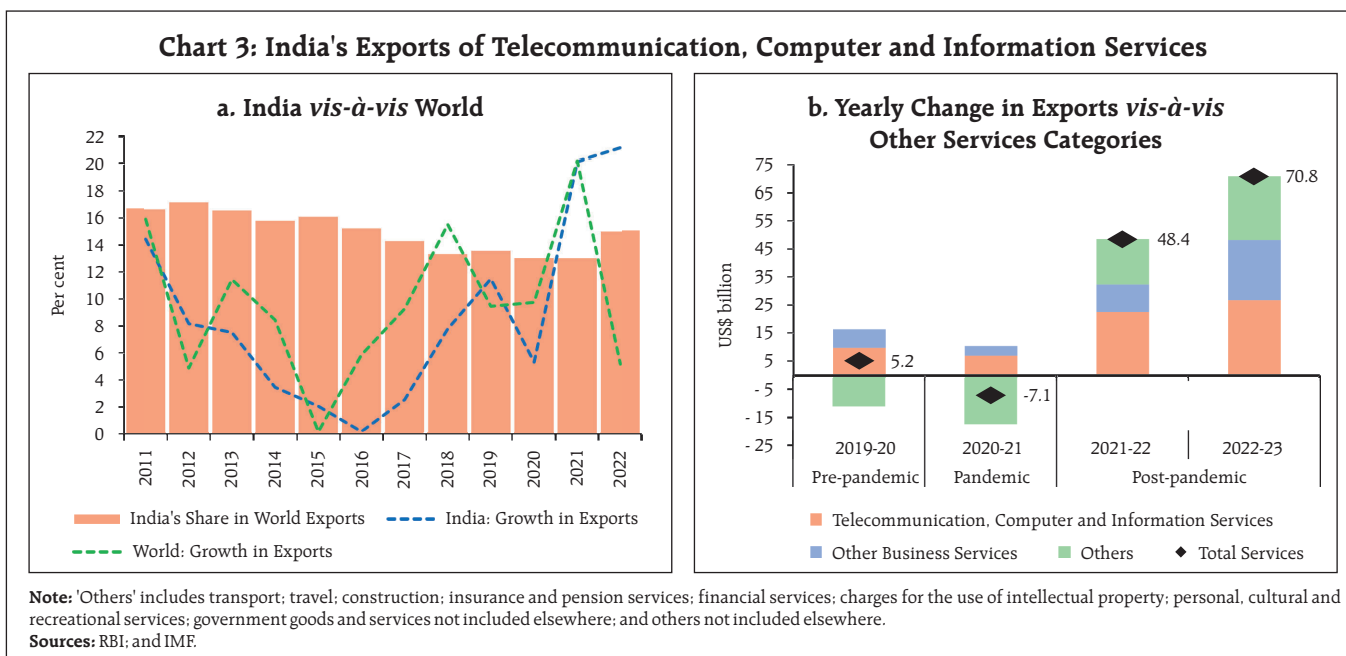
information services and other business services – which account for over 85 per cent of India's services exports.

III. Disaggregated Analysis of Services

III.1 Telecommunication, Computer and Information Services

India's telecommunication, computer and information services export, with a share of around 47 per cent in total services exports during 2022-23, is the major contributor to India's services export

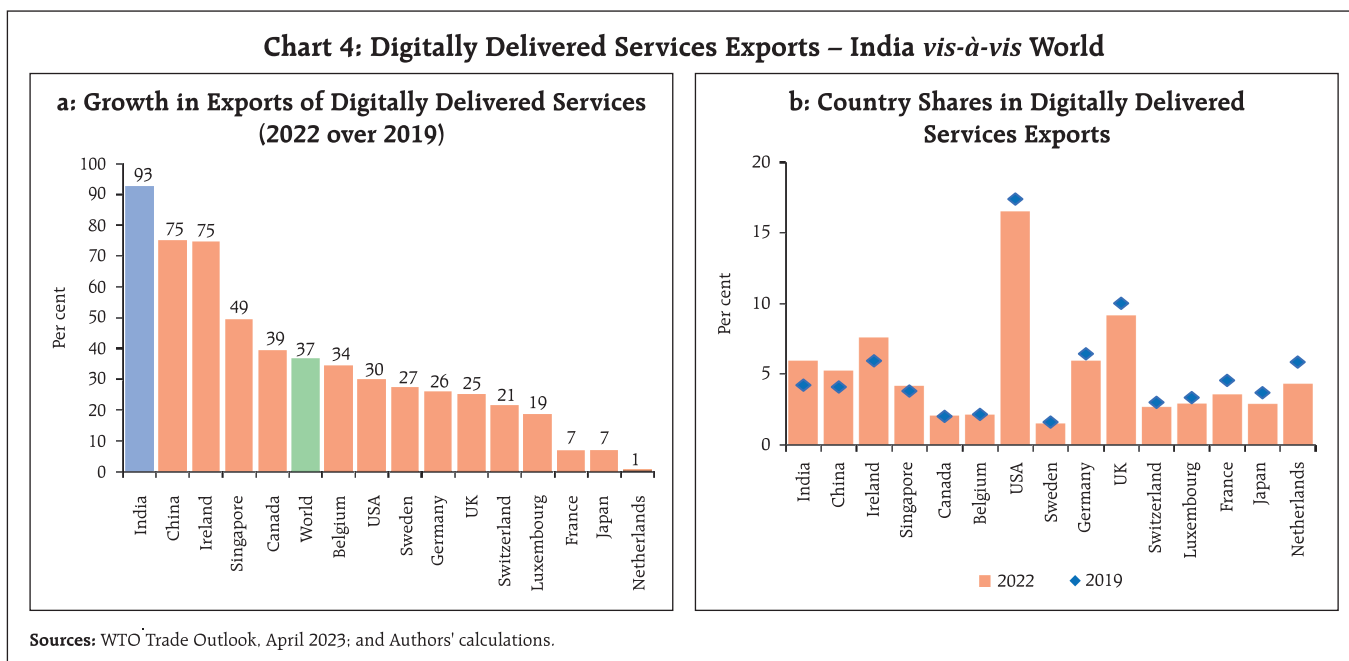
growth. With an average export growth of 9.0 per cent during 2011-12 to 2022-23, the sector has grown in tandem with the global trend alongside the advancement in IT. With a share of 15 per cent in world telecommunication, computer and information services exports in 2022, India was the second largest exporter after Ireland (Chart 3a). Robust exports in this segment had partially cushioned the fall in India's total services exports during the pandemic year 2020-21 (Chart 3b).



The Government of India has implemented various policy initiatives such as developing Software Technology Parks and Special Economic Zones, export subsidies, tax-free imports of computer hardware, and facilitating imports of advanced technology. These policies have enabled the Indian IT industry to gain a competitive edge in terms of service quality and price competitiveness (Chakraborty and Dutta, 2002; Bhattacharjee and Chakrabarti, 2015). A major structural shift appears to have taken place in 2020 with the pandemic-induced rising reliance on contactless technologies. Indian IT firms signed major digital transformation deals, with the computer services sector receiving an unprecedented FDI investment of US\$ 23.8 billion in 2020-21 followed by a total of US\$ 14.6 billion during 2021-22 and 2022-23. The boom in telecommunication, computer and information services exports in recent quarters is a reflection of the expansion in scope, value and number of GCCs in India. Compared to 2015-16, the number of GCCs in India has increased by approximately 60 per cent

to reach more than 1580 in 2022-23.¹⁰ GCCs are being set up by multinational corporations in India for efficiency gains and reduction in their business costs. They have now transformed into analytics capability development centres and research & development (R&D) centres, leveraging India's analytics talent force and rich ecosystem of startups. The Business Process Management (BPM) industry has advanced remarkably due to innovation in digital consumer experience and data driven transformation.¹¹

India's success story has also benefitted from the global boom in digital services exports. According to the WTO, global exports of digitally delivered services have more than tripled since 2005, growing at 8.1 per cent per annum on average during 2005-22, thus outpacing the growth in exports of both goods and other services (WTO, 2023). The exports of digitally delivered services in 2022 were 37 per cent above their 2019 level, mainly due to a rise in remote-work set-up. India's performance over this period was even more striking with growth of 93 per cent (Chart 4a).¹²



¹⁰ GCC 4.0: India Redefining the Globalisation Blueprint. NASSCOM Zinnov. June 2023.

¹¹ NASSCOM Strategic Review 2023.

¹² Digital delivery includes cross-border trade in services through computer networks of which 20 per cent is accounted by computer services only.

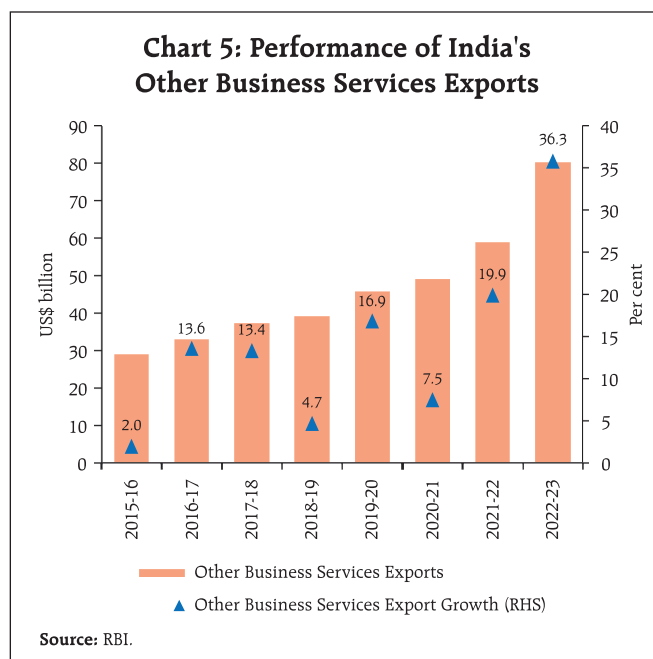
As a result, India's share with respect to the world in digitally delivered services exports improved to 5.9 per cent in 2022 from 4.2 per cent in 2019 (Chart 4b).

III.2 Other Business Services

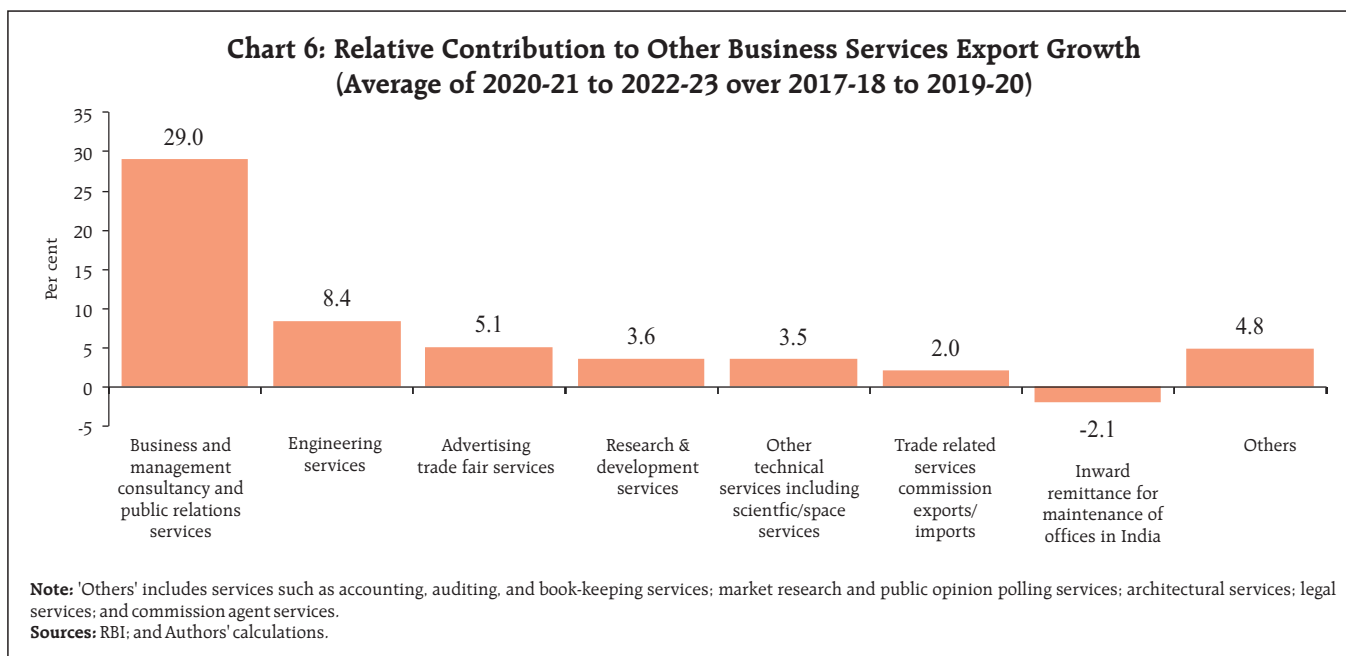
Around one-fourth of India's services exports is contributed by other business services which exhibited a robust average growth of around 28 per cent in the recent two years (Chart 5). In 2022-23, India's other business services exports rose to US\$ 80.4 billion from US\$ 59.0 billion in 2021-22.

More than three-fourths of this growth is driven by five major categories – business and management consultancy and public relations services; engineering services; advertising, trade fair services; R&D services; and other technical services including scientific/space services (Chart 6).

India's other business services export is growing rapidly owing to its status as the destination preferred by multinationals to set up GCCs. A survey of 99 multinationals by Deloitte reveals that engineering research and development (ER&D) GCCs in India have



met the expectations of their parent organisations, and higher budget allocations for India operations are on the horizon. India is well-positioned to leverage this success and cater to more skill-intensive and increasingly digitalised services. Innovation in new areas of technology, which comprised about 5-10 per cent of the work executed by the GCCs around five



years ago, has shot up by over three times now.¹³ By 2030, India is expected to house around 2,400 GCCs (EY, 2023). In 2022, India turned out to be the largest recipient of FDI in the R&D segment (O'Farrell, 2023). Innovation R&D, and digitalisation¹⁴ are expected to be the powerful forces boosting productivity through economy-wide forward and backward linkages in the medium to long-term (Dabla-Norris *et al.*, 2023).

III.3 Travel

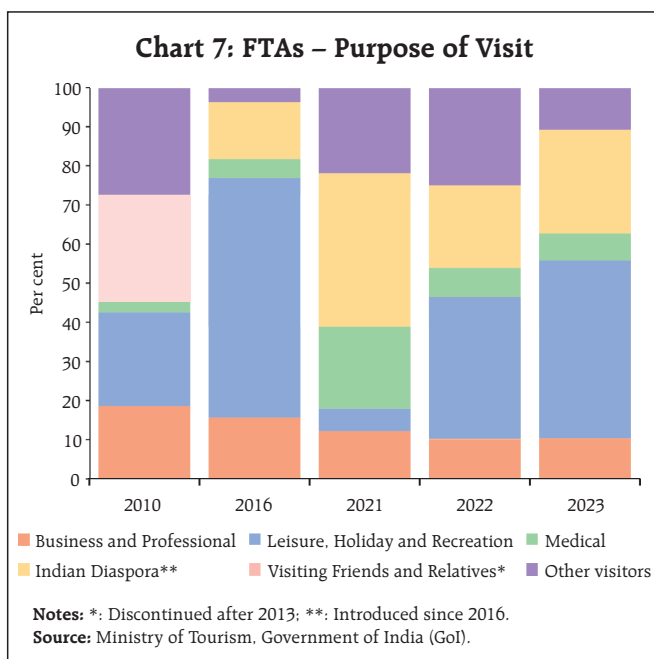
While India's travel export has been resurgent in terms of global share, the sector is still reeling from the effect of pandemic-induced movement restrictions. After steadily increasing to US\$ 30.0 billion in 2019-20 from US\$ 18.5 billion in 2011-12, travel services receipts dropped post-pandemic to US\$ 9.1 billion in 2021-22 but recovered sharply in 2022-23 to US\$ 27.0 billion. Travel services receipts are driven by foreign tourist arrivals (FTAs). Due to the pandemic, the share of leisure travellers declined from 57.1 per

cent in 2019 to 5.8 per cent in 2021, while the share of tourists arriving for medical purposes increased from 6.4 per cent in 2019 to 21.2 per cent in 2021 (Chart 7). During 2022 and 2023, the share of leisure travellers rose, although it remains below the pre-pandemic level. According to the data for 2022 from the Ministry of Tourism (GoI), India received the highest number of medical tourists from Bangladesh, followed by Iraq, Yemen, Oman and Maldives. The growth of the medical tourism industry in India may be attributed to better affordability and the improving availability of high-quality healthcare services and infrastructure.

Trade in travel services depends upon economic and geo-political conditions both in the source and host economies, as well as regulatory norms such as visa rules and health certificates. As a step towards a facilitative visa regime, the e-visa facility has been extended to the nationals of 171 countries under 7 sub-categories, *viz.*, 'e-Tourist visa', 'e-Business visa', 'e-medical visa', 'e-Medical Attendant Visa', 'e-Ayush', 'e -Ayush Attendant' and 'e-Conference Visa' (as of February 2024).¹⁵ Empirically, FTAs were found to be significantly positively correlated with the travel and tourism competitiveness index (TTCI). Cross-sectional correlation between FTAs and TTCI across 139 countries for 2019 turned out to be 0.57 (Chart 8). India's performance with respect to the TTCI has improved over the years with its rank rising from 68 in 2011 to 34 in 2019.¹⁶

III.4 Transport

In transport services exports, India's rank in global transport earnings has jumped up from 19 in 2005 to 10 in 2022.¹⁷ Earnings *via* the sea transport route constituted the bulk of transport revenues with



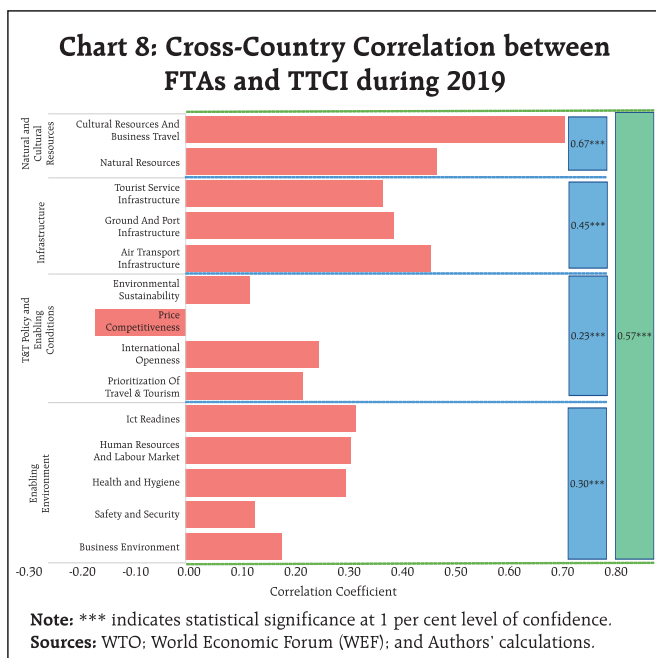
¹³ <https://www.livemint.com/news/india/how-gccs-stole-the-thunder-from-it-firms-11689015086025.html>

¹⁴ India's digital economy has grown 2.4 times faster than the Indian economy with strong forward linkages to non-digital sectors (Gajbhiye *et al.*, 2022).

¹⁵ <https://indianvisaonline.gov.in/evisa/> accessed on February 27, 2024.

¹⁶ The 2011 and 2019 editions of the TTCI ranked 139 and 140 economies, respectively.

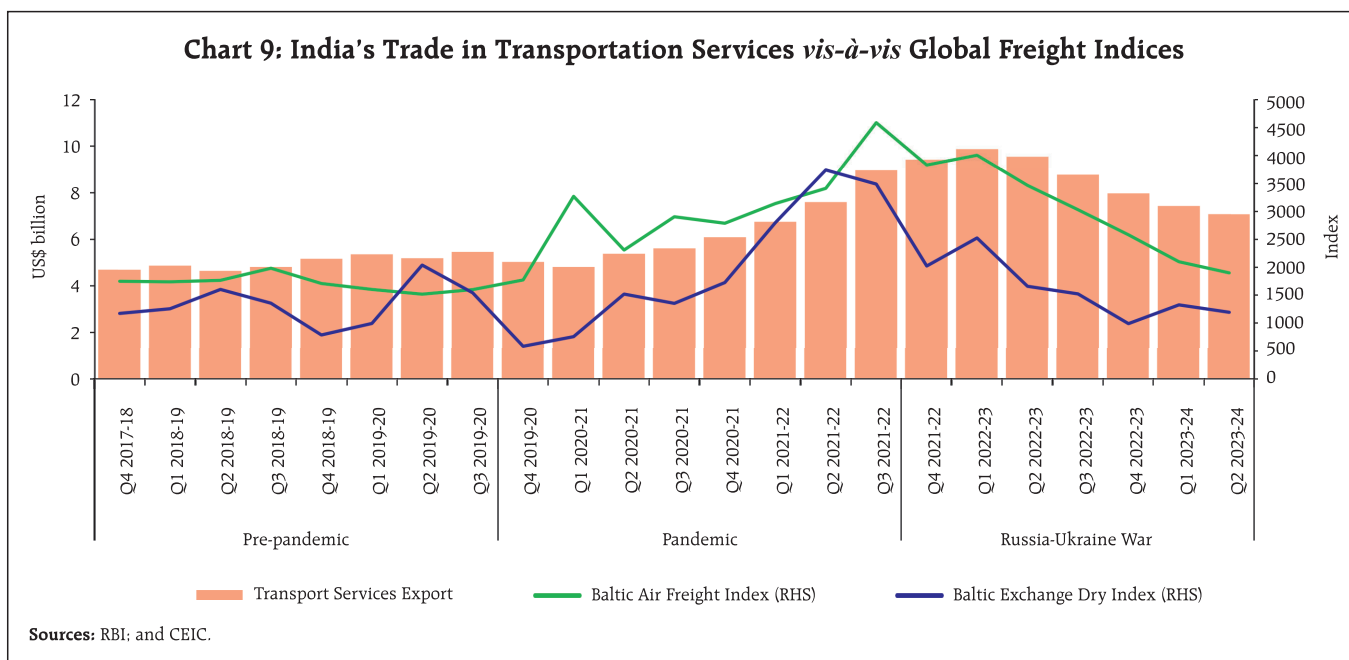
¹⁷ The ranking is based on WTO data.



an average share of 68 per cent in value terms during 2018-19 to 2022-23. Owing to container shortages and turnaround delays, the pandemic had initially struck a

heavy blow to transportation services, thus impacting global freight rates as reflected in a dip in the Baltic Exchange Dry Index (Chart 9). However, the surge in demand for goods during H2:2020-21 and H1:2021-22 against supply-side capacity constraints resulted in a jump in freight rates during this period. Due to subdued demand across markets, freight rates have corrected post Q1:2022-23, which is also reflected in a fall in India's transportation receipts during the same period.¹⁸

As per the World Bank's logistics performance index (LPI)¹⁹, India was ranked 44th in 2018 out of 160 countries, with a score of 3.18. In 2023, India's rank stood at 38 out of 139 countries, with a score of 3.40 led by pro-active government reforms.²⁰ The *PM Gati Shakti National Master Plan* (PMGS-NMP) launched in October 2021 is focused on leveraging technology for infrastructure planning and development. The National



¹⁸ The recent shipping crisis in the Red Sea since November 2023 following geopolitical tensions in the Middle East poses upside risks to shipping freight rates. The effect on transportation services receipts and payments will depend on the relative magnitude of price and volume effects.

¹⁹ LPI evaluates a country's performance based on six core components – efficiency of customs and border management clearance, quality of trade and transport infrastructure, ease of arranging competitively priced shipments, competence and quality of logistics services, ability to track and trace consignments, and maintaining expected delivery time of consignments.

²⁰ India's LPI score shows statistically significant positive correlations with exports of both transport services (0.6) and other business services (0.7).

Logistics Policy (NLP) launched in September 2022 aims to upgrade and digitise logistics infrastructure and services, and facilitate green transition using energy-efficient modes of transportation, greener fuels, and targeted policy measures to reduce cargo-delays at ports and airports.

IV. Determinants of India's Services Exports: An Empirical Analysis

This section analyses the determinants of India's services exports, in particular, their income and price (exchange rate) elasticities. The sample period spans from 2010q1 to 2022q4, *i.e.*, post-GFC. Various econometric techniques, including Dynamic Ordinary Least Squares (DOLS), Vector Error Correction Models (VECMs), Autoregressive Distributed Lag (ARDL) models, and cross-sectional regressions have been used to study the determinants of services exports in the extant literature. Given the available data (Annex Table 1), their time series properties, and the need to study both short-run and long-run relationships, we model the data under a VECM framework, as all variables were found to be integrated of order 1 and have a cointegrating relationship as per the Johansen cointegration test (Annex Tables 2 and 3).²¹

Income elasticity is measured by estimating the sensitivity of real exports to external demand (proxied differently in different studies through global growth, partner country growth, and global exports), while price elasticity is measured by estimating the impact of the real exchange rate on real exports (Chinoy and Jain, 2019). In this article, the real GDP index for OECD countries and the RBI's trade-weighted real effective exchange rate (REER) are considered to estimate income and price elasticities, respectively. A real services export index has been constructed

²¹ Augmented Dickey-Fuller (ADF) unit root test was conducted to check the stationarity of the variables.

for the analysis.²² Alongside these variables, a proxy for digitalisation and technological advancement is included in the VECM (the number of subscribers to telecommunication services, Table 2 Specification 2). Additionally, to explore the relationship between FDI and India's services exports, the model has been augmented with FDI in the services sector²³ as a long-run exogenous variable (Table 2 Specification 3).²⁴ The REER was considered to be an endogenous variable across specifications, while real GDP index of the OECD was considered to be a long-run exogenous variable.

Results

The results indicate a statistically significant impact of external demand and relative prices on India's services exports, with the expected signs and magnitudes in line with the available literature²⁵ (Table 2). As per the regression estimates (Specification 1), a 1 per cent rise in global GDP leads to a 2.5 per cent rise in India's real services exports while a 1 per cent rise in REER (currency appreciation) can result in a 0.8 per cent fall in India's real services exports. The price and income elasticities, controlling for the number of telecom subscribers and FDI in services, are somewhat higher at (-) 1.2/(-)1.3 and 2.8, respectively (Specifications 2

²² Data on the growth in volume of goods and services exports (combined) and value of services exports have been used to generate real services export index (Base: 1990-91=100). The details on the same are in footnote 5.

²³ Includes FDI in computer hardware and software, telecommunications, financial, banking, insurance, non-financial / business, outsourcing, R&D, courier, tech. testing and analysis sectors.

²⁴ Since FDI in services may be driven by services export growth, this possible endogeneity was ruled out using VAR Granger Causality/Block Exogeneity Wald Tests. The exclusion restrictions were not found to be significant with FDI in services as the dependent variable and services exports as the excluded variable, and *vice versa*.

²⁵ There are a few studies that estimate the income and price elasticities of services exports in the Indian context. Chinoy and Jain (2019) find income and price elasticities of India's services exports during December 2004 to December 2017 to be at 3.1 per cent and (-) 2.2 per cent, respectively; Das *et al.*, (2011), using data from 1970-2008, finds income and price elasticities at 3.22 per cent and (-) 0.56 per cent, respectively.

Table 2: Income and Price Elasticities of India's Services Exports (VECM Model)

Long-run Results			
Specification 1	Services Exports = 2.45***OECD-GDP - 0.81**REER		
Specification 2	Services Exports = 2.79***OECD-GDP - 1.16**REER		
Specification 3	Services Exports = 2.82***OECD-GDP - 1.31**REER + 0.07*FDI-SERVICES		
Short-Run Results			
Variables	Specification 1	Specification 2	Specification 3
1	2	3	4
Error Correction Term	-0.29*** (0.08) [-3.60]	-0.22** (0.09) [-2.45]	-0.11*** (0.04) [-2.68]
D(Log Service Exports (-1))	0.17 (0.11) [1.49]	-0.09 (0.12) [0.71]	0.07 (0.10) [0.72]
D(Log Service Exports (-2))	0.23** (0.11) [2.04]	0.17 (0.12) [1.44]	0.14* (0.09) [1.53]
D(Log Service Exports (-3))	0.23* (0.12) [1.90]	0.17 (0.13) [1.29]	- - -
D(Log_REER (-1))	0.18 (0.27) [0.65]	0.14 (0.27) [0.52]	-0.04 (0.20) [-0.20]
D(Log_REER (-2))	0.05 (0.27) [0.17]	0.035 (0.26) [0.13]	-0.02 (0.19) [-0.08]
D(Log_REER (-3))	-0.03 (0.26) [-0.10]	-0.05 (0.26) [-0.20]	- - -
COVID_dummy (Q22020)	0.02 (0.04) [0.40]	0.01 (0.05) [0.18]	-0.03 (0.03) [-0.87]
Q42010_dummy ^	- - -	- - -	0.09*** (0.03) [2.78]
Q42011_dummy ^	0.08** (0.04) [2.03]	0.07* (0.04) [1.74]	0.07** (0.03) [2.32]
Q22017_dummy ^	0.11*** (0.04) [2.95]	0.11*** (0.04) [3.01]	0.13*** (0.03) [4.78]
Q22022_dummy ^	0.14*** (0.04) [3.76]	0.14*** (0.04) [3.65]	0.14*** (0.03) [5.01]
D(Log_telecom subscribers)	- - -	0.40* (0.24) [1.68]	- - -
Diagnostics			
Adj. R-squared	0.41	0.43	0.57
F-Statistic	4.60	4.44	8.28
VEC Residual Portmanteau Tests for Autocorrelations for Lag h (P-value) ²⁶	0.36	0.54	0.71
Sample period	2010q1-2022q4	2010q1-2022q4	2010q1-2022q4
Observations	52	52	52

Notes: 1. ***, ** and *: Represent significance at 1 per cent, 5 per cent and 10 per cent levels of significance, respectively.

2. Figures in () and [] indicate standard errors and t-statistics, respectively.

3. ^: Period dummies to control for outliers.

²⁶ Null Hypothesis: No residual autocorrelations up to lag h. Further, the test is valid only for lags larger than the VAR lag order. Further, VEC Residual Serial Correlation LM Test and VEC Residual Heteroscedasticity Test were carried out, which produced satisfactory results.

and 3). The error correction terms are negative and significant. Further, the results indicate that services exports benefit from an increase in the number of telecom subscribers (Specification 2) and higher FDI in services (Specification 3). The estimates are in line with the literature, which conclude that exports are strongly determined by the output of trading partners (Ahmad *et al.*, 2017; Malik and Velan, 2020; Thomas, 2015; Sahoo *et al.*, 2013). In the case of India's software exports, physical distance has been found to not significantly hinder trade (Tharakan *et al.*, 2005). In addition, the literature provides similar evidence of a significant impact of REER on India's services exports. Services, especially modern services, use fewer imported inputs, have lower fixed costs of entry and are in highly competitive sectors which allow for an elastic supply response (Eichengreen and Gupta, 2012; Chinoy and Jain, 2019).

V. Conclusion

India's services exports have exhibited resilience over the past decade. A deep dive suggests that volume effects have majorly driven India's services exports relative to price effects. There has been a visible rise in the trend component of India's services exports, benefitting from infrastructural developments (transport/logistics/IT) and technological advancements. Furthermore, the RCA analysis indicates that India has a comparative advantage in telecommunication, computer and information services and also has the potential to diversify its export basket towards other business services.

The empirical analysis suggests that global demand as well as relative prices impact India's services exports. To harness the benefits of digitalisation and generative AI, a supportive policy environment would be critical. Additionally, policies to attract FDI in the services sector could provide a further boost to India's exports of services in the medium to long-run.

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Annex

Table 1: Variables and Data Sources

Variables	Data Source
Services Exports	Balance of Payments Statistics, Reserve Bank of India (RBI)
40 Currency Trade Weighted REER	Centralised Information Management System, RBI
OECD-Real GDP (Volume Index)	OECD.Stat
FDI-Services	Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, Government of India
Number of Telecom Subscribers	World Bank Indicators

Table 2: Results of Unit Root Tests

Variables	Augmented Dickey-Fuller (ADF) Test (Probability Value)	
	Log X	Δ Log X
Log (Services Exports)	1.00	0.00
Log (REER Trade)	0.76	0.00
Log (OECD GDP)	0.99	0.00
Log (Telecom Subscribers)	0.91	0.00
Log (FDI in Services)	0.79	0.00

Note: Null Hypothesis states that the series is non-stationary; All variables were de-seasonalised before checking for the presence of unit root.

Table 3: Results of the Johansen Cointegration Tests

Specification 1 Series: Log(Services Exports); Log(REER Trade); Log(OECD GDP)#				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None*	0.24	13.45	12.32	0.03
At most 1*	0.01	0.54	4.13	0.53
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None*	0.24	12.91	11.22	0.03
At most 1*	0.01	0.54	4.13	0.53
Sample period: 2010Q1 to 2022Q4; Observations: 52.				
Specification 2 Series: Log(Services Exports); Log(REER Trade); Log(OECD GDP)#				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None*	0.25	14.85	12.32	0.02
At most 1*	0.00	0.03	4.13	0.88
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None*	0.25	14.82	11.22	0.01
At most 1*	0.00	0.03	4.13	0.88
Sample period: 2010Q1 to 2022Q4; Observations: 52.				
Specification 3 Series: Log(Services Exports); Log(REER Trade); Log(OECD GDP)#; Log(FDI-Services)#				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None*	0.29	17.30	12.32	0.01
At most 1*	0.01	0.27	4.13	0.67
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None*	0.29	17.03	11.22	0.00
At most 1*	0.01	0.27	4.13	0.67

*: Denotes rejection of the hypothesis at the 0.05 level; **: Denotes MacKinnon-Haug-Michelis (1999) p-values; #: Variable was used as exogenous variable (long-run only).

Note: Both Trace and Max Eigen value tests indicated the presence of one cointegrating equations at the 0.05 level.

Source: Authors' calculations.

Food and Fuel Prices: Second Round Effects on Headline Inflation in India

by Harendra Kumar Behera and Abhishek Ranjan[^]

This article estimates the time-varying impact of food and fuel price shocks on core inflation to examine their potential second-round effects on headline inflation in India. The empirical analysis suggests a decline in both the magnitude and duration of the impact of food shocks on core inflation in the post de jure flexible inflation targeting (FIT) regime. However, the response of core inflation to fuel price shock becomes significant and large during global uncertainties. A decline in volatility and persistence of core inflation shock along with the fall in pass-through of food shocks to core inflation pointing towards some moderation in the second-round effects of food inflation swings on headline inflation.

Introduction

Supply shocks play a significant role in shaping inflation dynamics, with first and second-round effects exerting distinct but interconnected influences on prices and economic activity. The first-round effects typically manifest as immediate changes in the prices of goods and services directly affected by the shocks originating from a variety of sources, including geopolitical events, natural disasters, technological innovations and policy interventions. The second-round effects occur after the transmission of initial price changes to other sectors of the economy through various channels. These channels include input-output linkages, wage adjustments, and expectation formation. For example, a rise in energy prices can increase production costs for manufacturers,

leading them to pass these higher costs to consumers through higher prices for finished goods. Moreover, workers may demand higher wages to compensate for the erosion of their purchasing power, further exacerbating inflationary pressures. Notably, the propagation of second-round effects depends, *inter alia*, on the extent of price stickiness, labour market rigidities, and the credibility of monetary policy in anchoring inflation expectations. By enhancing the understanding of these dynamics, policymakers can better anticipate and respond to supply-driven fluctuations in inflation, promoting macroeconomic stability and sustainable growth amid uncertainty and volatility.

Emerging Market Economies (EMEs) are generally more susceptible to supply-side shocks due to the high weight of food and fuel in their consumer price basket. Many EMEs have adopted a flexible inflation targeting (FIT) framework, where the inflation forecast serves as an intermediate target. Inflation forecasting and management become a daunting task in the presence of high volatility in food and fuel prices, especially in EMEs like India, where food and fuel components taken together account for 53 per cent of the CPI basket. In such a scenario, second-round effects can be especially concerning, as they can lead to a vicious cycle of rising prices, thereby destabilising inflation expectations. If the central bank has established credibility in consistently meeting its inflation objectives, the extent of second-round effects may be more moderate (Mishkin 2007a,b). Credibility fosters stable expectations among economic agents, reducing the likelihood of extreme reactions to policy adjustments.

India's monetary policy framework has undergone significant changes with the adoption of FIT since September 2016. The headline CPI inflation broadly remained close to the target in the post-FIT regime until the onset of the COVID-19 pandemic in March 2020. Subsequently, inflation picked up due

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to overlapping domestic and global supply shocks, *viz.*, extended supply chain disruptions due to the pandemic, the war in Ukraine and the concomitant jump in crude oil and other commodity prices, and erratic weather (uneven and excess/scanty rainfall).

Vegetable inflation accelerated to 37.4 per cent in July 2023 before moderating to 3.4 per cent in September, mainly due to supply disruptions caused by heavy rainfall and floods in the northern parts of the country and lower production in Karnataka and Maharashtra due to pest attacks on crops. However, it again rose to 26.7 per cent in December 2023. Persistent price pressures in cereals, pulses, and spices have kept overall food inflation elevated. While these shocks seemed to be transitory, recurring incidences of such shocks can impart generalisation and persistence. As noted by Dr. M.D. Patra, Deputy Governor, in his minutes in the Monetary Policy Committee meeting of October 2023, "... When headline inflation faces price pressures from perishables like vegetables, the standard operating procedure of monetary policy is to look through the transitory impact of their first-round effects and await mean reversion. Increasingly, however, these so-called transitory shocks test our buffers and policy responses, given their unanticipated nature. Moreover, these so-called transitory shocks recur with high intensity and disturbing force. Price pressures accumulate in the inflation formation process, imparting hysteresis to inflation expectations and potentially to actual inflation outcomes."

RBI Governor, Mr. Shaktikanta Das, also stated in his December 2023 policy statement, "... Headline inflation continues to be volatile due to multiple supply side shocks which have become more frequent and intense. The trajectory of food inflation needs to be closely monitored. Intermittent vegetable price shocks could once again push up headline inflation in November and December. While monetary policy would look-through such one-off shocks, it has to stay alert to the risk of such shocks becoming generalised

and derailing the ongoing disinflation process." Again, in his February 2024 statement, he reiterated the issue by stating, "... Recurring food price shocks could interrupt the ongoing disinflation process, with risks that it could lead to de-anchoring of inflation expectations and generalisation of price pressures."

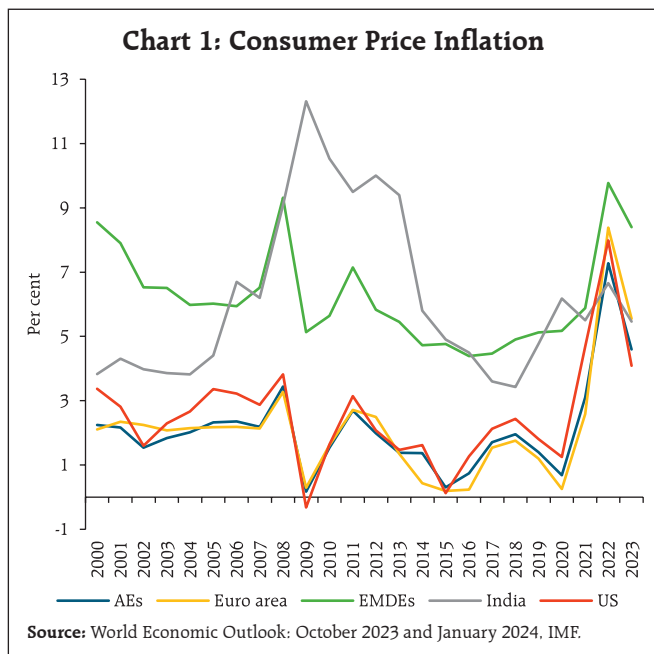
More recently, inflation has been moderating. In particular, core inflation has softened to below 4 per cent in response to anti-inflationary monetary policy stance and correction in input costs. However, given the large volatility that has been observed in inflation in India as well as major economies post-pandemic, policymakers face challenges in dealing with surges/collapses in food or energy prices as it is difficult to know *ex ante* the nature of these shocks - whether permanent or temporary, and whether they are going to have second-round effects. Moreover, when there is a regime change, understanding the evolution of second-round effects becomes paramount.

In view of the above background, this article tries to estimate the time-varying impact of food and fuel inflation shocks on core inflation to assess second-round effects¹. Additionally, an attempt has been made to study how inflation persistence has changed over time in view of changing food and fuel price dynamics. The following section presents some stylised facts about both global and domestic inflation dynamics. Section III discusses both methodology and empirical results. The final section provides some concluding remarks.

II. Inflation Dynamics: Stylised Facts

Inflation surged across countries following the pandemic and reached levels unseen since the great inflation of the 1970s (Chart 1). Inflation surged to 9.1 per cent in the US by June 2022 and to 10.6 per cent in the euro area by October 2022, and it has started moderating gradually thereafter.

¹ Core inflation used in this article is measured by excluding food and fuel inflation from the headline inflation.



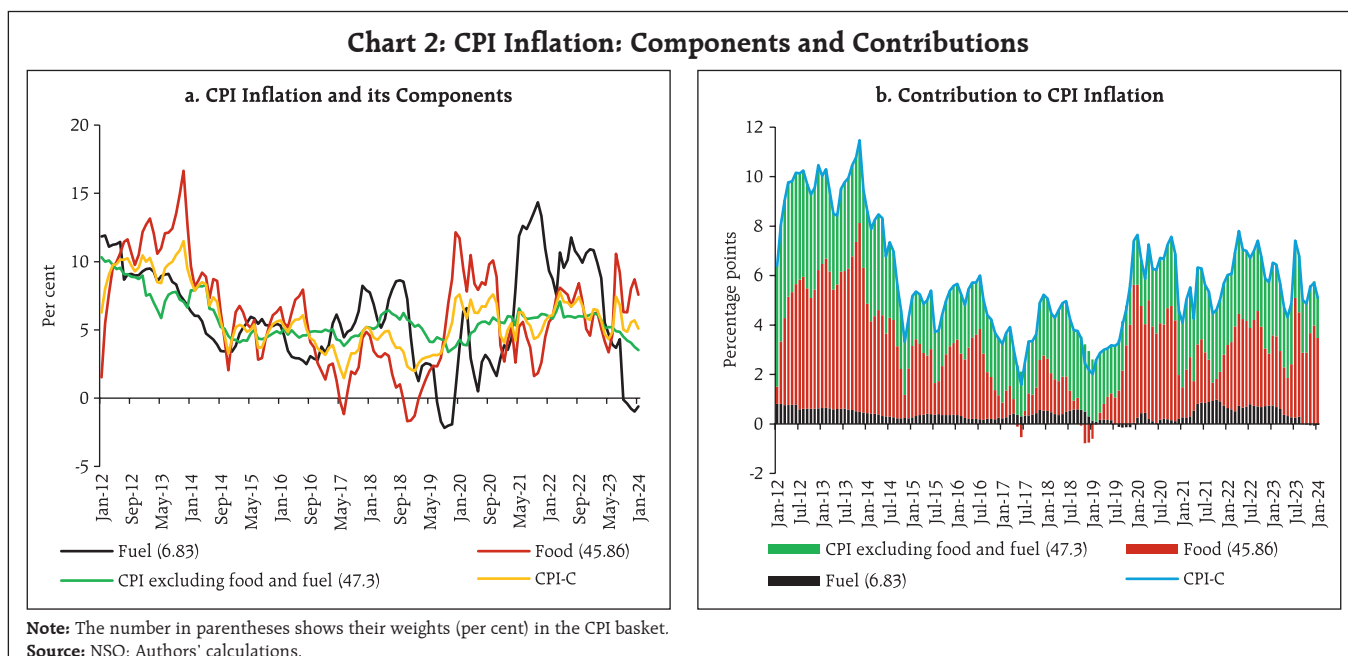
As compared with advanced economies (AEs), inflation accelerated at a slower pace in emerging and developing market economies (EMDEs) but is now above the levels of the AEs. Another feature of EMDEs is the greater weight of food items in their CPI basket (Table 1). Unlike in the AEs, food price shocks in the EMDEs are more frequent with persistent effects, which can propagate strongly to core inflation (Walsh,

Table 1: Weights of Food and Fuel in Consumer Price

(in per cent)			
Country	Food	Fuel	Source
US (Urban)	14.41	6.66	CEIC (2023)
UK	11.9	14.1	CEIC (2023)
Germany	12.66	5.35	Eurostat (2022)
France	16.56	4.73	Eurostat (2022)
Japan	26.26	6.93	CEIC (2023)
India	45.86	6.84	CEIC (2023)
China	19.9	2~3	Bloomberg
Brazil	21.11	11.46	CEIC (2023)
Australia	17.18	4.52	CEIC (2023)
Philippines	37.73	6.74	CEIC (2023)
Indonesia	25.01	5.81	CEIC (2023)
Myanmar	58.46	8.08	CEIC (2022)
Thailand	40.35	5.49	CEIC (2023)

2011). Hence, ignoring food price shocks in monetary policy formulation can often result in policy mistakes (Anand, 2014). Moreover, because of the high share of food in the overall consumption basket, food inflation plays a crucial role in forming inflation expectations and wage price increases.

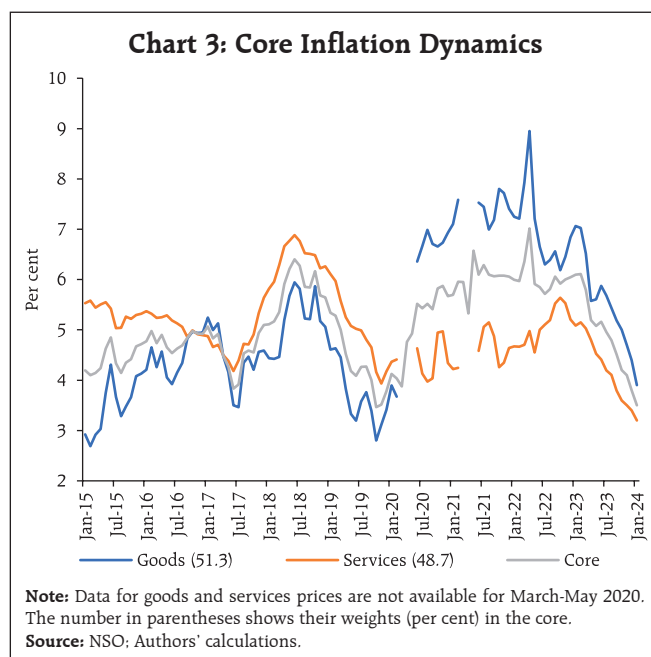
As in the other EMDEs, the weight of food in CPI basket in India is the largest, and this is also reflected in its contribution to overall inflation (Chart 2). The contribution of fuel inflation has



also been significant during episodes of high global uncertainty. In India, headline inflation and food inflation move in tandem with a correlation coefficient of 0.93. The volatility in headline inflation is driven by both food and fuel inflation, as core inflation is relatively stable.

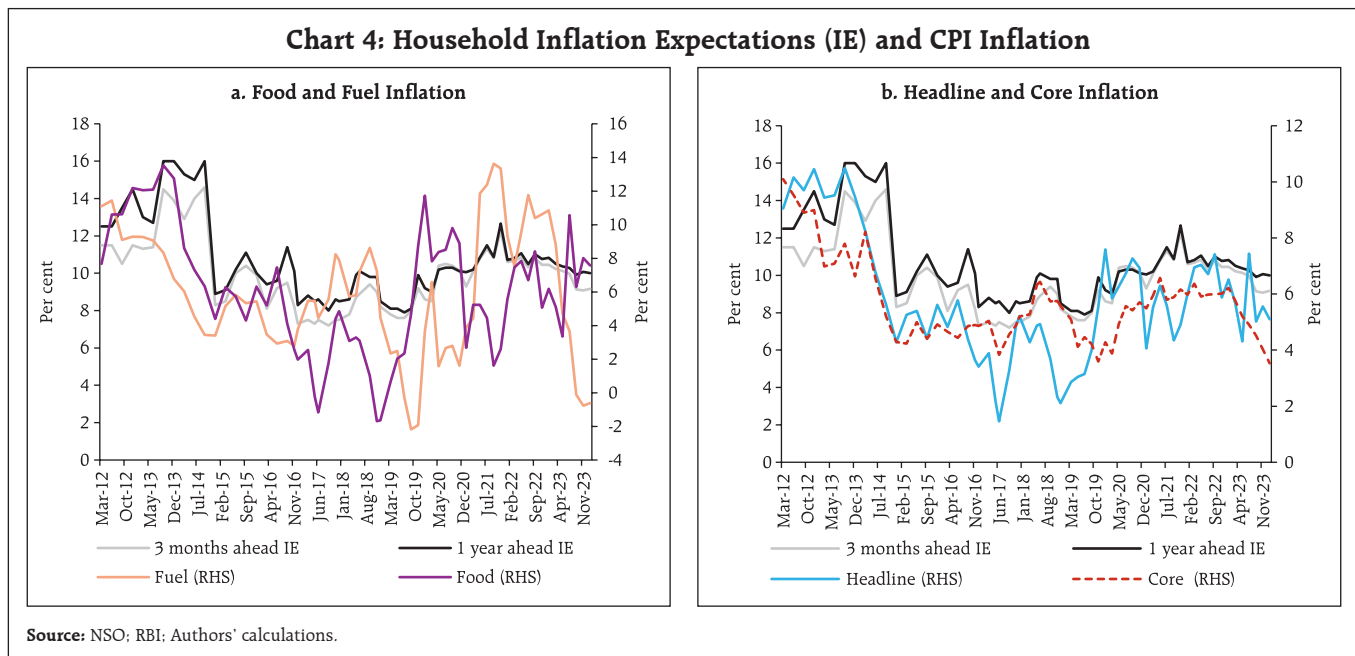
Headline inflation stayed elevated during 2020-21, mainly due to supply disruptions during the nationwide lockdown, non-availability of labour at mandis, impediments to transportation, and excess rains causing damage to vegetables and *Kharif* crops. As a result, headline inflation reached a multi-month peak of 7.6 per cent in October 2020. With the ebbing of supply-side pressures and prospects for the *rabi* crop becoming better, food inflation eased from 10.1 per cent in October 2020 to 1.6 per cent in September 2021, and headline inflation remained below the upper tolerance level of the target except for the months of May and June, mainly due to the upside price pressures stemming from fuel components. Subsequently, a steep increase in vegetable prices led to food inflation reaching 10.6 per cent in July 2023, which eased subsequently to 6.2 per cent in October 2023 with the reversal of vegetable price pressures. Pandemic-driven adverse supply shocks, taxes and sustained input cost pressures kept core inflation elevated until February 2023, which has since then abated to below 4 per cent. Core inflation was mainly driven by goods price inflation in the post-pandemic period, as sharp rises in input costs due to supply disruptions during the pandemic were gradually passed on to commodity selling prices of the firms (Chart 3). The services core inflation contribution to overall core inflation moderated from about 55 per cent before the pandemic to about 40 per cent subsequently, mainly driven by reduced pressures in house rent, health, education and household services.

The sharp rise in inflation around the world during 2021-2022 has ignited academic and policy interest in



examining the role of inflation expectations in driving inflation dynamics (Brandão-Marques *et al.*, 2023). In the Indian context, it is also found that household expectations play a crucial role in determining inflation (Pattanaik *et al.*, 2020), and inflation expectations are anchored by food inflation (Anand *et al.*, 2014). Moreover, high food and fuel inflation can get generalised in the system through inflation expectations (RBI, 2014). The correlation between household inflation expectations (3-month ahead IE or 1-year ahead IE) and food inflation remains high, though it has declined in the recent period (Chart 4). The correlation of household inflation expectations (1-year ahead) with headline inflation is 0.73, and with core inflation is 0.68. However, the relationship between household inflation expectations and fuel inflation has weakened.

Wage growth, if not commensurate with productivity gains, could be inflationary. A sustained increase in wages drives food inflation by buttressing demand where the impact is more persistent (Mohanty, 2014). Wage growth is persistent only when food inflation crosses double digits (Goyal and Baikar, 2015). A sharp rise in food inflation can feed into



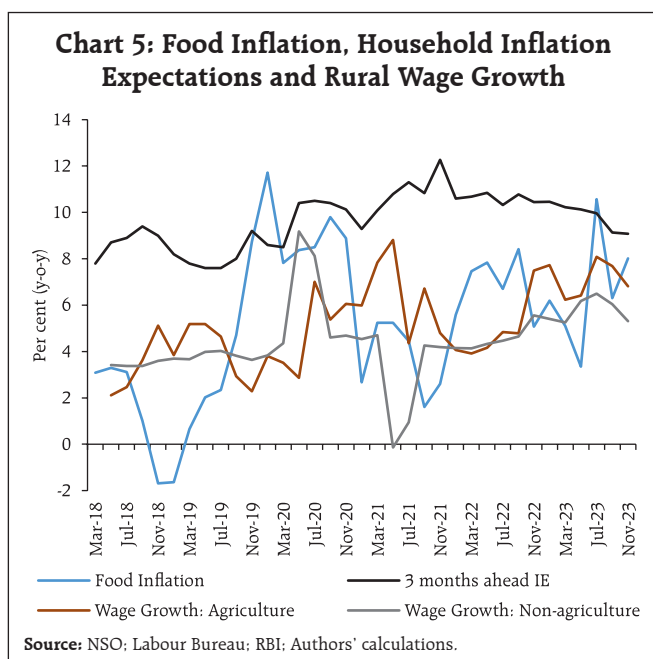
rural wages and inflation expectations (Chart 5). The inflationary impact of a food price shock may not be transitory when inflation expectations are high and not well anchored. This could have an adverse impact on inflation expectations and, hence, the medium-term inflation outcome.

III. Empirical Findings

A formal way to assess whether monetary policy should react to temporary supply shocks is to test the degree of second-round effects of food and fuel inflation. Volatile price changes dissipate when headline converges to core; but those price changes could potentially lead to second-round effects when core converges to headline (Cecchetti and Moessner, 2008; Borio *et al.*, 2023; Patra *et al.*, 2023). If π_t is the headline inflation and π_t^c is the core inflation, the empirical test of the presence of a second-round effect can be examined through an 'inflation-gap' model. Hence, the difference between headline inflation with varied lags 'h' ($\pi_t - \pi_{t-h}$) is regressed on the difference between headline and core inflation for the same lag ($\pi_{t-h} - \pi_{t-h}^c$) as given below:

$$(\pi_t - \pi_{t-h}) = a_1 + b_1(\pi_{t-h} - \pi_{t-h}^c) + \epsilon_{1t} \quad \dots(1)$$

A statistically significant b_1 coefficient indicates the transmission of shocks from non-core components to core inflation. When b_1 is negative, it indicates that headline inflation converges to core inflation and any deviation of headline from core is transitory and may



not get generalised. On the other hand, a positive b_1 indicates the persistence of supply shocks, keeping headline inflation elevated.

To examine whether core inflation reverts to headline inflation, the following equation is estimated:

$$(\pi_t^c - \pi_{t-h}^c) = a_2 + b_2(\pi_{t-h} - \pi_{t-h}^c) + \epsilon_{2t} \quad \dots(2)$$

When the coefficient b_2 is positive and statistically significant, it indicates that a rise in headline inflation above the core subsequently raises core inflation, leading to the convergence of core to headline inflation.

Using quarterly data for the period 1997-98:Q1 to 2023-24:Q3, the above equations (1) and (2) are estimated for $h = 1, 2, 3$, and 4 .² The results indicate that there is convergence of core to headline inflation for the near-term horizon, as b_2 is positive and statistically significant up to the 2nd quarter (Table 2). However, the headline reverts to core inflation over 3-4 quarters, as b_1 is negative and statistically significant for $h = 3$ and 4 .³ In the Indian context, the presence of the second-round effect was found by Raj and Misra (2011) and Anand *et al.* (2014), where either the wholesale price index (WPI) or CPI-IW was used to

measure inflation. Recent studies based on CPI-C data showed that headline inflation often reverts to core inflation (Dholakia and Kadiyala, 2018; Patnaik, 2019; Raj *et al.*, 2020; Goyal and Parab, 2020; RBI, 2021; Patra *et al.*, 2023; George *et al.*, 2024).

Given the above findings, it would be pertinent to examine how the impact of supply shocks has changed over time. The relationship between food/fuel inflation and core inflation is investigated by using a TVP-VAR framework (Primiceri, 2005), covering data on core, food and fuel inflation and real GDP growth (y-o-y) from 1997-98:Q1 to 2023-24:Q3. The TVP-VAR model with a stochastic volatility framework has been used since inflation components have been highly volatile during different episodes.

We follow Österholm (2018) for estimating the TVP-VAR model with stochastic volatility. The model is represented by:

$$B_{0t}y_t = c_t + B_{1t}y_{t-1} + B_{2t}y_{t-2} + \epsilon_t; \quad \forall t \in \{1, 2, \dots, T\}$$

B_{0t} is 4×4 lower triangular matrix with ones on the diagonal; y_t is a 4×1 vector of observed endogenous variables (core, food, fuel inflation, and GDP growth)⁴; c_t is an 4×1 vector of time varying intercepts; B_{it} , $i = 1, 2$, are 4×4 matrices describing the dynamics of the model; $\epsilon_t \sim N(0, \Omega_t)$, where $\Omega_t = \text{diag}(\exp(h_{1t}), \exp(h_{2t}), \exp(h_{3t}), \exp(h_{4t}))$

The free parameters of c_t and B_{it} are represented by the vector θ_t , which is specified by the process:

$$\theta_t = \theta_{t-1} + v_t$$

where, $v_t \sim N(0, \Sigma_\theta)$. Log-volatilities (h_t) are considered to follow a random walk, *i.e.*,

$$h_t = h_{t-1} + \zeta_t$$

where, $\zeta_t \sim N(0, \Sigma_h)$.

Table 2: Regression Results

h	b_1	b_2
1	-0.09 (-1.03)	0.21** (2.39)
2	-0.24 (-1.54)	0.29** (2.55)
3	-0.47* (-1.79)	0.27 (1.47)
4	-0.66* (-1.86)	0.32 (1.25)

*,**,***: Significant at <10%, <5% and <1% level, respectively. Figures in parentheses are t-statistics.

² CPI data prior to 2011 are not available, and therefore, the back-casted series of CPI-C was generated by using the price indices of CPI for industrial workers (CPI-IW) (Base: 2001=100) and applying the corresponding weighting diagram of CPI-C at sub-group level, with some minor adjustments.

³ A similar exercise conducted by using monthly data for the period January 2012 to December 2023 suggests the convergence of headline to core irrespective of various lags; however, the convergence of core to headline is not found to be statistically significant.

⁴ We have separately run this model using three variables, *viz.*, core inflation, GDP growth along with either fuel inflation or food inflation at a time. The results are found to be almost similar to TVP-VAR model results with four variables taken together.

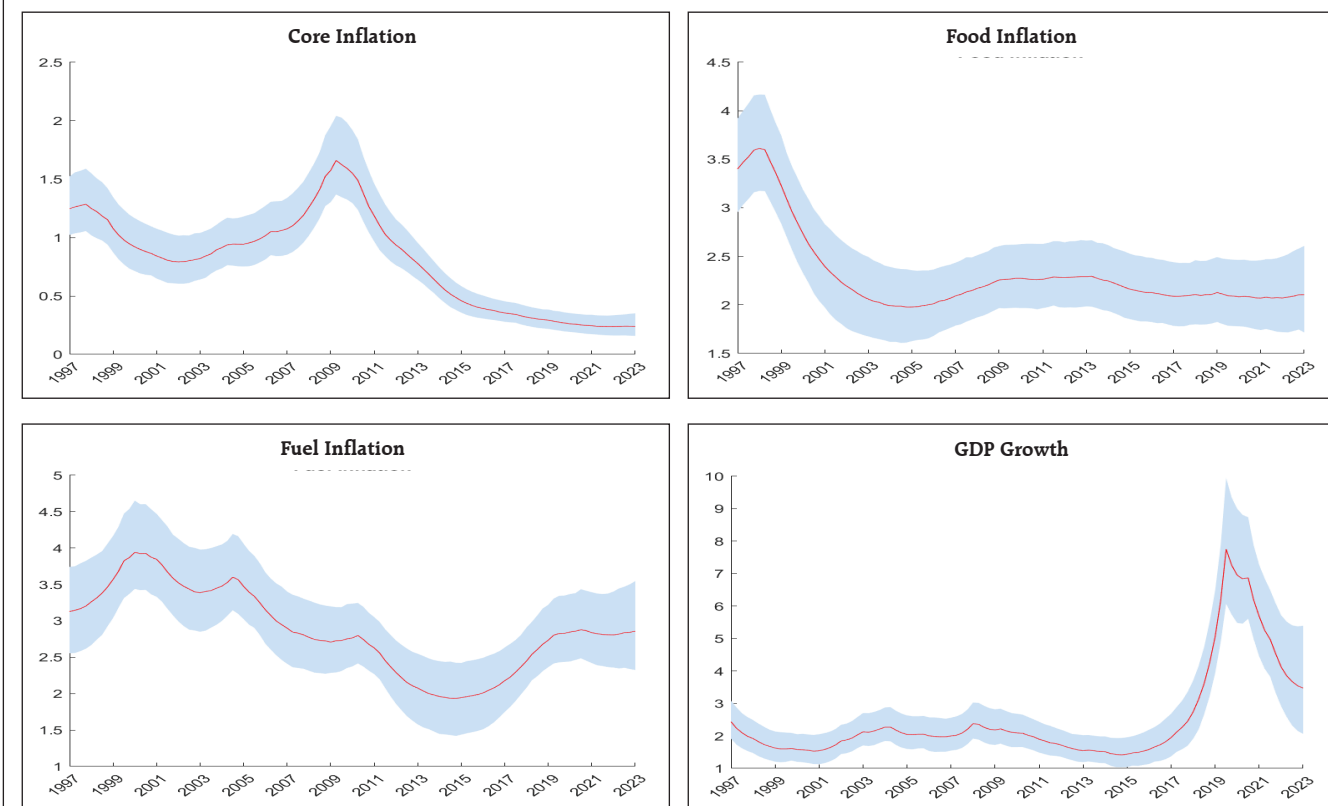
Initial values of θ_0 and h_0 have been estimated⁵. The specified model has been estimated by using the Bayesian Markov Chain Monte Carlo (MCMC) method (with 200,000 simulations). After discarding the initial 50,000 samples in the burn-in period, the posterior estimates are derived from the rest where the sample paths are stable, and the sample autocorrelations are much lower.

The estimated stochastic volatility is found to be higher for fuel and food as compared to core inflation (Chart 6). While food inflation volatility has declined over time, reflecting advancements in

infrastructure and better supply management, fuel inflation volatility has varied significantly over time in tandem with swings in global energy prices. The volatility of core inflation has also been on a steady decline since the Global Financial Crisis. The volatility of GDP growth has been mostly range-bound except during the pandemic.

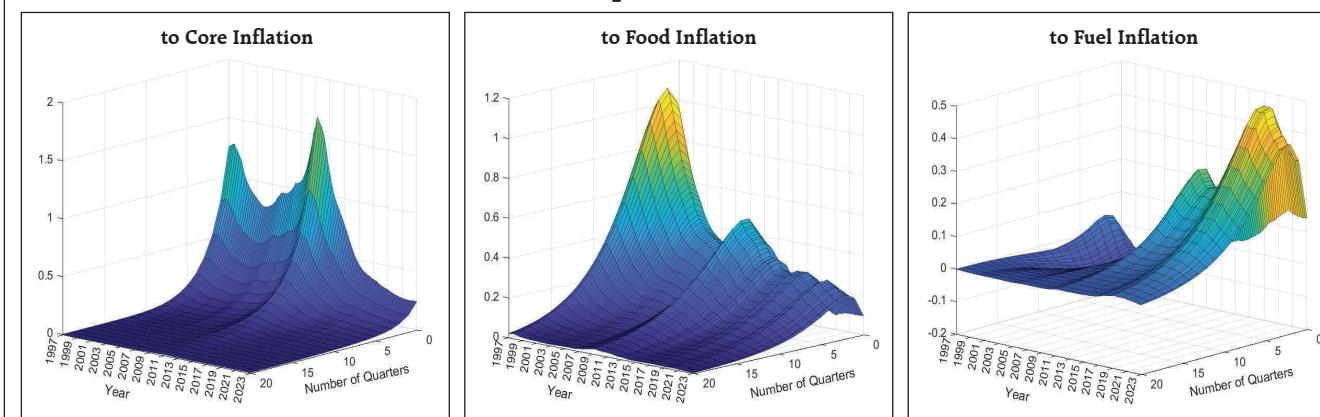
The median impulse responses generated by using posterior estimates show that the responsiveness of core inflation to its own shock has varied over time (Chart 7). After declining until 2007, both the magnitude and persistence increased subsequently

Chart 6: Stochastic Volatility of Inflation Components and GDP Growth



The shaded area in blue represents 90 per cent credible bands.
Source: Authors' estimate.

⁵ For the initial condition, θ_0 , the diffuse normal prior is used where $\theta_0 \sim N(0, 10I)$, and the diagonal elements of the Σ_θ have inverse gamma priors, $\sigma_{\theta_i}^2 \sim iG(v_{\theta_i}, S_{\theta_i})$, with $v_{\theta_i} = 5$ and prior mean of 0.01 for the intercepts and 0.0001 for other parameters. For the initial condition of the stochastic volatility, $h_0 \sim N(\mu_h, 0.25I)$ where the variance is log-normal and the elements of μ_h are selected in such a way that the prior mean of $\exp(h_{i0})$ coincides with the constant variance from the data. Finally, the priors for the diagonal elements of Σ_h are inverse Gamma with shape parameter 5 and mean 0.01.

Chart 7: Response of core inflation

Impulse responses in the above chart represent the response of core inflation to 1 standard deviation shock.
Source: Authors' estimate.

and peaked in 2010, followed by a decrease thereafter. Particularly, the core inflation persistence has declined from 6 quarters during 2009-11 to just 1 quarter in 2020-23, suggesting better anchoring of inflation expectations.

The response of core inflation to food inflation shock is found to be the highest during the 2nd to 3rd quarter and starts dampening thereafter. The impact of food inflation shock on core inflation was the maximum during the late 1990s, which has declined over time. The response of core inflation to a one per cent rise in food inflation has declined from 0.37 percentage points in 1998-99:Q2 to 0.18 percentage points in 2006-07:Q4 before increasing again to 0.30 percentage points in 2009-10:Q4. During this period, the response was relatively persistent, with the maximum impact reaching by 3rd quarter. The response had started declining after 2009-10:Q4 and reached 0.17 percentage points in 2015-16:Q1 before increasing again to 0.21 percentage points in 2018-19:Q1. Thereafter, it has been declining consistently and reached 0.14 percentage points in 2023-24:Q3. The significance of the impact declined from 8 quarters in 1997 to 7 quarters in 1999, then it increased to 10 quarters during 2009-2011. However, the duration of

the impact started declining thereafter to 6 quarters by 2022-23. Specifically, the responsiveness of the core inflation to food shock has declined substantially in the post *de jure* FIT regime in India. Turning to fuel component shock, its impact on core inflation is found to be largely statistically insignificant, although it has become statistically significant lately amid large shocks to global energy prices. The impact of the fuel inflation shock persists for a longer duration. The peak impact of a one per cent rise in fuel inflation on the core has reduced from 5-6 quarters in the 2000s to 2-3 quarters during 2018-2023.

IV. Conclusion

This paper assessed the degree and duration of the potential second-round effects of food and fuel price shocks on headline inflation. Our analysis suggests that headline inflation reverts to core inflation and not *vice versa*. While there has been a decline in the volatility of fuel inflation, its impact on core inflation has turned significant of late. By applying the TVP-VAR model, we find that core inflation has become less responsive to supply shocks over time with a reduction of its persistence. Furthermore, our results suggest that the impact of food shock on core inflation

has reduced over time. These findings together imply a better anchoring of inflation expectations, especially after the *de jure* adoption of FIT in India. In today's environment of elevated global uncertainties, recurrent large supply shocks, and shifting climatic patterns, a regular assessment of the pass-through of food and fuel shocks to core inflation is needed for a more informed policy analysis.

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India's Foreign Exchange Reserves in High Volatility Episodes- An Empirical Assessment

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This study analyses the trend of India's Foreign Exchange reserves during major high volatility episodes viz., Global Financial Crisis, Eurozone debt crisis, Taper Tantrum, US-China trade war, the recent Russia-Ukraine conflict and US Fed monetary tightening. It empirically examines major underlying factors impacting the variation in FX reserves such as US Dollar Index (DXY), oil prices, foreign portfolio flows, US financial conditions and market volatility. During the recent Russia-Ukraine conflict and US Fed tightening episode, exchange rate management and reserves faced strong headwinds from trends in DXY, oil prices, foreign portfolio outflows and tight US financial conditions, with the severity of these factors being the highest vis-à-vis the previous high volatility episodes.

I. Introduction

Foreign exchange (FX) reserves are an instrument to maintain or manage the exchange rate stability, while enabling orderly absorption of international money and capital flows. In India, by statute, the Reserve Bank of India is the custodian of the FX reserves and the reserves are held for precautionary and transaction motives keeping in view the aggregate of national interests, to achieve balance between demand for and supply of foreign currencies, for intervention, and to preserve confidence in the country's ability to carry out external transactions (Reddy, 2002). In a regime of free float, it could be argued that there is really no

need for reserves. If demand for foreign exchange is higher than supply, exchange rates will depreciate and equilibrate demand and supply over time. If supply exceed demand, exchange rates will appreciate and sooner or later, the two will equalise at some price. However, in the light of volatility induced by capital flows and the self-fulfilling expectations that this can generate, as a matter of policy, adequate reserves are required to be maintained (Jalan, 2003). As Emerging Market Economies (EMEs) remain vulnerable to external shocks, a strong umbrella of FX reserves becomes imperative for these countries (Das, 2024). While there is little doubt that FX reserves buffer is of utmost importance during times of volatility, particularly, in the absence of any external support such as Dollar swap lines, the reserves themselves may vary significantly during such episodes.

During high volatility episodes, often associated with flight to safety, emerging market currencies face extreme depreciation pressures, impacting their FX reserves. According to the World Bank Treasury's Reserve Advisory and Management Partnership (RAMP) fourth survey on central banks' reserve management practices, global foreign exchange reserves dropped 9.3 per cent in 2022, the most significant reserve downturn since 1982. Worldwide reserves shrank by USD 1.4 trillion and were back to pre-pandemic levels. Sixty two per cent out of 156 countries saw a decrease in their reserves, by an average of 12 per cent. Concomitantly, there was a 21 per cent average drop in import coverage, from 6.2 months down to 4.8 months. In addition to interventions to support domestic currencies, valuation also played a role, due to increase in interest rates and cross-currency movements.

India's FX reserves have also witnessed significant dips during high volatility episodes, including during the recent Russia-Ukraine conflict/ Fed monetary tightening episode, which could be due to the Reserve Bank's FX operations to contain undue exchange

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rate volatility as well as valuation changes¹ in foreign currency assets and gold. In view of the same, this study delves deep into the trend of FX reserves as well as important determinants of FX reserves during the high volatility episodes like Global Financial Crisis, Eurozone Debt Crisis/ Taper Tantrum, EME outflows/ US-China Trade war and the most recent Russia-Ukraine conflict/ Fed tightening episode. The study uses an autoregressive distributive lag (ARDL) model to estimate common underlying factors impacting the variation in FX reserves and assesses severity of the factors across crises.

The rest of the article has been divided into five sections. Section II covers review of related literature; section III depicts variation in India's FX reserves in terms of decline from the previous peak and recovery from the trough across the high volatility episodes. Section IV digs into factors underlying the variations in FX reserves during each of the crises. Section V presents empirical estimation, while Section VI concludes with the findings.

II. Review of Existing Literature

The literature provides diverse views on the factors determining FX reserves as well as motive behind accumulation of reserves. Calvo and Reinhart (2002) observed that emerging economies maintain reserves mainly for managing exchange rate movements rather than managing capital flows. Romero (2005) found that exchange rate volatility and degree of openness are major factors influencing India's FX reserves while for China, the author could not observe any specific factor. The author noted that increased exposure in the international markets could affect the domestic currency, asset pricing, and even the stock market. Thus, offsetting the effect of an external imbalance on the domestic economy is a powerful motive to hold foreign currency reserves. For example, the Asian

Financial Crisis of 1997 started in Indonesia, South Korea and Thailand. Hong Kong, Malaysia, Laos, the Philippines, and China were also affected by the crisis due to their economic ties to these countries. Another incentive to hold reserves is that countries with larger reserve holdings have fared better during financial and currency crises. Dash and Narayanan (2011) found that imports and exchange rate shocks have permanent impact on the reserves.

Based on the experience gained during the various crisis episodes, the major objective behind the accumulation of FX reserves, particularly for emerging economies is self-insurance against the volatile capital flows (Jeanne and Rancière, 2011). Steiner (2013) found that central banks accumulate reserves in order to protect the economy from detrimental effects of sudden stops in capital flows and flow reversals. Central banks can use the accumulation of reserves as a substitute for capital controls. Reserves help to manage net capital inflows and permit the central bank to preserve some leeway for an independent monetary and financial policy despite the classic policy trilemma.

On the optimum level of reserves, there are various criteria - official reserves to imports, reserves to broad money, and reserves to short-term external debt (Wang and Freeman, 2013). Arslan and Cantú (2019) observe that in early 2000s, the precautionary motive was the main driver of reserves accumulation, while recently, the monetary and exchange rate related goals are playing significant roles. The authors argue that macroprudential policies and swap agreements could alleviate reliance on FX reserve accumulation.

Bhasin and Khandelwal (2014) used an autoregressive distributed lag (ARDL) bounds testing approach and found a long-run relationship among exchange rate movements, FII flows and FX reserves in case of India. Raut and Rawat (2022) studying 16 emerging economies found that precautionary motive is the main driver for reserve accumulation as reserves help

¹ Variation in FX reserves on account of valuation changes of its components is beyond the scope of this article.

to reduce the probability of currency crisis. In the case of India, the authors observed that higher FX reserves lower the cost of foreign borrowings.

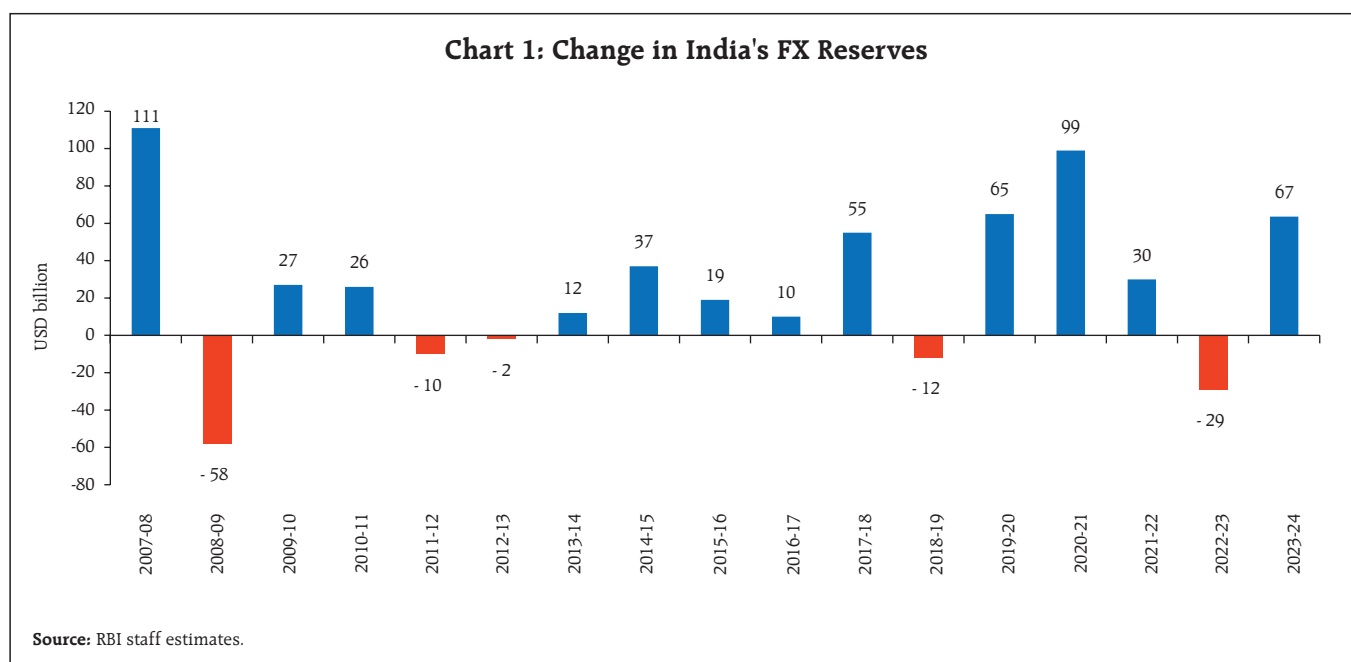
III. Trend of FX Reserves During Various Crises

India's FX reserves have generally trended upwards over time. Since 2007, there has been an accumulation in FX reserves in all years² barring 5 years, viz., 2008-09, 2011-12 and 2012-13, 2018-19 and 2022-23 (Chart 1). These episodes of reserve depletion have coincided with abnormal global economic and financial developments (Raut and Rawat, 2022).³

In each of the major crises in last two decades⁴ viz., Global Financial Crisis (GFC), Eurozone Debt Crisis/Taper Tantrum (EZ debt crisis/TT), EME outflows/ US-China Trade war (EME outflows/TW) episode and the most recent Russia-Ukraine war/ Fed tightening (RU/ FT) episode, India's FX reserves have dipped which

could be on account of Reserve Bank's FX operations to contain exchange rate volatility and revaluation of foreign currency assets. However, reserves have stabilised thereafter and resumed their upward trend as headwinds moderated.

The Indian Rupee's implied volatility has witnessed significant jumps during high volatility episodes, mostly in line with major Asian peer as well as advanced economy (AE) currencies. However, the Reserve Bank's intervention in the forex market and the comfort provided by the large stock of FX reserves, besides various other policy measures, helped contain undue exchange rate volatility and kept FX markets largely stable. Overall, Rupee's volatility expectations have come down over years as corroborated by trends in implied volatility, risk reversal⁵ and butterflies⁶ (Nath *et al.*, 2022). Importantly, the Rupee's implied volatility remained well below that of major Asian



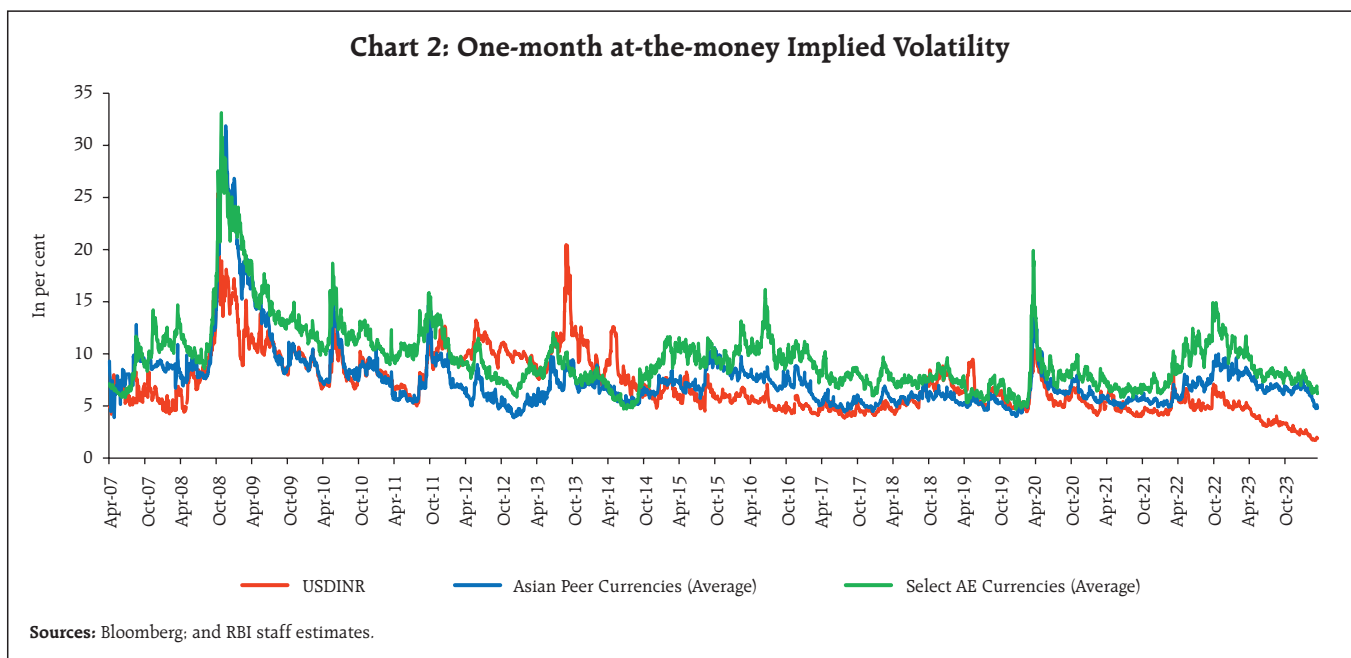
² International Monetary Fund (IMF) made an allocation of Special Drawing Rights (SDR) 12.57 billion (equivalent to around USD 17.86 billion at the then exchange rate) to India on August 23, 2021.

³ Between 1991 and the onset of the GFC, there was reserve depletion only in FY 1995-96.

⁴ 5/10 criteria has been used to identify major crises in last two decades: 5 per cent dip in FX reserves along with 10 per cent depreciation of Rupee against US Dollar. Though Covid-19 pandemic period witnessed heightened volatility, it does not qualify as a major crisis for the study based on 5/10 criteria.

⁵ Difference between out-of-the-money call and put option implied volatility.

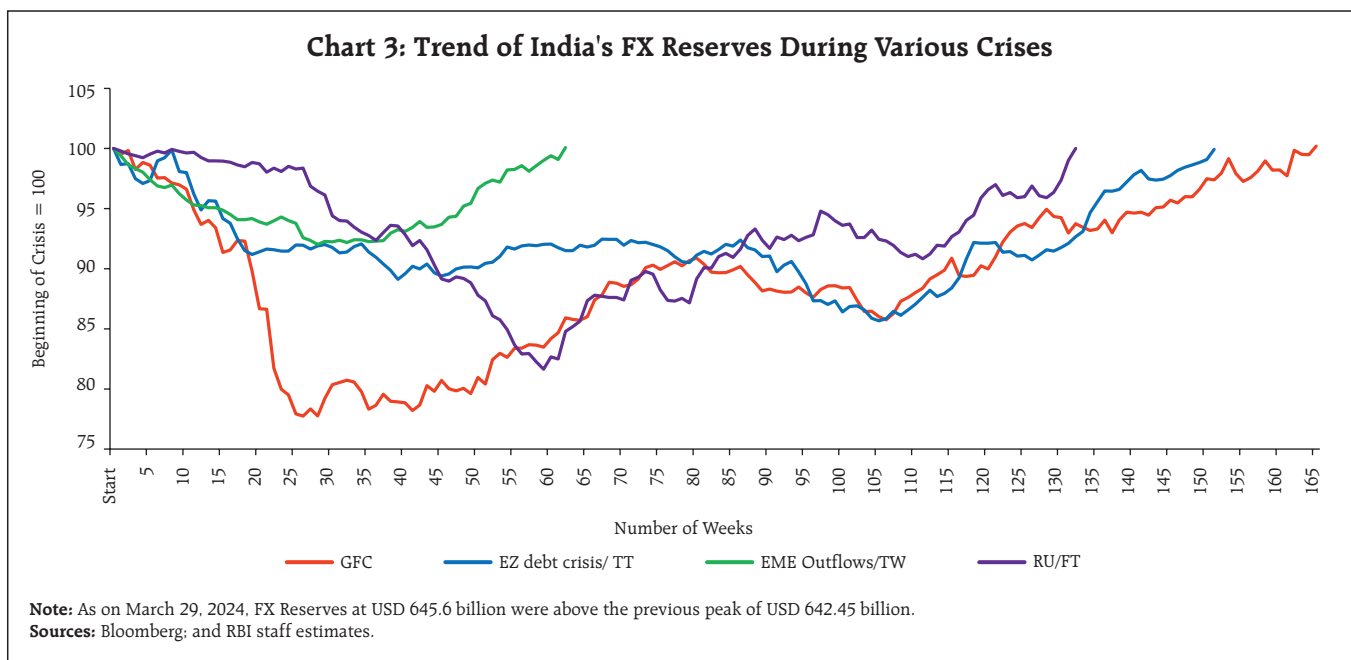
⁶ Measure of the demand for out-of-the-money options (low delta call and put) as compared to at-the-money options-Interpreted as expectations of outsized movements in a currency in either direction -the higher the value, higher the expectations.



peers⁷ and select AE currencies⁸ during the recent RU/FT episode, despite unprecedented headwinds witnessed during the same period (Chart 2).

During GFC, FX reserves dipped to a cycle⁹ low in just 26 weeks, whereas the recovery took 139 weeks. While the dip in reserves during the EZ debt crisis/ TT

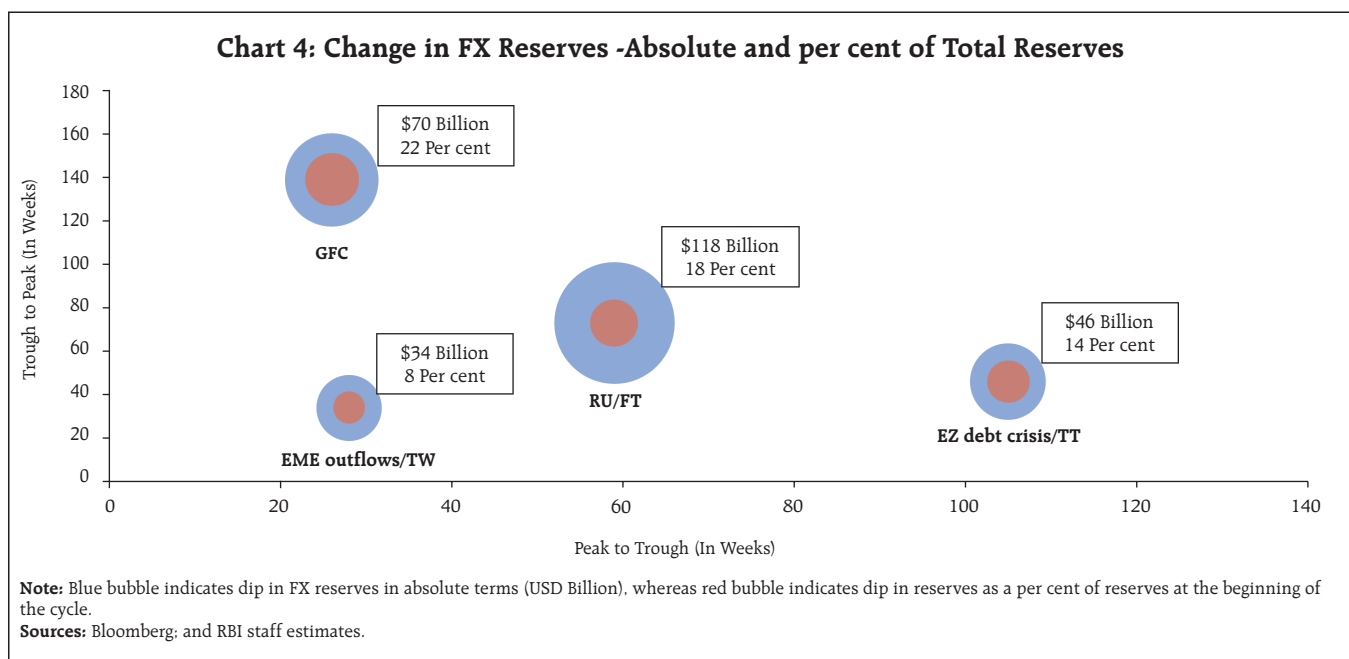
was gradual, the recovery was relatively faster. EME outflows/ TW cycle was not only the shortest but the dip in reserves was also the least. During the most recent RU/FT episode, the reserves dipped sharply after remaining steady for the first six months, while recovery took 73 weeks from the cycle low (Chart 3).



⁷ Chinese Yuan, Indonesian Rupiah, Korean Won, Malaysian Ringgit, Philippine Peso and Thai Baht.

⁸ Australian Dollar, Canadian Dollar, Euro, Japanese Yen and Pound Sterling.

⁹ Here, cycle is defined as points between peak-to-trough-to-previous peak of FX reserves.



The maximum decline in FX reserves in absolute terms was seen during RU/FT episode, at USD 118 billion (peak-to-trough), as compared to USD 34 billion, USD 46 billion and USD 70 billion during EME outflows/ TW, EZ debt crisis/ TT and GFC, respectively (Chart 4). In percentage terms, however, the GFC's 22 per cent decline in reserves was greater than the 18 per cent dip in RU/FT episode, 8 per cent in EME outflows/ TW and 14 per cent in EZ debt crisis/TT.

IV. Factors Underlying Variation in FX Reserves Across Crises

The section discusses potential factors which affect Dollar-Rupee exchange rate and FX reserves, viz., US Dollar strength, Crude oil prices, FPI flows, US financial conditions and expected equity market volatility.

a) Dollar Index (DXY) and Brent

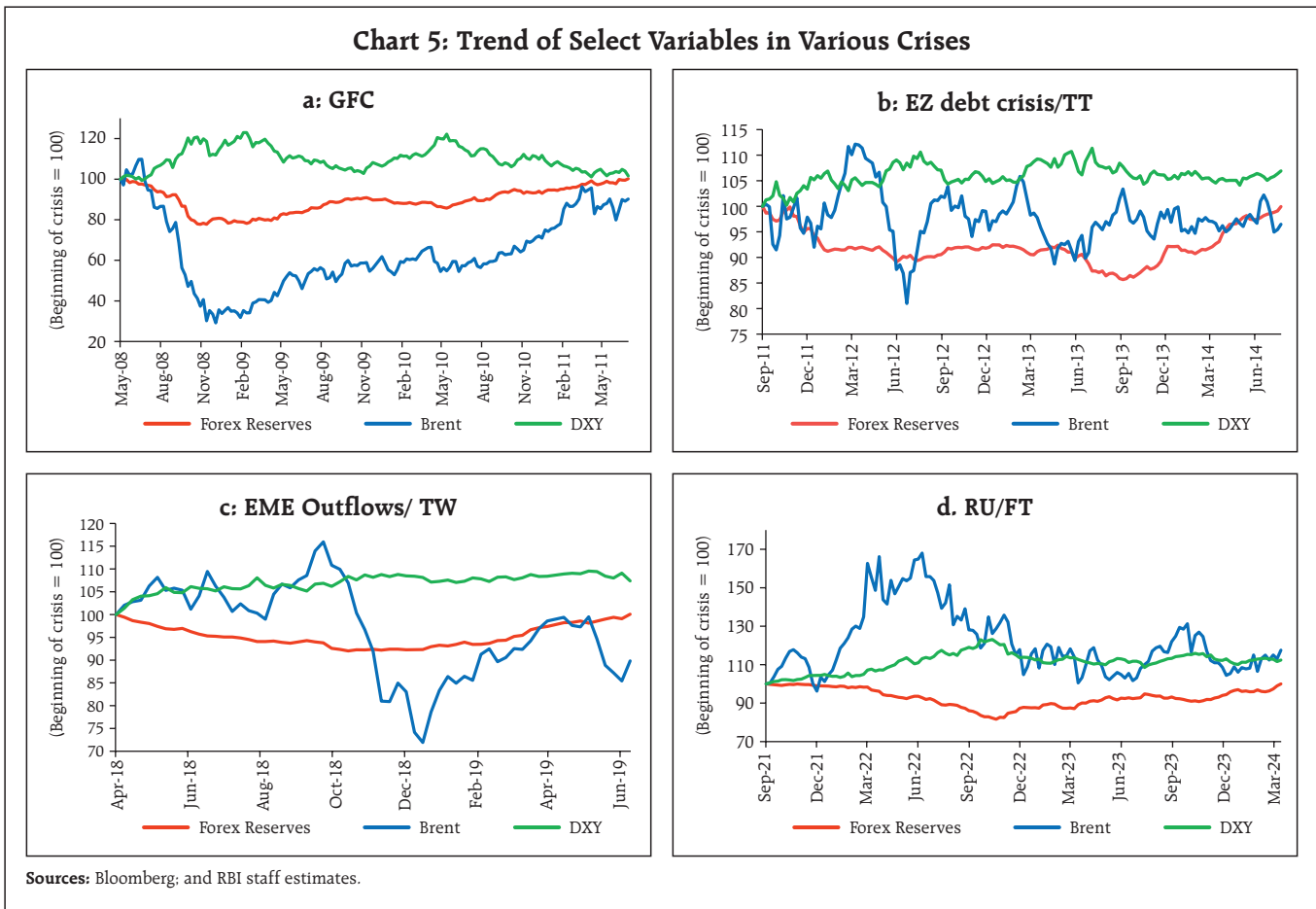
During GFC, the US Dollar Index (DXY) strengthened post onset of the crisis by 23 per cent at its peak, which could have contributed to fall in FX reserves due to a surge in exchange rate volatility and valuation factors (Chart 5.a). However, during the same period, Brent prices plunged by over two-thirds, providing support to the Rupee and FX reserves (*via* import bill). Over

the cycle, average Brent prices were around 63 per cent of prices at the beginning of the crisis.

During EZ debt/ TT crisis, DXY strengthened around 11 per cent to its cycle peak, whereas Brent prices oscillated during the episode (Chart 5.b). Similarly, during EME outflows/ TW period, while DXY strengthened by around nine per cent at its peak, Brent prices remained volatile and witnessed sharp fall towards the latter part of the cycle (Chart 5.c).

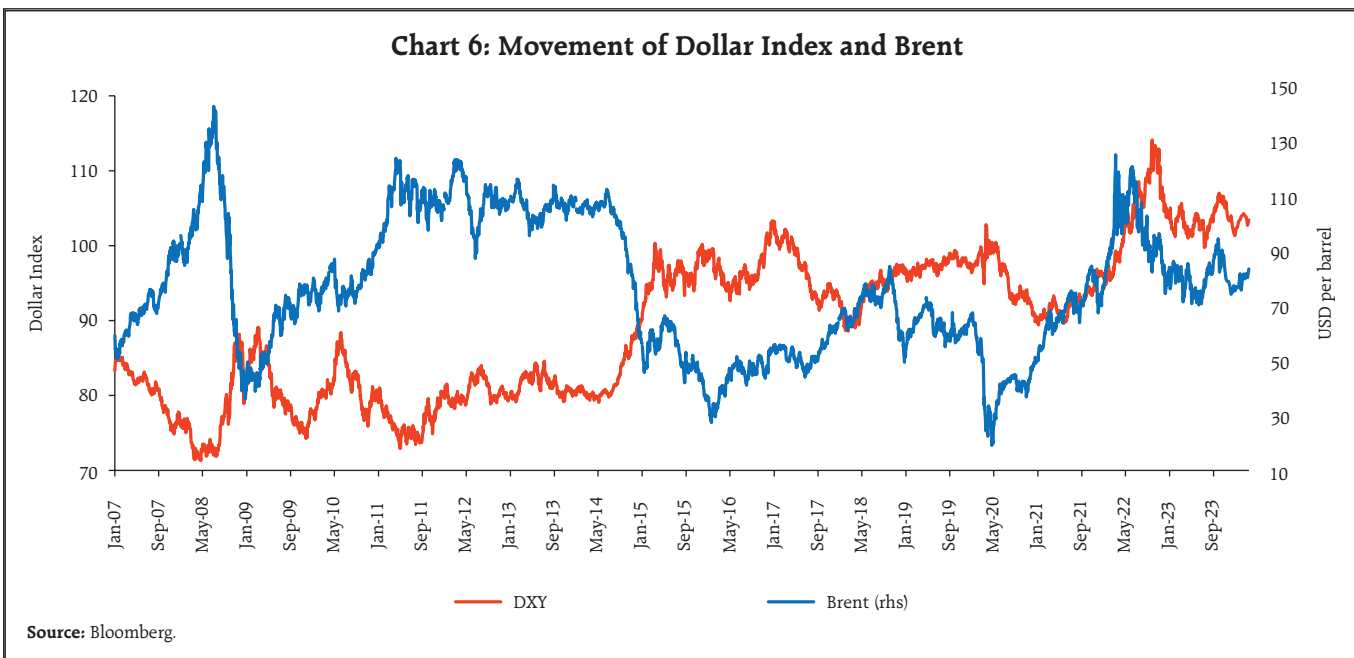
During RU/FT episode, the Rupee and FX reserves faced strong headwinds from both DXY and Brent prices, unlike in the previous high-volatility episodes (Chart 5.d). While DXY strengthened by over 23 per cent at its cycle peak (similar to the GFC), Brent surged by 68 per cent. Though DXY and Brent prices came down from their respective cycle peaks, DXY and Brent averaged 111 per cent and 122 per cent respectively of their beginning of cycle values (as on March 15, 2024), thus, putting a constant pressure on Rupee and FX reserves.

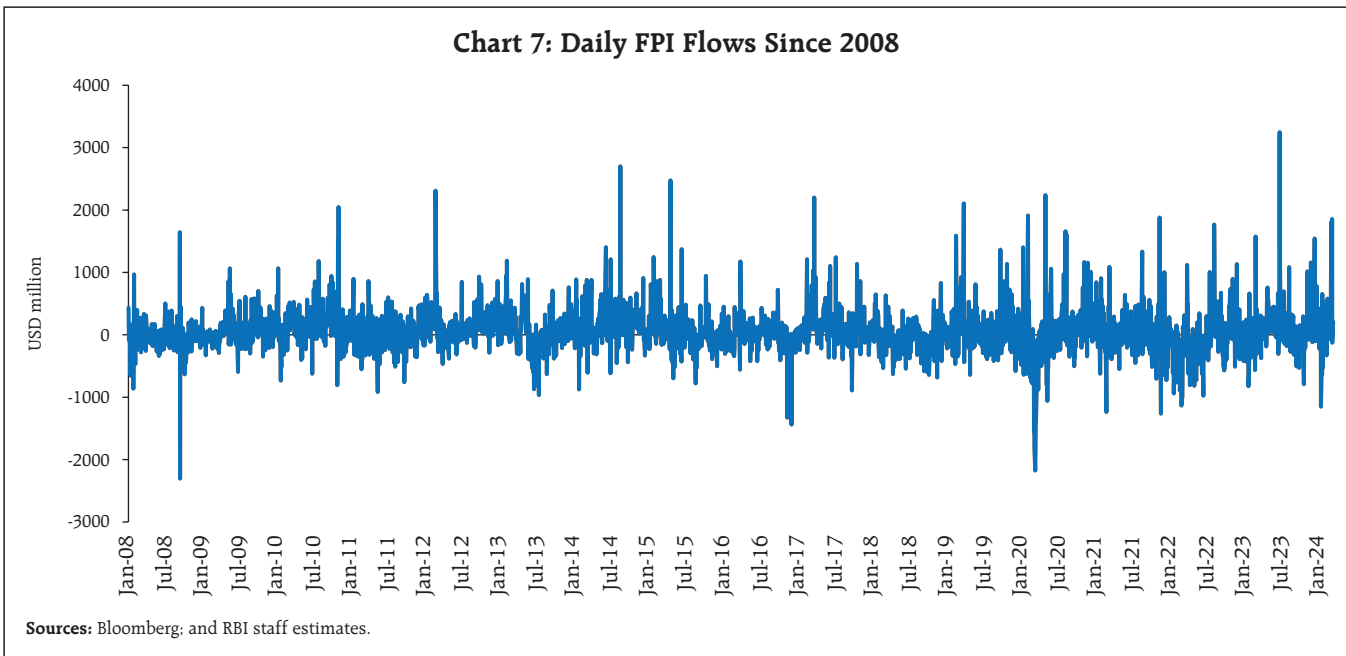
In the previous high volatility episodes, the relationship between DXY and Brent has remained negative suggesting that a strengthening Dollar is



associated with a decrease in oil prices and *vice versa* (Chart 6). During the GFC, EZ debt crisis/TT and EME

outflows/TW, the correlation between DXY and Brent was (-) 0.76, (-) 0.44 and (-) 0.50 respectively. As oil





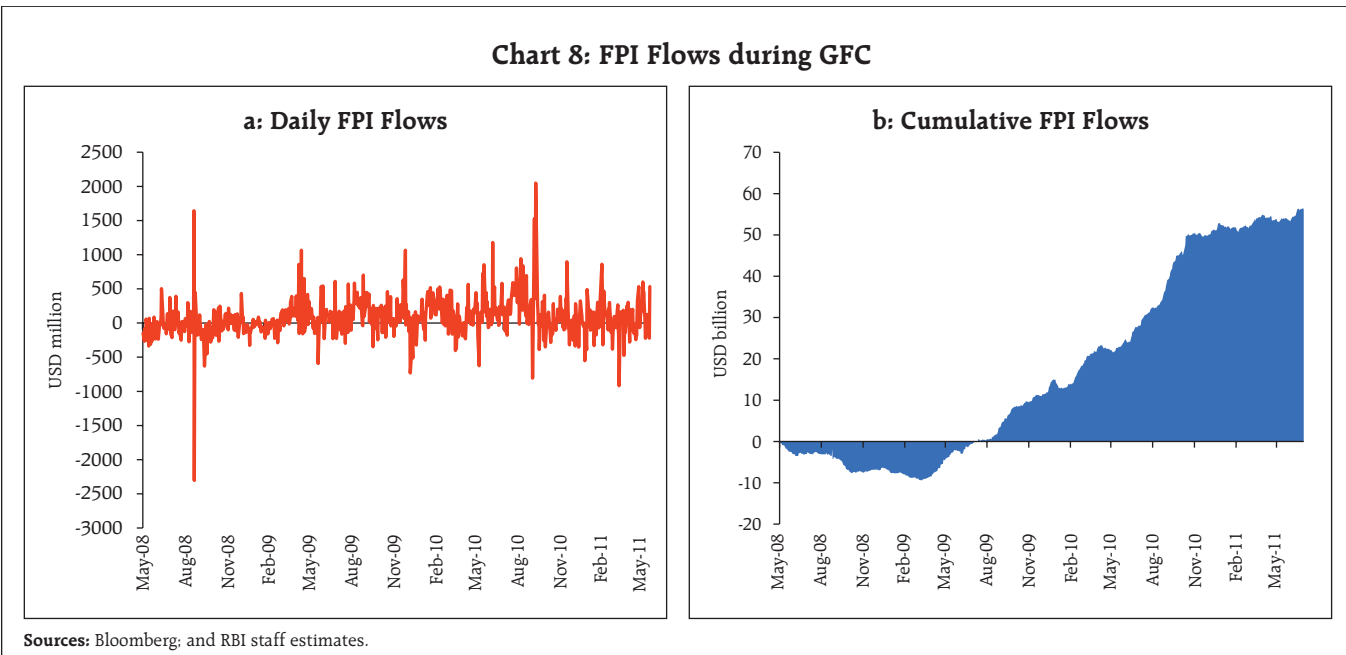
is priced in US Dollar, a stronger dollar could make oil more expensive for holders of other currencies, thus impacting oil prices. However, during RU/FT episode, the relationship between DXY and Brent turned positive (+ 0.23 correlation). While the DXY surged due to Fed tightening, Brent prices remained elevated due to geo-political tensions, post-Covid supply-chain disruptions and reduction in supply by the OPEC+ members.

b) FPI Flows

Significant portfolio investment outflows happen during periods of heightened volatility mainly due to investors' flight to safety considerations (Chart 7).

i. GFC

GFC cycle witnessed large outflows in the initial phase, with cumulative net outflows of around USD 9.5 billion during May 2008 to March 2009 (Charts 8a



and 8b). Thereafter, a broad reversal in trend of flows was witnessed and the cumulative net inflows stood at USD 57 billion till July 2011. Further, FPI flows during the GFC episode showed a very high level of Kurtosis (13) or fat tails due to the presence of very high sigma flows *viz.* an outflow of USD 2.3 billion on September 17, 2008 (a 7-sigma event) and an inflow of USD 2 billion on November 4, 2010 (a 6-sigma event).

ii. EZ debt crisis/ TT

EZ debt crisis/ TT cycle witnessed lesser quantum of outflows *vis-à-vis* the GFC with cumulative net negative value of around USD 1.5 billion during September-October 2011 (Charts 9a and 9b). Inflows resumed relatively sooner with cumulative figure rising to around USD 72 billion till July 2014. FPI flows during this period also exhibited fat tails due to high sigma inflows (inflow of USD 2.3 billion on 24 February 2012, a 7-sigma event). On the other hand, no large outflows were observed.

iii. EME outflows/ TW

EME outflows/ TW cycle witnessed much larger quantum of outflows *vis-à-vis* GFC and EZ debt/ TT cycle with cumulative net outflows of USD 17 billion

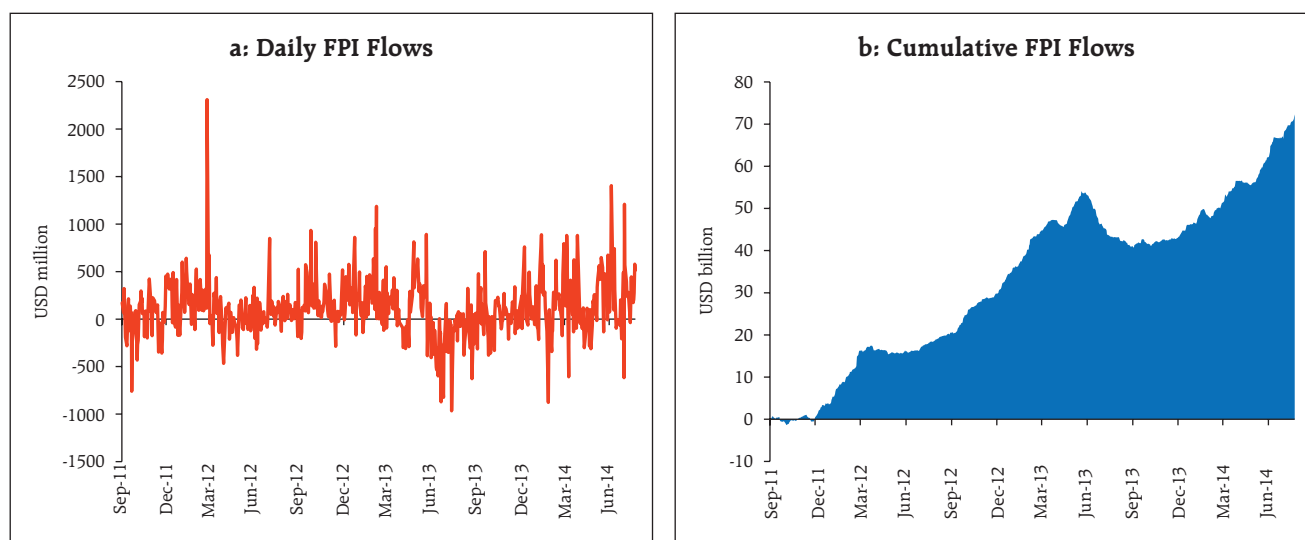
during April-October 2018 (Charts 10a and 10b). Thereafter, inflows resumed, leading to net outflows position of USD 1.5 billion till June 2019. Very high sigma FPI inflows (up to 6-sigma) were observed during the latter part of the cycle, though there was absence of very large outflows.

iv. RU/ FT

RU/FT cycle witnessed largest quantum of outflows compared to all the previous high volatility episodes. Net FPI outflows at their peak rose to as high as USD 36 billion (during September 2021 and July 2022) as against peak cumulative net outflows of USD 9.5 billion, USD 1.5 billion, and USD 17 billion during GFC, EZ debt/ TT and EME outflows/ TW episodes, respectively (Charts 11, 12a and 12b). While strong inflows were witnessed in the latter parts of GFC and EZ debt/ TT cycles resulting in large positive net flow position on a cumulative basis, inflows in the latter part of RU/FT cycle were not as large with net inflow position of \$14.5 billion till March 15, 2024.

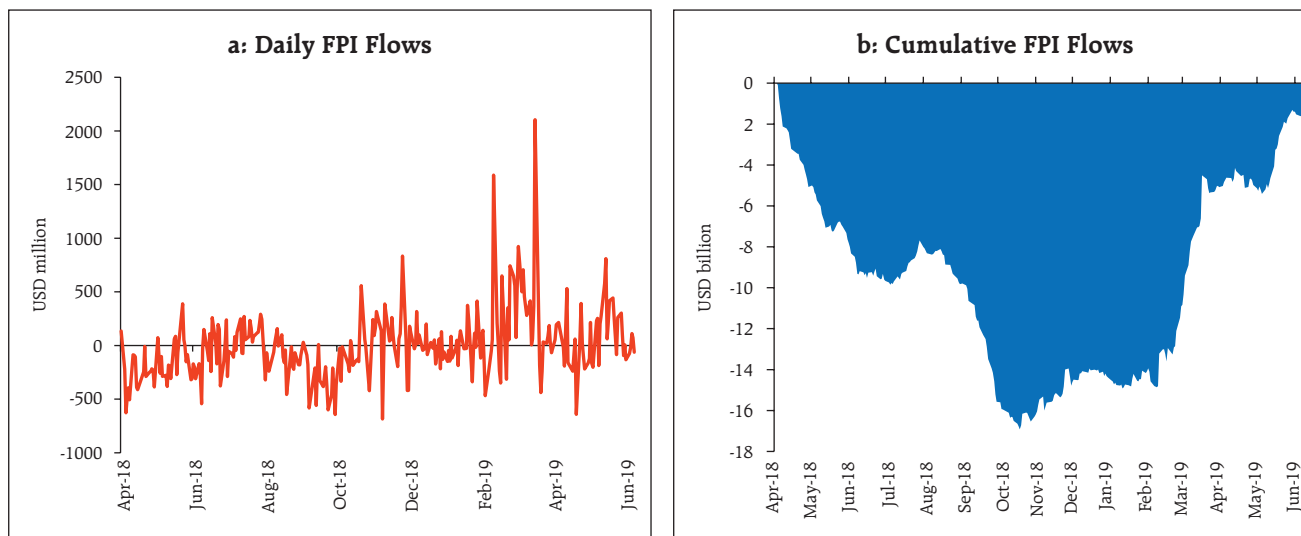
The number of 1-, 2- and 3- standard deviation (SD) outflows during RU/FT cycle was far greater than during other cycles (Chart 13).

Chart 9: FPI Flows during EZ Debt Crisis/ TT



Sources: Bloomberg; and RBI staff estimates.

Chart 10: FPI Flows during EME Outflows / TW



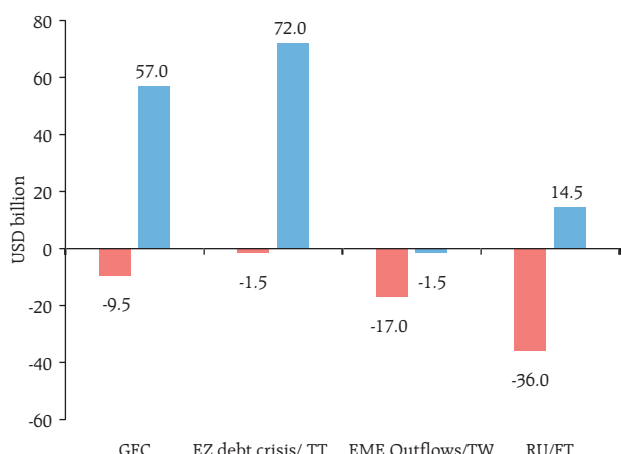
Sources: Bloomberg; and RBI staff estimates.

c) Financial Conditions

Financial conditions in advanced economies, especially the US, transmit to EMEs through different channels. Many EMEs have current account deficits, which necessarily require net capital inflows from foreign investors. During the most recent high volatility episode, financial conditions in the US tightened due to the US Federal Reserve raising policy

rates by 525 bps, US Dollar's strength, rise in corporate bond spreads and fall in equity prices. Goldman Sachs index of US financial conditions¹⁰ remained elevated in the RU/FT cycle with sticky inflation pushing rate cut bets further ahead (Chart 14). There is strong and statistically significant impact of increases in global risk aversion on portfolio flows to emerging markets (Milesi-Ferretti *et al.*, 2011; Broner *et al.*, 2013; Koepke, 2019). The most common proxies for investor risk aversion used in the literature are U.S. implied equity volatility (VIX)¹¹ and the U.S. BBB-rated corporate bond spread over U.S. Treasury securities, which are both found to have a strong contemporaneous impact on portfolio flows. Goel and Papageorgiou (2021) find that lower-rated issuers are more sensitive to changes in global risk appetite as compared to higher-rated

Chart 11: Peak Cumulative Outflow and Net Flow Position Across Crises

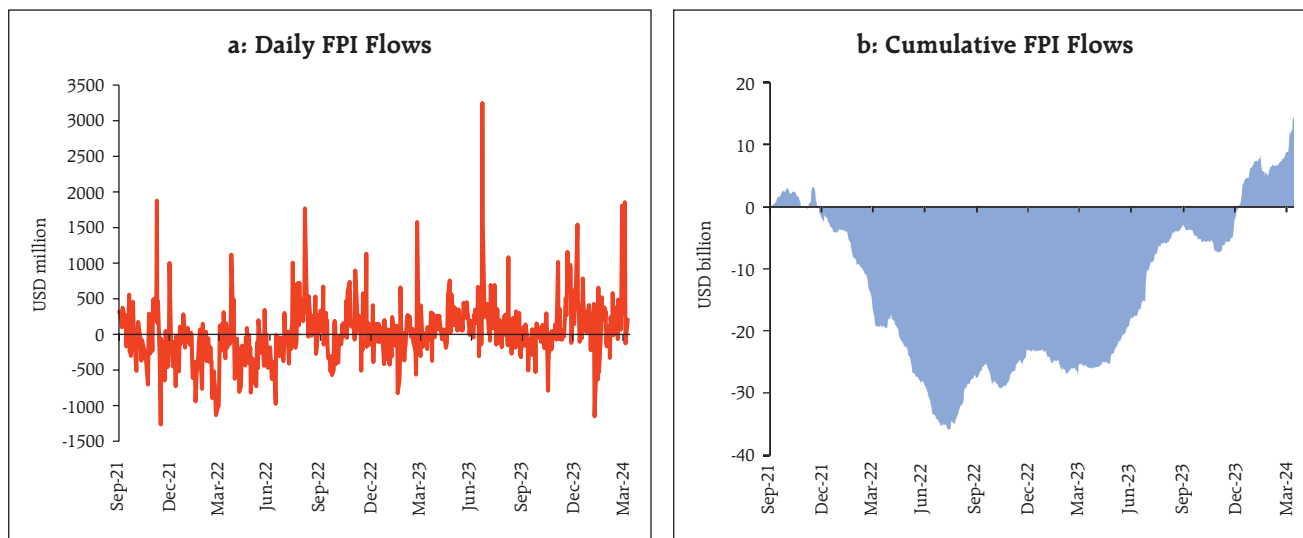


Sources: Bloomberg; and RBI staff estimates.

¹⁰ Goldman Sachs US FCI is a weighted average index of short-term interest rates (Target Federal Funds rate), long-term interest rates (10-year Treasury yield), the trade-weighted dollar, an index of credit spreads (iBoxx Domestic Non-Financials BBB 15Y+ Spread over 10-year Treasury Yield), and the ratio of equity prices to the 10-year average of earnings per share, with weights set using the estimated impact of shocks to each variable on real GDP growth over the following four quarters.

¹¹ Chicago Board Options Exchange (CBOE) VIX measures the 30-day expected volatility of the US stock market. It is based on the prices of options on the S&P 500 Index and is calculated by aggregating weighted prices of the index's call and put options over a wide range of strike prices.

Chart 12: FPI Flows during RU/ FT Cycle



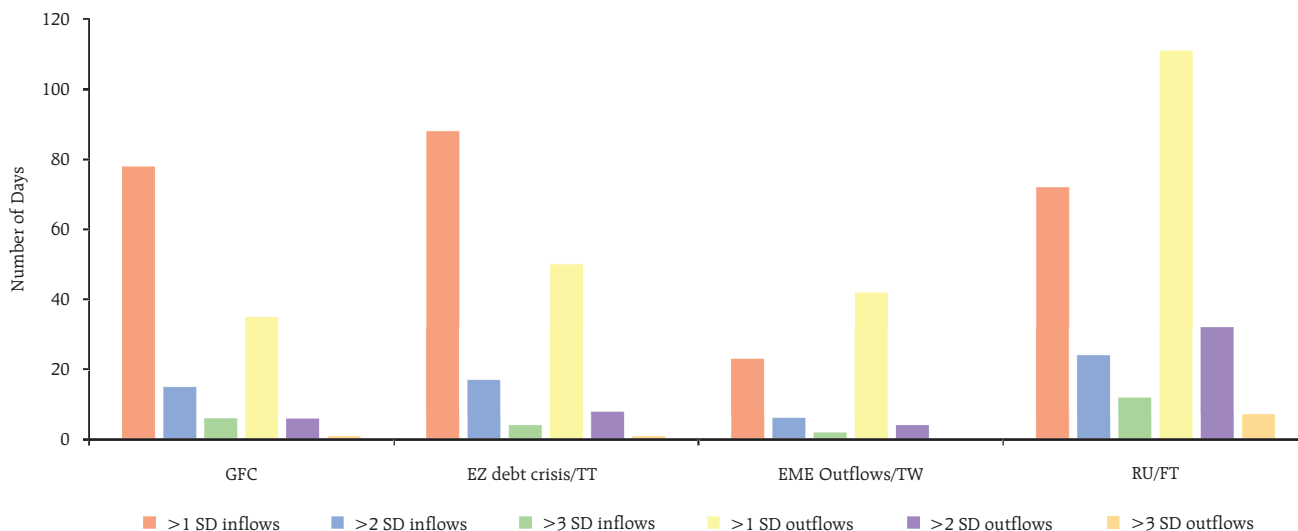
Sources: Bloomberg; and RBI staff estimates.

issuers. The changing investor base can also play a role, as the exposure of emerging market economies to potentially "flighty" and benchmark-driven investors has been growing (GFSR, October 2019).

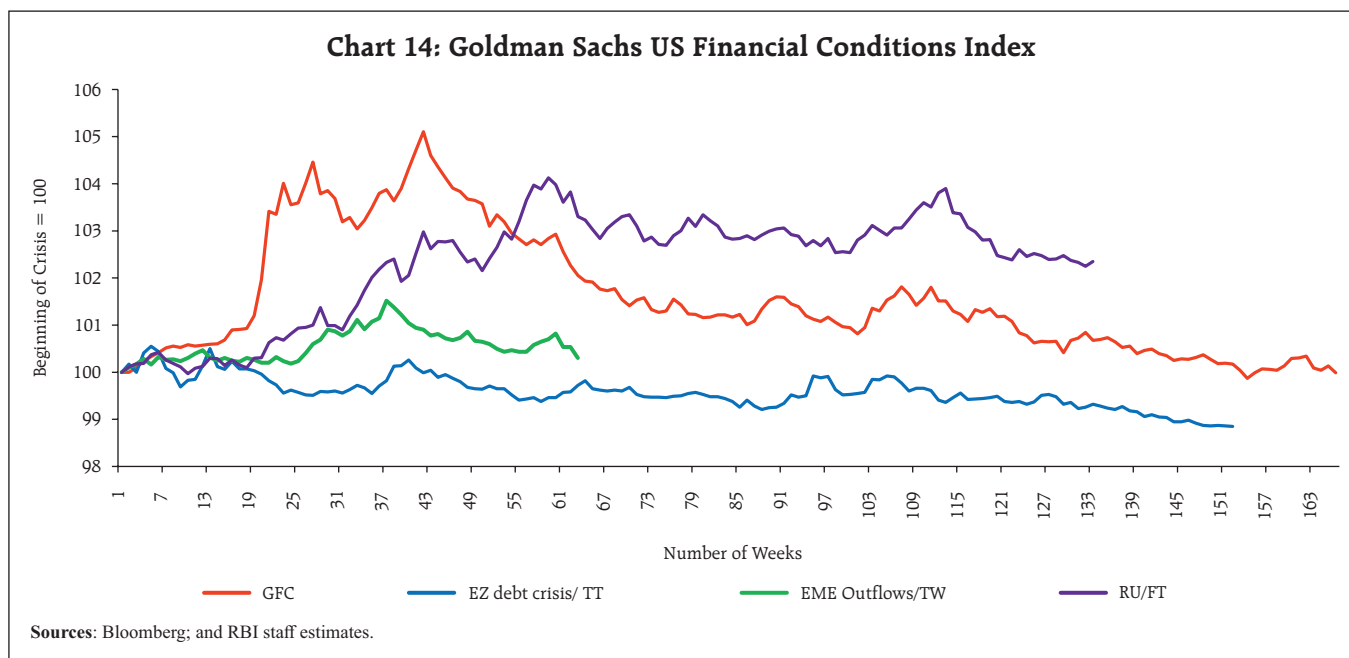
After experiencing crises in the 1990s and early 2000s, many EME central banks accumulated FX reserves to self-insure against large swings in capital flows and

exchange rates. This pushed up the average share of FX assets in total assets from 60 per cent in 2000 to over 85 per cent in 2019, which however renders them susceptible to swings in the valuation of foreign assets (Bell *et al.*, 2023). RBI's balance sheet also saw similar trend with the share of foreign currency assets and gold increasing from 46 per cent in 1999-2000 to 72 per cent in 2022-23. During the recent five years,

Chart 13: Comparison of 1-, 2-and 3-SD Flows



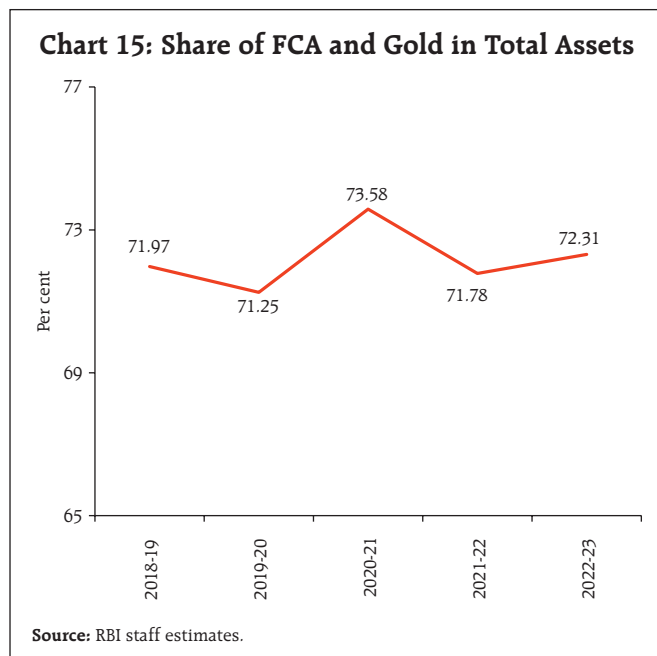
Sources: Bloomberg; and RBI staff estimates.



the share of foreign currency assets (FCA) and gold has remained steady around 72 per cent (Chart 15).¹²

Due to the surge in global yields, foreign currency assets can also come under extreme pressure on valuation grounds. In comparison to the previous high-volatility episodes where US yields rose only

modestly or declined over the crisis, the most recent RU/FT crisis saw average of US 2-year and 10-year treasury yields rising to a level more than six times over the beginning levels and remaining elevated even during the latter part of the cycle (Chart 16). Yields surged globally as most AE and EME central banks embarked on synchronised policy tightening to contain high inflation.

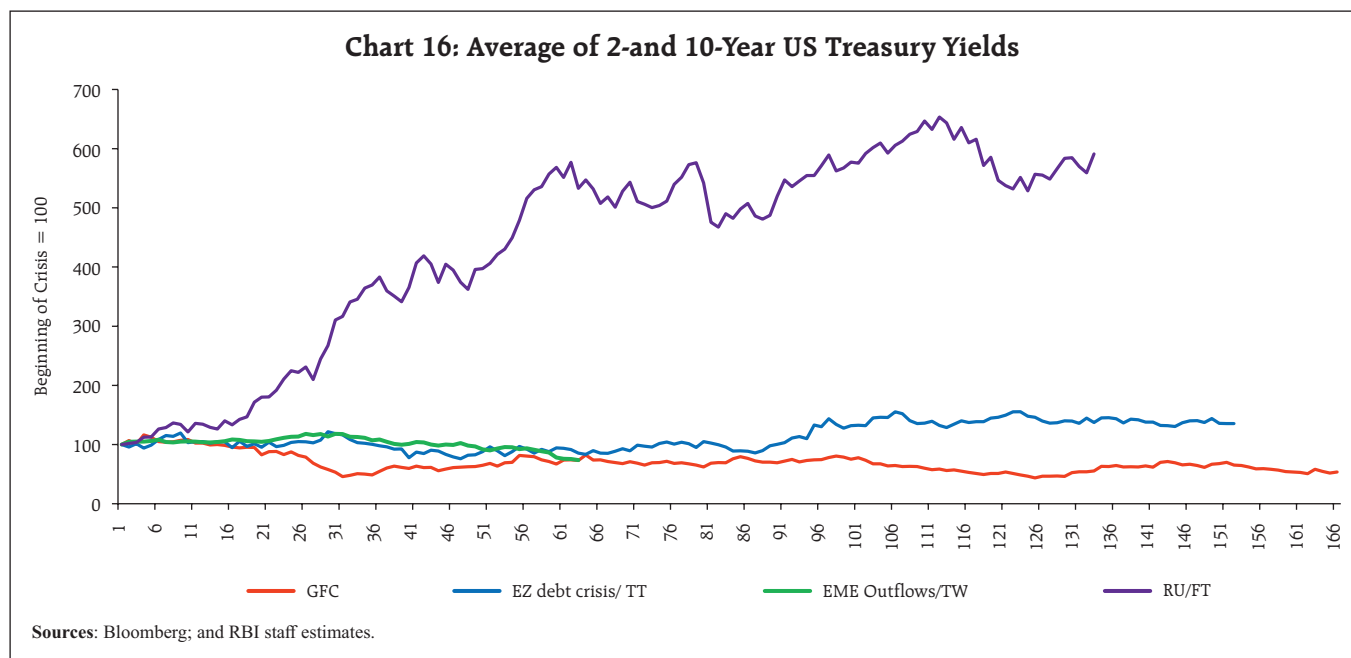


d) Expected Equity Market Volatility (CBOE VIX)

During RU/FT episode, CBOE VIX witnessed fewer spikes *vis-à-vis* the GFC and EZ debt/ TT episodes, despite US S&P 500 declining around 19 per cent in 2022, the most since 2008. Further, the equity index recorded 46 moves of 2 per cent in either direction in 2022, the most since 2009, roughly four times the 10-year average of around 11 moves per year.¹³ Institutional investors are believed to have liquidated equities from their portfolio and shifted to more cash, and thus were left with smaller levels of long-equity exposure in need of hedging. Another reason cited was traders' increasing reliance on short-term options for tactical trades. The popularity of VIX, which

¹² Reserve Bank's accounting year changed to April – March from July – June in 2020-21.

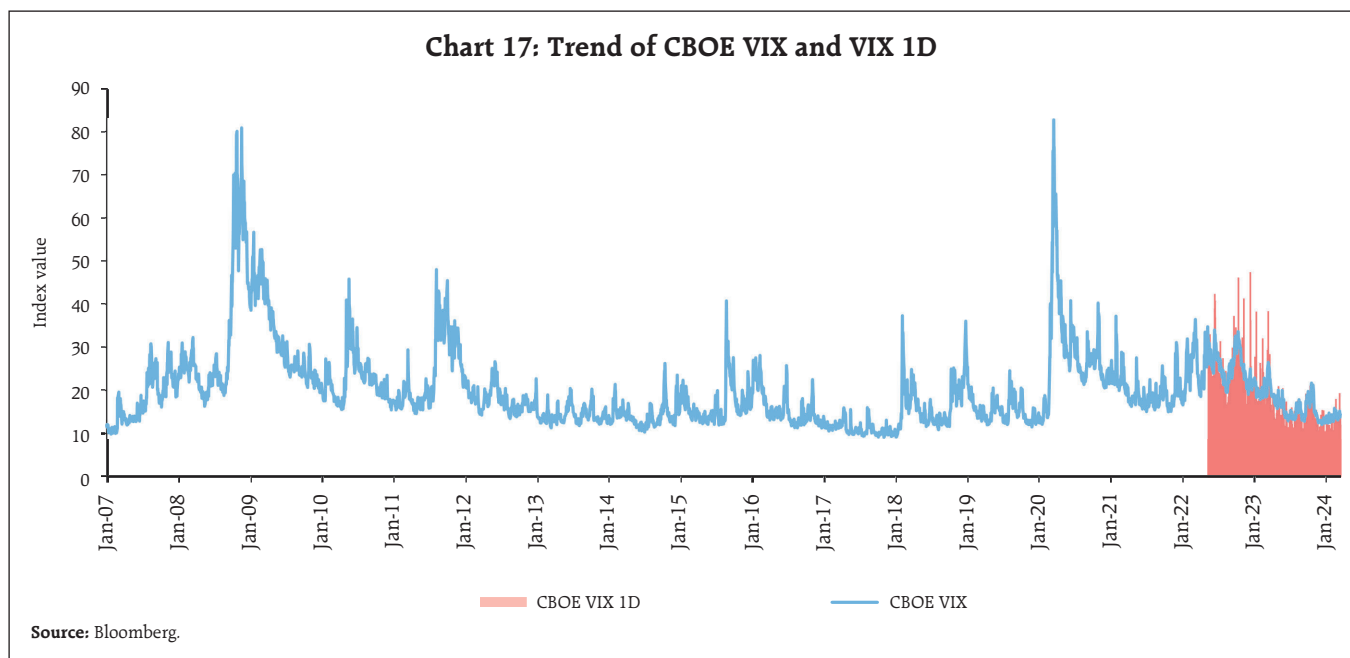
¹³ Source: Dow Jones Market Data.



specifically incorporates only options with roughly one month left until expiration, came down with trading in shorter-dated options, including contracts with less than one day left until they expire (zero day to expiry options or ODTE), surging in popularity. ODTE contracts accounted for more than 40 per cent of the S&P 500's total options volume by the third quarter of 2022, almost doubling the percentage from six months earlier.¹⁴ Todorov and Vilkov (2024) note trading volume in ODTEs has risen in recent years because these options are relatively cheap and provide a lottery-like payoff with extremely high, if very unlikely, returns, which appeals to certain investors. Low premiums on ODTEs allow investors to build in very high leverage, hence the lottery-like payoff profile. Investing in ODTE options loses money on average, with annualised returns of -32,000 per cent, but on rare occasions generates extremely high returns of up to 79,000 per cent. These returns are much more volatile than the returns on one-month options, which have an average return of -550 per cent annualised and a maximum of 2,500 per cent.

¹⁴ Source: Goldman Sachs.

Further, Todorov and Vilkov (2024) suggest an alternative reason behind the compression of VIX: the surge in issuance of yield-enhancing structured products. A simple example of a yield-enhancing structured product is "covered call": purchase of the S&P 500 index and simultaneous sale of a one-month call option on the index. The product gives an exposure to the index and generates a yield enhancement with the sale of the call option (the premium income), but it gives up part of the upside if the index rises above a threshold. These structured products are frequently offered to retail investors by banks, which are often dealers. The rise of yield-enhancing structured products may dampen volatility due to the mechanics of how dealers hedge option exposures. When dealers sell such structured products, they effectively buy an option from their clients. To hedge the option exposure, dealers buy the equity index when the index goes down and sell when it goes up (dynamic hedging). Thus, dealers act in a contrarian way, effectively dampening the price movements of the underlying equity index. As volatility declines, so does the cost of ensuring against it, as reflected in option prices.



CBOE 1-day volatility index (VIX1D), launched in April 2023, captures the sentiments embodied in 0DTE options and exhibits more spikes *vis-à-vis* CBOE VIX (Chart 17).

V. Empirical Estimation

Following the literature (Ramachandran and Srinivasan, 2007; Bhasin and Khandelwal, 2014; Raut and Rawat, 2022), autoregressive distributive lag (ARDL) approach could be appropriate for the modelling of FX reserves dynamics in India. The ARDL model developed by Shin *et al.* (2014) is suitable for the variables having I(0) or I(1) process as the data contains mix of both (Annex). Further, being a single equation approach, it is suitable to a smaller sample (Chaudhari *et al.*, 2019). Additionally, the derived error correction model (ECM) shows the speed of adjustment needed to restore the long-run equilibrium following a short-run shock (Jena and Sethi, 2021).

The select variables and their expected impact (sign) have been presented in the Table 1. Exchange rate depreciation (appreciation) is associated with depletion (accumulation) of FX reserves, thus a negative sign is expected. Similarly, the rise in brent prices and DXY

are expected to impact FX reserves negatively. On the other hand, FX reserves are expected to be impacted positively by FPI inflows. A surge in CBOE VIX is expected to exert downward pressure on reserves as uncertainty may lead to safe haven demand at the expense of risk assets. Furthermore, tight US monetary and financial conditions are expected to put downward pressure on FX reserves (in the study, increase in financial conditions index value means tight financial conditions).

The ARDL estimation has been applied to all the four high volatility episodes *viz.*, GFC, EZ Debt Crisis/

Table 1: Variables and their Expected Signs

Variable	Notation used	Expected sign	Source
FX Reserve	FX	dependent variable	RBI
USD-INR Exchange Rate	Ex_Rate	-	Bloomberg
Brent Price	Brent	-	Bloomberg
Net FPI	FPI	+	Bloomberg
Volatility Index	VIX	-	CBOE
GS US Financial Conditions Index	FCX	-	Bloomberg
Dollar Index	DXY	-	Bloomberg

Source: Authors' estimates.

Table 2: ARDL Estimation Results

Variable	GFC	EZ Debt crisis/TT	EME Outflows/TW	RU/FT
FX Reserve (-1)	0.19*** (0.05)	-0.41*** (0.10)	-0.60*** (0.14)	-0.35*** (0.11)
USD-INR Exchange Rate	-0.11** (0.05)	-0.12*** (0.05)	-0.23*** (0.06)	-0.36** (0.16)
DXY	-0.59*** (0.05)	-0.35*** (0.07)	-0.51*** (0.10)	-0.89*** (0.11)
Brent		0.08** (0.02)	0.03** (0.01)	-0.04*** (0.01)
Net FPI	0.004* (0.002)	0.005** (0.001)		0.01*** (0.002)
US Financial Conditions Index		-0.34 (0.67)	0.41 (0.68)	-2.50*** (0.01)
VIX	-0.02*** (0.01)	-0.01* (0.01)	-0.02*** (0.01)	0.02** (0.01)
ECM (-1)	-0.17*** (0.03)	-0.22*** (0.04)	-0.06*** (0.01)	-0.02*** (0.004)
Adjusted R ²	0.71	0.66	79	70
DW	2.19	2.17	2.16	2.01
AIC	-7.47	-7.99	-9.57	-7.74
Log-likelihood	613	553	236	489
F-bound test				
F-stat	4.001	3.48	4.57	4.11
Null: I(0)10 per cent, 5 per cent, 1 per cent, critical values	1.99, 2.27, 2.88	1.99, 2.27, 2.88	1.99, 2.27, 2.88	1.99, 2.27, 2.88
Null: I(1)10 per cent, 5 per cent, 1 per cent, critical values	2.94, 3.28, 3.99	2.94, 3.28, 3.99	2.94, 3.28, 3.99	2.94, 3.28, 3.99

Note: Standard errors are given in parentheses. ***/**/* indicates significant at 1/5/10 per cent level. Lag selection automatic (maximum 12) based on Akaike Information Criterion (AIC). All variables are in log form while net FPI is a dummy variable (assigned 1 for positive values i.e., inflows otherwise 0).

TT, EME outflows/ TW and the most recent RU/ FT episode (Table 2). The lag length in the ARDL is based on the adjusted R square process. The long run relationship has been confirmed by the bound test results. USD-INR exchange rate and DX Y have statistically significant coefficients with expected signs in all the four episodes. Further, the size of the coefficients increased during the latest high volatility episode (RU/FT) indicating higher impact on the FX reserves. Brent and US financial conditions index

are not cointegrated in long run during the GFC episode. Net FPI has positive coefficient across crises indicating outflows on net basis affected reserves adversely, with size of the coefficient being the largest during RU/FT. The US financial conditions index is found to be statistically significant only during the RU/FT episode, which reflects the heightened impact of US monetary policy tightening on the FX reserves during the latest high volatility episode. However, the sign of the VIX coefficient was not on the expected lines, which may be on account of VIX remaining relatively subdued during the RU/FT episode *vis-à-vis* the previous high volatility episodes for the reasons mentioned elsewhere in the article. Furthermore, statistically significant and negative signs of error correction terms (ECM) are on the expected lines, with the speed of adjustment towards the equilibrium being relatively muted during the EME outflows/TW and the RU/FT episodes.

VI. Conclusion

While FX reserves have remained under pressure across high volatility episodes *viz.*, Global Financial Crisis, Eurozone debt crisis / Taper Tantrum, EME outflows/ US-China trade war and the recent Russia-Ukraine conflict/ Fed tightening episode, the degree of variation in FX reserves has varied, depending upon the trend of the underlying factors *viz.*, US Dollar Index, oil prices, foreign portfolio flows, US financial conditions and expected equity market volatility. In the case of the recent RU/FT episode, exchange rate management and FX reserves faced strong headwinds from trends in US Dollar Index, oil prices, FPI outflows and tight US financial conditions and the severity of these factors was the highest relative to previous high volatility episodes.

However, the Reserve Bank has managed to contain INR volatility and keep FX markets largely stable in all high volatility episodes. Importantly, INR's implied volatility has remained one of the lowest amongst

major Asian peer as well as select AE currencies during RU/FT episode, despite unprecedented headwinds witnessed during this period. Going forward, strength and stability of the Indian economy, its sound macroeconomic fundamentals, financial stability and improvements in India's external position, particularly the significant moderation in the current account deficit, comfortable foreign exchange reserves and return of capital inflows, are expected to contribute to stability in FX market.

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Annex

Table 1A: Stationarity Test (Full Sample)

Variable	ADF		PP	
	t-statistic	Order	t-statistic	Order
FX Reserve	-10.07***	I(1)	-26.48***	I(1)
Exchange Rate	-21.66***	I(1)	-25.41***	I(1)
Brent Price	-24.73***	I(1)	-19.60***	I(1)
Net FPI	-12.81***	I(0)	-18.97***	I(0)
VIX	-5.24***	I(0)	-4.95***	I(0)
US Financial Conditions Index	-21.53***	I(1)	-21.53***	I(1)
DXY	-5.24***	I(0)	-4.95***	I(0)

Note: ADF: Augmented Dickey-Fuller; PP: Phillips-Perron; ***denote significant level of 1 per cent, while ** denote significant level of 5 per cent.

Table 1B: Stationarity Test (GFC Cycle)

Variable	ADF		PP	
	t-statistic	Order	t-statistic	Order
FX Reserve	-4.58***	I(1)	-8.99***	I(1)
Exchange Rate	-10.14***	I(1)	-10.06***	I(1)
Brent Price	-9.22***	I(1)	-9.32***	I(1)
Net FPI	-5.19***	I(0)	-9.10***	I(0)
VIX	-12.51***	I(1)	-12.51***	I(0)
US Financial Conditions Index	-8.41***	I(1)	-8.33***	I(1)
DXY	-9.17***	I(1)	-9.17***	I(1)

Note: ADF: Augmented Dickey-Fuller; PP: Phillips-Perron; ***denote significant level of 1 per cent, while ** denote significant level of 5 per cent.

Table 1C: Stationarity Test (Eurozone Debt Crisis and TT Cycle)

Variable	ADF		PP	
	t-statistic	Order	t-statistic	Order
FX Reserve	-9.01***	I(1)	-9.11***	I(1)
Exchange Rate	-8.20**	I(1)	-8.14**	I(1)
Brent Price	-4.37***	I(0)	-3.20*	I(0)
Net FPI	-6.55***	I(0)	-6.53***	I(0)
VIX	-3.62***	I(0)	-3.44**	I(0)
US Financial Conditions Index	-7.70***	I(1)	-10.27***	I(1)
DXY	-3.76***	I(0)	-3.82***	I(0)

Note: ADF: Augmented Dickey-Fuller; PP: Phillips-Perron; ***denote significant level of 1 per cent, ** denote significant level of 5 per cent, while * denote significant level of 10 per cent.

Table 1D: Stationarity Test (EME Outflows/ Trade War Cycle)

Variable	ADF		PP	
	t-statistic	Order	t-statistic	Order
FX Reserve	-4.29***	I(1)	-5.74***	I(1)
Exchange Rate	-6.40***	I(1)	-6.40***	I(1)
Brent Price	-3.88**	I(0)	-5.36***	I(1)
Net FPI	-5.73***	I(0)	-5.76***	I(0)
VIX	-7.47***	I(1)	-7.79***	I(1)
US Financial Conditions Index	-5.81***	I(1)	-5.58***	I(1)
DXY	-3.05**	I(0)	-3.13**	I(0)

Note: ADF: Augmented Dickey-Fuller; PP: Phillips-Perron; ***denote significant level of 1 per cent, while ** denote significant level of 5 per cent.

Table 1E: Stationarity Test (Russia-Ukraine Conflict/ Fed Monetary Tightening Cycle)

Variable	ADF		PP	
	t-statistic	Order	t-statistic	Order
FX Reserve	-8.01***	I(1)	-7.85***	I(1)
Exchange Rate	-8.01***	I(1)	-7.85***	I(1)
Brent Price	-11.24***	I(1)	-11.21***	I(1)
Net FPI	-5.72***	I(0)	-5.86***	I(0)
VIX	-9.68***	I(1)	-11.75***	I(1)
US Financial Conditions Index	-7.59***	I(1)	-7.56***	I(1)
DXY	-7.95*	I(0)	-7.96***	I(1)

Note: ADF: Augmented Dickey-Fuller; PP: Phillips-Perron; ***denote significant level of 1 per cent, ** denote significant level of 5 per cent, while * denote significant level of 10 per cent.

Gauging Linguistic Complexity of Regulatory Communication: A Case Study for India

by Nishita Raje[^], Khaijamang Mate[#],
Sayli Londhe^{^^} and Sandhya Kuruganti[#]

The scale and scope of banking regulation and its linguistic complexity have increased globally over the years in tandem with the rise in risks and vulnerabilities in the financial system. At the same time, there is a growing awareness and initiative to adopt simpler language in the central bank's regulations to ensure better compliance. Against this backdrop, this study attempts to measure the linguistic complexity of banking regulations in India using different readability indicators. The focus is on the complexity of the language used in regulatory communication rather than complexity implicit in regulation by the very nature of the area/aspect that is being regulated. The analysis suggests that most circulars require at least graduate level education, which is generally the education level of commercial bank employees.

Introduction

Globally the scope and scale of regulation and its linguistic complexity have increased over the years with rise in risks and vulnerabilities in the financial system. These risks rose with proliferation of newer financial institutions and products that have necessitated use of sophisticated risk management tools. The global financial crisis saw an unprecedented scale of systemic risks at play. As macro-prudential

regulations were introduced over and above the micro-prudential ones, the number of regulations materially increased.¹ Interdependencies of regulators of different segments of the financial sector has also led to institutional architecture and regulation becoming more verbose or linguistically complex. Regulatory tightening in the wake of the Global Financial Crisis (GFC) was indeed a right move as the crisis itself was a proof of various problems such as lower capitalisation or higher leverage of the entities that went under.

Regulation in most countries is more or less aligned with the Basel norms and international best practices. While the Basel accords started off as non-statutory, when member countries saw the merit in adhering to these global norms, they adopted them as an overlay or framework within which the domestic regulation was underpinned. Soon these additional regulations increased the scope and density of regulation. Moreover, the Basel regulation itself has become increasingly complex, a mere page count shows an increase from 30 pages in the initial Basel I to 347 pages in Basel II and 1,868 pages in Basel III (Haldane and Madouros, 2012; BCBS 2024).

Regulators attempt to ensure transparency and clarity as linguistic complexity can erode economic efficiency because complex regulations are more difficult for economic agents to comprehend and implement. Plain language communication by governments and central banks is essential to ensure regulatory fairness and promote effective compliance. Across the globe there have been various initiatives for adoption of simpler or "plain" language in Government regulations. The 'plainlanguage.gov' was an initiative launched by the US government in 1994. In the UK such an initiative took the form of 'Good Law' principles issued by the Parliamentary

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The views expressed in this article are those of the authors and do not represent the views of Reserve Bank of India.

¹ The Capital Conservation Buffer (CCB) and Counter Cyclical Capital Buffer (CCyB) were implemented, and the Liquidity Coverage ratio (LCR) and Net Stable Funding Ratio (NSFR) were introduced.

Council in 2013. Transparent communication, clear interpretation and accurate articulation of the multifarious objectives of the RBI are the goals of its communication policy.² New Zealand has also recently passed a plain English bill to make democracy more 'accessible'.³

Quantification of complexity of regulation is not yet an exact science but over the years some metrics have been used to grade the extent of complexity of regulation. We outline some of the concepts pertaining to complexity and the extant approach in quantifying these concepts. De Lucio and Mora-Sanguinetti (2022) identifies three dimensions of complexity: *quantity*, *quality* and *interconnectedness*. The paper notes that the literature on the subject has so far analysed regulatory complexity in terms of the quantity (such as number of pages, words and sentences). Regulations can also be complex for qualitative reasons, such as ambiguities in their wording or their references to other legal documents. The relational approach refers to complexity derived from how rules are connected to each other. Regulations with more references to other regulations take more resources to be understood, and are hence more complex.

In a similar vein, Colliard and Georg (2020) draws attention to three different dimensions of complexity: "*problem complexity*", "*psychological complexity*" and "*computational complexity*". Problem complexity refers to complexity that arises due to the regulatory problems that the regulation addresses. Such complexity is independent of the language used. Psychological complexity, on the other hand, reflects the difficulty of understanding a particular solution to a problem – it depends on how the text is written. The last dimension, *i.e.*, computational complexity depends on the entity to which the regulation is applied.

² <https://rbi.org.in/Scripts/CommunicationPolicy.aspx>

³ <https://www.theguardian.com/world/2022/oct/20/new-zealand-passes-plain-language-bill-to-jettisonjargon>

A related study, but slightly different from the above two studies⁴, lists three different dimensions to central bank communications: the ease of *reading* and the degree of *reasoning* as assessed by different kind of *audiences* (Huang and Simon, 2021). While the concept of readability and reasoning are important components of transparency of communication, the third dimension of audience is necessary since central bank communications are for wide range of audiences: from economists and financial market participants to politicians, the media and the general public.

Another important aspect of regulations is restrictiveness or binding constraints in the wording of regulations. Al-Ubaydli and McLaughlin (2017) created a database called RegData using Natural Language Processing (NLP) techniques to count binding constraints or restrictiveness for industry-specific federal regulations of the US. This database has been used to study the determinants of industry regulations and to study regulations' effects on other economy wide variables such as policy uncertainty, economic growth, and employment growth.

As Colliard and Georg (2022) states: 'Despite a heated debate on the perceived increasing complexity of financial regulation, a comprehensive framework to study regulatory complexity is lacking'. The growth in computing power has, however, made research in textual analysis much easier and there is a growing body of empirical literature in central banking communications – for example, ECB (Ferrara and Angino, 2022), Philippines (Batac *et al.*, 2019), Canada (Deslongchamps, 2018) and India (Misra and Aastha, 2023).

Coming to actual measurement of complexities, studies predominantly use aspects like length of the document. This paper tries to contribute towards developing a multifaceted understanding of the complexity of regulation by capturing more

⁴ The study deals with central bank communications, not regulations.

dimensions of complexity. It attempts to measure various indicators of complexity of regulations by the central bank in India. The purpose of this exercise is to gauge domestic trends in linguistic complexity of regulation (circulars). The focus is on the complexity of the language used in regulatory communication rather than complexity implicit in regulation by the very nature of the area/aspect that is being regulated. We compute quantity as well as restrictiveness measures of regulations. In addition, we compute few indicators for ease of reading regulations as proxies for quality aspect of complexity, as well as the level of regulatory inter-connectedness. This paper also tries to develop a composite indicator to capture dimensions of complexity using Principal Component Analysis (PCA). This paper is a novel attempt on measuring linguistic complexity of banking regulations in India, although there has been some effort to quantify regulations in India by Bedi and Narang (2021).

The rest of the paper proceeds as follows. Section II discusses data sources and our methodology for text analysis. Section III reports initial empirical results, while Section IV provides comparative results of different metrics used for readability analysis. Section V concludes and discusses the way forward for future work.

Table 1: Stylised Facts about the documents analysed

Statistic	Mean	St. Dev.	Min	Max
Pages	7.90	10.40	1	46
Sentences	66.93	84.93	6	308
Words	2,018.49	2,677.89	210	10,185
Links/urls (first level)	4.68	7.10	0	34
Restrictive words	34.39	38.85	2	165
Syllables	3,469.12	4,612.74	289	16,884

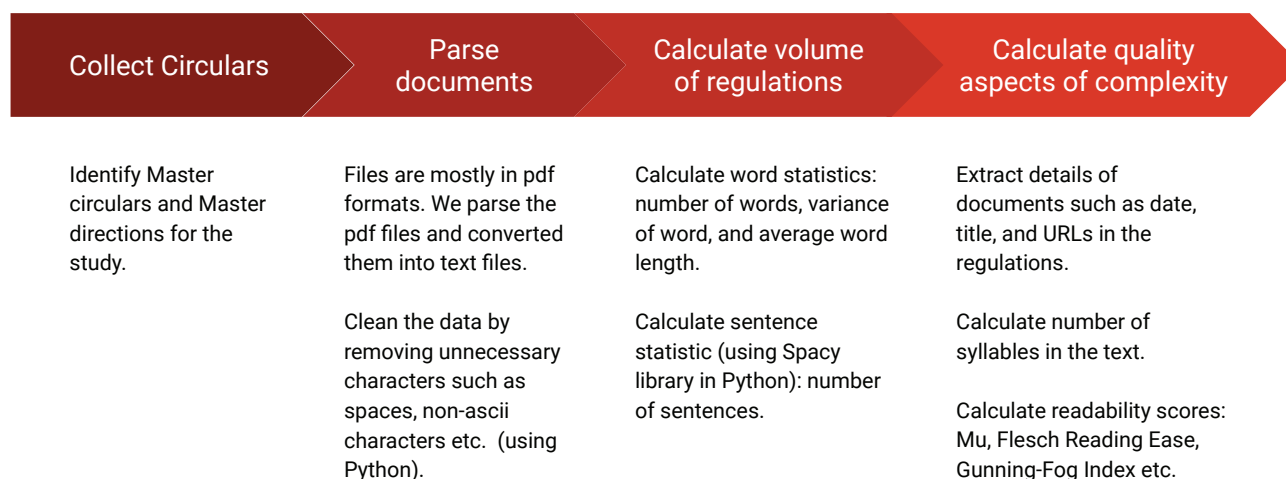
Note: All the statistics are computed for 41 documents.

II. Data and Methodology for Measuring Linguistic Complexity of Regulations

II.1 Data and Stylised facts

The data for this study consists of a set of circulars of the Department of Regulation (DoR), Reserve Bank of India. For comparing the change in linguistic complexity over time we examine a few important regulatory circulars issued by DoR over the past 5 years, 2017-18 to 2021-22. The list of the 41 documents that have been considered for this analysis is given in Section IV.4, Table 3. Table 1 gives summary statistics of the documents we have analysed in this study. On average, the number of pages is about 8, with the most voluminous documents amounting to 46 pages and 10,185 words in terms of page count and word count, respectively. While the smallest document consists of only 6 sentences, the biggest document

Chart 1: Stages Involved in Gauging the Linguistic Complexity of Regulation



Source: Authors' own illustration.

in terms of number of sentences has 308 sentences. The mean number of restrictive words (explained later in section III.2) in a document is about 34 in our sampled documents. Documents tend to refer to other documents *via* url links. The mean number of links present per document is 4.68 in our sampled documents.

II.2 Methodology

Chart 1 shows different steps of how the analysis has been conducted. The first step in this process was to identify and collect circulars from the RBI website.

All the reports evaluated in this study were obtained in the PDF version. After parsing the text, all materials unrelated to readability analysis were removed. These include bits of unnecessary characters in the text – such as headers, footers, page numbers, extra spaces or line breaks, and index of documents. Supporting content such as charts, tables, pictures were also removed in this step. Once the data was parsed and structured, we extract text attributes required for readability analysis such as number of words, syllables, sentences and characters in words. When identifying end of sentence, care was taken

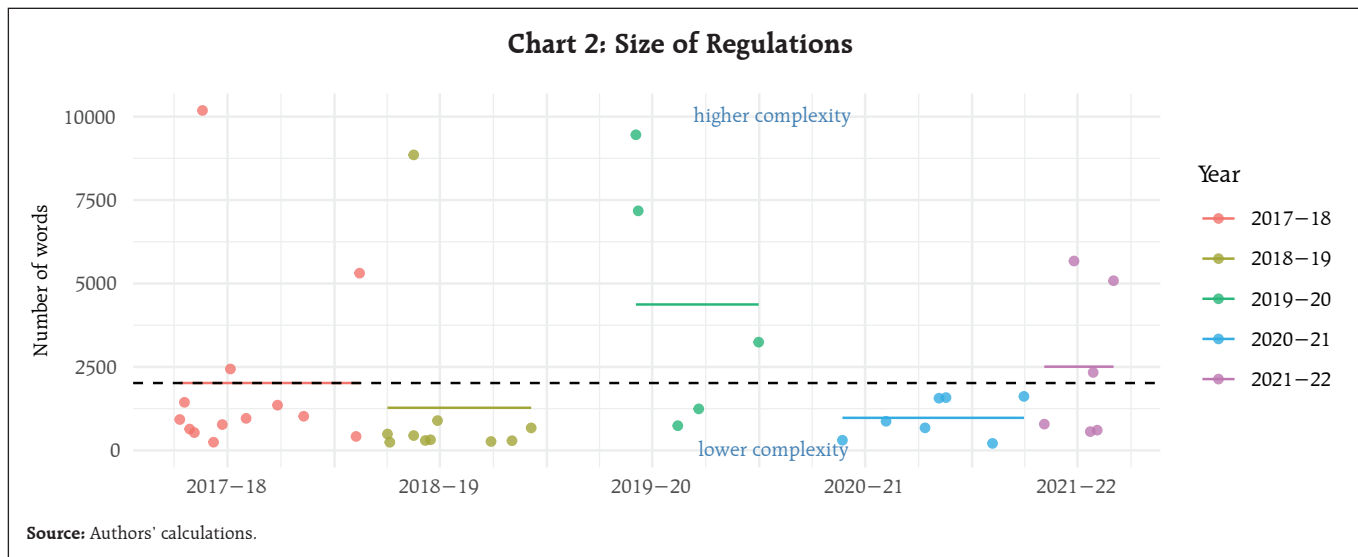
to ensure consistency across all text files. Finally, complexity of the documents was calculated using various indicators.⁵

III. Empirical Analysis

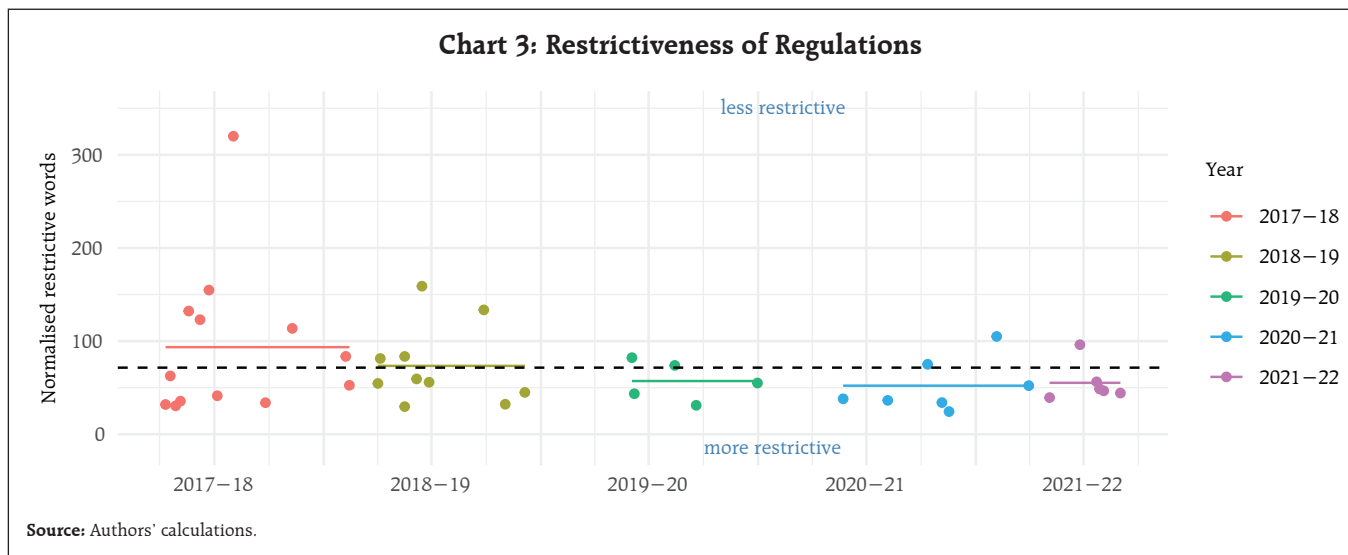
In this section, we quantify various aspects of selected RBI regulations under four different features: i) size or volume, ii) restrictiveness, iii) readability and iv) inter-dependence. The third feature *i.e.*, readability - a proxy for linguistic complexity – is discussed using five different readability formulas: Flesch Kincaid Grade Level, Automated Reading Index, Gunning Fog Index, Flesch Reading Ease and Mu or Readability μ (details are provided later).

III.1 Size

An often-used measure for '*quantity*' of regulation concept is the length of regulation. For example, Haldane and Madouros (2012) use the number of pages of different Basel Accords. The rationale for this is that excessive volume of regulations may make it difficult for regulated entities to manage them and verify their validity. Chart 2 shows the trend in the size of regulations, given by the total number of words



⁵ There are many specialised websites which generate readability scores: *e.g.* <https://readable.com/> and <https://www.analyzemywriting.com/> A number of python libraries exists which give readability scores, *e.g.* textstat and readability. We wrote our own code in Python to generate readability scores for this study.



in a document. The average number of words per regulation in the sampled data is found to be around 2000, shown by the dashed line. The yearly averages are shown by different lines for each year. The most voluminous regulation was in the year 2017-18 with more than 10,000 words.⁶ Except for few documents which are very large, most of the documents (around 80 per cent) are below the average of 2000 words. The number of documents, indicated by the dots in the chart, has come down in 2019-20 and 2020-21. The average size of regulation is highest in 2019-20. In 2020-21, which is the period corresponding to COVID-19 restrictions, all published regulations were relatively small.

III.2 Restrictiveness

Restrictiveness refers to how often restrictive words appear in the document. We chose the following 12 restrictive or binding words used for study of restrictiveness of Indian laws by Bedi and Narang (2021): "prohibited", "prohibition", "prohibit", "shall be punishable", "shall be punished", "imprisonment", "fine", "restrictions", "shall be liable", "cancel", "impose", and "guilty of". In addition to these 'restrictive words', we add some restrictive words which we think are relevant for banking regulation. The additional restrictive words are: "comply",

"permissible", "restrict", "ensure", "maintain", "permit", "restricted", "implement", "permitted", "ought to", "compulsory", "compulsorily", "require" and "discontinue". For normalisation, the total number of words are divided by the number of restrictive words. Therefore, this metric shows the number of words after which a restrictive word appears. Chart 3 shows that the mean normalised restrictive word is 71, *i.e.*, on average a restrictive word occurs after every 71 words. This is fairly close to the number in Bedi and Narang (2021) who found that for top 10 most restrictive Indian laws, a restrictive word occurs after every 70 words.

III.3 Readability Measures

Readability refers to how easy it is to read and understand a piece of text. In this study, we examine readability using five indices which are traditionally used in readability analysis. Of these, Flesch-Kincaid (FK) grade level, Automated Readability Index (ARI), Gunning Fog Index (GFI) and Flesch Reading Ease (FRE) are commonly used in readability analysis. We also compute readability indicator called Mu developed by Munoz and Munoz (2006). These readability measures can be grouped into two types based on their similarity and scale of measurement. The first type *i.e.*, FK, ARI and GFI measures readability on a scale of schooling

grades, indicating the grade level required to read a document. Thus, readability decreases (or complexity increases) with an increase in the metric. For example, a score of 6 in FK, ARI and GFI can be interpreted as a 'very easy' document which a person of sixth grade can understand. The other two (*i.e.* FRE and Mu) measures show readability on a scale of 0 to 100, having opposite directions – larger values indicate better readability. For example, a document with a score of 0-10 in FRE and Mu readability measures can be considered to be 'extremely difficult' while a score of 90-100 is 'very easy'.

III.3.1 Flesch-Kincaid Readability

The Flesch-Kincaid readability tests are designed to indicate how difficult a passage in English is to understand. It is calculated in the following way:

$$0.39 \left(\frac{\text{total words}}{\text{total sentences}} \right) + 11.8 \left(\frac{\text{total syllables}}{\text{total words}} \right) - 15.59$$

The "Flesch-Kincaid Grade Level Formula" presents a score as a U.S. grade level, making it easier to judge the readability level of texts. It can also mean the number of years of education generally required to understand this. Chart 4 shows that the average

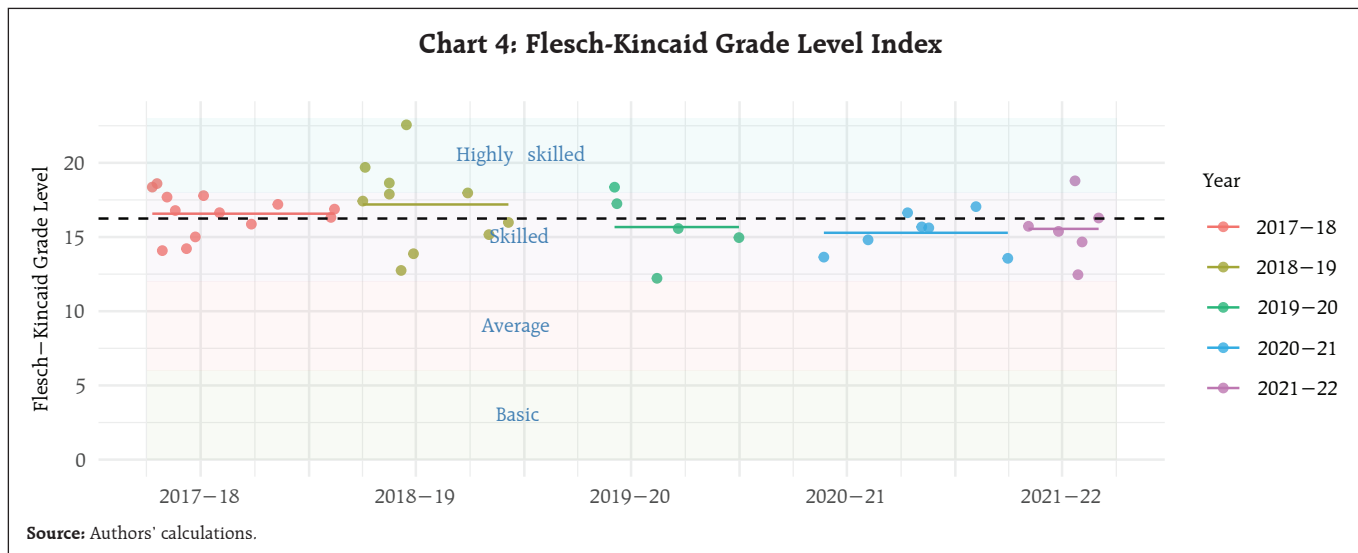
FKR scores for the documents in our study is 16, with maximum at 22 and minimum at 11. The average score of 16 indicates that a person with 21 (*i.e.* 16 + 5) years of education will be able to comprehend them. This compares well within the range of FKR scores reported by other Central Bank studies, for example, for Philippines (by Batac *et al.*, 2019) and ECB (by Ferrara and Angino, 2022).

III.3.2 Automated Readability Index

Automated Readability Index (ARI) assesses the US grade level required to read a piece of text. In some ways, it is similar to FKR formula. Its difference is that rather than counting syllables, it counts characters. The more characters, the harder the word. It also counts sentences. This sets it apart from some other formulas. It is more suited for analysing technical writing.⁷ It is computed as follows:

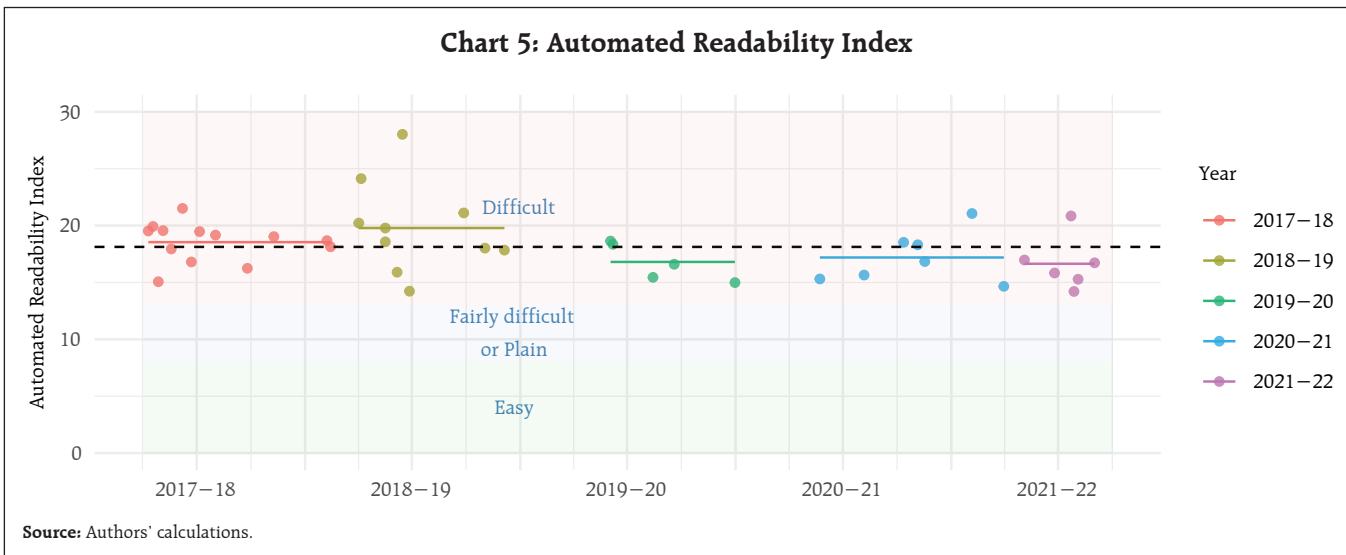
$$4.71 \left(\frac{\text{characters}}{\text{words}} \right) + 0.5 \left(\frac{\text{words}}{\text{sentences}} \right) - 21.43$$

ARI score gives representation of the US grade level needed to comprehend the text. An ARI score of 14 means that a person with more than 24 years of age and whose grade level is equivalent to that



⁶ This document deals with Rationalisation of Branch Authorisation.

⁷ <https://readable.com/readability/automated-readability-index/>



of a Professor will be able to read that text. The average ARI score for our text sample is 18, which can be considered to be very high. In fact, all of the documents in our analysis are "difficult" or require 18 years of education which is post graduate level of education.

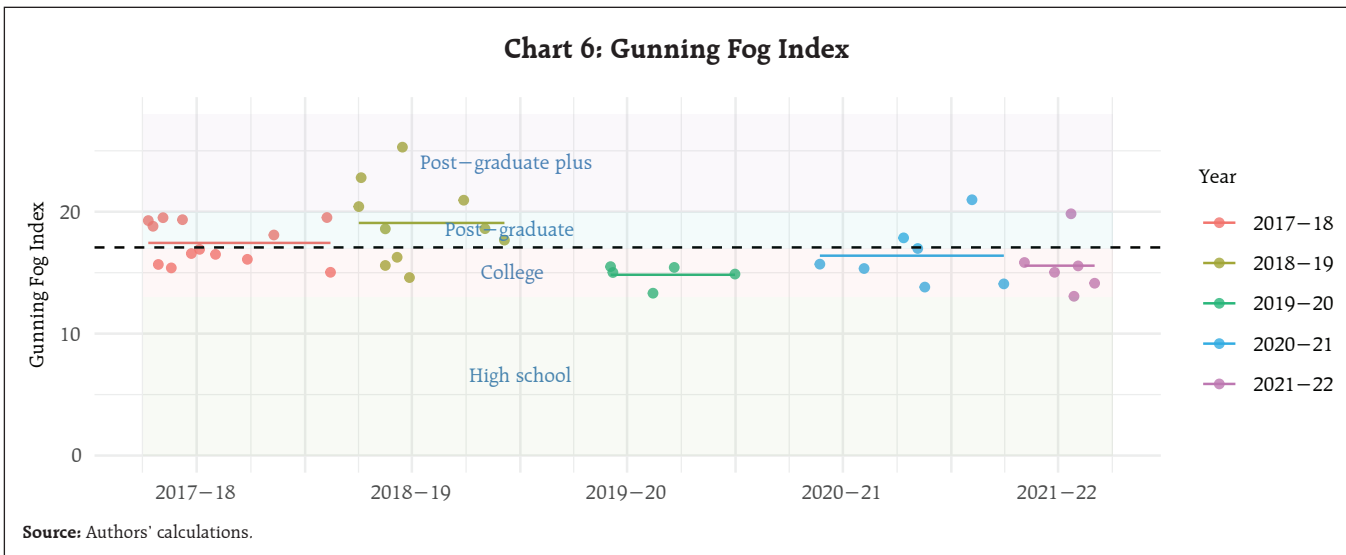
III.3.3 Gunning Fog Index

Gunning (1952) developed the 'Gunning fog index' (GFI). This index estimates the years of formal education a person needs to understand the text on

the first reading. It is calculated with the following expression:

$$0.4 \left[\left(\frac{\text{words}}{\text{sentences}} \right) + 100 \left(\frac{\text{complex words}}{\text{words}} \right) \right]$$

The Fog index for our texts range from 13 to 25 with the average value at 17. The ideal score for readability with the Fog index is 7 or 8. Anything above 12 is too hard for most people to read. For instance, The Bible, Shakespeare and Mark Twain have Fog Indexes of around 6 while leading magazines, like



Time, Newsweek, and the Wall Street Journal average around 11.⁸ As shown in Chart 6, the documents in our analysis have an average GFI score of 17 indicating that the average document can be read by a person who has a post-graduate degree.

III.3.4 Flesch Reading Ease

Flesch Reading Ease (FRE) index is one of the most popular amongst the traditional readability formulas. It uses the same core measures (word length and sentence length) as the Flesch Kincaid Grade Level index but has different weighting factors and is computed as follows:

$$206.385 - 1.015 \left(\frac{\text{total words}}{\text{total sentences}} \right) - 84.6 \left(\frac{\text{total syllables}}{\text{total words}} \right)$$

It gives a text a score between 1 and 100, with 100 being the highest readability score. Scoring between 70 to 80 is equivalent to school grade level 8. This means text should be fairly easy for the average adult to read. All regulation texts in our sample have FRE score ranging from 14 to 58 with mean score of 33 (Chart 7). We can infer from these scores that the sampled regulations are more complex than what an adult with an average education level can read. Documents during the Covid period in 2020 were more readable

with an average FRE score of 37, which is marginally higher than the 5-year average.

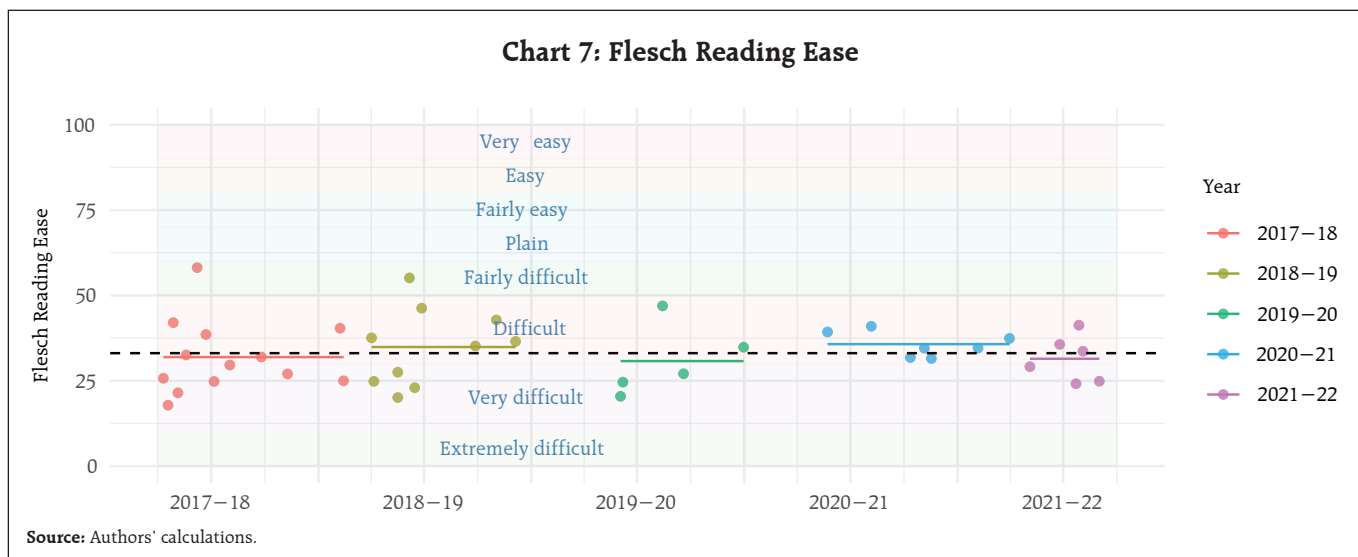
III.3.5 Readability μ (Mu)

This is a formula that calculates the ease of reading a text, developed by Muñoz and Muñoz (2006). They included in the calculations the number of words and the mean and variance of the number of letters of said words. The formula for readability μ (mu) is

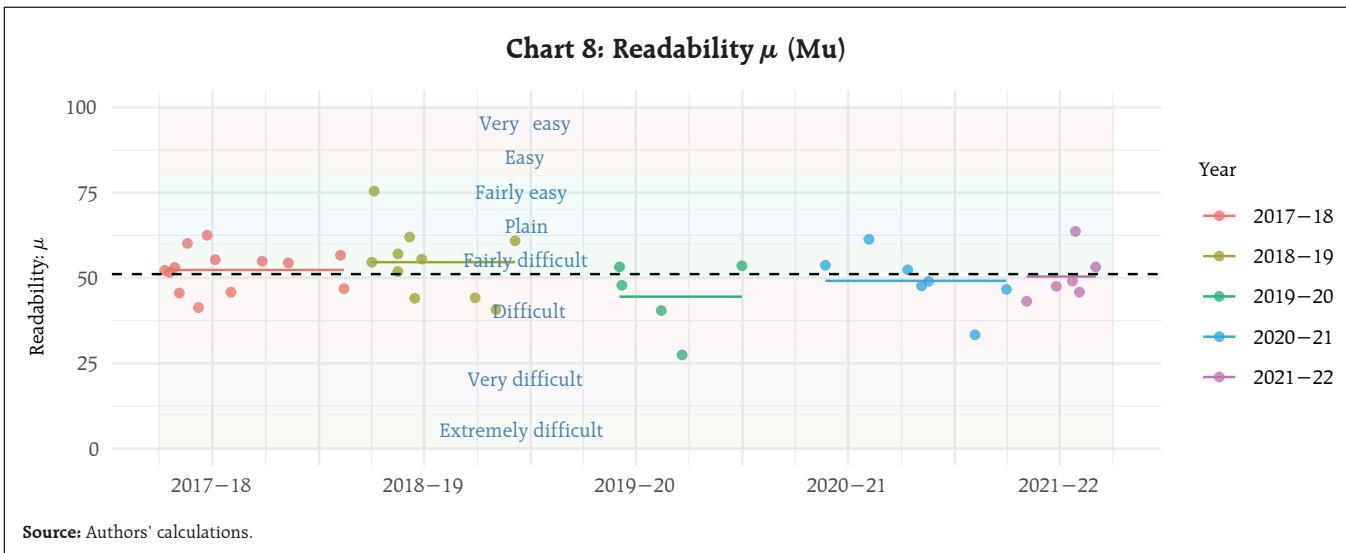
$$\mu = \left(\frac{n}{n - 1} \right) \left(\frac{\bar{x}}{\sigma^2} \right)$$

where μ is the readability index, n refers to the number of words, \bar{x} is the mean number of letters per word and σ^2 is its variance. This indicator has been developed for the Spanish language, unlike the other traditional readability formulas that are specific for the English language. In recent works by Lucio and Mora-Sanguinetti (2022), readability μ (μ) has been employed for studying complexity of regulations in Spain.

Chart 8 shows the complexity of regulations using Readability μ for our sampled regulations. Higher values of the score means more readable (or less complex) text. It is interesting to note that of all the indicators used in this study, this is the only index



⁸ <https://readabilityformulas.com/gunning-fog-readability-formula.php>



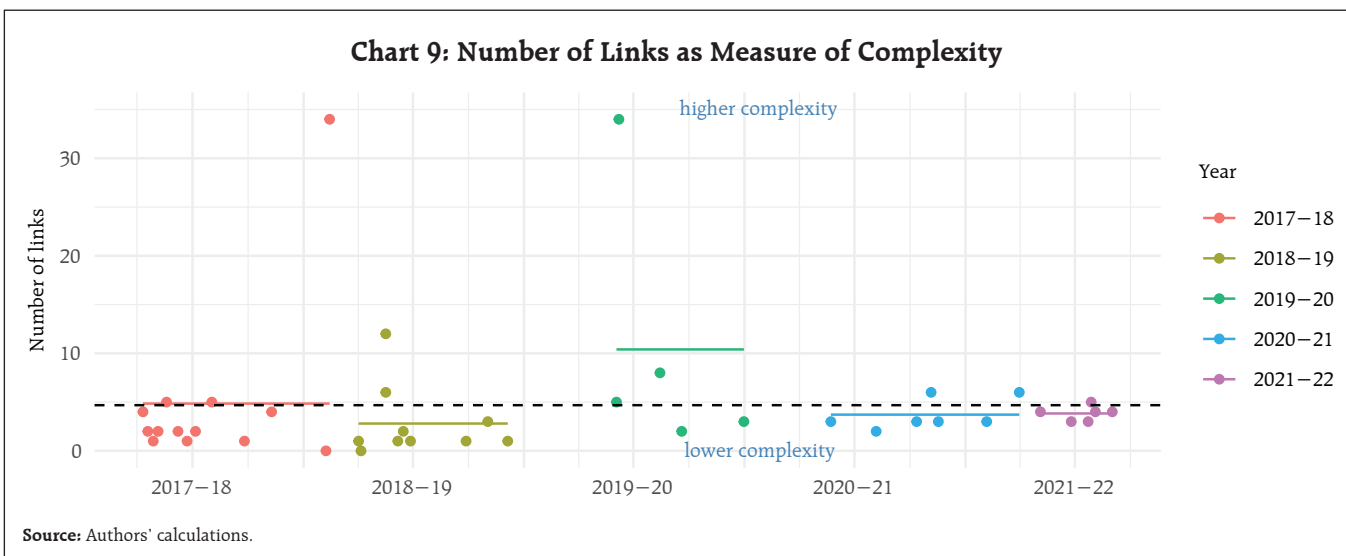
which is giving milder complexity scores. As shown in the graph, some documents are classified as 'fairly easy' or 'plain'.

III.4 Interdependence of Regulation

The extent of complexity also depends upon the extent of interdependence or cross references in the regulation. Complexity may increase with more relational nodes/ connections or cross-references in regulations. However, not all cross references may add to complexity, as some may be important for contextualisation or clarifying certain issues. Chart 9

illustrates the aspect of complexity of DoR regulations through the lens of interdependence. The average number of links per regulation is found to be around 5. Our approach here is to trace references only at the first level.

As successive Basel norms evolved, global regulation evolved to the next level with additional regulatory requirements for adherence to these norms. For example, macroprudential norms were introduced over and above the microprudential ones. CCB, CCyB, LCR and NSFR were introduced, and



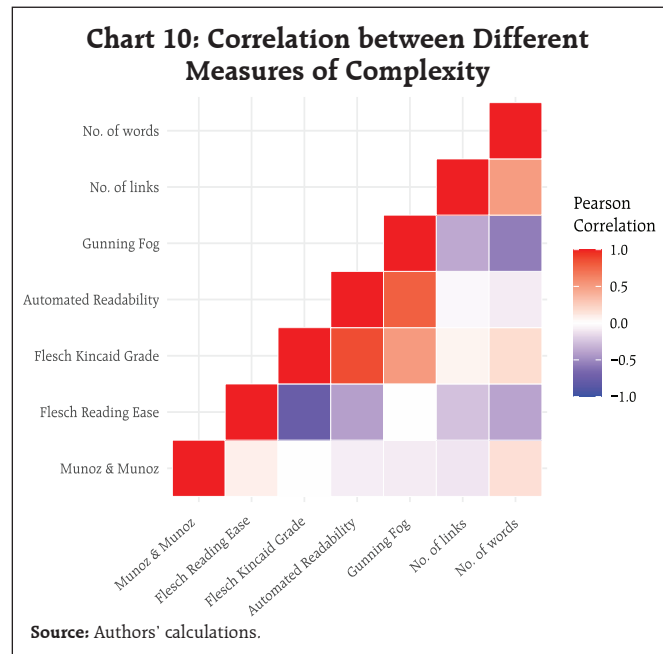
capital calculations became more sophisticated, with additional variables like the 'capital floor' coming into play. This has been analysed in a Bank of England staff working paper (Amadjarif *et.al*, 2021). It points out that merely measuring the length of a document can underestimate the linguistic complexity as the number of cross-references requires the readers to relate the two documents of connected rules to comprehend it totally and hence are more complex. Over years some regulations may become obsolete and are replaced or revised. Such a process requires citations or links to the older circulars and increases linkages or interdependencies with other regulations. So, interrelated or linked regulations offer continuity and consistency, which is crucial in compliance, yet they do increase the complexity of the regulation.

IV. Comparative Results and Discussions

As mentioned in the introduction, there are many dimensions of linguistic complexity of regulations. In the previous section, we have analysed some of these dimensions using different metrics *viz.*, size, restrictiveness, readability and inter-dependence. It is interesting to note that all metrics used in this study may not necessarily point towards the same direction and therefore we provide a comparative picture across measures.

IV.1 Correlation of Readability Scores

Readability indices are often correlated amongst each other as shown by results of correlation analysis and are presented in Chart 10. Lengthier regulations (*i.e.*, more words) are found to have moderately high correlation with regulations which are more dependent on other regulations (*i.e.*, have higher links). Interestingly, the number of words has negative correlation with Gunning Fog index, suggesting that linguistic complexity does not increase with size of the document. Higher number of links in a document has weak correlation with most of the indices. As expected, there is high positive



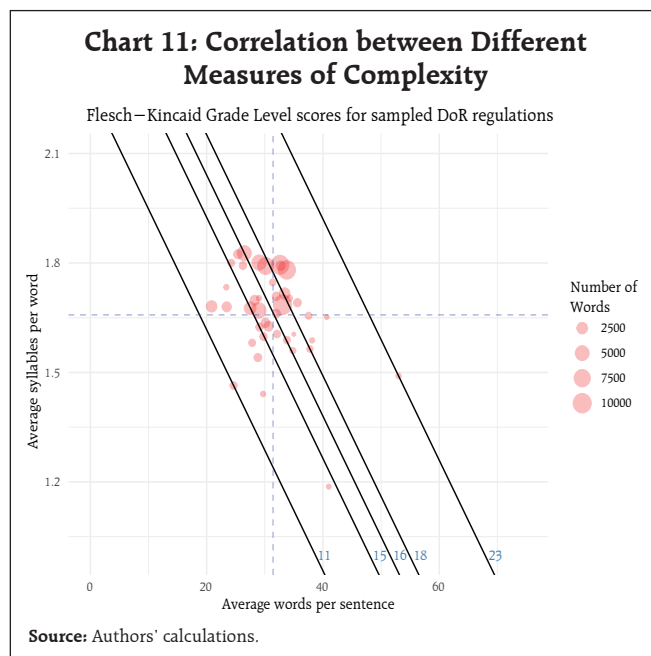
correlation amongst the three grade level scores (GFI, ARI and FK). We expect negative correlation between this group of indices with the other two (FRE and readability μ) since they have opposite polarity. The highest correlation (though negative) is between FRE and FK Grade level, which is expected since both the indices used the same text attributes for calculating readability. Amongst the readability scores, 'Readability μ ' is uncorrelated with most of the indices. In contrast, Flesch Kincaid Grade has high correlation with other readability metrics.

IV.2 Interpreting the Readability Formulas

In Table 2, we compare some of the salient features and results of the readability formulas used in the study. The formulas use certain text attributes and calculate the readability giving different weighting factors to the attributes (See column 2, Table 2). The mean ARI score is 18 (range 14-28) which means that even the simplest of sampled regulations (*i.e.*, ARI score of 14) requires 24+ years of education. The mean of Readability μ is 50 (range 28 to 73) which represents a level that is difficult or somewhat difficult. The mean score of 34 (range

19-59) for FRE represents "difficult to read, best understood by college graduates". The mean score of FK grade level is 16 (range 11-23) corresponds to a level of difficulty equivalent to an academic paper. The minimum of Fog index is 16 (mean 21 and maximum 31), which represents readability for a College Senior in US education system. Overall, these results indicate that DoR regulations require college or post graduate level education to read and interpret them. Given that these regulations are not for the lay person but to commercial bank officers and staff, whose education level equals at least graduate or post graduate, this may not be a problem *per se*.

There are, however, certain limitations to using formula-based indicators to text. For instance, while applying mathematical formula to literature, lot of questions can also be raised about the readability in a particular context. According to www.readable.com (an online toolkit that helps writers test and improve their readability score), some readability formulas are more suited for certain usage. As shown in the table below, Gunning Fog is more ideal for business writing as the index was in fact intended for business writing. However, this is not without contention. Loughran and McDonald (2016)⁹ demonstrated that Fog Index performs badly when applied to business documents.



In all cases, except in the case of μ readability, readability formula is a linear function of some text attributes such as words per sentence, syllables per word *etc*. We attempt to interpret readability formula taking the case of Flesch Kincaid Grade Level in Chart 11. The figure shows the different combinations of words per sentence (X-axis) and syllables per word (Y-axis) of sampled regulations. We show five lines which represent five FKR scores of regulations: minimum (11), 25th percentile (15), median (16), 75th percentile (18) and maximum (23).

Table 2: Salient Features of Readability formulas used in this study

Readability index	Text attributes used in the formula	Ideal usage	Mean of DoR regulations	Range of DoR regulations	Recommended range for general public
Flesch-Kincaid Grade Level	W/S, Sy/W	General	16	11-23	≤ 7
Automated Readability index	C/W, W/S	Technical writing	18	14-28	≤ 7
Gunning Fog Index	W/S, DW/W	Business literature	17	13-25	≤ 7
Flesch Reading Ease (FRE)	W/S, Sy/W	General	33	14-58	≥ 70
Readability μ	W, C/W, var(C/W)	Spanish language	51	28 to 75	≥ 70

Note: C/W = Average number of characters per word; W/S = Average number of words per sentence; W = Number of words; var(C/W) = variance of characters per word; Sy/W = Average number of syllables per word; DW/W = Percentage of difficult words.

⁹ Both Loughran and McDonald are well known in text analytics given their number of papers in the field.

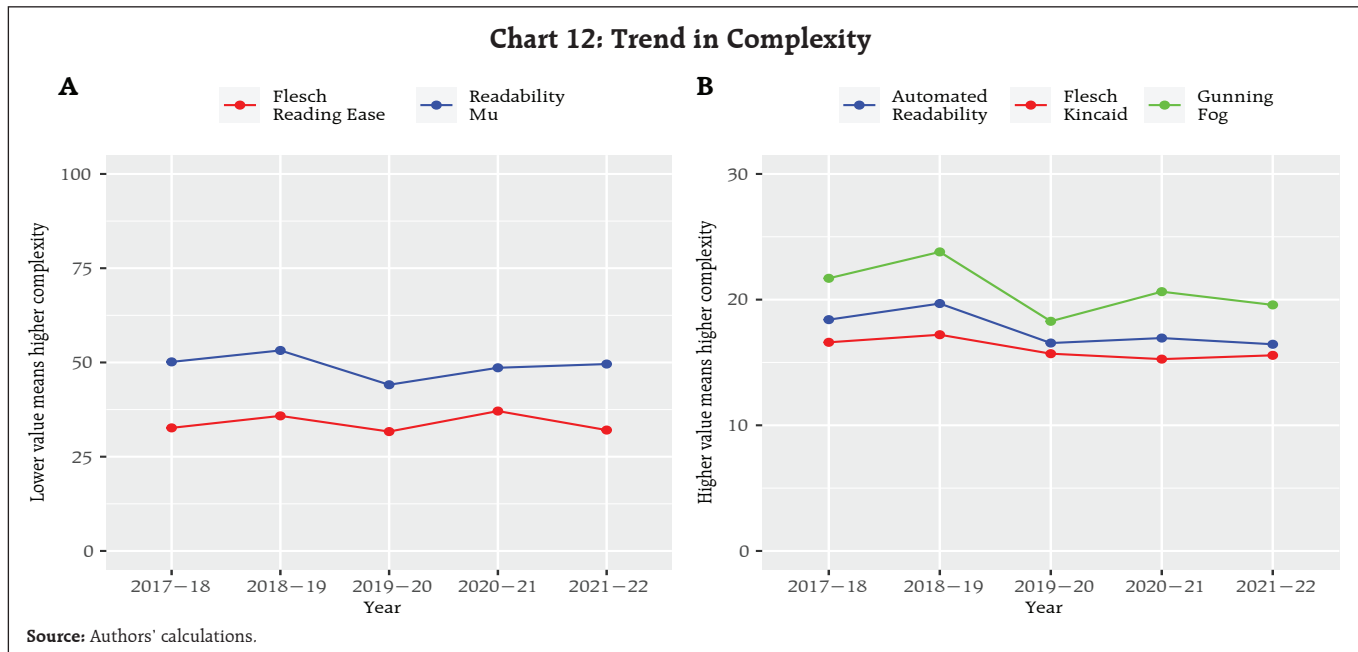
The chart enables us to explore the different ways to achieve better readability. For example, for the most complex regulation by FKR score (23), the FKR Grade level can be brought down to 18, if average words per sentence is reduced to 40 from the current 53, while leaving the number of syllables unchanged at 1.5. Or with the share of words per sentence remaining the same, we can achieve better readability by reducing the number of syllables per word. Reducing both will have greater effect.

IV.3 Trends in domestic regulations over the past 5 years

To understand the overall trends of various complexity scores, we plot the mean scores of the indices across the years (Chart 12). Panel A of Chart 12 shows that the average of μ and FRE went down in 2019-20 indicating that complexity has increased in that year. Deciding on an index is not easy given the number of indices available and their limitations. It is generally best to choose an index that corresponds

to the natural structure of the documents that one uses.¹⁰ It can be noted here that Flesch Kincaid has been used in recent central bank studies (Ferrara and Angino, 2022; Batac *et al.*, 2019). Readability μ by Munoz and Munoz (2006), based on a non-linear combination of number of words, average letter per word and their variance, has also been used in a study by staff from Bank of Spain. This index is difficult to explain, and we are not aware of any other study in the English language which uses this index. All the other indices have been developed for the English language.

So far in our analysis, we explore the various metrics of complexity using exploratory data analysis and evaluate complexity metrics by visualising their distributions and trends graphically. To evaluate whether the complexity scores are statistically different across years, a one-way ANOVA was performed to compare the differences in mean of the various complexity metrics. The analysis revealed



¹⁰ See www.quantgov.org

that there was no statistically significant difference in mean for four of the five measures of complexity. Only the mean value of Gunning Fog Index was significantly different across the years.

IV.4 Composite Index of Readability

Finally, we created a composite index using Principal Component Analysis (PCA) of grade level scores given by FK, ARI and GFI. Our choice for using only these three indicators for PCA is due to a very important consideration that the use of PCA for constructing a composite index may fail if improperly used (Mazziotta and Pareto, 2016). We choose complexity indicators which are positively intercorrelated. As shown by Mazziato and Pareto (2016), using many highly important but poorly intercorrelated indicators may be unrepresented by the composite index. PCA shows that Gunning Fog Index has the highest factor loading on the first principal component. The first principal component explains almost 84 per cent of the total variance. We created the composite score by re-scaling the first principal component from PCA such that score of 100 means the easiest document, and 0 means the most difficult to read document in the sample. Table 3 below gives the composite scores of the documents.

V. Conclusion

The present study was designed to gauge trends in complexity of linguistic communication through domestic banking sector regulations (circulars) issued by Department of Regulation (DoR) of RBI during the five year period 2017-18 to 2021-22 using established measures of complexity. The analysis suggests that regulations require a graduate or post-graduate degree for an understanding, which makes them accessible to the banking community. There is no visible change in readability scores across the years, though during 2020-21, regulation documents were smaller and had relatively easier readability.

Table 3: Documents ranked by composite score index based on Principal Component Analysis

Document	Composite Score	Length (No. of Words)
1 Access of non-banks to centralised payment systems. 2021-07-28	100.0	2336
2 Financial Inclusion Access to Banking Services. 2019-08-14	95.4	739
3 Guidelines on Regulation of Payment. 2021-03-31	93.7	1618
4 Gold Monetisation Scheme. 2018-06-27	93.4	893
5 Constitution of Board of Management. 2019-12-31	86.2	3243
6 Opening of Current Accounts by Banks. 2020-08-06	84.7	873
7 Risk management Systems. 2017-04-27	84.2	640
8 Encouraging formalisation of MSME sector. 2018-06-06	83.9	297
9 COVID19 Regulatory Package. 2020-05-23	83.9	304
10 Appointment of Managing Director. 2021-06-25	83.1	5674
11 Opening of Current Accounts by Banks. 2021-08-04	82.5	1582
12 Maintenance of escrow. 2020-11-17	82.5	606
13 Guidelines on Compensation of Whole Time Directors. 2021-09-01	79.2	5084
14 Amendments to Master Direction. 2017-09-25	78.3	1355
15 Concurrent Audit System. 2019-09-19	76.6	1244
16 Resolution Framework 2.0 MSME. 2021-05-05	75.1	787
17 Recording Details of Transactions in Passbook. 2017-06-22	74.2	774
18 Resolution of Stressed Assets. 2018-02-13	72.5	5310
19 Rationalisation of Branch Authorisation. 2017-05-19	71.5	10185
20 Prudential Framework for Resolution of Stressed Assets. 2019-06-07	71.3	7177
21 Co-Lending by Banks and NBFs. 2020-11-05	69.2	1564
22 Partial Credit Enhancement to Bonds Issued. 2018-11-02	67.7	290
23 Guidelines on Loan System. 2018-12-05	66.8	674
24 Large exposures framework. 2019-06-03	66.3	9456
25 Regulatory Retail Portfolio. 2020-10-12	65.7	676
26 Basel III Framework. 2017-08-02	65.1	960
27 Basel III Framework on liquidity Standards. 2018-05-17	62.0	8854
28 Relief for MSME Borrowers. 2018-02-07	61.7	418
29 Customer Protection. 2017-07-06	60.3	2439
30 Setting up of IFSC Banking Units. 2018-05-17	59.7	445
31 Banking Facility for Senior Citizens. 2017-11-09	59.3	1023
32 Individual Housing loans. 2017-06-07	55.4	246
33 Setting up IFSC. 2017-04-10	52.7	926
34 Revised PCA. 2017-04-18	52.4	1440
35 Timelines for Stressed Assets Resolution. 2017-05-05	51.4	533
36 Prudential Norms for Classification. 2018-04-02	49.6	491
37 BASEL3-CCB2021. 2021-02-05	46.2	210
38 Loans and advances. 2021-07-23	44.8	563
39 Liquidity Risk Monitoring Tools. 2018-09-27	44.6	267
40 Prohibition on dealing in Virtual Currencies. 2018-04-06	22.9	244
41 Basel II framework on Liquidity Standards. 2018-06-15	0.0	318

Note: Documents have been ranked from most readable to most complex

Going ahead, with more innovations and disruptions like the use of technology and AI in banking, regulation may become more complex and tools to address this complexity may also become easier and accessible to the regulators. There is also growing interest from banks and financial institutions in using technology (*i.e.*, RegTech) for meeting regulatory and compliance requirements more effectively and efficiently. Striking the right balance is important to serve the objective of effective regulatory communication in a changing financial landscape.

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Off-site Monitoring System for Surveys (OMOSYS): A Geographic Information System (GIS) Based Approach for Quality Assurance

by Sukhbir Singh and Vishal Maurya[^]

This article introduces a new off-site monitoring system for surveys (OMOSYS) for ensuring data quality in extensive field surveys. The system employs new locational measures for identification of doubtful survey responses by utilising geographic information system (GIS) data from computer-assisted personal interviewing (CAPI) instruments. The model driven indicator (MDI) and fixed control indicator (FCI) approaches developed in this article help identify doubtful cases in a flexible manner without any manual intervention. The OMOSYS facilitates targeted tracking of field visits for maximising efficiency and maintaining survey quality in diverse geographical domains, which are vital for time-sensitive and resource-constrained surveys.

Introduction

Surveys play a pivotal role in organised societies that rely on information as input in decision-making and their subsequent monitoring. Accuracy, reliability, and timeliness of survey data thus become critical, given their far-reaching implications in the policy-making process across diverse policy domains. In many areas of economic conditions enquiries, in-person interviews although more resource-intensive but have distinct advantages over telephonic and on-line surveys in terms of obtaining targeted responses,

better understanding through human interaction and higher response rate. In addition to checking of a survey's primary data, quality assurance measures often involve physical follow-up visits to surveyed locations by quality controllers / coordinators to validate survey responses on a sample basis. These on-site visits not only ensure proper compliance with instructions and design of the survey by investigators but also offer first-hand enriching experience, which proves instrumental in streamlining the training of the investigators, study survey design as well as refine survey questionnaire/explanations.

In a large and diverse country like India, conducting nation-wide surveys with stringent timelines becomes challenging in terms of ensuring on-ground adherence of survey design and coverage instructions, as the expanse requiring field visit by investigators becomes very large, and issues arise, especially with respect to compliance to the instructions by investigators or genuineness of respondents. This can lead to diminished likelihood of identifying locations during field visits for response validation. The challenge would be especially serious in remote areas where low probability of follow-up field verification can potentially prompt some investigators to conduct surveys at more convenient locations away from the targeted spot, which would compromise the intended design instructions and the desired quality of the survey data.

To address these challenges, innovative and pragmatic methods have been developed here by leveraging the potential of locational information of respondents captured by the instrument used to conduct the survey. This geographic information system (GIS) data in the form of geo-coordinates (*viz.*, latitude and longitude) has been utilised to develop an off-site monitoring system for surveys (OMOSYS), which tracks survey execution on a near real-time basis. Statistical methods are specifically designed for the purpose along with processes, which effectively implement and operationalise these methods.

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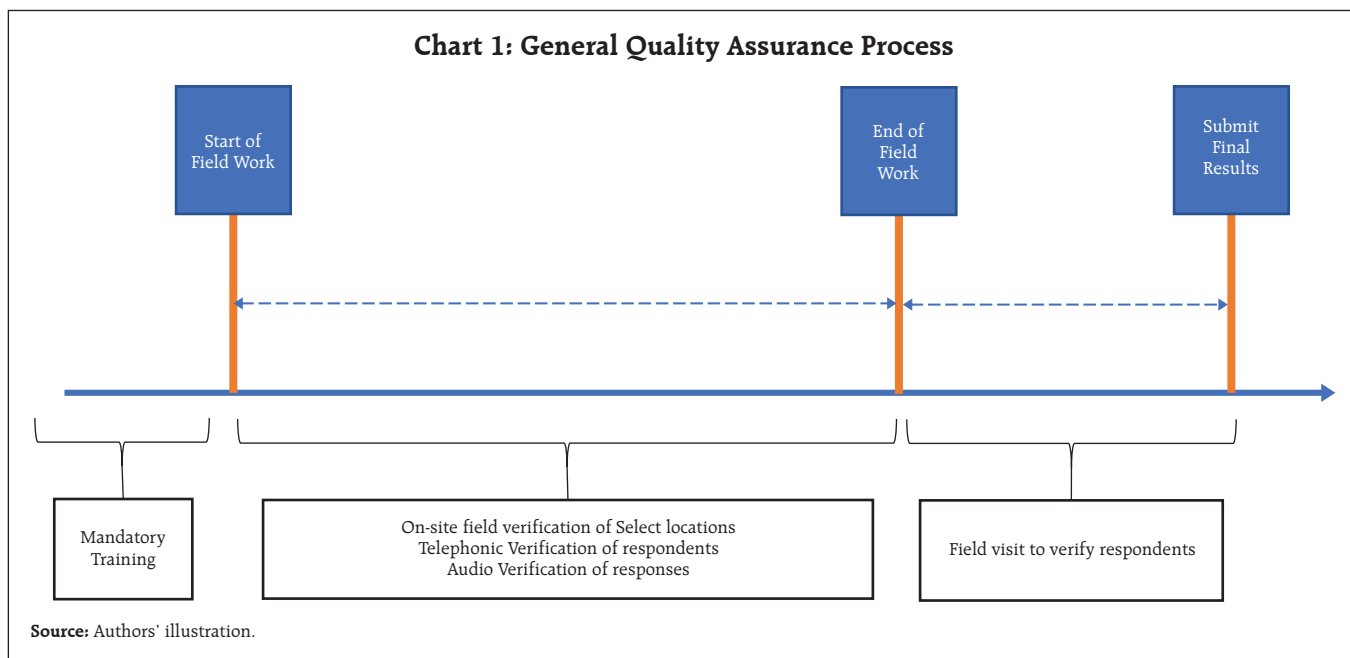
The article provides a detailed account of the OMOSYS along with illustrations of its use in household surveys conducted by the Reserve Bank of India (RBI). The article is structured into five sections. Following the introduction, Section II delves into the general data quality assurance (QA) processes employed in surveys and highlights the associated challenges. Section III provides comprehensive information of the OMOSYS utilising GIS information, offering a solution to the identified issues. Section IV demonstrates the application of the OMOSYS through real cases and synthetic data, providing practical insights. The concluding section summarises the findings and recommendations.

II. Quality Assurance Process in Surveys

Field surveys gather data by firstly designing sampling frames, where suitable sampling scheme is employed for selecting first stage units (FSUs) and second stage units (SSUs), and robust data quality assurance (QA) methods are used. For instance, in the context of urban household surveys conducted by the Reserve Bank of India (RBI), such as Inflation

Expectations Survey of Households (IESH) and Consumer Confidence Survey (CCS), the polling booths/wards serve as the FSUs. These FSUs form the basis for obtaining subsequent household-level responses, where randomisation of respondents is crucial to avoid biased results (RBI, 2018, 2019). Selecting respondents in very close proximity with each other may result in highly correlated responses, potentially leading to biased and skewed results. Additionally, if respondents are located far from the sampling focus area, there is a likelihood of distorting geographical representation. Such distortion could compromise any subsequent effort to link survey responses with the attributes of the targeted area. Thus, in addition to monitoring the inter-consistency of responses to various questions, the quality assurance framework for surveys also covers implementation aspects to ensure compliance with the instructions on selecting units and actual visit to the intended locations by the investigators hired for a survey.

Chart 1 illustrates a comprehensive quality assurance framework for surveys, which includes pre-survey training to investigators, conducting



on-site/audio verification of select responses, and implementing post-survey field/telephonic verifications to validate the authenticity of responses on a sample basis. While the audio recordings and contact details captured as part of survey through Computer Assisted Personal Interview (CAPI) instrument contribute to scrutinising the authenticity of respondents and evaluating the quality/efficiency of investigators, the field visits, both during and post completion of the survey are essential components under this framework (RBI, 2009, 2010).

Achieving comprehensive coverage of survey locations for field verification within strict timelines is a challenging exercise involving visiting an adequate number of locations, adhering to survey design specifications, and maintaining the quality of responses. The complexity is heightened when multiple surveys are conducted concurrently across vast areas.

In terms of the survey process, data collection process has rapidly changed in recent years with the advancement and incorporation of information technology. The earlier pen-and-paper interview (PAPI) based data collection methods have been replaced by CAPI by many institutions, which has reduced data collection efforts as well as helped in improving the data quality (Baker *et al.*, 1995; Couper, 2000; Caeyers *et al.*, 2010). As a by-product, CAPI also provides respondents' locational information and time stamps of responses, which are valuable data for analysis and monitoring purposes. The next section presents specific statistical methods designed to leverage this information effectively for off-site monitoring and on-course correction, if necessary.

III. Off-site Monitoring System for Surveys (OMOSYS)

The geographical information can be utilised for selecting locations for field visits. Instead of relying on

a purely randomisation approach, the identification of doubtful locations/cases could be facilitated through off-site monitoring system. These identified locations can then be verified physically during subsequent field visits resulting in more targeted monitoring with higher efficiency in terms of time and resource requirements. The OMOSYS was developed with this objective in mind and comprises the following two integral components:

- (i) Locational measures, which are measures based on location data and
- (ii) Indicator framework for identifying doubtful cases using locational measures.

The methodology for each of the above components is detailed in the following sub-sections.

III.1 *Locational Measures*

The map of survey location superimposed by respondents' latitude and longitude serves as a useful preliminary exploratory tool to assess whether an adequate spread and compliance with instructions have been achieved (Chart 2).¹ This raw approach, however, is fraught with logistical inconvenience of regularly preparing and monitoring hundreds of maps, and it offers limited insights into the selection of locations/respondents for field investigation. Accordingly, for effective monitoring, information contained in a map is transformed into statistical measures as detailed below:

Location Distance Gap (LDG)

Considering the primary goal of verification of investigators' field visit to intended location, the distance of respondents from the intended survey location is considered as a suitable measure, which is termed as *LDG*. Denoting the latitude and longitude

¹ There are many online service providers which provide online maps for different locations. These may be used if maps are not readily available for survey locations.

Chart 2: Sample Image Showing Locations Covered by Investigator at a Particular Place



Source: Authors' illustration based on Bing Maps

for l^{th} location as (ϕ_l, λ_l) and for r^{th} respondent of this location as (ϕ_r, λ_r) , the LDG may be computed as:²

$$LDG_r = R\sqrt{(\Delta\phi_r)^2 + (\cos(\phi_{mr})\Delta\lambda_r)^2} \quad (1)$$

Where $\Delta\phi_r = \phi_r - \phi_l$; $\Delta\lambda_r = \lambda_r - \lambda_l$; $\phi_{mr} =$

$(\phi_r + \phi_l)/2$ and R is the radius of the earth. Here LDG is in same unit as R .

Equation (1) represents the equirectangular approximation formula for computing spatial distances, particularly efficient for small distances (Silva *et. al.*, 2014). Using this formula, the LDGs can be computed for all respondents from a location. The larger the LDG, the higher is the probability that the survey of corresponding respondent was not conducted at the intended location.

Calculation of LDG measure requires prior knowledge of geo-coordinates of the intended survey location which may not always be readily available. For example, in Indian context, for rural surveys the sampling frame would generally comprise villages,

² The ϕ and λ are in radians. The ϕ_m must be in units compatible with method used for determining $\cos(\phi_{mr})$.

the centroid of village boundary provided by official agencies, available in public domain, can serve as a proxy for location of the village.³ In contrast, addressing this issue for urban surveys is more complex if they rely on the sampling frames based on polling booths or wards, where the boundary details are not readily available in public domain. In the absence of a direct proxy for the locational information of the selected urban survey locations, geo-coding feature provided by various service providers can be utilised to obtain their latitude and longitude.⁴

Respondent Distance Gap (RDG)

In addition to verifying the investigator's visit to the intended location, the second objective of field verification is to confirm compliance with instructions regarding the skipping of a specific number of households as per the survey's design. *RDG*, which is calculated based on the distance between successive respondents, serves as a valuable metric in such cases. Denoting the latitude and longitude for first respondent as $(\phi_{r1}, \lambda_{r1})$ and successive respondent, *i.e.*, the second respondent as $(\phi_{r2}, \lambda_{r2})$, the *RDG* for the second respondent may be computed as:

$$RDG_{r2} = R\sqrt{(\Delta\phi_{r2})^2 + (\cos(\phi_{mr2})\Delta\lambda_{r2})^2} \quad (2)$$

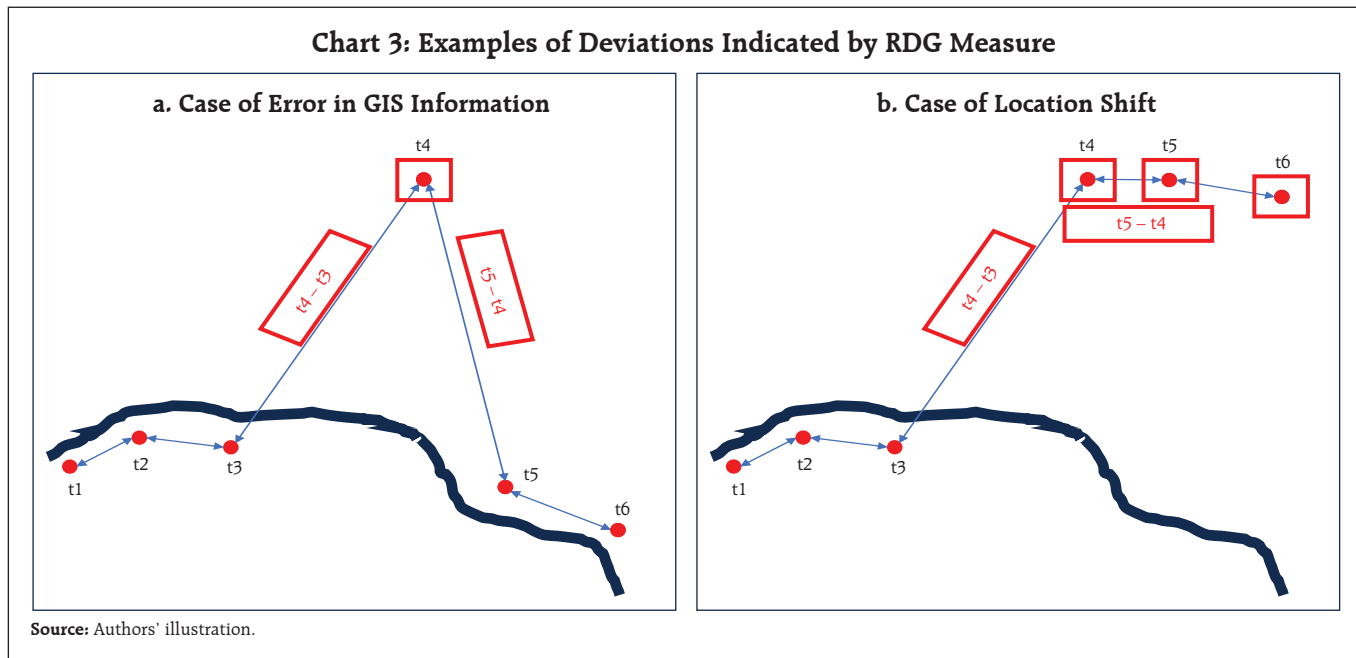
where $\Delta\phi_{r2} = \phi_{r2} - \phi_{r1}$; $\Delta\lambda_{r2} = \lambda_{r2} - \lambda_{r1}$;

$\phi_{mr2} = (\phi_{r2} + \phi_{r1})/2$.

In this manner, the *RDG* for all respondents at a location can be computed. It is important to note that the computations should be carried out for all respondents covered on a single day as the starting point on subsequent day at the same location may not tally with the previous day end location. High *RDG* values indicate large deviations, while small *RDG* values suggest a close cluster of observations or respondents. Both scenarios are undesirable when

³ In India, the village boundaries are provided to public by Survey of India which can be accessed at <https://onlinemaps.surveyofindia.gov.in/>

⁴ For example, Google provides geo-coding services where addresses of location in tabular data may be converted to geo-spatial data.



aiming for a uniform spread of respondents within a survey location.

While RDG serves as a useful measure for monitoring, it needs to be acknowledged that at times, in places with weaker internet connectivity, the GPS feature may capture inaccurate locational data especially in remote areas. This may result in computing large distance between successive interviews that do not accurately reflect the actual situation, thereby diluting the effectiveness of analysis by generating false flags. At the same time, since it is known that the locational information may contain errors, there are chances that the true positive signals about instruction violation being overlooked as false positives. As illustrated in Chart 3a, the fourth observation significantly deviates from others, and in Chart 3b, the fourth, fifth and sixth observations, although clustered, deviate from the other cluster of observations. From the RDG measure, it is not immediately apparent whether these deviations are genuine.

Respondent Time Gap (RTG)

To mitigate the challenges associated with interpreting RDG as discussed earlier, the time stamps

of the interview commencement, and completion, captured in the CAPI instrument, are found to be extremely beneficial. It is important to note that as long as the investigator uses the same mode of conveyance throughout the day (e.g., walking, cycle, scooter, motorbike), the time needed to cover a specific distance is unlikely to vary significantly. Leveraging on this assumption, the difference between the end time of one interview and the start time of subsequent interview is computed and represented as RTG.

Denoting the start time and end time of interview for the first respondent as (ts_{r1}, te_{r1}) and the next respondent, i.e., the second respondent as (ts_{r2}, te_{r2}) , the RTG for the second respondent can be computed as:

$$RTG_{r2} = ts_{r2} - te_{r1} \quad (3)$$

In this way, the RTG for all respondents covered at a location on the same day may be computed. If the RTG for a case flagged by the RDG measure, aligns with the RTG of non-flagged cases at the same location, it may be inferred that the high RDG is likely to be a false positive and could be generated due to

signal disruptions. It is important to note that the false positives resulting from signal issues may occur in at least a pair. It is illustrated in Chart 3a where for both 4th and 5th respondent, the distance with the previous respondent is large mainly due to issue with locational information of the 4th respondent. On the other hand, if a high RDG is accompanied by a high RTG, it suggests that the investigator may have deviated from targeted sampling unit/s.

III.2 Indicator Framework

There are two possible approaches to monitor field work using the measures discussed in the previous sub-section depending on the complexity of design and logistics considerations, *viz.*, 1) location-first approach, and 2) respondent-first approach. The location-first approach involves identifying doubtful locations first and then checking respondent data for those locations. In this approach, areas exhibiting a significantly elevated average LDG and both substantially high and low RDG are flagged for further examination. The individual LDG and RDG values of respondents in these identified locations are scrutinised along with their RTG values to avoid false flags. The locations/respondents flagged out of this process may be selected for field visits. The second approach, *i.e.*, the respondent-first approach entails identifying doubtful cases within respondent data and determining the locations with a high number of such cases. The doubtful cases in this approach may require looking at respondent level data directly.

Although both approaches are useful for off-site monitoring, the location-first approach may be employed when number of FSUs are large and within each FSU, a smaller number of responses are obtained. On the other hand, the respondent-first approach may be employed when large number of responses are received from limited number of locations.

When compared to random selection of location/respondents for field verifications, the locational

measures-based approach offers greater advantages as it allows for the off-site selection of doubtful cases. Moreover, while random selection approach only checks a fraction of locations, the proposed method monitors all locations, thereby enhancing the effectiveness and reach of control measures for entire survey data.

In case of small-scale surveys or when there are sufficient resources, the location-first approach or respondent-first approach for flagging doubtful locations/ cases can be performed manually but it becomes difficult especially when the number of locations is extensive, resources are limited, and timeliness is a binding constraint. Additionally, survey data are transmitted to survey originator, either sequentially or in real-time⁵ (the former is more common), which can be passed through a regular quality assessment process. During ongoing survey fieldwork, early identification of deviations from design and instructions becomes crucial in ensuring data quality of subsequent survey interviews. While the measures discussed above can be easily computed once relevant locational data are available, the identification of doubtful cases through manual process may be challenging due to strict timelines, which can be addressed by implementing a system that identifies doubtful cases without requiring manual intervention. In the OMOSYS, this capability has been integrated using indicator approach, where relevant indicators are designed on the top of locational measures discussed earlier to flag doubtful cases. The approach is detailed below:

Model Driven Indicator (MDI) Approach

If data of similar/same/pilot surveys from past time periods is available, the MDI methodology can

⁵ Sharing of data from field surveys in real time is very difficult if not impossible due to operational issues (such as inconsistent signal in far flung areas) and cost involved etc. However, for many practical situations, the sequential sharing of data may be sufficient to serve the purpose. The example of sequential data sharing is when data of say all respondents covered on a day is shared as a lot with lag of a day or two.

be used for flagging doubtful cases where models are built using past data.

For location-first approach, the model for the l^{th} location can take the following general form:

$$y_i = f(\beta_l) + \epsilon_i \quad (4)$$

where,

y_i is the variable of interest for l^{th} location;

β_l is the vector of geographical classifications for l^{th} location;

f is the functional form used to model relation between geographical classifications and y_i ; and

ϵ_i represents the residual term in model.

For respondent-first approach, without loss of generality, the above model can be defined based on individual respondent-level characteristics, similar to the location-level characteristics defined above. The choice of model depends on the type of survey. Although linear models are widely used, but any other modelling approach can also be integrated. The β_l 's depend on uniform clustering of locations; that is, within each set of combinations, the expectation is that locations will be uniform in terms of variable of interest. For example, for rural surveys, the components of β_l may include state, district, population group etc. For urban surveys, these components may be city or ward.

The general form for the model as in (4) can be estimated using past data and can be implemented for a system through which sequentially shared data can be checked for outliers. For this purpose, the estimated ϵ_i 's can be standardised, and the extreme values could be flagged after comparing these standardised values with z_p , where z_p is the critical value of standard normal distribution such that $Prob(|Z| > z_p) = p$ or $Prob(Z > z_p) = p$, as the case may be. The value of p is the level of significance for testing, which could be determined based on the number of doubtful cases that can be examined given the available resources

and time constraints. The identified doubtful cases can be chosen for follow-up field visit, allowing for the verification of ground facts.

Fixed Control Indicator (FCI) Approach

There are situations where past data are not available for a survey (e.g., while launching a completely new survey or expanding the coverage of an existing regular survey), where the MDI approach discussed earlier cannot be directly applied. An alternative approach is to build the model sequentially i.e., as the data arrives in batches, the model can be estimated and used to identify outliers in subsequent batches. Subsequently, the model may be re-estimated with the combined data received up to that point, and this process continues until the estimates stabilise.

In case of a non-regular survey, however, allocating extensive resources for model stabilisation might be unnecessary. A natural approach could be to impose fixed control limits on locational measures, based on the experience of originator of survey in alignment with purpose of survey. In such a situation, the fixed-control lower limit (FCLL) and/or fixed-control upper limit (FCUL) can be imposed on the data. Any survey response outside these limits may be flagged as doubtful, requiring further investigation. Although simple, the approach may result in a substantial number of doubtful cases if overly conservative limits are imposed, or it may overlook genuine doubtful cases if limits imposed are too lenient. Another challenge is the natural clustering of locations, where variables of interest may vary widely across clusters: doubtful cases may be observed only in a few clusters if the same limits are imposed uniformly to all clusters, whereas too many limits would need to be imposed with high manual intervention, if limits are to be imposed cluster-wise.

As such, while MDI and FCI approaches have distinct and non-overlapping use cases, the selection of a particular approach also relies on the purpose, type, and resource availability. The subsequent

section delves into the details of these approaches and examines their effectiveness in various situations based on synthetic data.

IV. Use Case: Reserve Bank's Household Surveys

RBI has been regularly tracking the movements in consumer sentiments on major economic parameters through bi-monthly⁶ urban household surveys *viz.*, inflation expectations survey of households (IESH) and the consumer confidence survey (CCS), initiated in 2005 and 2010, respectively. Their sampling frame in urban areas uses polling booths as the FSU, which are regarded as survey locations from which the SSUs (*i.e.*, generally 15-20 households in each FSU) are selected for obtaining responses. Within selected survey location, after a random start and first successful interview, a fixed number of houses are skipped (sampling interval) following right-hand rule for selecting the next household for interview.

Both these surveys cover 19 cities, each surveying over 400 locations from these cities. Aligned with monetary policy cycle of the RBI, these surveys are conducted at a bi-monthly frequency, with survey fieldwork scheduled for 10 days. As discussed in section II, on-site/follow-up field visits constitute an integral component of the quality assurance framework for these surveys. Due to frequent nature of these surveys and stringent timelines, the extensive geographical coverage of survey locations poses challenges in ensuring data quality under the existing quality assurance framework.

The usefulness of OMOSYS is demonstrated in such scenarios through synthetic data generated using the settings and design, such as skipping 10-12 households after each interview and adhering to right-

hand rule, of RBI's household surveys.⁷ The synthetic data is generated in such a way that it contains the essential characteristics of the survey, incorporating a few instances of concern for illustration. Data for locations is generated by using observed average and variances in LDG, RDG and RTG across various states, districts, and population group combinations. For the purpose of illustration, the value of the radius of Earth required for the computation of LDG and RDG using formulas (1) and (2), respectively, is taken as $R = 6371.0 \text{ km}$ which is the mean value of the radius of Earth.⁸ The data on the geographical locations of all banking outlets within the Centralised Information System for Banking Infrastructure (CISBI)⁹, maintained by the RBI, has been employed as a proxy for the designated survey locations in the calculation of LDGs.

IV.1 Computing Measures

The measures discussed earlier in Section III are demonstrated here with real data. The following cases have been selected for illustration:

- **Case 1:** A survey location where the instructions are properly followed and, no false alert occurs due to internet signal issue (Chart 4)
- **Case 2:** A survey location where the instructions are correctly followed, but some false alerts occur due to internet signal issues (Chart 5)

⁷ Creation of synthetic datasets are useful way of training/testing/illustrating the models in cost and time effective way where the dataset is simulated depicting real life scenarios (Sergey, 2021).

⁸ The mean radius of the Earth is used in this illustration because the Earth is not a perfect sphere; it is an oblate spheroid, meaning it is slightly flattened at the poles and bulging at the equator. The average radius of the Earth takes into account this slight variation in radius due to the Earth's shape. However, the applicability of formulas (1) and (2) is not confined to this specific choice, and alternative Earth radii, such as equatorial or polar radii (Wang et al., 2021), can be utilized according to specific needs.

⁹ CISBI is the Reserve Bank's on-line portal for allotment and maintenance of Basic Statistical Return (BSR) codes along with locational details of commercial and co-operative banks as well as other select financial institutions. These cover branches, offices, Non-Administratively Independent Offices (NAIOs), Automated Teller Machines (ATMs), fixed location business correspondents and other fixed location customer service points. The data in tabular form is also made available to public at <https://dbie.rbi.org.in/#/banking-outlet>

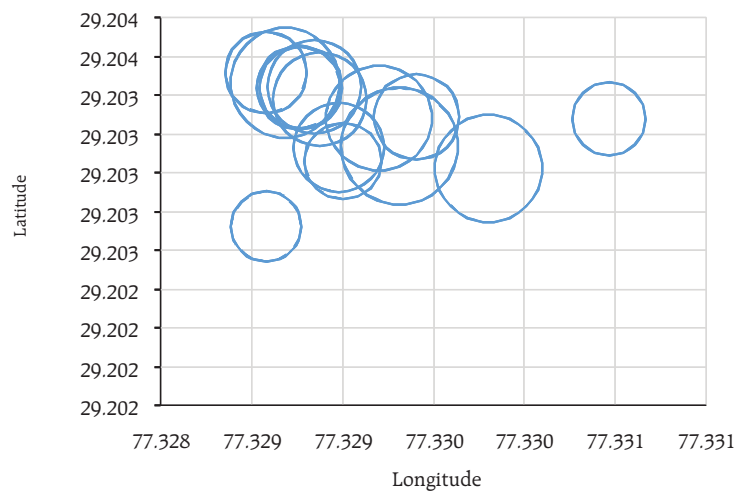
⁶ Until March 2014, RBI conducted the urban household surveys, namely the 'Inflation Expectations Survey of Households' and the 'Consumer Confidence Survey', on a quarterly basis. Subsequently, in order to align the surveys with bi-monthly monetary policy framework, two extra rounds (May and November) were introduced.

Chart 4: Survey Location with no Deviation from Instructions

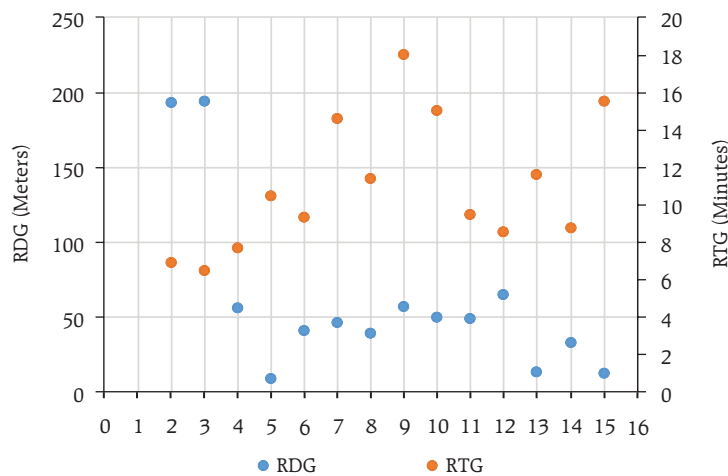
a: Data of All Respondents for Location

Response	Duration (Minutes)	RTG (Minutes)	RDG (Meters)
1	13		
2	12	7	193
3	13	6	194
4	16	8	56
5	10	10	8
6	10	9	40
7	12	15	46
8	10	11	39
9	15	18	57
10	9	15	49
11	11	9	49
12	11	9	65
13	11	12	13
14	8	9	33
15	11	15	12

b: Location Chart with RTG as Radius of Circle



c: RDG and RTG in Sequential Order



Source: Authors' calculations.

- **Case 3:** A survey location where there is a deviation from instructions, signalled by an alert raised by the statistical measures (Chart 6)

For Case 1, the measures are computed and presented in Chart 4. Here, 'duration' represents the duration of each interview. It is evident from Chart 4b that no significant deviations are observed and the distance gap (RDG) and Time Gap (RTG) exhibit consistency across respondents, as shown in Chart 4a and Chart 4c. On the other hand, for Case 2, two

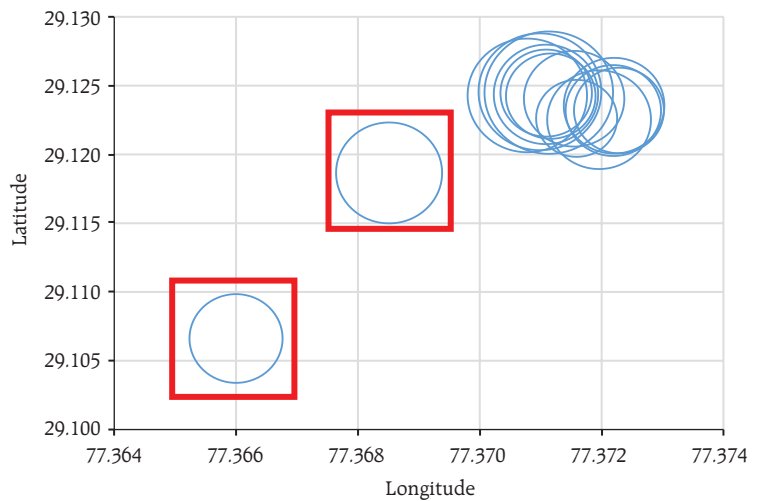
observations are red flagged using RDG measure (Chart 5a). The circle plot of respondents in Chart 5b indicates that these two observations indeed deviated from the cluster of other observations. However, the RTG for these two observations remains consistent with other RTG observations, as indicated by radius of circle and readings in data table. This suggests that the deviations flagged by RDG may be false positives. It is interesting to note that, as discussed in the methodology section, false positives occur in a pair here.

Chart 5: Survey Location with False Positive from RDG Measure

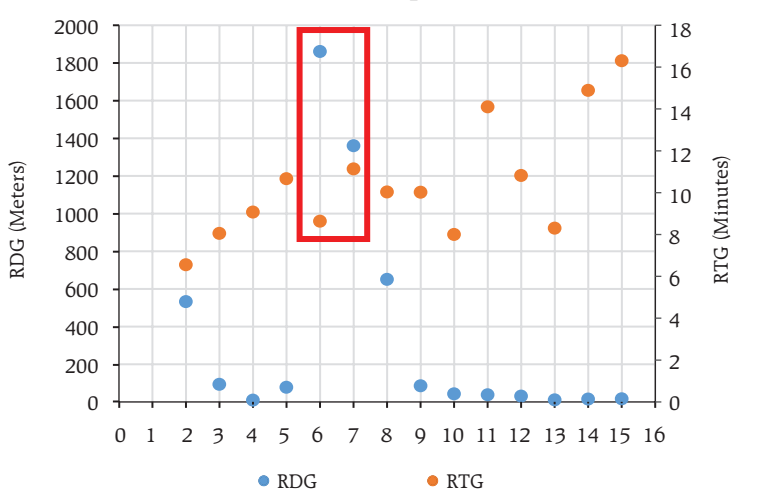
a: Data of All Respondents for Location

Response	Duration (Minutes)	RTG (Minutes)	RDG (Meters)
1	9		
2	11	7	533
3	11	8	93
4	10	9	9
5	10	11	77
6	12	9	1861
7	14	11	1360
8	13	10	651
9	11	10	85
10	12	8	43
11	10	14	38
12	16	11	31
13	12	8	11
14	13	15	15
15	10	16	16

b: Location Chart with RTG as Radius of Circle



c: RDG and RTG in Sequential Order



Source: Authors' calculations.

Chart 6 illustrates Case 3, which is distinct from the first two cases. In Chart 6b, two observations visually deviate from the other cluster of observations. The high value of RTG for the first observation, flagged by the RDG measure, implies a high likelihood that the investigator may have moved away from remaining cluster or the intended survey location. The readings of RDG and RTG for subsequent respondent indicate that the investigator, after interviewing the first flagged respondent far away from other respondents,

continued to interview subsequent respondents at the same distant location. These respondents are potential cases for field verification.

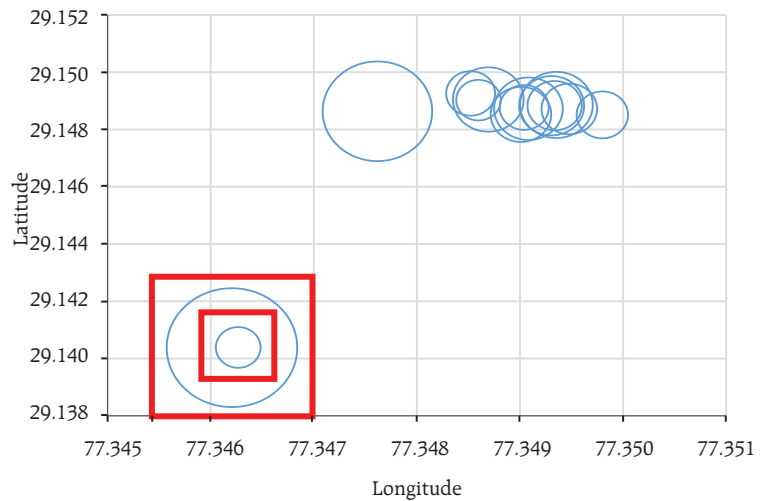
The above examples have illustrated the capability of locational measures in identifying problematic cases in field surveys through off-site monitoring. Its effectiveness, however, is diluted by the need for manually monitoring of locational measures for all survey locations, which is both laborious and

Chart 6: Survey Location with True Positive from RDG Measure

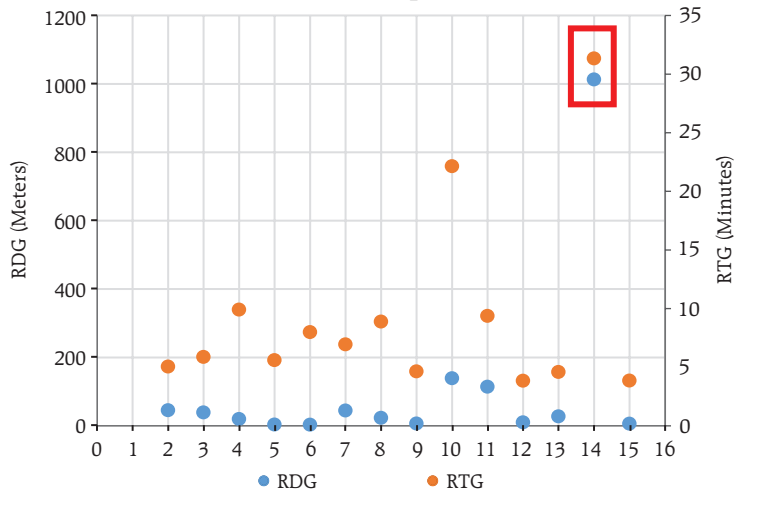
a: Data of All Respondents for Location

Response	Duration (Minutes)	RTG (Minutes)	RDG (Meters)
1	12		
2	10	5	45
3	15	6	39
4	14	10	20
5	14	6	3
6	12	8	3
7	20	7	44
8	11	9	23
9	12	5	6
10	12	22	139
11	16	9	114
12	10	4	10
13	11	5	27
14	13	31	1012
15	9	4	6

b: Location Chart with RTG as Radius of Circle



c: RDG and RTG in Sequential Order



Source: Authors' calculations.

susceptible to errors and omissions. The strategies proposed in Section III.2 to address these limitations are demonstrated below.

IV.2 Flagging Doubtful Cases

Given the sampling design of the RBI's surveys, which involves a large number of locations with only small number of respondents (generally 15-20) from each location, the more appropriate approach in this context would be the location-first approach,

discussed in Section III.2. Thus, the demonstration here will involve the location-first method, *i.e.*, identifying doubtful locations first and subsequently examining survey responses for those locations.

Firstly, we discuss the MDI framework, wherein control limits are derived from synthetic data. For illustration purposes, a linear functional form for model (4) is considered, incorporating geographical classifications such as state, district, and population group. Given the vast geographical and cultural

diversity in India, the geographical classifications are important because critical considerations, such as, population density, area dimensions and spread of households are not uniform across states. Even within a state, not all districts are uniform. Since all these factors affect the observed LDG, RDG and RTG, they need to be accommodated in the model to account for variation induced by them in the variables of interest.

Following these settings, the linear location-first models¹⁰ for RDG and LDG for l^{th} location can be written as:

$$\overline{RDG}_l = \alpha_1 + \beta_{1i} + \gamma_{1j} + \xi_{1k} + \epsilon_{1ijkl} \tag{5}$$

$$\overline{LDG}_l = \alpha_2 + \beta_{2i} + \gamma_{2j} + \xi_{2k} + \epsilon_{2ijkl} \tag{6}$$

where,

\overline{RDG}_l and \overline{LDG}_l are the averages of all RDGs and LDGs for location l of the k^{th} population group of j^{th} district in i^{th} state;

$(\alpha_1, \beta_{1i}, \gamma_{1j}, \xi_{1k})$ and $(\alpha_2, \beta_{2i}, \gamma_{2j}, \xi_{2k})$ are the intercept and fixed effects of state, district, and population group for models (5) and (6) respectively.

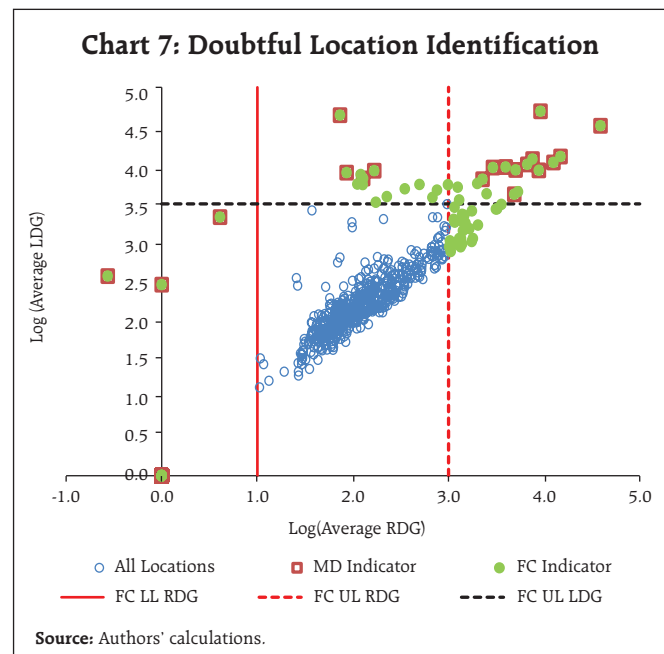
ϵ_{1ijkl} and ϵ_{2ijkl} represents the residual error term for RDG and LDG models respectively.

For estimation, the synthetic data was split into two parts, the first was used for estimating models (5) and (6), and the second part was treated as fresh data arrival, where estimated model was used to identify doubtful cases. During estimation, the imputed doubtful cases were excluded from dataset to ensure that the model estimates capture only the inherent variations in the survey and is not influenced by extreme observations. The doubtful cases or outliers in the second part of data are identified using the previously discussed standardised estimated residuals methods.¹¹ As discussed in sub-section III.1, both high and low values of RDG are undesirable; thus, a two-

sided comparison is used for model (5) with level of significance as $p_1 = 20$ per cent. Whereas for model (6) i.e., LDG, since only higher values are of concern, a one-sided comparison is used with level of significance as $p_2 = 10$ per cent.

The results are presented in Chart 7, where, for clarity, the average RDG and average LDG values are presented in logarithmic terms. The locations identified using the MDI framework are highlighted as red squares. However, a closer examination of these doubtful locations is necessary, specifically, the RDG of each respondent should be scrutinised along with the RTG of these respondents to determine whether a ground visit to the identified location is warranted.

To illustrate the FCI approach, the same dataset is used. For this purpose, the FCLL and FCUL for RDG are considered as 10 meters ($\log(10) = 1$) and 1000 meters ($\log(1000) = 3$), respectively. Similarly, the FCUL for LDG is imposed as 3000 meters ($\log(3000) = 3.5$). The flagged cases are highlighted as green dots in Chart 7. The illustration above indicates that, when limits are properly chosen, both approaches may yield similar results (with a slightly higher number of flags in the FCI approach).



¹⁰ The model may be customised as per the situation and requirements.

¹¹ However, any other outlier detection approach can also be used without loss of generality.

V. Conclusion

In many areas of household surveys, in-person interviews have distinct advantages *vis-a-vis* telephonic/on-line surveys in terms of obtaining targeted responses, better understanding and much better survey response rate. Good policy decisions and appropriate monitoring require reliable and timely survey data, where ensuring compliance with carefully crafted survey design, especially in geographically extensive surveys, present challenges. Traditional follow-up verification field visits become logistically challenging, especially in remote areas.

The OMOSYS proposed in this article utilises GIS data obtained through CAPI instruments to develop statistical measures for addressing these concerns in a pragmatic manner. It employs locational measures (*viz.*, LDG, RDG and RTG), to identify doubtful cases through off-site monitoring. LDG measures the distance of respondents from the intended location, while RDG and RTG assess compliance with skipping instructions and time gaps between interviews. The system incorporates statistical methods for efficient implementation. The synthetic dataset generated using the settings and design of the Reserve Bank's household surveys is used to illustrate the effectiveness of OMOSYS. The MDI approach, which uses historical data to set control limits, and FCI approach, which employs fixed limits, are showcased for doubtful case identification. Both the approaches are suited for different survey conditions and the results demonstrate their effectiveness in identifying doubtful cases.

This OMOSYS offers a viable solution for comprehensive survey monitoring, especially in scenarios with limited resources and strict timelines. As against random selection approach, which checks only a fraction of locations, this solution monitors all locations, thereby exponentially enhancing the effectiveness and reach of survey control measures. It ensures a targeted approach to field visits, maximising

efficiency and maintaining survey quality across diverse geographical domains. The findings suggest broader applications for improving data quality in CAPI-based surveys across domains.

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CURRENT STATISTICS

Select Economic Indicators

Reserve Bank of India

Money and Banking

Prices and Production

Government Accounts and Treasury Bills

Financial Markets

External Sector

Payment and Settlement Systems

Occasional Series

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Notes: .. = Not available.

– = Nil/Negligible.

P = Preliminary/Provisional. PR = Partially Revised.

No. 1: Select Economic Indicators

Item	2022-23	2022-23		2023-24	
		Q2	Q3	Q2	Q3
	1	2	3	4	5
1 Real Sector (% Change)					
1.1 GVA at Basic Prices	6.7	5.0	4.8	7.7	6.5
1.1.1 Agriculture	4.7	2.3	5.2	1.6	-0.8
1.1.2 Industry	-0.6	-5.5	-2.8	13.6	10.9
1.1.3 Services	9.9	9.4	7.5	6.9	7.4
1.1a Final Consumption Expenditure	7.1	7.6	2.4	3.9	2.7
1.1b Gross Fixed Capital Formation	6.6	4.7	5.0	11.6	10.6
	2022-23	2023		2024	
	1	Jan.	Feb.	Jan.	Feb.
	1	2	3	4	5
1.2 Index of Industrial Production	5.2	5.8	6.0	4.1	5.7
2 Money and Banking (% Change)					
2.1 Scheduled Commercial Banks					
2.1.1 Deposits	9.6	10.5	10.1	12.5	12.5
				(13.2)	(13.1)
2.1.2 Credit #	15.0	16.3	15.5	16.1	16.6
				(20.3)	(20.5)
2.1.2.1 Non-food Credit #	15.4	16.7	15.9	16.2	16.6
				(20.4)	(20.6)
2.1.3 Investment in Govt. Securities	14.5	13.4	14.3	13.2	11.6
				(15.0)	(13.3)
2.2 Money Stock Measures					
2.2.1 Reserve Money (M0)	7.8	10.8	10.5	6.3	6.1
2.2.2 Broad Money (M3)	9.0	9.8	9.5	11.0	10.9
				(11.5)	(11.4)
3 Ratios (%)					
3.1 Cash Reserve Ratio	4.50	4.50	4.50	4.50	4.50
3.2 Statutory Liquidity Ratio	18.00	18.00	18.00	18.00	18.00
3.3 Cash-Deposit Ratio	5.0	5.2	5.0	5.1	4.9
				(5.1)	(4.9)
3.4 Credit-Deposit Ratio	75.8	75.3	75.3	77.7	78.0
				(80.0)	(80.2)
3.5 Incremental Credit-Deposit Ratio #	113.0	115.3	111.6	95.6	97.8
				(117.5)	(117.5)
3.6 Investment-Deposit Ratio	30.0	29.3	29.9	29.5	29.6
				(29.8)	(29.9)
3.7 Incremental Investment-Deposit Ratio	43.5	37.1	43.6	24.5	26.5
				(27.7)	(29.3)
4 Interest Rates (%)					
4.1 Policy Repo Rate	6.50	6.25	6.50	6.50	6.50
4.2 Fixed Reverse Repo Rate	3.35	3.35	3.35	3.35	3.35
4.3 Standing Deposit Facility (SDF) Rate *	6.25	6.00	6.25	6.25	6.25
4.4 Marginal Standing Facility (MSF) Rate	6.75	6.50	6.75	6.75	6.75
4.5 Bank Rate	6.75	6.50	6.75	6.75	6.75
4.6 Base Rate	8.65/10.10	8.65/9.40	8.65/9.40	9.10/10.25	9.10/10.25
4.7 MCLR (Overnight)	7.50/8.50	7.30/8.40	7.50/8.40	8.00/8.60	8.00/8.60
4.8 Term Deposit Rate >1 Year	6.00/7.25	6.00/7.25	6.00/7.25	6.50/7.25	6.50/7.25
4.9 Savings Deposit Rate	2.70/3.00	2.70/3.00	2.70/3.00	2.70/3.00	2.70/3.00
4.10 Call Money Rate (Weighted Average)	6.78	6.44	6.62	6.77	6.64
4.11 91-Day Treasury Bill (Primary) Yield	-	6.47	6.82	7.04	6.96
4.12 182-Day Treasury Bill (Primary) Yield	7.28	6.87	7.18	7.18	7.17
4.13 364-Day Treasury Bill (Primary) Yield	7.31	6.90	7.26	7.15	7.12
4.14 10-Year G-Sec Par Yield (FBIL)	7.31	7.35	7.43	7.15	7.07
5 Reference Rate and Forward Premia					
5.1 INR-US\$ Spot Rate (Rs. Per Foreign Currency)	82.22	81.54	82.74	83.12	82.89
5.2 INR-Euro Spot Rate (Rs. Per Foreign Currency)	89.61	88.66	87.70	90.42	89.71
5.3 Forward Premia of US\$ 1-month (%)	2.41	1.77	2.10	1.30	1.19
3-month (%)	2.19	2.55	2.56	1.59	1.51
6-month (%)	2.31	2.44	2.30	1.60	1.50
6 Inflation (%)					
6.1 All India Consumer Price Index	6.7	6.5	6.4	5.1	5.1
6.2 Consumer Price Index for Industrial Workers	6.1	6.2	6.2	4.6	
6.3 Wholesale Price Index	9.6	4.8	3.9	0.3	0.2
6.3.1 Primary Articles	10.3	4.1	3.6	4.1	4.5
6.3.2 Fuel and Power	29.4	15.0	14.0	-0.4	-1.6
6.3.3 Manufactured Products	5.7	3.1	1.9	-1.2	-1.3
7 Foreign Trade (% Change)					
7.1 Imports	16.8	0.5	-4.1	1.0	12.2
7.2 Exports	6.9	1.6	-0.4	4.3	11.8

Note : Financial Benchmark India Pvt. Ltd. (FBIL) has commenced publication of the G-Sec benchmarks with effect from March 31, 2018 as per RBI circular FMRD.DIRD. 7/14.03.025/2017-18 dated March 31, 2018. FBIL has started dissemination of reference rates w.e.f. July 10, 2018.

#: Bank credit growth and related ratios for all fortnights from December 3, 2021 to November 18, 2022 are adjusted for past reporting errors by select scheduled commercial banks (SCBs).

Figures in parentheses include the impact of merger of a non-bank with a bank.

*: As per Press Release No. 2022-2023/41 dated April 08, 2022.

Reserve Bank of India

No. 2: RBI - Liabilities and Assets *

(₹ Crore)

Item	As on the Last Friday/ Friday						
	2023-24	2023	2024				
			Mar.	Mar. 01	Mar. 08	Mar. 15	Mar. 22
	1	2	3	4	5	6	7
1 Issue Department							
1.1 Liabilities							
1.1.1 Notes in Circulation	3482333	3350412	3424536	3459368	3465294	3486876	3482333
1.1.2 Notes held in Banking Department	11	13	11	14	16	12	11
1.1/1.2 Total Liabilities (Total Notes Issued) or Assets	3482344	3350425	3424547	3459382	3465310	3486888	3482344
1.2 Assets							
1.2.1 Gold	162996	142136	150675	157413	158932	160627	162996
1.2.2 Foreign Securities	3318885	3207988	3273627	3301572	3306037	3325977	3318885
1.2.3 Rupee Coin	463	300	245	396	341	285	463
1.2.4 Government of India Rupee Securities	-	-	-	-	-	-	-
2 Banking Department							
2.1 Liabilities							
2.1.1 Deposits	1782333	1340653	1551488	1534245	1668238	1718703	1782333
2.1.1.1 Central Government	101	100	100	101	100	101	101
2.1.1.2 Market Stabilisation Scheme	-	-	-	-	-	-	-
2.1.1.3 State Governments	42	43	42	42	42	42	42
2.1.1.4 Scheduled Commercial Banks	1008618	809907	959783	901857	1024438	931483	1008618
2.1.1.5 Scheduled State Co-operative Banks	10092	7332	8354	8131	9050	8516	10092
2.1.1.6 Non-Scheduled State Co-operative Banks	6412	4615	5200	7071	5894	5645	6412
2.1.1.7 Other Banks	48725	45939	48322	48316	48893	48177	48725
2.1.1.8 Others	545400	379890	380019	411193	416012	565111	545400
2.1.1.9 Financial Institution Outside India	162944	92826	149668	157535	163808	159627	162944
2.1.2 Other Liabilities	1804747	1627193	1718716	1770520	1759337	1790642	1804747
2.1/2.2 Total Liabilities or Assets	3587080	2967845	3270204	3304765	3427575	3509345	3587080
2.2 Assets							
2.2.1 Notes and Coins	11	13	11	14	16	13	11
2.2.2 Balances Held Abroad	1480408	1023426	1364150	1393965	1445471	1453687	1480408
2.2.3 Loans and Advances							
2.2.3.1 Central Government	-	-	-	-	-	-	-
2.2.3.2 State Governments	2300	7625	3252	9259	19929	13251	2300
2.2.3.3 Scheduled Commercial Banks	266021	165085	112767	89417	140343	222716	266021
2.2.3.4 Scheduled State Co-op.Banks	-	-	35	35	-	-	-
2.2.3.5 Industrial Dev. Bank of India	-	-	-	-	-	-	-
2.2.3.6 NABARD	-	-	-	-	-	-	-
2.2.3.7 EXIM Bank	-	-	-	-	-	-	-
2.2.3.8 Others	12398	18368	9066	9341	9341	9810	12398
2.2.3.9 Financial Institution Outside India	162650	93236	147326	156095	163038	157175	162650
2.2.4 Bills Purchased and Discounted							
2.2.4.1 Internal	-	-	-	-	-	-	-
2.2.4.2 Government Treasury Bills	-	-	-	-	-	-	-
2.2.5 Investments	1365425	1407585	1364383	1365354	1364673	1363060	1365425
2.2.6 Other Assets	297868	252508	269213	281284	284764	289634	297868
2.2.6.1 Gold	272028	232981	250755	262447	264979	268783	272028

* Data are provisional.

No. 3: Liquidity Operations by RBI

(₹ Crore)

Date	Liquidity Adjustment Facility						Standing Liquidity Facilities	OMO (Outright)		Net Injection (+)/ Absorption (-) (1+3+5+7+9-2-4-6-8)
	Repo	Reverse Repo	Variable Rate Repo	Variable Rate Reverse Repo	MSF	SDF		Sale	Purchase	
	1	2	3	4	5	6		7	8	
Feb. 1, 2024	-	-	-	-	7471	53101	2017	-	-	-43613
Feb. 2, 2024	-	-	-	3975	1259	123172	330	-	-	-125558
Feb. 3, 2024	-	-	-	-	414	119448	-	-	-	-119034
Feb. 4, 2024	-	-	-	-	7	110457	-	-	-	-110450
Feb. 5, 2024	-	-	-	18750	2670	125063	-732	-	-	-141875
Feb. 6, 2024	-	-	-	69342	3195	82050	867	-	-	-147330
Feb. 7, 2024	-	-	-	61848	15547	49851	-	-	-	-96152
Feb. 8, 2024	-	-	-	-	3593	57219	-	-	-	-53626
Feb. 9, 2024	-	-	210128	-	31114	63913	1287	-	-	178616
Feb. 10, 2024	-	-	-	-	9762	44306	-	-	-	-34544
Feb. 11, 2024	-	-	-	-	10450	43024	-	-	-	-32574
Feb. 12, 2024	-	-	50011	-	18496	49553	-	-	-	18954
Feb. 13, 2024	-	-	-	-	7294	48061	1386	-	-	-39381
Feb. 14, 2024	-	-	25001	-	6414	53142	-	-	-	-21727
Feb. 15, 2024	-	-	-	-	4251	65264	236	-	-	-60777
Feb. 16, 2024	-	-	75007	-	3226	89783	-	-	-	-11550
Feb. 17, 2024	-	-	-	-	2216	83030	-	-	-	-80814
Feb. 18, 2024	-	-	-	-	2173	71050	-	-	-	-68877
Feb. 19, 2024	-	-	-	-	2562	72929	-	-	-	-70367
Feb. 20, 2024	-	-	50003	-	1171	128324	185	-	-	-76965
Feb. 21, 2024	-	-	-	-	3965	73178	-	-	-	-69213
Feb. 22, 2024	-	-	-	-	1941	86014	146	-	-	-83927
Feb. 23, 2024	-	-	100004	-	144270	39916	-	-	-	204358
Feb. 24, 2024	-	-	-	-	57649	31924	-	-	-	25725
Feb. 25, 2024	-	-	-	-	59650	32828	-	-	-	26822
Feb. 26, 2024	-	-	150006	-	21243	50965	-	-	-	120284
Feb. 27, 2024	-	-	-	-	2917	86018	-	-	-	-83101
Feb. 28, 2024	-	-	-	22197	6190	66059	-	-	-	-82066
Feb. 29, 2024	-	-	25002	-	5877	63351	-	-	-	-32472

No. 4: Sale/ Purchase of U.S. Dollar by the RBI**i) Operations in onshore / offshore OTC segment**

Item	2022-23	2023	2024	
		Feb.	Jan.	Feb.
	1	2	3	4
1 Net Purchase/ Sale of Foreign Currency (US \$ Million) (1.1-1.2)	-25516	254	1950	8557
1.1 Purchase (+)	187054	4381	10400	8557
1.2 Sale (-)	212570	4127	8450	0
2 ₹ equivalent at contract rate (₹ Crores)	-217259	1134	16205	70981
3 Cumulative (over end-March) (US \$ Million)	-25516	-26266	19465	28022
(₹ Crore)	-217259	-223142	158524	229505
4 Outstanding Net Forward Sales (-)/ Purchase (+) at the end of month (US \$ Million)	23600	20470	9974	9694

ii) Operations in currency futures segment

Item	2022-23	2023	2024	
		Feb.	Jan.	Feb.
	1	2	3	4
1 Net Purchase/ Sale of Foreign Currency (US \$ Million) (1.1-1.2)	0	0	0	0
1.1 Purchase (+)	10930	0	1050	0
1.2 Sale (-)	10930	0	1050	0
2 Outstanding Net Currency Futures Sales (-)/ Purchase (+) at the end of month (US \$ Million)	0	0	0	0

**No. 4 A : Maturity Breakdown (by Residual Maturity) of Outstanding
Forwards of RBI (US \$ Million)**

Item	As on February 29 , 2024		
	Long (+)	Short (-)	Net (1-2)
	1	2	3
1. Upto 1 month	5135	0	5135
2. More than 1 month and upto 3 months	3081	0	3081
3. More than 3 months and upto 1 year	1478	0	1478
4. More than 1 year	0	0	0
Total (1+2+3+4)	9694	0	9694

No. 5: RBI's Standing Facilities

(₹ Crore)

Item	As on the Last Reporting Friday							
	2023-24	2023				2024		
		Mar. 24	Oct. 20	Nov. 17	Dec. 29	Jan. 26	Feb. 23	Mar. 22
	1	2	3	4	5	6	7	8
1 MSF	49906	28388	124191	111386	134232	32611	144270	49906
2 Export Credit Refinance for Scheduled Banks								
2.1 Limit	-	-	-	-	-	-	-	-
2.2 Outstanding	-	-	-	-	-	-	-	-
3 Liquidity Facility for PDs								
3.1 Limit	9900	4900	4900	4900	4900	4900	9900	9900
3.2 Outstanding	9810	2442	3181	3181	3167	3174	9066	9810
4 Others								
4.1 Limit	76000	76000	76000	76000	76000	76000	76000	76000
4.2 Outstanding	-	15900	-	-	-	-	-	-
5 Total Outstanding (1+2.2+3.2+4.2)	59716	46730	127372	114567	137399	35785	153336	59716

Money and Banking

No. 6: Money Stock Measures

(₹ Crore)

Item	Outstanding as on March 31/last reporting Fridays of the month/ reporting Fridays				
	2022-23	2023	2024		
			Feb. 24	Jan. 26	Feb. 09
	1	2	3	4	5
1 Currency with the Public (1.1 + 1.2 + 1.3 – 1.4)	3276436	3222737	3323263	3350629	3361432
1.1 Notes in Circulation	3348219	3301475	3386177	3415015	3423064
1.2 Circulation of Rupee Coin	29542	29264	32144	32144	32455
1.3 Circulation of Small Coins	743	743	743	743	743
1.4 Cash on Hand with Banks	102085	108875	95944	97468	95031
2 Deposit Money of the Public	2398359	2356710	2578240	2545610	2594337
2.1 Demand Deposits with Banks	2320598	2292581	2497829	2461885	2510518
2.2 'Other' Deposits with Reserve Bank	77761	64129	80411	83726	83819
3 M1 (1 + 2)	5674795	5579447	5901503	5896239	5955769
4 Post Office Saving Bank Deposits	200257	200257	200257	200257	200257
5 M2 (3 + 4)	5875052	5779704	6101760	6096496	6156026
6 Time Deposits with Banks	16668966	16513885	18399864	18575094	18538143
			(18516165)	(18689549)	(18650930)
7 M3 (3 + 6)	22343760	22093331	24301366	24471333	24493912
			(24417668)	(24585788)	(24606699)
8 Total Post Office Deposits	1113230	1113230	1113230	1113230	1113230
9 M4 (7 + 8)	23456990	23206561	25414596	25584563	25607142
			(25530898)	(25699018)	(25719929)

Figures in parentheses include the impact of merger of a non-bank with a bank.

No. 7 : Sources of Money Stock (M₃)

(₹ Crore)

Sources	Outstanding as on March 31/last reporting Fridays of the month/reporting Fridays				
	2022-23	2023	2024		
			Feb. 24	Jan. 26	Feb. 09
	1	2	3	4	5
1 Net Bank Credit to Government	7165533	6854246	7116700	7262133	7223794
			(7210188)	(7354963)	(7315467)
1.1 RBI's net credit to Government (1.1.1-1.1.2)	1451126	1216525	934359	998481	964996
1.1.1 Claims on Government	1456169	1407652	1372005	1382235	1377351
1.1.1.1 Central Government	1455377	1398137	1359195	1361980	1362541
1.1.1.2 State Governments	792	9515	12810	20255	14809
1.1.2 Government deposits with RBI	5043	191127	437646	383753	412355
1.1.2.1 Central Government	5001	191085	437603	383711	412313
1.1.2.2 State Governments	42	43	42	42	42
1.2 Other Banks' Credit to Government	5714407	5637721	6182341	6263652	6258798
			(6275829)	(6356482)	(6350471)
2 Bank Credit to Commercial Sector	14429636	14188368	16239988	16352687	16434572
			(16793224)	(16901007)	(16970977)
2.1 RBI's credit to commercial sector	26549	12529	5237	9178	11121
2.2 Other banks' credit to commercial sector	14403087	14175838	16234750	16343509	16423451
			(16787986)	(16891830)	(16959856)
2.2.1 Bank credit by commercial banks	13675235	13450269	15490356	15599156	15677730
			(16043592)	(16147477)	(16214135)
2.2.2 Bank credit by co-operative banks	710187	708230	726809	726885	728279
2.2.3 Investments by commercial and co-operative banks in other securities	17665	17340	17586	17468	17443
			(17586)	(17468)	(17443)
3 Net Foreign Exchange Assets of Banking Sector (3.1 + 3.2)	4911766	4734257	5253791	5253629	5262961
3.1 RBI's net foreign exchange assets (3.1.1-3.1.2)	4587355	4476306	4975638	4975475	4984808
3.1.1 Gross foreign assets	4587616	4476568	4975899	4975737	4985066
3.1.2 Foreign liabilities	260	262	261	261	258
3.2 Other banks' net foreign exchange assets	324410	257951	278153	278153	278153
4 Government's Currency Liabilities to the Public	30285	30007	32887	32887	33198
5 Banking Sector's Net Non-monetary Liabilities	4193459	3713546	4342000	4430003	4460612
			(4872422)	(4956699)	(4975904)
5.1 Net non-monetary liabilities of RBI	1587565	1496402	1721122	1706101	1699305
5.2 Net non-monetary liabilities of other banks (residual)	2605895	2217144	2620878	2723902	2761307
			(3151300)	(3250598)	(3276598)
M₃(1+2+3+4-5)	22343760	22093331	24301366	24471333	24493912
			(24417668)	(24585788)	(24606699)

Figures in parentheses include the impact of merger of a non-bank with bank.

No. 8: Monetary Survey

(₹ Crore)

Item	Outstanding as on March 31/last reporting Fridays of the month/reporting Fridays				
	2022-23	2023	2024		
			Feb. 24	Jan. 26	Feb. 09
	1	2	3	4	5
Monetary Aggregates					
NM ₁ (1.1+1.2.1+1.3)	5674795	5579447	5901503	5896239	5955769
NM ₂ (NM ₁ + 1.2.2.1)	13103413	12938627	14090325	14160299	14201117
			(14142660)	(14211804)	(14251871)
NM ₃ (NM ₂ + 1.2.2.2 + 1.4 = 2.1 + 2.2 + 2.3 – 2.4 – 2.5)	22628165	22399686	24909712	25055636	25057783
			(25026014)	(25170090)	(25170570)
1 Components					
1.1 Currency with the Public	3276436	3222737	3323263	3350629	3361432
1.2 Aggregate Deposits of Residents	18828639	18646314	20695211	20826463	20833514
			(20811512)	(20940918)	(20946301)
1.2.1 Demand Deposits	2320598	2292581	2497829	2461885	2510518
1.2.2 Time Deposits of Residents	16508041	16353733	18197382	18364578	18322995
			(18313684)	(18479033)	(18435783)
1.2.2.1 Short-term Time Deposits	7428619	7359180	8188822	8264060	8245348
			(8241158)	(8315565)	(8296102)
1.2.2.1.1 Certificates of Deposits (CDs)	303993	282944	353658	368289	368278
1.2.2.2 Long-term Time Deposits	9079423	8994553	10008560	10100518	10077647
			(10072526)	(10163468)	(10139680)
1.3 'Other' Deposits with RBI	77761	64129	80411	83726	83819
1.4 Call/Term Funding from Financial Institutions	445329	466506	810828	794818	779019
2 Sources					
2.1 Domestic Credit	22710730	22163277	24461941	24730843	24781264
			(25108664)	(25371994)	(25409342)
2.1.1 Net Bank Credit to the Government	7165533	6854246	7116700	7262133	7223794
			(7210188)	(7354963)	(7315467)
2.1.1.1 Net RBI credit to the Government	1451126	1216525	934359	998481	964996
2.1.1.2 Credit to the Government by the Banking System	5714407	5637721	6182341	6263652	6258798
			(6275829)	(6356482)	(6350471)
2.1.2 Bank Credit to the Commercial Sector	15545198	15309031	17345240	17468710	17557470
			(17898476)	(18017031)	(18093875)
2.1.2.1 RBI Credit to the Commercial Sector	26549	12529	5237	9178	11121
2.1.2.2 Credit to the Commercial Sector by the Banking System	15518649	15296502	17340003	17459532	17546349
			(17893239)	(18007853)	(18082754)
2.1.2.2.1 Other Investments (Non-SLR Securities)	1096333	1097846	1087256	1097345	1101595
2.2 Government's Currency Liabilities to the Public	30285	30007	32887	32887	33198
2.3 Net Foreign Exchange Assets of the Banking Sector	4699822	4607138	4952686	4917129	4907130
2.3.1 Net Foreign Exchange Assets of the RBI	4587355	4476306	4975638	4975475	4984808
2.3.2 Net Foreign Currency Assets of the Banking System	112467	130832	-22951	-58346	-77678
2.4 Capital Account	3446786	3487047	3977586	3959034	3961198
2.5 Other items (net)	1365887	913688	1090638	1192886	1217902

Figures in parentheses include the impact of merger of a non-bank with a bank.

No. 9: Liquidity Aggregates

(₹ Crore)

Aggregates	2022-23	2023		2024	
		Feb.	Dec.	Jan.	Feb.
	1	2	3	4	5
1 NM₃	22628165	22399470	24817594	24909712	25057783
			(24938881)	(25026014)	(25170570)
2 Postal Deposits	668887	656017	702174	702174	702174
3 L₁ (1 + 2)	23297052	23055487	25519768	25611886	25759957
			(25641055)	(25728188)	(25872744)
4 Liabilities of Financial Institutions	54724	49679	68815	76805	62974
4.1 Term Money Borrowings	1692	1229	1305	1990	678
4.2 Certificates of Deposit	46407	41920	54485	61750	50143
4.3 Term Deposits	6625	6530	13025	13065	12152
5 L₂ (3 + 4)	23351776	23105166	25588583	25688692	25822931
			(25709870)	(25804993)	(25935718)
6 Public Deposits with Non-Banking Financial Companies	85254	..	91373
7 L₃ (5 + 6)	23437030	..	25679956

Note : 1. Figures in the columns might not add up to the total due to rounding off of numbers.

2. Figures in parentheses include the impact of merger of a non-bank with a bank.

No. 10: Reserve Bank of India Survey

(₹ Crore)

Item	Outstanding as on March 31/last reporting Fridays of the month/reporting Fridays				
	2022-23	2023	2024		
		Feb. 24	Jan. 26	Feb. 9	Feb. 23
	1	2	3	4	5
1 Components					
1.1 Currency in Circulation	3378521	3331612	3419207	3448096	3456463
1.2 Bankers' Deposits with the RBI	930477	854816	994201	967528	971038
1.2.1 Scheduled Commercial Banks	868940	797986	933808	906763	909400
1.3 'Other' Deposits with the RBI	77761	64129	80411	83726	83819
Reserve Money (1.1 + 1.2 + 1.3 = 2.1 + 2.2 + 2.3 - 2.4 - 2.5)	4386759	4250557	4493820	4499350	4511319
2 Sources					
2.1 RBI's Domestic Credit	1356683	1240647	1206417	1197088	1192619
2.1.1 Net RBI credit to the Government	1451126	1216525	934359	998481	964996
2.1.1.1 Net RBI credit to the Central Government (2.1.1.1.1 + 2.1.1.1.2 + 2.1.1.1.3 + 2.1.1.1.4 - 2.1.1.1.5)	1450376	1207052	921591	978269	950229
2.1.1.1.1 Loans and Advances to the Central Government	48677	-	-	-	-
2.1.1.1.2 Investments in Treasury Bills	-	-	-	-	-
2.1.1.1.3 Investments in dated Government Securities	1406423	1397648	1358899	1361589	1362249
2.1.1.1.3.1 Central Government Securities	1406423	1397648	1358899	1361589	1362249
2.1.1.1.4 Rupee Coins	277	489	296	391	293
2.1.1.1.5 Deposits of the Central Government	5001	191085	437603	383711	412313
2.1.1.2 Net RBI credit to State Governments	749	9472	12768	20212	14767
2.1.2 RBI's Claims on Banks	-120992	11593	266820	189429	216502
2.1.2.1 Loans and Advances to Scheduled Commercial Banks	-120992	11593	266820	189429	216502
2.1.3 RBI's Credit to Commercial Sector	26549	12529	5237	9178	11121
2.1.3.1 Loans and Advances to Primary Dealers	8476	2107	3174	7114	9066
2.1.3.2 Loans and Advances to NABARD	-	-	-	-	-
2.2 Government's Currency Liabilities to the Public	30285	30007	32887	32887	33198
2.3 Net Foreign Exchange Assets of the RBI	4587355	4476306	4975638	4975475	4984808
2.3.1 Gold	371500	345484	394644	396386	396913
2.3.2 Foreign Currency Assets	4215873	4130840	4581011	4579107	4587912
2.4 Capital Account	1505657	1547974	1670689	1647654	1646592
2.5 Other Items (net)	81908	-51572	50433	58447	52713

No. 11: Reserve Money - Components and Sources

(₹ Crore)

Item	Outstanding as on March 31/last Fridays of the month/Fridays						
	2022-23	2023	2024				
		Feb. 24	Jan. 26	Feb. 2	Feb. 9	Feb. 16	Feb. 23
	1	2	3	4	5	6	7
Reserve Money (1.1 + 1.2 + 1.3 = 2.1 + 2.2 + 2.3 + 2.4 + 2.5 - 2.6)	4386759	4250557	4493820	4515981	4499350	4555330	4511319
1 Components							
1.1 Currency in Circulation	3378521	3331612	3419207	3420602	3448096	3449954	3456463
1.2 Bankers' Deposits with RBI	930477	854816	994201	1009583	967528	1023709	971038
1.3 'Other' Deposits with RBI	77761	64129	80411	85796	83726	81668	83819
2 Sources							
2.1 Net Reserve Bank Credit to Government	1451126	1216525	934359	1080244	998481	1068132	964996
2.2 Reserve Bank Credit to Banks	-120992	11593	266820	140221	189429	175654	216502
2.3 Reserve Bank Credit to Commercial Sector	26549	12529	5237	7731	9178	10739	11121
2.4 Net Foreign Exchange Assets of RBI	4587355	4476306	4975638	5013936	4975475	4964788	4984808
2.5 Government's Currency Liabilities to the Public	30285	30007	32887	32887	32887	32887	33198
2.6 Net Non- Monetary Liabilities of RBI	1587565	1496402	1721122	1759039	1706101	1696869	1699305

No. 12: Commercial Bank Survey

(₹ Crore)

Item	Outstanding as on last reporting Fridays of the month/ reporting Fridays of the month				
	2022-23	2023	2024		
		Feb. 24	Jan. 26	Feb. 9	Feb. 23
	1	2	3	4	5
1 Components					
1.1 Aggregate Deposits of Residents	17882989	17701702	19740368 (19856670)	19870412 (19984866)	19876895 (19989682)
1.1.1 Demand Deposits	2180431	2150731	2355015	2319263	2368308
1.1.2 Time Deposits of Residents	15702559	15550971	17385354 (17501655)	17551148 (17665603)	17508587 (17621374)
1.1.2.1 Short-term Time Deposits	7066151	6997937	7823409	7898017	7878864
1.1.2.1.1 Certificates of Deposits (CDs)	303993	282944	353658	368289	368278
1.1.2.2 Long-term Time Deposits	8636407	8553034	9561944	9653132	9629723
1.2 Call/Term Funding from Financial Institutions	445329	466506	810828	794818	779019
2 Sources					
2.1 Domestic Credit	20197246	19899791	22467590 (23114313)	22668296 (23309447)	22748921 (23376999)
2.1.1 Credit to the Government	5414322	5336711	5879874 (5973362)	5961067 (6053897)	5956167 (6047841)
2.1.2 Credit to the Commercial Sector	14782924	14563080	16587716 (17140952)	16707229 (17255550)	16792754 (17329159)
2.1.2.1 Bank Credit	13675235	13450269	15490356 (16043592)	15599156 (16147477)	15677730 (16214135)
2.1.2.1.1 Non-food Credit	13655330	13414992	15444737 (15997973)	15552714 (16101035)	15637228 (16173633)
2.1.2.2 Net Credit to Primary Dealers	19491	23081	18260	18941	21566
2.1.2.3 Investments in Other Approved Securities	826	847	807	749	825
2.1.2.4 Other Investments (in non-SLR Securities)	1087371	1088883	1078293	1088383	1092632
2.2 Net Foreign Currency Assets of Commercial Banks (2.2.1-2.2.2-2.2.3)	112467	130832	-22951	-58346	-77678
2.2.1 Foreign Currency Assets	351387	357708	300706	273382	269656
2.2.2 Non-resident Foreign Currency Repatriable Fixed Deposits	160924	160152	202482	210516	215148
2.2.3 Overseas Foreign Currency Borrowings	77996	66724	121175	121213	132186
2.3 Net Bank Reserves (2.3.1+2.3.2-2.3.3)	833002	883626	751085	802785	775943
2.3.1 Balances with the RBI	809907	797986	933808	906763	909400
2.3.2 Cash in Hand	90263	97233	84097	85451	83045
2.3.3 Loans and Advances from the RBI	67168	11593	266820	189429	216502
2.4 Capital Account	1916959	1914902	2282726	2287210	2290436
2.5 Other items (net) (2.1+2.2+2.3-2.4-1.1-1.2)	897438	831138	361801	460295	500838
2.5.1 Other Demand and Time Liabilities (net of 2.2.3)	711655	696225	769739	798115	789201
2.5.2 Net Inter-Bank Liabilities (other than to PDs)	44733	44850	194111	178708	180617

Figures in parentheses include the impact of merger of a non-bank with a bank.

No. 13: Scheduled Commercial Banks' Investments

(₹ Crore)

Item	As on March 24, 2023	2023	2024		
		Feb. 24	Jan. 26	Feb. 09	Feb. 23
	1	2	3	4	5
1 SLR Securities	5415148	5337558	5974168 (5880681)	6054646 (5961816)	6048666 (5956993)
2 Other Government Securities (Non-SLR)	182265	182650	177924	177505	177882
3 Commercial Paper	65058	56361	49323	52947	53467
4 Shares issued by					
4.1 PSUs	9736	9827	8879	8790	8636
4.2 Private Corporate Sector	71099	70826	80230	80155	79935
4.3 Others	4500	4783	5616	5617	5620
5 Bonds/Debentures issued by					
5.1 PSUs	92304	90873	96460	97767	96948
5.2 Private Corporate Sector	325035	325654	284842	289158	288205
5.3 Others	99384	101399	109879	115450	115192
6 Instruments issued by					
6.1 Mutual funds	48810	56553	81790	84079	89916
6.2 Financial institutions	189180	189957	183109	176914	176831

Note: Data against column Nos. (1), (2) & (3) are Final and for column Nos. (4) & (5) data are Provisional.

1. Data since July 14, 2023 include the impact of the merger of a non-bank with a bank.
2. Figures in parentheses exclude the impact of the merger.

No. 14: Business in India - All Scheduled Banks and All Scheduled Commercial Banks

(₹ Crore)

Item	As on the Last Reporting Friday (in case of March)/ Last Friday							
	All Scheduled Banks				All Scheduled Commercial Banks			
	2022-23	2023	2024		2022-23	2023	2024	
		Feb.	Jan.	Feb.		Feb.	Jan.	Feb.
1	2	3	4	5	6	7	8	
Number of Reporting Banks	212	212	210	210	137	137	137	137
1 Liabilities to the Banking System	355252	348005	539209	520336	351843	344778	534661	516165
1.1 Demand and Time Deposits from Banks	228517	219565	269499	269754	226119	217311	265719	266228
1.2 Borrowings from Banks	67566	68709	197881	178124	67199	68361	197782	178119
1.3 Other Demand and Time Liabilities	59170	59731	71829	72458	58524	59106	71160	71818
2 Liabilities to Others	19730504	19536672	22220145	22366381	19278894	19091309	21760894	21905235
2.1 Aggregate Deposits	18477677	18290021	20501415	20648808	18043914	17861854	20059152	20204830
			(20385113)	(20536021)			(19942850)	(20092042)
2.1.1 Demand	2225416	2197095	2403089	2415867	2180431	2150731	2355015	2368308
2.1.2 Time	16252261	16092927	18098326	18232941	15863483	15711123	17704137	17836522
2.2 Borrowings	449945	471322	815756	783905	445329	466506	810828	779019
2.3 Other Demand and Time Liabilities	802881	775329	902974	933668	789651	762949	890914	921387
3 Borrowings from Reserve Bank	165085	109026	337637	256409	165085	109026	337637	256374
3.1 Against Usance Bills /Promissory Notes	-	-	-	-	-	-	-	-
3.2 Others	165085	109026	337637	256409	165085	109026	337637	256374
4 Cash in Hand and Balances with Reserve Bank	920953	915676	1039630	1014765	900170	895219	1017905	992445
4.1 Cash in Hand	92788	99578	86504	85533	90263	97233	84097	83045
4.2 Balances with Reserve Bank	828165	816098	953126	929232	809907	797986	933808	909400
5 Assets with the Banking System	397974	388389	431114	428378	326601	323009	358710	357114
5.1 Balances with Other Banks	232378	234472	244412	238043	193422	195668	199024	191943
5.1.1 In Current Account	18939	30231	12583	10887	15528	27045	10038	8458
5.1.2 In Other Accounts	213440	204241	231829	227156	177894	168623	188986	183484
5.2 Money at Call and Short Notice	49763	39007	39669	33353	24864	20448	17404	13834
5.3 Advances to Banks	45330	44408	44910	49373	41184	39919	42300	46054
5.4 Other Assets	70503	70501	102122	107609	67130	66974	99982	105284
6 Investment	5560664	5483663	6122017	6196516	5415148	5337558	5974168	6048666
			(6028529)	(6104843)			(5880681)	(5956993)
6.1 Government Securities	5553702	5477026	6115133	6189776	5414322	5336711	5973361	6047841
6.2 Other Approved Securities	6963	6637	6884	6740	826	847	807	825
7 Bank Credit	14078261	13852868	16472360	16645368	13675235	13450269	16043592	16214135
			(15919124)	(16108963)			(15490356)	(15677730)
7a Food Credit	65622	80994	98012	92894	19906	35276	45619	40502
7.1 Loans, Cash-credits and Overdrafts	13824693	13611145	16190447	16364971	13424906	13212088	15764523	15936696
7.2 Inland Bills-Purchased	39446	37032	51383	52922	39435	37020	51372	52912
7.3 Inland Bills-Discounted	165428	159300	191500	188407	162910	156351	189237	186108
7.4 Foreign Bills-Purchased	19758	17307	16786	16657	19545	17161	16575	16405
7.5 Foreign Bills-Discounted	28936	28085	22244	22411	28439	27649	21885	22014

Note: Data in column Nos. (4) & (8) are Provisional

1. Data since July 2023 include the impact of the merger of a non-bank with a bank.
2. Figures in parentheses exclude the impact of the merger.

No. 15: Deployment of Gross Bank Credit by Major Sectors

(₹ Crore)

Sector	Outstanding as on				Growth(%)	
	Mar. 24, 2023	2023	2024		Financial year so far	Y-o-Y
		Feb. 24	Jan. 26	Feb. 23	2023-24	2024
	1	2	3	4	%	%
I. Bank Credit (II + III)	13675235	13450269	16044693	16207362	18.5	20.5
			(15491457)	(15670957)	(14.6)	(16.5)
II. Food Credit	19906	35276	45619	40502	103.5	14.8
III. Non-food Credit	13655330	13414992	15999075	16166861	18.4	20.5
			(15445839)	(15630456)	(14.5)	(16.5)
1. Agriculture & Allied Activities	1728063	1695103	2012507	2035594	17.8	20.1
2. Industry (Micro and Small, Medium and Large)	3380006	3335522	3617729	3647149	7.9	9.3
			(3600396)	(3629825)	(7.4)	(8.8)
2.1 Micro and Small	633587	621514	712636	717158	13.2	15.4
2.2 Medium	268557	265091	292257	299068	11.4	12.8
2.3 Large	2477861	2448917	2612836	2630923	6.2	7.4
3. Services	3736064	3651174	4456957	4514582	20.8	23.6
			(4343263)	(4413512)	(18.1)	(20.9)
3.1 Transport Operators	192059	184317	227665	228034	18.7	23.7
3.2 Computer Software	24921	23924	26922	27395	9.9	14.5
3.3 Tourism, Hotels & Restaurants	69331	68120	77360	76315	10.1	12.0
3.4 Shipping	7068	7277	7108	6859	-3.0	-5.7
3.5 Aviation	27640	27317	44372	43720	58.2	60.0
3.6 Professional Services	139198	135703	162474	162780	16.9	20.0
3.7 Trade	872335	850220	985393	1007503	15.5	18.5
3.7.1. Wholesale Trade ¹	443168	435652	517895	531108	19.8	21.9
3.7.2 Retail Trade	429167	414569	467498	476395	11.0	14.9
3.8 Commercial Real Estate	322573	320663	438435	442650	37.2	38.0
			(374173)	(390377)	(21.0)	(21.7)
3.9 Non-Banking Financial Companies (NBFCs) ² of which,	1342070	1320445	1503342	1514928	12.9	14.7
3.9.1 Housing Finance Companies (HFCs)	318729	311877	337673	337758	6.0	8.3
3.9.2 Public Financial Institutions (PFIs)	175714	178751	210586	213661	21.6	19.5
3.10 Other Services ³	738869	713189	983886	1004397	35.9	40.8
			(948677)	(969795)	(31.3)	(36.0)
4. Personal Loans	4180838	4106965	5217944	5267835	26.0	28.3
			(4795805)	(4849890)	(16.0)	(18.1)
4.1 Consumer Durables	20983	20904	24160	23972	14.2	14.7
4.2 Housing	1988532	1962365	2660342	2682837	34.9	36.7
			(2264119)	(2290401)	(15.2)	(16.7)
4.3 Advances against Fixed Deposits	122116	113575	116251	119977	-1.8	5.6
4.4 Advances to Individuals against share & bonds	7634	7760	7413	8401	10.0	8.3
4.5 Credit Card Outstanding	204708	197069	258524	258115	26.1	31.0
4.6 Education	96853	96170	117073	118708	22.6	23.4
4.7 Vehicle Loans	502377	495516	577279	582113	15.9	17.5
4.8 Loan against gold jewellery	89382	88748	101934	102458	14.6	15.4
4.9 Other Personal Loans	1148253	1124859	1354969	1371253	19.4	21.9
			(1329351)	(1346026)	(17.2)	(19.7)
5. Priority Sector (Memo)						
(i) Agriculture & Allied Activities ⁴	1746051	1721750	2032292	2052550	17.6	19.2
(ii) Micro & Small Enterprises ⁵	1645484	1631777	1943836	1962680	19.3	20.3
(iii) Medium Enterprises ⁶	423888	414656	469954	480245	13.3	15.8
(iv) Housing	622799	620610	756504	754645	21.2	21.6
			(659377)	(658400)	(5.7)	(6.1)
(v) Education Loans	59513	59368	61984	62106	4.4	4.6
(vi) Renewable Energy	4670	4657	5404	5868	25.7	26.0
(vii) Social Infrastructure	2464	2449	2581	2592	5.2	5.9
(viii) Export Credit	20489	19151	13102	12630	-38.4	-34.1
(ix) Others	60835	51197	64169	62553	2.8	22.2
(x) Weaker Sections including net PSLC- SF/MF	1411633	1396746	1618611	1624823	15.1	16.3

Notes:

- (1) Data are provisional. Bank credit, Food credit and Non-food credit data are based on Section-42 return, which covers all scheduled commercial banks (SCBs), while sectoral non-food credit data are based on sector-wise and industry-wise bank credit (SIBC) return, which covers select banks accounting for about 95 per cent of total non-food credit extended by all SCBs, pertaining to the last reporting Friday of the month.
- (2) Data since July 28, 2023 include the impact of the merger of a non-bank with a bank. Figures in parentheses exclude the impact of the merger.
- 1 Wholesale trade includes food procurement credit outside the food credit consortium.
- 2 NBFCs include HFCs, PFIs, Microfinance Institutions (MFIs), NBFCs engaged in gold loan and others.
- 3 "Other Services" include Mutual Fund (MFs), Banking and Finance other than NBFCs and MFs and other services which are not indicated elsewhere under services.
- 4 "Agriculture and Allied Activities" under the priority sector also include priority sector lending certificates (PSLCs).
- 5 "Micro and Small Enterprises" under the priority sector include credit to micro and small enterprises in industry and services sectors and also include PSLCs.
- 6 "Medium Enterprises" under the priority sector include credit to medium enterprises in industry and services sectors.

No. 16: Industry-wise Deployment of Gross Bank Credit

(₹ Crore)

Industry	Outstanding as on				Growth(%)	
	Mar. 24, 2023	2023	2024		Financial year so far	Y-o-Y
		Feb. 24	Jan. 26	Feb. 23	2024-25	2024
	1	2	3	4	%	%
2 Industries (2.1 to 2.19)	3380006	3335522	3617729 (3600396)	3647149 (3629825)	7.9 (7.4)	9.3 (8.8)
2.1 Mining & Quarrying (incl. Coal)	60271	59202	53426	54964	-8.8	-7.2
2.2 Food Processing	182806	177705	197332	202019	10.5	13.7
2.2.1 Sugar	22530	20837	19936	23885	6.0	14.6
2.2.2 Edible Oils & Vanaspati	19353	18613	20454	19208	-0.7	3.2
2.2.3 Tea	5211	5065	5953	5668	8.8	11.9
2.2.4 Others	135712	133190	150989	153258	12.9	15.1
2.3 Beverage & Tobacco	23859	22637	28712	29961	25.6	32.4
2.4 Textiles	232022	226071	254252	257019	10.8	13.7
2.4.1 Cotton Textiles	90749	87802	97347	99444	9.6	13.3
2.4.2 Jute Textiles	4023	3762	4296	4298	6.8	14.3
2.4.3 Man-Made Textiles	39656	38919	46010	46046	16.1	18.3
2.4.4 Other Textiles	97594	95589	106600	107232	9.9	12.2
2.5 Leather & Leather Products	11948	11744	12143	12342	3.3	5.1
2.6 Wood & Wood Products	21277	20521	23810	23705	11.4	15.5
2.7 Paper & Paper Products	44354	43924	45934	46442	4.7	5.7
2.8 Petroleum, Coal Products & Nuclear Fuels	149352	146047	131311	137027	-8.3	-6.2
2.9 Chemicals & Chemical Products	224159	220959	243016	247093	10.2	11.8
2.9.1 Fertiliser	34666	34461	33993	36359	4.9	5.5
2.9.2 Drugs & Pharmaceuticals	70699	70377	79955	80933	14.5	15.0
2.9.3 Petro Chemicals	20765	20566	22743	23017	10.8	11.9
2.9.4 Others	98030	95555	106326	106784	8.9	11.8
2.10 Rubber, Plastic & their Products	84131	82747	90422	90387	7.4	9.2
2.11 Glass & Glassware	9548	9343	11698	11615	21.6	24.3
2.12 Cement & Cement Products	58093	56432	59923	61183	5.3	8.4
2.13 Basic Metal & Metal Product	343756	337425	378108	379221	10.3	12.4
2.13.1 Iron & Steel	229360	229078	266349	267489	16.6	16.8
2.13.2 Other Metal & Metal Product	114396	108347	111758	111732	-2.3	3.1
2.14 All Engineering	180822	178994	197077	198888	10.0	11.1
2.14.1 Electronics	43234	42541	46946	47010	8.7	10.5
2.14.2 Others	137587	136454	150130	151878	10.4	11.3
2.15 Vehicles, Vehicle Parts & Transport Equipment	101823	103374	109433	111008	9.0	7.4
2.16 Gems & Jewellery	80289	78262	83829	83190	3.6	6.3
2.17 Construction	124767	122339	134711	134590	7.9	10.0
2.18 Infrastructure	1202605	1189670	1268440	1271494	5.7	6.9
2.18.1 Power	620837	614611	636087	647657	4.3	5.4
2.18.2 Telecommunications	108747	108635	137303	128330	18.0	18.1
2.18.3 Roads	285876	281082	303371	304115	6.4	8.2
2.18.4 Airports	9579	9269	6865	7361	-23.2	-20.6
2.18.5 Ports	7979	8008	7190	7838	-1.8	-2.1
2.18.6 Railways	10176	9940	12105	12144	19.3	22.2
2.18.7 Other Infrastructure	159413	158124	165519	164048	2.9	3.7
2.19 Other Industries	244123	248127	294153	295000	20.8	18.9

Note: (1) Data since July 28, 2023 include the impact of the merger of a non-bank with a bank. Figures in parentheses exclude the impact of the merger.

No. 17: State Co-operative Banks Maintaining Accounts with the Reserve Bank of India

(₹ Crore)

Item	Last Reporting Friday (in case of March)/Last Friday/ Reporting Friday								
	2022-23	2023						2024	
		Jan. 27	Nov. 17	Nov. 24	Dec. 01	Dec. 15	Dec. 29	Jan. 12	Jan. 26
	1	2	3	4	5	6	7	8	9
Number of Reporting Banks	33	33	33	33	33	33	33	33	33
1 Aggregate Deposits (2.1.1.2+2.2.1.2)	144701.9	133539.0	133643.3	134731.3	135247.4	135675.4	134207.5	134214.5	135053.7
2 Demand and Time Liabilities									
2.1 Demand Liabilities	30241.2	26514.9	25474.0	25612.9	27117.8	27960.3	28479.2	27904.6	28067.3
2.1.1 Deposits									
2.1.1.1 Inter-Bank	6893.3	5760.8	6583.1	6378.6	7183.8	7223.4	6777.1	7563.8	7628.0
2.1.1.2 Others	18195.4	15381.7	13511.7	13811.7	14047.4	15208.9	14679.1	14503.8	14877.1
2.1.2 Borrowings from Banks	0.0		464.7	299.8	339.8				99.9
2.1.3 Other Demand Liabilities	5152.4	5372.4	4914.5	5122.8	5546.8	5528.0	7023.0	5837.0	5462.2
2.2 Time Liabilities	194129.9	176298.1	171680.4	172169.3	176297.7	177675.1	178662.9	180822.3	181797.1
2.2.1 Deposits									
2.2.1.1 Inter-Bank	65875.0	55159.9	48825.3	49028.6	52267.0	53811.7	55648.9	57552.2	58233.2
2.2.1.2 Others	126506.5	118157.3	120131.6	120919.6	121200.0	120466.5	119528.4	119710.7	120176.6
2.2.2 Borrowings from Banks	845.8	2032.1	1343.7	819.7	1396.5	2152.7	2244.3	2226.8	2181.3
2.2.3 Other Time Liabilities	902.6	948.7	1379.8	1401.4	1434.2	1244.2	1241.3	1332.7	1206.0
3 Borrowing from Reserve Bank	0.0								100.0
4 Borrowings from a notified bank / Government	84382.5	78164.1	76207.2	80417.0	87085.9	89193.5	88584.8	89231.9	90881.7
4.1 Demand	20545.9	17966.9	19204.5	21638.3	21603.4	23832.5	22764.0	22757.9	23859.7
4.2 Time	63836.7	60197.2	57002.7	58778.7	65482.5	65361.0	65820.8	66474.0	67022.0
5 Cash in Hand and Balances with Reserve Bank	12386.8	11360.2	10962.3	10725.0	11429.7	11384.5	11065.3	11130.5	11043.1
5.1 Cash in Hand	1540.1	732.3	732.4	684.5	803.8	733.9	766.3	849.4	742.4
5.2 Balance with Reserve Bank	10846.7	10627.9	10229.9	10040.5	10625.9	10650.6	10299.0	10281.1	10300.8
6 Balances with Other Banks in Current Account	3500.7	1850.1	1384.0	1598.5	1698.6	1634.7	1645.3	1664.1	1446.5
7 Investments in Government Securities	80906.4	72775.3	71976.8	73325.1	73437.2	73867.3	74036.6	73993.2	73701.6
8 Money at Call and Short Notice	34771.6	21666.8	15363.8	21174.1	24940.7	26023.5	23160.0	25458.4	27662.3
9 Bank Credit (10.1+11)	124978.1	123897.1	126785.7	127421.9	129011.7	130325.1	132527.0	133172.6	132726.7
10 Advances									
10.1 Loans, Cash-Credits and Overdrafts	124928.2	123866.2	126701.9	127336.5	128925.0	130234.3	132420.5	133056.3	132569.3
10.2 Due from Banks	131095.9	125739.6	123801.8	125133.8	128682.9	131624.2	133287.7	136147.1	136927.3
11 Bills Purchased and Discounted	49.9	30.9	83.8	85.4	86.7	90.8	106.5	116.4	157.5

Prices and Production

No. 18: Consumer Price Index (Base: 2012=100)

Group/Sub group	2022-23			Rural			Urban			Combined		
	Rural	Urban	Combined	Mar.23	Feb.24	Mar.24 (P)	Mar.23	Feb.24	Mar.24 (P)	Mar.23	Feb.24	Mar.24 (P)
	1	2	3	4	5	6	7	8	9	10	11	12
1 Food and beverages	173.9	179.7	176.0	174.8	187.8	188.5	180.8	194.6	194.3	177.0	190.3	190.6
1.1 Cereals and products	163.3	165.3	164.0	174.3	188.6	189.3	174.7	188.3	188.5	174.4	188.5	189.0
1.2 Meat and fish	208.7	215.2	211.0	205.2	214.8	217.8	212.2	223.9	226.7	207.7	218.0	220.9
1.3 Egg	174.7	177.1	175.6	173.9	201.7	192.8	177.2	204.7	194.2	175.2	202.9	193.3
1.4 Milk and products	170.1	170.7	170.3	177.0	182.9	183.2	177.9	183.2	183.6	177.3	183.0	183.3
1.5 Oils and fats	197.0	181.1	191.2	183.3	160.2	160.2	172.2	155.1	154.7	179.2	158.3	158.2
1.6 Fruits	164.1	169.6	166.7	167.2	169.2	172.9	172.1	174.0	176.7	169.5	171.4	174.7
1.7 Vegetables	160.8	198.7	173.6	140.9	179.8	182.6	175.9	226.1	222.3	152.8	195.5	196.1
1.8 Pulses and products	168.1	168.2	168.2	170.5	200.8	199.6	172.2	206.0	204.9	171.1	202.6	201.4
1.9 Sugar and confectionery	119.9	122.2	120.7	119.1	128.7	128.0	121.9	130.7	130.1	120.0	129.4	128.7
1.10 Spices	199.4	193.5	197.5	212.1	240.7	236.3	204.8	232.0	228.2	209.7	237.8	233.6
1.11 Non-alcoholic beverages	175.4	161.3	169.6	177.6	182.2	182.1	164.9	169.9	170.2	172.3	177.1	177.1
1.12 Prepared meals, snacks, sweets	185.1	190.4	187.6	189.9	195.4	195.9	196.6	204.0	204.6	193.0	199.4	199.9
2 Pan, tobacco and intoxicants	195.0	199.9	196.3	198.4	203.7	204.0	202.7	209.5	210.1	199.5	205.2	205.6
3 Clothing and footwear	184.5	172.9	179.9	189.6	194.8	195.1	178.2	183.4	183.8	185.1	190.3	190.6
3.1 Clothing	184.8	175.0	180.9	190.0	195.4	195.8	180.2	185.5	185.8	186.1	191.5	191.9
3.2 Footwear	182.7	161.4	173.9	187.0	190.9	191.1	167.0	172.0	172.3	178.7	183.0	183.3
4 Housing	--	170.0	170.0	--	--	--	173.5	178.5	178.3	173.5	178.5	178.3
5 Fuel and light	179.7	178.4	179.2	181.4	183.8	181.1	182.6	175.6	167.7	181.9	180.7	176.0
6 Miscellaneous	173.8	166.5	170.3	177.9	183.8	184.2	170.0	175.5	176.0	174.1	179.8	180.2
6.1 Household goods and services	173.7	165.1	169.6	178.6	183.3	183.3	169.2	173.3	173.9	174.2	178.6	178.9
6.2 Health	181.3	174.6	178.7	186.6	193.8	194.3	180.8	188.3	189.2	184.4	191.7	192.4
6.3 Transport and communication	167.3	158.8	162.8	169.0	172.2	172.0	159.8	162.3	161.9	164.2	167.0	166.7
6.4 Recreation and amusement	170.0	165.8	167.6	172.8	177.4	177.8	168.4	172.5	172.8	170.3	174.6	175.0
6.5 Education	175.6	169.7	172.2	178.5	186.0	186.1	172.5	180.9	181.2	175.0	183.0	183.2
6.6 Personal care and effects	173.2	173.4	173.3	180.7	188.8	191.3	181.5	190.1	192.7	181.0	189.3	191.9
General Index (All Groups)	175.8	173.5	174.7	178.0	187.4	187.7	176.3	184.0	183.6	177.2	185.8	185.8

Source: National Statistical Office, Ministry of Statistics and Programme Implementation, Government of India.
P: Provisional

No. 19: Other Consumer Price Indices

Item	Base Year	Linking Factor	2022-23	2023		2024	
				Feb.	Jan.	Feb.	
	1	2	3	4	5	6	
1 Consumer Price Index for Industrial Workers	2016	2.88	131.1	132.7	138.9		
2 Consumer Price Index for Agricultural Labourers	1986-87	5.89	1148	1171	1258	1258	
3 Consumer Price Index for Rural Labourers	1986-87	-	1160	1182	1268	1269	

Source: Labour Bureau, Ministry of Labour and Employment, Government of India.

No. 20: Monthly Average Price of Gold and Silver in Mumbai

Item	2022-23	2023		2024	
		Feb.	Jan.	Feb.	
	1	2	3	4	
1 Standard Gold (₹ per 10 grams)	52731	56646	62322	62017	
2 Silver (₹ per kilogram)	61991	66402	71723	70328	

Source: India Bullion & Jewellers Association Ltd., Mumbai for Gold and Silver prices in Mumbai.

No. 21: Wholesale Price Index

(Base: 2011-12 = 100)

Commodities	Weight	2022-23	2023	2024		
			Mar.	Jan.	Feb.(P)	Mar.(P)
	1	2	3	4	5	6
I ALL COMMODITIES	100.000	152.5	151.0	151.2	151.2	151.8
1.1 PRIMARY ARTICLES	22.618	176.8	175.2	181.4	181.4	183.1
1.1.1 FOOD ARTICLES	15.256	179.5	178.8	188.8	189.2	191.1
1.1.1.1 Food Grains (Cereals+Pulses)	3.462	178.6	183.0	199.4	201.6	202.2
1.1.1.2 Fruits & Vegetables	3.475	200.6	180.7	189.6	187.5	196.7
1.1.1.3 Milk	4.440	167.8	175.3	182.3	183.6	183.6
1.1.1.4 Eggs, Meat & Fish	2.402	170.6	171.9	168.7	169.0	168.7
1.1.1.5 Condiments & Spices	0.529	187.2	192.9	246.2	248.9	233.5
1.1.1.6 Other Food Articles	0.948	178.1	183.3	196.5	194.5	197.5
1.1.2 NON-FOOD ARTICLES	4.119	172.1	167.1	162.6	159.5	160.2
1.1.2.1 Fibres	0.839	203.0	179.9	162.9	161.1	166.5
1.1.2.2 Oil Seeds	1.115	205.2	192.5	183.1	178.7	178.7
1.1.2.3 Other non-food Articles	1.960	131.2	135.2	133.6	133.2	133.4
1.1.2.4 Floriculture	0.204	257.4	281.7	328.6	299.7	291.0
1.1.3 MINERALS	0.833	203.5	222.4	223.7	223.8	225.1
1.1.3.1 Metallic Minerals	0.648	191.7	212.8	207.3	207.3	209.7
1.1.3.2 Other Minerals	0.185	245.2	256.2	281.0	281.3	278.8
1.1.4 CRUDE PETROLEUM & NATURAL GAS	2.410	158.4	149.8	151.7	155.0	157.1
1.2 FUEL & POWER	13.152	159.5	156.4	154.9	155.1	155.2
1.2.1 COAL	2.138	133.3	135.1	136.2	136.0	135.8
1.2.1.1 Coking Coal	0.647	143.4	143.4	143.4	143.4	143.4
1.2.1.2 Non-Coking Coal	1.401	119.8	119.8	125.8	125.8	125.8
1.2.1.3 Lignite	0.090	271.1	312.6	246.6	241.8	236.0
1.2.2 MINERAL OILS	7.950	172.9	165.2	159.1	159.2	159.4
1.2.3 ELECTRICITY	3.064	143.3	148.4	157.2	157.7	157.9
1.3 MANUFACTURED PRODUCTS	64.231	142.6	141.3	139.7	139.8	140.1
1.3.1 MANUFACTURE OF FOOD PRODUCTS	9.122	165.3	160.8	160.3	160.1	161.9
1.3.1.1 Processing and Preserving of meat	0.134	143.7	145.5	145.6	145.5	149.5
1.3.1.2 Processing and Preserving of fish, Crustaceans, Molluscs and products thereof	0.204	144.9	140.7	140.8	144.2	150.1
1.3.1.3 Processing and Preserving of fruit and Vegetables	0.138	125.8	126.6	128.6	130.0	130.0
1.3.1.4 Vegetable and Animal oils and Fats	2.643	181.9	157.9	140.2	141.2	145.2
1.3.1.5 Dairy products	1.165	167.0	176.4	179.2	179.0	179.2
1.3.1.6 Grain mill products	2.010	162.1	168.5	181.2	180.9	182.0
1.3.1.7 Starches and Starch products	0.110	158.9	157.1	164.2	165.2	166.1
1.3.1.8 Bakery products	0.215	163.0	166.2	166.5	167.4	165.7
1.3.1.9 Sugar, Molasses & honey	1.163	126.8	126.5	137.9	136.9	136.6
1.3.1.10 Cocoa, Chocolate and Sugar confectionery	0.175	135.9	137.1	142.4	143.6	143.6
1.3.1.11 Macaroni, Noodles, Couscous and Similar farinaceous products	0.026	155.8	154.4	150.0	149.3	148.8
1.3.1.12 Tea & Coffee products	0.371	178.2	173.7	161.8	153.7	161.9
1.3.1.13 Processed condiments & salt	0.163	176.5	182.7	199.2	197.1	196.2
1.3.1.14 Processed ready to eat food	0.024	141.2	141.8	147.6	147.9	147.1
1.3.1.15 Health supplements	0.225	179.4	178.7	175.3	179.9	174.9
1.3.1.16 Prepared animal feeds	0.356	208.8	206.9	207.1	203.9	204.1
1.3.2 MANUFACTURE OF BEVERAGES	0.909	128.9	130.3	132.4	132.3	132.3
1.3.2.1 Wines & spirits	0.408	129.3	131.2	134.3	134.1	133.5
1.3.2.2 Malt liquors and Malt	0.225	134.5	134.4	136.8	136.3	136.6
1.3.2.3 Soft drinks; Production of mineral waters and Other bottled waters	0.275	123.7	125.5	125.8	126.4	127.0
1.3.3 MANUFACTURE OF TOBACCO PRODUCTS	0.514	165.3	169.2	174.2	173.6	175.7
1.3.3.1 Tobacco products	0.514	165.3	169.2	174.2	173.6	175.7

No. 21: Wholesale Price Index (Contd.)

(Base: 2011-12 = 100)

Commodities	Weight	2022-23	2023	2024		
				Mar.	Jan.	Feb.(P)
	1	2	3	4	5	6
1.3.4 MANUFACTURE OF TEXTILES	4.881	142.7	136.8	134.0	134.6	134.5
1.3.4.1 Preparation and Spinning of textile fibres	2.582	133.2	122.9	118.7	119.6	120.0
1.3.4.2 Weaving & Finishing of textiles	1.509	158.9	159.5	157.9	157.9	156.5
1.3.4.3 Knitted and Crocheted fabrics	0.193	129.9	123.4	118.0	120.0	120.7
1.3.4.4 Made-up textile articles, Except apparel	0.299	153.6	154.0	157.8	157.6	158.3
1.3.4.5 Cordage, Rope, Twine and Netting	0.098	156.8	145.1	137.5	137.8	137.6
1.3.4.6 Other textiles	0.201	132.2	127.9	130.8	129.9	131.2
1.3.5 MANUFACTURE OF WEARING APPAREL	0.814	148.7	150.0	150.9	151.9	151.3
1.3.5.1 Manufacture of Wearing Apparel (woven), Except fur Apparel	0.593	147.3	148.4	148.5	149.1	148.6
1.3.5.2 Knitted and Crocheted apparel	0.221	152.2	154.3	157.5	159.6	158.3
1.3.6 MANUFACTURE OF LEATHER AND RELATED PRODUCTS	0.535	122.2	122.3	123.5	124.1	123.7
1.3.6.1 Tanning and Dressing of leather; Dressing and Dyeing of fur	0.142	105.6	103.5	103.9	104.8	104.8
1.3.6.2 Luggage, HandbAgs, Saddlery and Harness	0.075	141.0	140.7	141.1	141.4	141.2
1.3.6.3 Footwear	0.318	125.2	126.3	128.1	128.6	128.1
1.3.7 MANUFACTURE OF WOOD AND PRODUCTS OF WOOD AND CORK	0.772	143.2	143.0	148.1	148.6	149.4
1.3.7.1 Saw milling and Planing of wood	0.124	137.6	138.7	136.1	139.3	140.0
1.3.7.2 Veneer sheets; Manufacture of plywood, Laminboard, Particle board and Other panels and Boards	0.493	141.8	140.8	148.6	148.6	149.3
1.3.7.3 Builder's carpentry and Joinery	0.036	204.0	205.0	210.1	210.1	214.1
1.3.7.4 Wooden containers	0.119	136.7	137.9	139.8	139.8	140.0
1.3.8 MANUFACTURE OF PAPER AND PAPER PRODUCTS	1.113	152.0	147.0	138.7	138.5	138.6
1.3.8.1 Pulp, Paper and Paperboard	0.493	158.4	156.5	145.6	145.2	145.4
1.3.8.2 Corrugated paper and Paperboard and Containers of paper and Paperboard	0.314	148.3	142.5	141.6	141.8	143.0
1.3.8.3 Other articles of paper and Paperboard	0.306	145.6	136.5	124.7	124.3	123.1
1.3.9 PRINTING AND REPRODUCTION OF RECORDED MEDIA	0.676	172.5	179.8	184.5	184.1	183.4
1.3.9.1 Printing	0.676	172.5	179.8	184.5	184.1	183.4
1.3.10 MANUFACTURE OF CHEMICALS AND CHEMICAL PRODUCTS	6.465	145.4	142.2	135.4	135.4	135.6
1.3.10.1 Basic chemicals	1.433	159.2	150.0	137.1	136.9	136.7
1.3.10.2 Fertilizers and Nitrogen compounds	1.485	144.8	146.0	141.4	141.9	142.2
1.3.10.3 Plastic and Synthetic rubber in primary form	1.001	143.2	138.5	131.2	131.4	132.5
1.3.10.4 Pesticides and Other agrochemical products	0.454	143.4	140.1	131.2	130.7	129.6
1.3.10.5 Paints, Varnishes and Similar coatings, Printing ink and Mastics	0.491	145.0	145.8	143.2	142.9	142.3
1.3.10.6 Soap and Detergents, Cleaning and Polishing preparations, Perfumes and Toilet preparations	0.612	140.8	141.1	138.9	138.8	138.4
1.3.10.7 Other chemical products	0.692	142.1	138.6	133.5	132.6	134.1
1.3.10.8 Man-made fibres	0.296	110.7	106.0	102.3	103.1	103.2
1.3.11 MANUFACTURE OF PHARMACEUTICALS, MEDICINAL CHEMICAL AND BOTANICAL PRODUCTS	1.993	140.9	141.7	143.0	143.8	143.3
1.3.11.1 Pharmaceuticals, Medicinal chemical and Botanical products	1.993	140.9	141.7	143.0	143.8	143.3
1.3.12 MANUFACTURE OF RUBBER AND PLASTICS PRODUCTS	2.299	129.7	128.3	127.2	127.3	128.3
1.3.12.1 Rubber Tyres and Tubes; Retreading and Rebuilding of Rubber Tyres	0.609	111.8	113.7	113.7	114.1	114.0
1.3.12.2 Other Rubber Products	0.272	106.4	105.8	107.7	108.2	108.6
1.3.12.3 Plastics products	1.418	141.8	138.9	136.8	136.6	138.2
1.3.13 MANUFACTURE OF OTHER NON-METALLIC MINERAL PRODUCTS	3.202	133.7	134.6	134.4	133.8	133.7
1.3.13.1 Glass and Glass products	0.295	158.1	163.5	164.2	164.6	164.0
1.3.13.2 Refractory products	0.223	119.0	118.7	119.1	119.4	119.4
1.3.13.3 Clay Building Materials	0.121	135.3	129.2	116.2	113.8	122.4
1.3.13.4 Other Porcelain and Ceramic Products	0.222	118.0	119.4	123.3	124.0	124.4
1.3.13.5 Cement, Lime and Plaster	1.645	137.2	137.9	137.2	136.2	135.4

No. 21: Wholesale Price Index (Contd.)

(Base: 2011-12 = 100)

Commodities	Weight	2022-23	2023	2024		
			Mar.	Jan.	Feb.(P)	Mar.(P)
	1	2	3	4	5	6
1.3.13.6 Articles of Concrete, Cement and Plaster	0.292	134.4	135.5	137.7	137.0	137.2
1.3.13.7 Cutting, Shaping and Finishing of Stone	0.234	125.6	127.0	131.7	131.2	130.8
1.3.13.8 Other Non-Metallic Mineral Products	0.169	105.9	106.3	101.4	101.3	100.9
1.3.14 MANUFACTURE OF BASIC METALS	9.646	148.7	146.2	138.8	138.5	138.4
1.3.14.1 Inputs into steel making	1.411	159.7	152.4	135.5	135.2	134.1
1.3.14.2 Metallic Iron	0.653	165.9	158.0	150.8	150.4	147.9
1.3.14.3 Mild Steel - Semi Finished Steel	1.274	127.0	126.0	117.2	116.7	116.9
1.3.14.4 Mild Steel -Long Products	1.081	149.7	147.6	138.3	138.4	138.8
1.3.14.5 Mild Steel - Flat products	1.144	155.0	151.0	140.6	140.2	138.8
1.3.14.6 Alloy steel other than Stainless Steel- Shapes	0.067	146.9	144.9	133.1	133.3	133.4
1.3.14.7 Stainless Steel - Semi Finished	0.924	151.9	145.3	131.8	130.1	130.9
1.3.14.8 Pipes & tubes	0.205	175.4	173.8	166.8	170.7	168.9
1.3.14.9 Non-ferrous metals incl. precious metals	1.693	145.9	147.0	145.0	145.1	146.1
1.3.14.10 Castings	0.925	130.7	133.1	142.7	142.8	144.2
1.3.14.11 Forgings of steel	0.271	172.4	175.5	174.6	172.1	172.1
1.3.15 MANUFACTURE OF FABRICATED METAL PRODUCTS, EXCEPT MACHINERY AND EQUIPMENT	3.155	139.0	139.2	137.8	137.9	136.6
1.3.15.1 Structural Metal Products	1.031	132.7	133.1	132.8	131.9	130.7
1.3.15.2 Tanks, Reservoirs and Containers of Metal	0.660	161.1	160.5	153.9	156.4	155.5
1.3.15.3 Steam generators, Except Central Heating Hot Water Boilers	0.145	100.5	101.2	106.4	106.4	105.6
1.3.15.4 Forging, Pressing, Stamping and Roll-Forming of Metal; Powder Metallurgy	0.383	135.2	136.8	141.6	140.8	139.0
1.3.15.5 Cutlery, Hand Tools and General Hardware	0.208	112.2	110.6	109.3	109.4	101.5
1.3.15.6 Other Fabricated Metal Products	0.728	145.0	145.4	142.8	142.7	142.6
1.3.16 MANUFACTURE OF COMPUTER, ELECTRONIC AND OPTICAL PRODUCTS	2.009	116.6	116.4	119.5	119.4	119.6
1.3.16.1 Electronic Components	0.402	115.0	113.4	114.2	114.3	114.5
1.3.16.2 Computers and Peripheral Equipment	0.336	135.0	135.1	135.1	135.1	135.3
1.3.16.3 Communication Equipment	0.310	129.4	130.5	139.7	139.3	139.4
1.3.16.4 Consumer Electronics	0.641	99.7	100.0	102.8	102.7	102.8
1.3.16.5 Measuring, Testing, Navigating and Control equipment	0.181	112.8	111.7	114.0	114.0	114.0
1.3.16.6 Watches and Clocks	0.076	151.2	150.0	159.3	159.8	159.9
1.3.16.7 Irradiation, Electromedical and Electrotherapeutic equipment	0.055	108.9	106.8	109.0	109.3	109.0
1.3.16.8 Optical instruments and Photographic equipment	0.008	100.5	100.3	103.1	103.1	105.3
1.3.17 MANUFACTURE OF ELECTRICAL EQUIPMENT	2.930	128.8	129.5	132.1	132.0	132.1
1.3.17.1 Electric motors, Generators, Transformers and Electricity distribution and Control apparatus	1.298	126.3	126.0	131.4	131.7	131.3
1.3.17.2 Batteries and Accumulators	0.236	131.9	134.4	138.9	139.1	140.4
1.3.17.3 Fibre optic cables for data transmission or live transmission of images	0.133	116.6	121.6	123.1	122.4	121.2
1.3.17.4 Other electronic and Electric wires and Cables	0.428	146.3	148.3	145.9	144.9	146.0
1.3.17.5 Wiring devices, Electric lighting & display equipment	0.263	117.2	117.5	117.7	117.7	117.6
1.3.17.6 Domestic appliances	0.366	134.1	133.2	134.0	133.1	133.4
1.3.17.7 Other electrical equipment	0.206	117.4	120.8	120.6	120.9	121.8
1.3.18 MANUFACTURE OF MACHINERY AND EQUIPMENT	4.789	126.2	128.0	129.8	129.8	130.0
1.3.18.1 Engines and Turbines, Except aircraft, Vehicle and Two wheeler engines	0.638	126.9	127.4	129.7	130.7	130.9
1.3.18.2 Fluid power equipment	0.162	128.4	133.5	132.1	132.3	132.5
1.3.18.3 Other pumps, Compressors, Taps and Valves	0.552	117.6	117.8	118.0	118.2	117.7
1.3.18.4 Bearings, Gears, Gearing and Driving elements	0.340	124.2	127.7	129.6	128.7	130.2
1.3.18.5 Ovens, Furnaces and Furnace burners	0.008	79.8	80.9	85.3	85.2	85.3
1.3.18.6 Lifting and Handling equipment	0.285	126.3	128.3	129.0	129.7	130.1

No. 21: Wholesale Price Index (Concl.)

(Base: 2011-12 = 100)

Commodities	Weight	2022-23	2023	2024		
			Mar.	Jan.	Feb.(P)	Mar.(P)
	1	2	3	4	5	6
1.3.18.7 Office machinery and Equipment	0.006	130.2	130.2	130.2	130.2	130.2
1.3.18.8 Other general-purpose machinery	0.437	143.0	144.1	146.1	144.1	144.7
1.3.18.9 Agricultural and Forestry machinery	0.833	137.2	140.0	144.1	144.0	144.1
1.3.18.10 Metal-forming machinery and Machine tools	0.224	120.5	122.3	122.0	122.3	122.1
1.3.18.11 Machinery for mining, Quarrying and Construction	0.371	84.9	86.9	88.7	88.8	89.2
1.3.18.12 Machinery for food, Beverage and Tobacco processing	0.228	127.7	124.7	124.2	124.4	124.7
1.3.18.13 Machinery for textile, Apparel and Leather production	0.192	130.0	132.3	135.7	137.8	136.9
1.3.18.14 Other special-purpose machinery	0.468	140.6	144.0	145.7	145.9	145.4
1.3.18.15 Renewable electricity generating equipment	0.046	69.2	70.6	70.7	70.2	70.1
1.3.19 MANUFACTURE OF MOTOR VEHICLES, TRAILERS AND SEMI-TRAILERS	4.969	127.6	128.4	128.5	128.7	129.7
1.3.19.1 Motor vehicles	2.600	126.0	127.8	128.3	129.0	130.6
1.3.19.2 Parts and Accessories for motor vehicles	2.368	129.3	129.0	128.7	128.4	128.7
1.3.20 MANUFACTURE OF OTHER TRANSPORT EQUIPMENT	1.648	137.4	141.6	143.4	143.5	143.5
1.3.20.1 Building of ships and Floating structures	0.117	162.5	163.6	163.7	163.7	163.7
1.3.20.2 Railway locomotives and Rolling stock	0.110	105.5	106.3	110.4	108.4	108.5
1.3.20.3 Motor cycles	1.302	137.6	142.8	144.8	145.2	145.2
1.3.20.4 Bicycles and Invalid carriages	0.117	139.8	138.6	138.2	137.9	137.4
1.3.20.5 Other transport equipment	0.002	152.5	156.2	159.6	160.5	158.3
1.3.21 MANUFACTURE OF FURNITURE	0.727	157.2	160.1	160.0	160.2	159.9
1.3.21.1 Furniture	0.727	157.2	160.1	160.0	160.2	159.9
1.3.22 OTHER MANUFACTURING	1.064	147.7	154.0	160.8	161.5	164.1
1.3.22.1 Jewellery and Related articles	0.996	146.5	153.3	160.9	161.6	164.3
1.3.22.2 Musical instruments	0.001	189.3	201.4	190.6	191.9	192.0
1.3.22.3 Sports goods	0.012	150.5	152.6	155.3	155.2	154.0
1.3.22.4 Games and Toys	0.005	159.0	157.6	159.9	159.9	160.0
1.3.22.5 Medical and Dental instruments and Supplies	0.049	170.4	166.3	161.2	161.2	161.2
2 FOOD INDEX	24.378	174.2	172.1	178.1	178.3	180.1

Source: Office of the Economic Adviser, Ministry of Commerce and Industry, Government of India.

No. 22: Index of Industrial Production (Base:2011-12=100)

Industry	Weight	2021-22	2022-23	April-February		February	
				2022-23	2023-24	2023	2024
	1	2	3	4	5	6	7
General Index	100.00	131.6	138.5	137.3	145.4	139.3	147.2
1 Sectoral Classification							
1.1 Mining	14.37	113.3	119.9	116.8	126.4	129.2	139.6
1.2 Manufacturing	77.63	131.0	137.1	136.2	143.6	137.6	144.5
1.3 Electricity	7.99	170.1	185.2	185.0	197.8	174.0	187.1
2 Use-Based Classification							
2.1 Primary Goods	34.05	129.5	139.2	137.4	146.3	139.9	148.2
2.2 Capital Goods	8.22	88.7	100.3	98.2	104.3	104.9	106.2
2.3 Intermediate Goods	17.22	143.9	149.4	148.5	156.4	145.1	158.9
2.4 Infrastructure/ Construction Goods	12.34	148.2	160.7	158.7	174.6	165.7	179.8
2.5 Consumer Durables	12.84	113.8	114.5	114.1	117.6	108.3	121.6
Consumer non-durables	15.33	146.7	147.7	147.7	153.3	154.8	148.9

Source : Central Statistics Office, Ministry of Statistics and Programme Implementation, Government of India.

Government Accounts and Treasury Bills**No. 23: Union Government Accounts at a Glance**

(₹ Crore)

Item	Financial Year	April – February			
	2023-24 (Revised Estimates)	2023-24 (Actuals)	2022-23 (Actuals)	Percentage to Revised Estimates	
				2023-24	2022-23
1	2	3	4	5	
1 Revenue Receipts	2699713	2209782	1980828	81.9	84.3
1.1 Tax Revenue (Net)	2323918	1849452	1732193	79.6	83.0
1.2 Non-Tax Revenue	375795	360330	248635	95.9	95.0
2 Non Debt Capital Receipt	56000	36140	58900	64.5	70.5
2.1 Recovery of Loans	26000	23480	20229	90.3	86.1
2.2 Other Receipts	30000	12660	38671	42.2	64.5
3 Total Receipts (excluding borrowings) (1+2)	2755713	2245922	2039728	81.5	83.9
4 Revenue Expenditure of which :	3540239	2941674	2903363	83.1	83.9
4.1 Interest Payments	1055427	880788	798957	83.5	84.9
5 Capital Expenditure	950246	805613	590227	84.8	81.0
6 Total Expenditure (4+5)	4490486	3747287	3493590	83.4	83.4
7 Revenue Deficit (4-1)	840527	731892	922535	87.1	83.1
8 Fiscal Deficit (6-3)	1734773	1501365	1453862	86.5	82.8
9 Gross Primary Deficit (8-4.1)	679346	620577	654905	91.3	80.4

Source: Controller General of Accounts (CGA), Ministry of Finance, Government of India and Interim Union Budget 2024-25.

No. 24: Treasury Bills – Ownership Pattern

(₹ Crore)

Item	2022-23	2023		2024				
		Feb. 24	Jan. 19	Jan. 26	Feb. 2	Feb. 9	Feb. 16	Feb. 23
	1	2	3	4	5	6	7	8
1 91-day								
1.1 Banks	6191	11005	6895	6344	9131	8088	9120	8870
1.2 Primary Dealers	20071	22121	19442	25383	22804	21408	22026	20801
1.3 State Governments	8038	27121	26142	26142	24142	24345	19784	16384
1.4 Others	80638	87774	80663	76273	77464	80904	80255	84728
2 182-day								
2.1 Banks	53154	63099	80813	73978	73296	71819	72595	74065
2.2 Primary Dealers	97274	63459	63858	69518	72085	73815	70059	73474
2.3 State Governments	2592	7568	8462	6987	5037	5037	5037	5037
2.4 Others	110072	88942	80333	83508	83623	85369	90350	92465
3 364-day								
3.1 Banks	101834	92664	101580	101169	98282	94786	93642	89312
3.2 Primary Dealers	146080	158712	171099	170822	166658	163627	167542	169184
3.3 State Governments	48284	46233	41692	44229	44282	44566	44433	44559
3.4 Others	149086	151624	173322	173009	179060	184588	180817	182504
4 14-day Intermediate								
4.1 Banks								
4.2 Primary Dealers								
4.3 State Governments	212758	239122	170928	192600	150113	143810	193629	224502
4.4 Others	926	1377	1625	883	181	157	367	638
Total Treasury Bills (Excluding 14 day Intermediate T Bills) #	823313	820322	854300	857361	855865	858352	855658	861383

14D intermediate T-Bills are non-marketable unlike 91D, 182D and 364D T-Bills. These bills are 'intermediate' by nature as these are liquidated to replenish shortfall in the daily minimum cash balances of State Governments.

Note: Primary Dealers (PDs) include banks undertaking PD business.

No. 25: Auctions of Treasury Bills

(Amount in ₹ Crore)

Date of Auction	Notified Amount	Bids Received			Bids Accepted			Total Issue (6+7)	Cut off Price (₹)	Implicit Yield at Cut-off Price (per cent)
		Number	Total Face Value		Number	Total Face Value				
			Competitive	Non-Competitive		Competitive	Non-Competitive			
1	2	3	4	5	6	7	8	9	10	
91-day Treasury Bills										
2023-24										
Jan. 31	8000	68	15785	1934	48	7966	1934	9900	98.27	7.0446
Feb. 7	8000	101	22368	1672	52	7929	1672	9601	98.28	7.0147
Feb. 14	8000	100	19764	213	54	7929	213	8142	98.27	7.0508
Feb. 21	10000	135	37544	2081	46	9919	2081	12000	98.28	7.0184
Feb. 28	10000	136	44351	1536	27	9964	1536	11500	98.29	6.9594
182-day Treasury Bills										
2023-24										
Jan. 31	10000	161	29502	1032	69	9968	1032	11000	96.54	7.1845
Feb. 7	10000	126	25593	536	71	9964	536	10500	96.56	7.1501
Feb. 14	10000	116	21850	28	61	9972	28	10000	96.55	7.1769
Feb. 21	15000	170	42470	1022	88	14978	1022	16000	96.54	7.1888
Feb. 28	15000	218	46325	25	97	14975	25	15000	96.55	7.1673
364-day Treasury Bills										
2023-24										
Jan. 31	9000	175	36960	157	33	8985	157	9141	93.34	7.1541
Feb. 7	9000	164	41520	612	22	8978	612	9590	93.38	7.1138
Feb. 14	9000	145	35970	93	25	8976	93	9069	93.35	7.1450
Feb. 21	9000	151	39805	146	17	8980	146	9125	93.36	7.1336
Feb. 28	9000	164	37576	29	44	8980	29	9008	93.37	7.1199

Financial Markets

No. 26: Daily Call Money Rates

(Per cent per annum)

As on	Range of Rates	Weighted Average Rates
	Borrowings/ Lendings	Borrowings/ Lendings
	1	2
February 01 ,2024	5.00-6.97	6.74
February 02 ,2024	5.00-6.75	6.52
February 03 ,2024	5.65-6.50	6.10
February 05 ,2024	5.00-6.55	6.47
February 06 ,2024	5.00-6.56	6.46
February 07 ,2024	5.00-6.75	6.49
February 08 ,2024	5.00-6.75	6.65
February 09 ,2024	5.00-6.86	6.73
February 12 ,2024	5.00-6.86	6.76
February 13 ,2024	5.00-6.86	6.75
February 14 ,2024	5.00-7.05	6.71
February 15 ,2024	5.00-6.77	6.66
February 16 ,2024	5.00-6.76	6.66
February 17 ,2024	5.70-6.75	6.20
February 20 ,2024	5.00-7.10	6.70
February 21 ,2024	5.00-7.10	6.62
February 22 ,2024	5.00-7.10	6.56
February 23 ,2024	5.00-7.13	6.69
February 26 ,2024	5.00-6.81	6.69
February 27 ,2024	5.00-7.10	6.67
February 28 ,2024	5.00-6.65	6.43
February 29 ,2024	5.00-6.81	6.67
March 01 ,2024	5.00-7.15	6.59
March 02 ,2024	5.70-6.24	6.15
March 04 ,2024	5.10-6.65	6.49
March 05 ,2024	5.50-6.55	6.43
March 06 ,2024	5.10-6.55	6.44
March 07 ,2024	5.10-6.90	6.55
March 11 ,2024	5.10-6.82	6.59
March 12 ,2024	5.10-6.76	6.51
March 13 ,2024	5.00-7.05	6.47
March 14 ,2024	5.00-7.05	6.44
March 15 ,2024	5.00-6.80	6.58

Note: Includes Notice Money.

No. 27: Certificates of Deposit

Item	2023	2024			
	Feb. 24	Jan. 12	Jan. 26	Feb. 9	Feb. 23
	1	2	3	4	5
1 Amount Outstanding (₹ Crore)	280336.78	351131.83	355281.29	369142.87	381444.86
1.1 Issued during the fortnight (₹ Crore)	32563.25	40119.37	20013.21	44656.90	63348.26
2 Rate of Interest (per cent)	7.09-8.04	7.08-7.59	7.07-8.02	7.23-8.02	7.17-8.22

No. 28: Commercial Paper

Item	2023	2024			
	Feb. 28	Jan. 15	Jan. 31	Feb. 15	Feb. 29
	1	2	3	4	5
1 Amount Outstanding (₹ Crore)	364530.10	378628.10	377707.20	395262.10	408048.25
1.1 Reported during the fortnight (₹ Crore)	58975.35	34492.95	53532.05	57899.85	82067.80
2 Rate of Interest (per cent)	6.77-12.51	7.12-12.34	7.00-14.74	7.38-12.74	7.05-11.91

No. 29: Average Daily Turnover in Select Financial Markets

(₹ Crore)

Item	2022-23	2023	2024					
		Feb. 24	Jan. 19	Jan. 26	Feb. 2	Feb. 9	Feb. 16	Feb. 23
	1	2	3	4	5	6	7	8
1 Call Money	19987	29916	20412	20336	19483	18838	17244	19049
2 Notice Money	2605	278	4494	942	4491	320	4722	323
3 Term Money	612	482	1182	645	1478	446	957	732
4 Triparty Repo	697245	760332	735997	528710	687384	534316	694577	576941
5 Market Repo	504418	618929	582394	452165	635275	562926	632042	531995
6 Repo in Corporate Bond	2085	1064	281	1220	1980	2068	2527	2511
7 Forex (US \$ million)	67793	80089	96967	109345	112243	100525	88318	99179
8 Govt. of India Dated Securities	66200	62050	88331	57000	131234	47266	93037	102031
9 State Govt. Securities	5450	6700	5010	6260	6282	1776	6564	7059
10 Treasury Bills								
10.1 91-Day	4380	2664	3327	3193	5796	3404	3634	3757
10.2 182-Day	4480	4854	6653	3699	2837	3404	5951	6843
10.3 364-Day	2900	1905	5990	3357	5371	2005	4231	4784
10.4 Cash Management Bills								
11 Total Govt. Securities (8+9+10)	83410	78169	109311	73508	151521	57854	113417	124474
11.1 RBI	660	46	334	73	1705	466	346	204

No. 30: New Capital Issues by Non-Government Public Limited Companies

(Amount in ₹ Crore)

Security & Type of Issue	2022-23		2022-23 (Apr.-Feb.)		2023-24 (Apr.-Feb.) *		Feb. 2023		Feb. 2024 *	
	No. of Issues	Amount	No. of Issues	Amount	No. of Issues	Amount	No. of Issues	Amount	No. of Issues	Amount
	1	2	3	4	5	6	7	8	9	10
1 Equity Shares	237	45266	200	42201	303	76665	17	570	35	15643
1A Premium	218	42408	184	39583	292	73298	16	435	34	15331
1.1 Public	164	38515	141	37520	246	61975	7	85	29	7684
1.1.1 Premium	161	37158	138	36236	246	59978	7	64	29	7450
1.2 Rights	73	6751	59	4681	57	14690	10	485	6	7959
1.2.1 Premium	57	5250	46	3347	46	13320	9	371	5	7882
2 Preference Shares	-	-	-	-	-	-	-	-	-	-
2.1 Public	-	-	-	-	-	-	-	-	-	-
2.2 Rights	-	-	-	-	-	-	-	-	-	-
3 Bonds & Debentures	34	9221	31	8735	41	15639	-	-	4	517
3.1 Convertible	-	-	-	-	-	-	-	-	-	-
3.1.1 Public	-	-	-	-	-	-	-	-	-	-
3.1.2 Rights	-	-	-	-	-	-	-	-	-	-
3.2 Non-Convertible	34	9221	31	8735	41	15639	-	-	4	517
3.2.1 Public	34	9221	31	8735	41	15639	-	-	4	517
3.2.2 Rights	-	-	-	-	-	-	-	-	-	-
4 Total (1+2+3)	271	54487	231	50936	344	92304	17	570	39	16160
4.1 Public	198	47736	172	46255	287	77614	7	85	33	8201
4.2 Rights	73	6751	59	4681	57	14690	10	485	6	7959

Note : 1. Since April 2020, monthly data on equity issues is compiled on the basis of their listing date.

2. Figures in the columns might not add up to the total due to rounding off numbers.

Source : Securities and Exchange Board of India.

* : Data is Provisional

External Sector

No. 31: Foreign Trade

Item	Unit	2022-23		2023			2024		
				Feb.	Oct.	Nov.	Dec.	Jan.	Feb.
		1	2	3	4	5	6	7	
1 Exports	₹ Crore	3621550	305765	278286	281174	319717	310242	343347	
	US \$ Million	451070	37014	33434	33755	38391	37324	41385	
1.1 Oil	₹ Crore	782303	64760	48981	61635	57370	71607	68163	
	US \$ Million	97468	7839	5885	7399	6889	8615	8216	
1.2 Non-oil	₹ Crore	2839247	241004	229305	219540	262347	238635	275184	
	US \$ Million	353602	29174	27549	26356	31502	28709	33169	
2 Imports	₹ Crore	5749801	442629	528069	453855	485098	443429	498719	
	US \$ Million	715969	53581	63443	54486	58250	53347	60113	
2.1 Oil	₹ Crore	1682475	139479	134410	124404	124423	129050	140135	
	US \$ Million	209418	16884	16148	14935	14941	15526	16891	
2.2 Non-oil	₹ Crore	4067326	303150	393659	329452	360674	314379	358584	
	US \$ Million	506551	36697	47295	39551	43309	37822	43222	
3 Trade Balance	₹ Crore	-2128251	-136864	-249783	-172681	-165381	-133187	-155372	
	US \$ Million	-264899	-16568	-30009	-20731	-19859	-16023	-18728	
3.1 Oil	₹ Crore	-900172	-74719	-85429	-62769	-67053	-57443	-71972	
	US \$ Million	-111950	-9045	-10264	-7535	-8052	-6911	-8675	
3.2 Non-oil	₹ Crore	-1228079	-62145	-164355	-109912	-98328	-75744	-83400	
	US \$ Million	-152949	-7523	-19746	-13195	-11807	-9113	-10053	

Source: DGCI&S and Ministry of Commerce & Industry.

No. 32: Foreign Exchange Reserves

Item	Unit	2023	2024					
		Apr. 07	Feb. 23	Mar. 01	Mar. 08	Mar. 15	Mar. 22	Mar. 29
		1	2	3	4	5	6	7
1 Total Reserves	₹ Crore	4789256	5135344	5187144	5266052	5325702	5359608	5384281
	US \$ Million	584755	619072	625626	636095	642492	642631	645583
1.1 Foreign Currency Assets	₹ Crore	4213256	4547374	4595222	4655556	4711435	4739393	4759071
	US \$ Million	514431	548188	554231	562352	568386	568264	570618
1.2 Gold	₹ Crore	382447	396913	401430	419860	423910	429410	435024
	US \$ Million	46696	47848	48417	50716	51140	51487	52160
1.3 SDRs	Volume (Metric Tonnes)	794.63	816.99	816.99	817.93	817.93	819.79	822.09
	SDRs Million	13667	13694	13694	13694	13694	13694	13694
	₹ Crore	151107	150946	150733	150760	151493	151946	151335
	US \$ Million	18450	18197	18180	18211	18276	18219	18145
1.4 Reserve Tranche Position in IMF	₹ Crore	42446	40111	39760	39876	38864	38859	38851
	US \$ Million	5178	4839	4798	4817	4689	4662	4660

* Difference, if any, is due to rounding off.

Note: Exclude investment in foreign currency denominated bonds issued by IIFC (UK), SDRs transferred by Government of India to RBI and foreign currency received under SAARC and ACU currency swap arrangements. Foreign currency assets in US dollar take into account appreciation/depreciation of non-US currencies (such as Euro, Sterling, Yen and Australian Dollar) held in reserves. Foreign exchange holdings are converted into rupees at rupee-US dollar RBI holding rates.

No. 33: Non-Resident Deposits

(US \$ Million)

Scheme	Outstanding				Flows	
	2022-23	2023	2024		2022-23	2023-24
		Feb.	Jan.	Feb. (P)	Apr.-Feb.	Apr.-Feb.(P)
	1	2	3	4	5	6
1 NRI Deposits	138879	135542	147732	149724	6404	11808
1.1 FCNR(B)	19363	18402	23517	24902	1484	5538
1.2 NR(E)RA	95817	94135	97466	97682	1426	2636
1.3 NRO	23699	23005	26749	27140	3493	3633

P: Provisional.

No. 34: Foreign Investment Inflows

Item	2022-23	2022-23	2023-24	2023	2024	
		Apr.-Feb.	Apr.-Feb.	Feb.	Jan.	Feb.
	1	2	3	4	5	6
1.1 Net Foreign Direct Investment (1.1.1-1.1.2)	27986	26712	14551	1716	5740	328
1.1.1 Direct Investment to India (1.1.1.1-1.1.2)	42006	39613	26692	2860	6301	1544
1.1.1.1 Gross Inflows/Gross Investments	71355	66783	64996	5040	8035	5054
1.1.1.1.1 Equity	47600	45078	41977	2990	6135	2789
1.1.1.1.1.1 Government (SIA/FIPB)	692	683	521	1	147	47
1.1.1.1.1.2 RBI	37097	35196	28718	2113	5516	2136
1.1.1.1.1.3 Acquisition of shares	8245	7774	11442	736	332	466
1.1.1.1.1.4 Equity capital of unincorporated bodies	1566	1426	1297	140	140	140
1.1.1.1.2 Reinvested earnings	19105	17446	17874	1659	1659	1659
1.1.1.1.3 Other capital	4650	4259	5145	391	241	606
1.1.1.2 Repatriation/Disinvestment	29349	27170	38304	2179	1733	3510
1.1.1.2.1 Equity	27094	25009	35275	2085	1544	3330
1.1.1.2.2 Other capital	2255	2161	3029	95	189	180
1.1.2 Foreign Direct Investment by India (1.1.2.1+1.1.2.2+1.1.2.3-1.1.2.4)	14020	12901	12141	1144	562	1216
1.1.2.1 Equity capital	8771	8051	6690	811	372	639
1.1.2.2 Reinvested Earnings	4412	4044	4770	368	368	368
1.1.2.3 Other Capital	4714	4275	4076	374	208	300
1.1.2.4 Repatriation/Disinvestment	3877	3468	3395	409	387	90
1.2 Net Portfolio Investment (1.2.1+1.2.2+1.2.3-1.2.4)	-5152	-6712	35556	-332	-962	3828
1.2.1 GDRs/ADRs	-	-	-	-	-	-
1.2.2 FIIs	-4828	-6413	36133	-306	-666	3752
1.2.3 Offshore funds and others	-	-	-	-	-	-
1.2.4 Portfolio investment by India	324	298	578	26	296	-75
1 Foreign Investment Inflows	22834	20001	50107	1385	4778	4156

No. 35: Outward Remittances under the Liberalised Remittance Scheme (LRS) for Resident Individuals

(US \$ Million)

Item	2022-23	2023		2024	
		Feb.	Dec.	Jan.	Feb.
	1	2	3	4	5
1 Outward Remittances under the LRS	27140.65	2101.38	2402.07	2619.71	2013.28
1.1 Deposit	1011.07	61.16	26.64	33.88	36.70
1.2 Purchase of immovable property	188.73	16.10	12.17	17.31	15.38
1.3 Investment in equity/debt	1256.15	132.15	101.43	59.87	135.40
1.4 Gift	3005.27	245.31	190.77	209.58	233.91
1.5 Donations	12.78	0.80	0.71	0.82	0.84
1.6 Travel	13662.15	1070.71	1548.65	1549.97	1053.64
1.7 Maintenance of close relatives	4174.06	323.43	219.71	267.02	266.39
1.8 Medical Treatment	55.74	3.93	7.79	9.32	7.25
1.9 Studies Abroad	3427.81	229.34	267.56	449.46	246.82
1.10 Others	346.89	18.45	26.65	22.47	16.96

**No. 36: Indices of Nominal Effective Exchange Rate (NEER) and
Real Effective Exchange Rate (REER) of the Indian Rupee**

Item	2022-23	2023-24	2023	2024	
			Mar	Feb	Mar
	1	2	3	4	5
40-Currency Basket (Base: 2015-16=100)					
1 Trade-Weighted					
1.1 NEER	91.27	90.76	89.55	91.99	92.13
1.2 REER	102.86	103.70	100.40	104.68	104.41
2 Export-Weighted					
2.1 NEER	93.03	93.13	91.42	94.40	94.55
2.2 REER	101.12	101.21	98.45	102.03	101.55
6-Currency Basket (Trade-weighted)					
1 Base : 2015-16 =100					
1.1 NEER	85.93	83.65	83.35	83.80	83.60
1.2 REER	101.80	101.79	98.70	102.10	101.75
2 Base : 2021-22 =100					
2.1 NEER	98.72	96.10	95.76	96.27	96.05
2.2 REER	99.69	99.68	96.65	99.98	99.63

No. 37: External Commercial Borrowings (ECBs) – Registrations

(Amount in US \$ Million)

Item	2023-24	2023	2024	
		Feb.	Jan.	Feb.
	1	2	3	4
1 Automatic Route				
1.1 Number	1093	69	77	104
1.2 Amount	24156	644	1820	2021
2 Approval Route				
2.1 Number	9	0	5	3
2.2 Amount	2473	0	1270	275
3 Total (1+2)				
3.1 Number	1102	69	82	107
3.2 Amount	26629	644	3090	2296
4 Weighted Average Maturity (in years)	5.72	5.20	3.70	5.80
5 Interest Rate (per cent)				
5.1 Weighted Average Margin over alternative reference rate (ARR) for Floating Rate Loans@	1.68	1.53	1.33	1.77
5.2 Interest rate range for Fixed Rate Loans	0.00-11.80	0.01-10.50	0.00-11.00	0.00-10.00
Borrower Category				
I. Corporate Manufacturing	6925	160	166	591
II. Corporate-Infrastructure	8396	156	706	341
a.) Transport	333	37	100	75
b.) Energy	2235	111	55	152
c.) Water and Sanitation	32	0	0	0
d.) Communication	1538	1	0	0
e.) Social and Commercial Infrastructure	530	0	1	0
f.) Exploration, Mining and Refinery	2085	0	550	10
g.) Other Sub-Sectors	1643	7	0	104
III. Corporate Service-Sector	1773	66	13	330
IV. Other Entities	1805	0	0	0
a.) units in SEZ	6	0	0	0
b.) SIDBI	0	0	0	0
c.) Exim Bank	1800	0	0	127
V. Banks	0	0	0	0
VI. Financial Institution (Other than NBFC)	0	0	20	0
VII. NBFCs	7540	216	2145	902
a.) NBFC- IFC/AFC	3031	0	1437	398
b.) NBFC-MFI	313	0	0	11
c.) NBFC-Others	4196	216	708	493
VIII. Non-Government Organization (NGO)	0	0	0	0
IX. Micro Finance Institution (MFI)	0	0	0	0
X. Others	189	46	40	5

Note: Based on applications for ECB/Foreign Currency Convertible Bonds (FCCBs) which have been allotted loan registration number during the period.

@ With effect from July 01, 2023, the benchmark rate is changed to Alternative Reference Rate (ARR)

No. 38: India's Overall Balance of Payments

(US\$ Million)

Item	Oct-Dec 2022			Oct-Dec 2023 (P)		
	Credit	Debit	Net	Credit	Debit	Net
	1	2	3	4	5	6
Overall Balance Of Payments (1+2+3)	403847	392778	11069	451389	445391	5998
1 Current Account (1.1+ 1.2)	227509	244341	-16832	235949	246468	-10519
1.1 Merchandise	105603	176940	-71337	106656	178259	-71603
1.2 Invisibles (1.2.1+1.2.2+1.2.3)	121906	67401	54505	129293	68209	61084
1.2.1 Services	83421	44708	38713	87787	42767	45020
1.2.1.1 Travel	8123	6910	1213	9850	7487	2363
1.2.1.2 Transportation	8758	9409	-652	6951	6457	494
1.2.1.3 Insurance	783	797	-13	811	856	-46
1.2.1.4 G.n.i.e.	185	282	-97	182	280	-98
1.2.1.5 Miscellaneous	65572	27310	38262	69993	27688	42306
1.2.1.5.1 Software Services	37599	4058	33541	41041	4774	36267
1.2.1.5.2 Business Services	21198	15125	6073	22647	14067	8581
1.2.1.5.3 Financial Services	1949	1292	657	2491	956	1535
1.2.1.5.4 Communication Services	842	329	514	701	397	303
1.2.2 Transfers	30867	2400	28467	31539	2237	29302
1.2.2.1 Official	58	232	-174	94	230	-135
1.2.2.2 Private	30809	2168	28641	31445	2007	29438
1.2.3 Income	7618	20293	-12675	9967	23205	-13238
1.2.3.1 Investment Income	5902	19426	-13525	7957	22329	-14372
1.2.3.2 Compensation of Employees	1716	867	850	2010	876	1134
2 Capital Account (2.1+2.2+2.3+2.4+2.5)	176339	147451	28887	215440	198081	17358
2.1 Foreign Investment (2.1.1+2.1.2)	95269	88629	6641	144372	128184	16189
2.1.1 Foreign Direct Investment	17018	14988	2030	18896	14719	4176
2.1.1.1 In India	16124	8796	7327	18330	9947	8382
2.1.1.1.1 Equity	10246	7932	2314	11912	8773	3139
2.1.1.1.2 Reinvested Earnings	5066	0	5066	5196		5196
2.1.1.1.3 Other Capital	811	865	-53	1222	1175	47
2.1.1.2 Abroad	895	6192	-5297	566	4772	-4206
2.1.1.2.1 Equity	895	3612	-2717	566	2271	-1705
2.1.1.2.2 Reinvested Earnings	0	1103	-1103	0	1345	-1345
2.1.1.2.3 Other Capital	0	1477	-1477	0	1156	-1156
2.1.2 Portfolio Investment	78251	73641	4611	125477	113465	12012
2.1.2.1 In India	77433	72916	4517	124485	112814	11671
2.1.2.1.1 FIIs	77433	72916	4517	124485	112814	11671
2.1.2.1.1.1 Equity	71477	65940	5537	108785	102117	6668
2.1.2.1.1.2 Debt	5956	6976	-1020	15701	10697	5003
2.1.2.1.2 ADR/GDRs	0	0	0	0	0	
2.1.2.2 Abroad	818	724	93	991	651	341
2.2 Loans (2.2.1+2.2.2+2.2.3)	25543	24995	547	24641	28119	-3478
2.2.1 External Assistance	3088	1584	1504	4605	1401	3204
2.2.1.1 By India	8	22	-14	9	48	-40
2.2.1.2 To India	3080	1562	1518	4596	1353	3244
2.2.2 Commercial Borrowings	4710	7119	-2409	6575	10995	-4420
2.2.2.1 By India	439	316	123	2712	4503	-1791
2.2.2.2 To India	4272	6803	-2531	3863	6492	-2629
2.2.3 Short Term to India	17744	16292	1452	13461	15723	-2262
2.2.3.1 Buyers' credit & Suppliers' Credit >180 days	17744	15437	2307	12535	15723	-3188
2.2.3.2 Suppliers' Credit up to 180 days	0	855	-855	926	0	926
2.3 Banking Capital (2.3.1+2.3.2)	36230	21795	14435	40849	24492	16358
2.3.1 Commercial Banks	36230	21649	14580	40654	24492	16162
2.3.1.1 Assets	18145	6135	12009	16550	5276	11274
2.3.1.2 Liabilities	18085	15514	2571	24103	19215	4888
2.3.1.2.1 Non-Resident Deposits	16928	14359	2569	22381	18461	3921
2.3.2 Others	0	145	-145	196	0	196
2.4 Rupee Debt Service	0	1	-1		2	-2
2.5 Other Capital	19297	12033	7265	5577	17286	-11709
3 Errors & Omissions	0	986	-986	0	841	-841
4 Monetary Movements (4.1+ 4.2)	0	11069	-11069		5998	-5998
4.1 I.M.F.	0	0	0	0	0	
4.2 Foreign Exchange Reserves (Increase - / Decrease +)	0	11069	-11069	0	5998	-5998

Note: P: Preliminary.

No. 39: India's Overall Balance of Payments

(₹ Crore)

Item	Oct-Dec 2022			Oct-Dec 2023 (P)		
	Credit	Debit	Net	Credit	Debit	Net
	1	2	3	4	5	6
Overall Balance Of Payments (1+2+3)	3319825	3228834	90992	3758748	3708801	49947
1 Current Account (1.1+ 1.2)	1870236	2008604	-138368	1964766	2052357	-87591
1.1 Merchandise	868107	1454536	-586429	888131	1484372	-596242
1.2 Invisibles (1.2.1+1.2.2+1.2.3)	1002128	554068	448061	1076635	567985	508651
1.2.1 Services	685765	367522	318243	731006	356123	374883
1.2.1.1 Travel	66776	56807	9970	82022	62341	19681
1.2.1.2 Transportation	71992	77348	-5356	57885	53767	4117
1.2.1.3 Insurance	6438	6548	-110	6750	7130	-380
1.2.1.4 G.n.i.e.	1520	2317	-797	1512	2328	-816
1.2.1.5 Miscellaneous	539038	224502	314536	582837	230556	352281
1.2.1.5.1 Software Services	309080	33356	275723	341751	39756	301995
1.2.1.5.2 Business Services	174257	124338	49919	188585	117135	71450
1.2.1.5.3 Financial Services	16021	10624	5397	20739	7958	12781
1.2.1.5.4 Communication Services	6924	2701	4223	5834	3309	2524
1.2.2 Transfers	253741	19726	234014	262631	18628	244002
1.2.2.1 Official	478	1907	-1429	785	1913	-1127
1.2.2.2 Private	253262	17819	235443	261845	16716	245130
1.2.3 Income	62623	166820	-104197	82999	193233	-110235
1.2.3.1 Investment Income	48514	159694	-111180	66258	185935	-119678
1.2.3.2 Compensation of Employees	14109	7126	6984	16741	7298	9443
2 Capital Account (2.1+2.2+2.3+2.4+2.5)	1449590	1212123	237467	1793982	1649438	144544
2.1 Foreign Investment (2.1.1+2.1.2)	783160	728570	54589	1202200	1067396	134804
2.1.1 Foreign Direct Investment	139897	123209	16688	157346	122568	34778
2.1.1.1 In India	132544	72310	60233	152632	82832	69800
2.1.1.1.1 Equity	84224	65203	19021	99189	73050	26139
2.1.1.1.2 Reinvested Earnings	41648	0	41648	43269	0	43269
2.1.1.1.3 Other Capital	6671	7107	-436	10175	9783	392
2.1.1.2 Abroad	7353	50898	-43545	4713	39735	-35022
2.1.1.2.1 Equity	7353	29691	-22337	4713	18909	-14196
2.1.1.2.2 Reinvested Earnings	0	9067	-9067	0	11199	-11199
2.1.1.2.3 Other Capital	0	12141	-12141	0	9628	-9628
2.1.2 Portfolio Investment	643263	605362	37901	1044854	944828	100026
2.1.2.1 In India	636539	599406	37133	1036599	939411	97188
2.1.2.1.1 FIIs	636539	599406	37133	1036599	939411	97188
2.1.2.1.1.1 Equity	587580	542060	45520	905860	850336	55523
2.1.2.1.1.2 Debt	48959	57346	-8387	130739	89075	41664
2.1.2.1.2 ADR/GDRs	0	0	0	0	0	0
2.1.2.2 Abroad	6723	5955	768	8255	5417	2838
2.2 Loans (2.2.1+2.2.2+2.2.3)	209972	205473	4499	205189	234148	-28959
2.2.1 External Assistance	25384	13021	12363	38345	11667	26679
2.2.1.1 By India	63	180	-117	72	404	-331
2.2.1.2 To India	25321	12841	12480	38273	11263	27010
2.2.2 Commercial Borrowings	38722	58523	-19800	54752	91553	-36802
2.2.2.1 By India	3608	2599	1010	22583	37494	-14911
2.2.2.2 To India	35114	55924	-20810	32168	54059	-21891
2.2.3 Short Term to India	145866	133929	11937	112092	130928	-18836
2.2.3.1 Buyers' credit & Suppliers' Credit >180 days	145866	126902	18964	104379	130928	-26549
2.2.3.2 Suppliers' Credit up to 180 days	0	7027	-7027	7714	0	7714
2.3 Banking Capital (2.3.1+2.3.2)	297825	179162	118663	340156	203943	136212
2.3.1 Commercial Banks	297825	177967	119858	338525	203943	134582
2.3.1.1 Assets	149160	50436	98724	137815	43936	93879
2.3.1.2 Liabilities	148665	127531	21135	200710	160008	40702
2.3.1.2.1 Non-Resident Deposits	139159	118040	21119	186372	153723	32648
2.3.2 Others	0	1195	-1195	1630	0	1630
2.4 Rupee Debt Service	0	4	-4	0	13	-13
2.5 Other Capital	158633	98914	59719	46437	143939	-97501
3 Errors & Omissions	0	8107	-8107	0	7005	-7005
4 Monetary Movements (4.1+ 4.2)	0	90992	-90992	0	49947	-49947
4.1 I.M.F.	0	0	0	0	0	0
4.2 Foreign Exchange Reserves (Increase - / Decrease +)	0	90992	-90992	0	49947	-49947

Note: P: Preliminary.

No. 40: Standard Presentation of BoP in India as per BPM6

(US\$ Million)

Item	Oct-Dec 2022			Oct-Dec 2023 (P)		
	Credit	Debit	Net	Credit	Debit	Net
	1	2	3	4	5	6
1 Current Account (1.A+1.B+1.C)	227504	244321	-16817	235942	246446	-10504
1.A Goods and Services (1.A.a+1.A.b)	189024	221648	-32624	194443	221026	-26583
1.A.a Goods (1.A.a.1 to 1.A.a.3)	105603	176940	-71337	106656	178259	-71603
1.A.a.1 General merchandise on a BOP basis	105241	168818	-63577	106124	164558	-58434
1.A.a.2 Net exports of goods under merchandising	362	0	362	532	0	532
1.A.a.3 Nonmonetary gold	0	8123	-8123		13701	-13701
1.A.b Services (1.A.b.1 to 1.A.b.13)	83421	44708	38713	87787	42767	45020
1.A.b.1 Manufacturing services on physical inputs owned by others	553	108	446	330	20	310
1.A.b.2 Maintenance and repair services n.i.e.	55	255	-200	49	297	-248
1.A.b.3 Transport	8758	9409	-652	6951	6457	494
1.A.b.4 Travel	8123	6910	1213	9850	7487	2363
1.A.b.5 Construction	1129	573	556	1097	624	473
1.A.b.6 Insurance and pension services	783	797	-13	811	856	-46
1.A.b.7 Financial services	1949	1292	657	2491	956	1535
1.A.b.8 Charges for the use of intellectual property n.i.e.	318	3435	-3116	434	4633	-4199
1.A.b.9 Telecommunications, computer, and information services	38538	4590	33947	41837	5400	36437
1.A.b.10 Other business services	21198	15125	6073	22647	14067	8581
1.A.b.11 Personal, cultural, and recreational services	997	1155	-158	1006	1464	-459
1.A.b.12 Government goods and services n.i.e.	185	282	-97	182	280	-98
1.A.b.13 Others n.i.e.	835	776	59	103	228	-124
1.B Primary Income (1.B.1 to 1.B.3)	7618	20293	-12675	9967	23205	-13238
1.B.1 Compensation of employees	1716	867	850	2010	876	1134
1.B.2 Investment income	3769	18983	-15214	6456	22009	-15553
1.B.2.1 Direct investment	1808	11460	-9653	2003	13776	-11773
1.B.2.2 Portfolio investment	69	2853	-2784	51	1911	-1860
1.B.2.3 Other investment	146	4570	-4423	557	6098	-5541
1.B.2.4 Reserve assets	1746	101	1645	3845	224	3621
1.B.3 Other primary income	2132	443	1689	1501	320	1181
1.C Secondary Income (1.C.1+1.C.2)	30862	2379	28483	31532	2215	29317
1.C.1 Financial corporations, nonfinancial corporations, households, and NPISHs	30809	2168	28641	31445	2007	29438
1.C.1.1 Personal transfers (Current transfers between resident and/non-resident households)	29973	1548	28425	30589	1430	29160
1.C.1.2 Other current transfers	836	619	216	856	578	278
1.C.2 General government	53	212	-158	87	208	-120
2 Capital Account (2.1+2.2)	127	188	-62	191	280	-89
2.1 Gross acquisitions (DR.) / disposals (CR.) of non-produced nonfinancial assets	23	37	-14	36	86	-50
2.2 Capital transfers	104	151	-47	155	194	-38
3 Financial Account (3.1 to 3.5)	176217	158352	17864	215256	203822	11434
3.1 Direct Investment (3.1.A+3.1.B)	17018	14988	2030	18896	14719	4176
3.1.A Direct Investment in India	16124	8796	7327	18330	9947	8382
3.1.A.1 Equity and investment fund shares	15312	7932	7380	17108	8773	8335
3.1.A.1.1 Equity other than reinvestment of earnings	10246	7932	2314	11912	8773	3139
3.1.A.1.2 Reinvestment of earnings	5066	0	5066	5196		5196
3.1.A.2 Debt instruments	811	865	-53	1222	1175	47
3.1.A.2.1 Direct investor in direct investment enterprises	811	865	-53	1222	1175	47
3.1.B Direct Investment by India	895	6192	-5297	566	4772	-4206
3.1.B.1 Equity and investment fund shares	895	4715	-3820	566	3616	-3050
3.1.B.1.1 Equity other than reinvestment of earnings	895	3612	-2717	566	2271	-1705
3.1.B.1.2 Reinvestment of earnings	0	1103	-1103		1345	-1345
3.1.B.2 Debt instruments	0	1477	-1477	0	1156	-1156
3.1.B.2.1 Direct investor in direct investment enterprises	0	1477	-1477		1156	-1156
3.2 Portfolio Investment	78251	73641	4611	125477	113465	12012
3.2.A Portfolio Investment in India	77433	72916	4517	124485	112814	11671
3.2.1 Equity and investment fund shares	71477	65940	5537	108785	102117	6668
3.2.2 Debt securities	5956	6976	-1020	15701	10697	5003
3.2.B Portfolio Investment by India	818	724	93	991	651	341
3.3 Financial derivatives (other than reserves) and employee stock options	5509	5955	-446	5776	7904	-2128
3.4 Other investment	75439	52700	22739	65108	61737	3371
3.4.1 Other equity (ADRs/GDRs)	0	0	0	0	0	0
3.4.2 Currency and deposits	16928	14505	2424	22577	18461	4117
3.4.2.1 Central bank (Rupee Debt Movements; NRG)	0	145	-145	196	0	196
3.4.2.2 Deposit-taking corporations, except the central bank (NRI Deposits)	16928	14359	2569	22381	18461	3921
3.4.2.3 General government	0	0	0			0
3.4.2.4 Other sectors	0	0	0			0
3.4.3 Loans (External Assistance, ECBs and Banking Capital)	27100	15993	11107	29452	18427	11026
3.4.3.A Loans to India	26653	15655	10998	26731	13876	12856
3.4.3.B Loans by India	447	338	109	2721	4551	-1830
3.4.4 Insurance, pension, and standardized guarantee schemes	30	38	-8	37	158	-121
3.4.5 Trade credit and advances	17744	16292	1452	13461	15723	-2262
3.4.6 Other accounts receivable/payable - other	13636	5872	7764	-420	8968	-9388
3.4.7 Special drawing rights	0	0	0			0
3.5 Reserve assets	0	11069	-11069	0	5998	-5998
3.5.1 Monetary gold	0	0	0			0
3.5.2 Special drawing rights n.a.	0	0	0			0
3.5.3 Reserve position in the IMF n.a.	0	0	0			0
3.5.4 Other reserve assets (Foreign Currency Assets)	0	11069	-11069	0	5998	-5998
4 Total assets/liabilities	176217	158352	17864	215256	203822	11434
4.1 Equity and investment fund shares	94041	85304	8737	133262	123217	10045
4.2 Debt instruments	68539	56107	12432	82413	65638	16775
4.3 Other financial assets and liabilities	13636	16941	-3305	-420	14966	-15386
5 Net errors and omissions	0	986	-986	0	841	-841

Note: P: Preliminary.

No. 41: Standard Presentation of BoP in India as per BPM6

(₹ Crore)

Item	Oct-Dec 2022			Oct-Dec 2023 (P)		
	Credit	Debit	Net	Credit	Debit	Net
	1	2	3	4	5	6
1 Current Account (1.A+1.B+1.C)	1870195	2008436	-138241	1964708	2052173	-87465
1.A Goods and Services (1.A.a+1.A.b)	1553872	1822058	-268186	1619137	1840496	-221359
1.A.a Goods (1.A.a.1 to 1.A.a.3)	868107	1454536	-586429	888131	1484372	-596242
1.A.a.1 General merchandise on a BOP basis	865134	1387765	-522631	883699	1370284	-486584
1.A.a.2 Net exports of goods under merchandising	2973	0	2973	4432	0	4432
1.A.a.3 Nonmonetary gold	0	66771	-66771	0	114089	-114089
1.A.b Services (1.A.b.1 to 1.A.b.13)	685765	367522	318243	731006	356123	374883
1.A.b.1 Manufacturing services on physical inputs owned by others	4547	885	3663	2746	163	2583
1.A.b.2 Maintenance and repair services n.i.e.	451	2097	-1646	407	2474	-2067
1.A.b.3 Transport	71992	77348	-5356	57885	53767	4117
1.A.b.4 Travel	66776	56807	9970	82022	62341	19681
1.A.b.5 Construction	9284	4710	4575	9139	5196	3942
1.A.b.6 Insurance and pension services	6438	6548	-110	6750	7130	-380
1.A.b.7 Financial services	16021	10624	5397	20739	7958	12781
1.A.b.8 Charges for the use of intellectual property n.i.e.	2616	28234	-25618	3611	38576	-34965
1.A.b.9 Telecommunications, computer, and information services	316797	37734	279063	348376	44964	303412
1.A.b.10 Other business services	174257	124338	49919	188585	117135	71450
1.A.b.11 Personal, cultural, and recreational services	8199	9498	-1299	8373	12194	-3820
1.A.b.12 Government goods and services n.i.e.	1520	2317	-797	1512	2328	-816
1.A.b.13 Others n.i.e.	6865	6382	483	861	1896	-1035
1.B Primary Income (1.B.1 to 1.B.3)	62623	166820	-104197	82999	193235	-110235
1.B.1 Compensation of employees	14109	7126	6984	16741	7298	9443
1.B.2 Investment income	30987	156053	-125066	53759	183272	-129513
1.B.2.1 Direct investment	14860	94208	-79349	16677	114713	-98036
1.B.2.2 Portfolio investment	569	23452	-22883	425	15915	-15490
1.B.2.3 Other investment	1203	37564	-36362	4636	50778	-46142
1.B.2.4 Reserve assets	14355	829	13527	32021	1866	30155
1.B.3 Other primary income	17527	3641	13886	12499	2663	9836
1.C Secondary Income (1.C.1+1.C.2)	253700	19559	234141	262572	18444	244128
1.C.1 Financial corporations, nonfinancial corporations, households, and NPISHs	253262	17819	235443	261845	16716	245130
1.C.1.1 Personal transfers (Current transfers between resident and/non-resident households)	246394	12727	233667	254718	11904	242814
1.C.1.2 Other current transfers	6868	5092	1776	7127	4811	2316
1.C.2 General government	438	1740	-1302	727	1728	-1001
2 Capital Account (2.1+2.2)	1043	1549	-506	1590	2328	-739
2.1 Gross acquisitions (DR.) / disposals (CR.) of non-produced nonfinancial assets	190	307	-117	296	715	-419
2.2 Capital transfers	852	1242	-390	1293	1613	-320
3 Financial Account (3.1 to 3.5)	1448587	1301733	146854	1792450	1697241	95209
3.1 Direct Investment (3.1A+3.1B)	139897	123209	16688	157346	122568	34778
3.1.A Direct Investment in India	132544	72310	60233	152632	82832	69800
3.1.A.1 Equity and investment fund shares	125873	65203	60669	142458	73050	69408
3.1.A.1.1 Equity other than reinvestment of earnings	84224	65203	19021	99189	73050	26139
3.1.A.1.2 Reinvestment of earnings	41648	0	41648	43269	0	43269
3.1.A.2 Debt instruments	6671	7107	-436	10175	9783	392
3.1.A.2.1 Direct investor in direct investment enterprises	6671	7107	-436	10175	9783	392
3.1.B Direct Investment by India	7353	50898	-43545	4713	39735	-35022
3.1.B.1 Equity and investment fund shares	7353	38758	-31404	4713	30108	-25395
3.1.B.1.1 Equity other than reinvestment of earnings	7353	29691	-22337	4713	18909	-14196
3.1.B.1.2 Reinvestment of earnings	0	9067	-9067	0	11199	-11199
3.1.B.2 Debt instruments	0	12141	-12141	0	9628	-9628
3.1.B.2.1 Direct investor in direct investment enterprises	0	12141	-12141	0	9628	-9628
3.2 Portfolio Investment	643263	605362	37901	1044854	944828	100026
3.2.A Portfolio Investment in India	636539	599406	37133	1036599	939411	97188
3.2.1 Equity and investment fund shares	587580	542060	45520	905860	850336	55523
3.2.2 Debt securities	48959	57346	-8387	130739	89075	41664
3.2.B Portfolio Investment by India	6723	5955	768	8255	5417	2838
3.3 Financial derivatives (other than reserves) and employee stock options	45283	48951	-3668	48093	65814	-17720
3.4 Other investment	620145	433220	186924	542157	514085	28073
3.4.1 Other equity (ADRs/GDRs)	0	0	0	0	0	0
3.4.2 Currency and deposits	139159	119235	19924	188002	153723	34279
3.4.2.1 Central bank (Rupee Debt Movements; NRG)	0	1195	-1195	1630	0	1630
3.4.2.2 Deposit-taking corporations, except the central bank (NRI Deposits)	139159	118040	21119	186372	153723	32648
3.4.2.3 General government	0	0	0	0	0	0
3.4.2.4 Other sectors	0	0	0	0	0	0
3.4.3 Loans (External Assistance, ECBs and Banking Capital)	222772	131471	91301	245251	153440	91811
3.4.3.A Loans to India	219101	128692	90409	222595	115543	107052
3.4.3.B Loans by India	3671	2779	893	22656	37898	-15242
3.4.4 Insurance, pension, and standardized guarantee schemes	250	315	-65	306	1315	-1009
3.4.5 Trade credit and advances	145866	133929	11937	112092	130928	-18836
3.4.6 Other accounts receivable/payable - other	112098	48271	63827	-3493	74679	-78172
3.4.7 Special drawing rights	0	0	0	0	0	0
3.5 Reserve assets	0	90992	-90992	0	49947	-49947
3.5.1 Monetary gold	0	0	0	0	0	0
3.5.2 Special drawing rights n.a.	0	0	0	0	0	0
3.5.3 Reserve position in the IMF n.a.	0	0	0	0	0	0
3.5.4 Other reserve assets (Foreign Currency Assets)	0	90992	-90992	0	49947	-49947
4 Total assets/liabilities	1448587	1301733	146854	1792450	1697241	95209
4.1 Equity and investment fund shares	773062	701242	71820	1109685	1026039	83646
4.2 Debt instruments	563427	461228	102199	686259	546576	139683
4.3 Other financial assets and liabilities	112098	139263	-27165	-3493	124626	-128119
5 Net errors and omissions	0	8107	-8107	0	7005	-7005

Note: P: Preliminary.

No. 42: India's International Investment Position

(US\$ Million)

Item	As on Financial Year/Quarter End							
	2022-23		2022		2023			
			Dec.		Sep.		Dec.	
	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities
1	2	3	4	5	6	7	8	
1. Direct investment Abroad/in India	225592	523318	222628	510703	231750	528612	235956	536930
1.1 Equity Capital*	142071	493896	140072	482123	145817	497690	148866	505691
1.2 Other Capital	83521	29422	82556	28581	85933	30921	87090	31239
2. Portfolio investment	10966	243561	10890	244229	11664	259422	11323	269153
2.1 Equity	4958	138958	8624	140469	7939	154634	8461	161206
2.2 Debt	6008	104602	2266	103759	3726	104788	2862	107947
3. Other investment	87717	503353	79507	494051	101948	527594	103989	537985
3.1 Trade credit	27507	124304	26063	124591	30854	124735	31715	122459
3.2 Loan	10714	202586	8628	196764	9739	208935	16288	215019
3.3 Currency and Deposits	30526	141133	27093	136132	43364	146166	37997	149326
3.4 Other Assets/Liabilities	18970	35330	17723	36564	17991	47758	17989	51181
4. Reserves	578449		562721		587714		622452	
5. Total Assets/ Liabilities	902725	1270232	875745	1248983	933076	1315628	973720	1344068
6. Net IIP (Assets - Liabilities)	-367507		-373238		-382553		-370348	

Note: * Equity capital includes share of investment funds and reinvested earnings.

Payment and Settlement Systems

No.43: Payment System Indicators

PART I - Payment System Indicators - Payment & Settlement System Statistics

System	Volume (Lakh)				Value (₹ Crore)			
	FY 2022-23	2023	2024		FY 2022-23	2023	2024	
		Feb.	Jan.	Feb.		Feb.	Jan.	Feb.
	1	-2	-1	0	5	2	3	4
A. Settlement Systems								
Financial Market Infrastructures (FMIs)								
I CCIL Operated Systems (1.1 to 1.3)	41.44	3.51	3.74	3.60	258797336	22281370	21705635	21907760
1.1 Govt. Securities Clearing (1.1.1 to 1.1.3)	15.00	1.27	1.42	1.46	172251292	14888685	14658627	14722762
1.1.1 Outright	7.99	0.68	0.79	0.87	10090700	895740	1100547	1273135
1.1.2 Repo	4.07	0.38	0.43	0.39	68032487	6436404	6039056	6575139
1.1.3 Tri-party Repo	2.94	0.21	0.21	0.20	94128105	7556541	7519024	6874488
1.2 Forex Clearing	25.16	2.11	2.21	2.04	78932050	6602897	6439543	6537554
1.3 Rupee Derivatives @	1.27	0.13	0.11	0.09	7613994	789788	607465	647444
B. Payment Systems								
I Financial Market Infrastructures (FMIs)	-	-	-	-	-	-	-	-
I Credit Transfers - RTGS (1.1 to 1.2)	2425.62	200.50	230.99	238.26	149946286	12053579	14691625	14614297
1.1 Customer Transactions	2411.19	199.35	229.79	237.09	131667176	10566198	13127720	13083464
1.2 Interbank Transactions	14.43	1.14	1.20	1.17	18279111	1487381	1563905	1530833
II Retail								
2 Credit Transfers - Retail (2.1 to 2.6)	983620.84	88539.09	137068.03	137733.21	55009620	4647461	5945126	6039675
2.1 AePS (Fund Transfers) @	5.90	0.31	0.36	0.32	356	22	24	21
2.2 APBS \$	17833.95	2519.89	2118.74	2965.77	247535	35468	42872	48312
2.3 IMPS	56532.64	4478.13	5087.92	5346.35	5585441	468647	566310	568092
2.4 NACH Cr \$	19257.19	1517.57	948.05	1504.81	1541815	131505	127514	123887
2.5 NEFT	52847.43	4675.61	6882.78	6889.23	33719541	2775972	3367322	3471495
2.6 UPI @	837143.73	75347.57	122030.18	121026.73	13914932	1235847	1841084	1827869
2.6.1 of which USSD @	17.21	1.51	1.90	1.66	197	17	21	19
3 Debit Transfers and Direct Debits (3.1 to 3.3)	15343.05	1359.79	1571.50	1611.25	1289611	115272	154405	153734
3.1 BHIM Aadhaar Pay @	214.22	11.50	18.82	15.43	6791	454	619	376
3.2 NACH Dr \$	13502.52	1209.13	1440.08	1464.78	1280219	114587	153564	153173
3.3 NETC (linked to bank account) @	1626.31	139.16	112.60	131.04	2601	231	222	184
4 Card Payments (4.1 to 4.2)	63324.72	4588.51	4934.19	4634.88	2152245	168378	211931	190658
4.1 Credit Cards (4.1.1 to 4.1.2)	29145.24	2323.20	3289.52	3112.44	1432255	118684	166444	149206
4.1.1 PoS based \$	15598.46	1255.88	1725.59	1618.50	541932	44611	58532	54431
4.1.2 Others \$	13546.79	1067.32	1563.93	1493.94	890323	74073	107912	94775
4.2 Debit Cards (4.2.1 to 4.2.1)	34179.48	2265.31	1644.68	1522.44	719989	49693	45487	41452
4.2.1 PoS based \$	22904.86	1581.95	1193.18	1109.26	476520	33432	30383	27930
4.2.2 Others \$	11274.61	683.36	451.50	413.18	243470	16261	15103	13522
5 Prepaid Payment Instruments (5.1 to 5.2)	74667.44	6050.89	7087.25	6470.87	287111	22399	25784	22676
5.1 Wallets	59112.76	4929.04	5766.67	5211.85	221896	18356	21259	18434
5.2 Cards (5.2.1 to 5.2.2)	15554.69	1121.85	1320.58	1259.02	65215	4043	4525	4242
5.2.1 PoS based \$	1013.09	63.07	690.67	702.42	14777	792	927	919
5.2.2 Others \$	14541.60	1058.78	629.91	556.60	50438	3251	3598	3323
6 Paper-based Instruments (6.1 to 6.2)	7109.28	553.90	547.17	541.88	7172904	565690	583653	602630
6.1 CTS (NPCI Managed)	7109.28	553.90	547.17	541.88	7172904	565690	583653	602630
6.2 Others	0.00	-	-	-	-	-	-	-
Total - Retail Payments (2+3+4+5+6)	1144065.34	101092.17	151208.15	150992.10	65911490	5519200	6920899	7009374
Total Payments (1+2+3+4+5+6)	1146490.96	101292.67	151439.14	151230.36	215857776	17572779	21612523	21623671
Total Digital Payments (1+2+3+4+5)	1139381.68	100738.77	150891.97	150688.48	208684872	17007089	21028871	21021041

PART II - Payment Modes and Channels

System	Volume (Lakh)				Value (₹ Crore)			
	FY 2022-23	2023	2024		FY 2022-23	2023	2024	
		Feb.	Jan.	Feb.		Feb.	Jan.	Feb.
	1	2	3	4	5	6	7	8
A. Other Payment Channels								
1 Mobile Payments (mobile app based) (1.1 to 1.2)								
1.1 Intra-bank \$	805338.23	72542.86	117854.93	117275.04	22031628	1930129	2815296	2828112
1.2 Inter-bank \$	62306.61	5107.77	7654.37	7774.97	4191430	353815	524854	530845
2 Internet Payments (Netbanking / Internet Browser Based) @ (2.1 to 2.2)	743031.61	67435.09	110200.56	109500.07	17840197	1576314	2290441	2297267
2.1 Intra-bank @	42630.64	3319.04	3837.71	3800.36	91539296	7380904	9123990	8867591
2.2 Inter-bank @	10703.78	834.55	1028.04	1008.05	53506133	4172937	4767036	4540083
3 Cash Withdrawal at ATMs \$ (3.1 to 3.3)	31926.86	2484.49	2809.67	2792.31	38033163	3207966	4356954	4327508
3.1 Using Credit Cards \$	69468.87	5472.33	5306.01	5171.94	3305008	263681	260746	257228
3.2 Using Debit Cards \$	88.37	7.39	8.26	7.91	4296	358	404	395
3.3 Using Pre-paid Cards \$	68975.18	5433.46	5272.19	5138.76	3286749	262098	259326	255798
4 Cash Withdrawal at PoS \$ (4.1 to 4.2)	405.32	31.47	25.56	25.27	13963	1225	1016	1035
4.1 Using Debit Cards \$	27.73	2.17	0.65	0.55	278	21	6	5
4.2 Using Pre-paid Cards \$	27.41	2.16	0.64	0.53	276	21	6	5
5 Cash Withdrawal at Micro ATMs @	0.33	0.01	0.02	0.01	2	0	0	0
5.1 AePS @	12375.16	918.44	839.66	812.15	333966	25483	22351	21543
	12375.16	918.44	839.66	812.15	333966	25483	22351	21543

PART III - Payment Infrastructures (Lakh)

System	As on March 2023	2023	2024	
		Feb.	Jan.	Feb.
	1	2	3	4
Payment System Infrastructures				
1 Number of Cards (1.1 to 1.2)				
1.1 Credit Cards	10465.62	10374.87	10570.66	10612.71
1.2 Debit Cards	853.03	833.66	995.00	1006.00
2 Number of PPIs @ (2.1 to 2.2)	9612.59	9541.22	9575.66	9606.71
2.1 Wallets @	16185.22	16109.65	17676.26	17118.56
2.2 Cards @	13384.65	13335.10	14396.94	13795.76
3 Number of ATMs (3.1 to 3.2)	2800.57	2774.55	3279.32	3322.80
3.1 Bank owned ATMs \$	2.59	2.57	2.58	2.57
3.2 White Label ATMs \$	2.23	2.21	2.24	2.23
4 Number of Micro ATMs @	0.36	0.36	0.34	0.34
5 Number of PoS Terminals	16.11	15.59	17.60	17.01
6 Bharat QR @	77.90	77.58	85.93	87.73
7 UPI QR *	53.82	52.22	60.04	61.50
	2563.77	2500.89	3213.79	3371.80

@: New inclusion w.e.f. November 2019

#: Data reported by Co-operative Banks, LABs and RRBs included with effect from December 2021.

\$: Inclusion separately initiated from November 2019 - would have been part of other items hitherto.

*: New inclusion w.e.f. September 2020; Includes only static UPI QR Code

Note : 1. Data is provisional.

ECS (Debit and Credit) has been merged with NACH with effect from January 31, 2020.

The data from November 2019 onwards for card payments (Debit/Credit cards) and Prepaid Payment Instruments (PPIs) may not be comparable with earlier months/ periods, as more granular data is being published along with revision in data definitions.

Only domestic financial transactions are considered. The new format captures e-commerce transactions; transactions using FASTags, digital bill payments and card-to-card transfer through ATMs, etc..

Also, failed transactions, chargebacks, reversals, expired cards/ wallets, are excluded.

Part I-A. Settlement systems

1.1.3: Tri- party Repo under the securities segment has been operationalised from November 05, 2018.

Part I-B. Payments systems

4.1.2: 'Others' includes e-commerce transactions and digital bill payments through ATMs, etc.

4.2.2: 'Others' includes e-commerce transactions, card to card transfers and digital bill payments through ATMs, etc.

5: Available from December 2010.

5.1: includes purchase of goods and services and fund transfer through wallets.

5.2.2: includes usage of PPI Cards for online transactions and other transactions.

6.1: Pertain to three grids – Mumbai, New Delhi and Chennai.

6.2: 'Others' comprises of Non-MICR transactions which pertains to clearing houses managed by 21 banks.

Part II-A. Other payment channels

1: Mobile Payments –

Include transactions done through mobile apps of banks and UPI apps.

The data from July 2017 includes only individual payments and corporate payments initiated, processed, and authorised using mobile device. Other corporate payments which are not initiated, processed,

and authorised using mobile device are excluded.

2: Internet Payments – includes only e-commerce transactions through 'netbanking' and any financial transaction using internet banking website of the bank.

Part II-B. ATMs

3.3 and 4.2: only relates to transactions using bank issued PPIs.

Part III. Payment systems infrastructure

3: Includes ATMs deployed by Scheduled Commercial Banks (SCBs) and White Label ATM Operators (WLAOs). WLAs are included from April 2014 onwards.

Occasional Series

No. 44: Small Savings

(₹ Crore)

Scheme		2022-23	2022		2023	
			Nov.	Sep.	Oct.	Nov.
		1	2	3	4	5
1 Small Savings	Receipts	173993	9057	17908	12669	14108
	Outstanding	1636935	1565352	1747246	1759706	1773591
1.1 Total Deposits	Receipts	125209	6204	13376	8731	10115
	Outstanding	1137451	1088482	1216325	1225055	1235170
1.1.1 Post Office Saving Bank Deposits	Receipts	20680	-393	2879	-160	548
	Outstanding	209112	196053	211296	211136	211685
1.1.2 Sukanya Samriddhi Yojna	Receipts	29003	1597	1672	1594	1667
	Outstanding	87787	71773	99427	101021	102688
1.1.3 National Saving Scheme, 1987	Receipts	-244	-20	0	0	0
	Outstanding	0	1680	0	0	0
1.1.4 National Saving Scheme, 1992	Receipts	-20	-2	0	0	0
	Outstanding	0	-198	0	0	0
1.1.5 Monthly Income Scheme	Receipts	6492	275	2073	1614	1676
	Outstanding	242313	240946	258381	259995	261670
1.1.6 Senior Citizen Scheme 2004	Receipts	17971	1256	2643	2382	2266
	Outstanding	137304	131908	162188	164570	166836
1.1.7 Post Office Time Deposits	Receipts	29155	1547	1849	1762	1973
	Outstanding	280436	273732	291826	293588	295561
1.1.7.1 1 year Time Deposits	Outstanding	125951	124073	131305	132337	133476
1.1.7.2 2 year Time Deposits	Outstanding	9497	8686	10640	10842	11049
1.1.7.3 3 year Time Deposits	Outstanding	7543	6913	8255	8317	8388
1.1.7.4 5 year Time Deposits	Outstanding	137445	134060	141626	142092	142648
1.1.8 Post Office Recurring Deposits	Receipts	21552	1941	2284	1561	2000
	Outstanding	178422	172491	191314	192875	194875
1.1.9 Post Office Cumulative Time Deposits	Receipts	0	0	0	0	0
	Outstanding	0	-19	0	0	0
1.1.10 Other Deposits	Receipts	288	0	-24	-23	-23
	Outstanding	1745	22	1553	1530	1507
1.1.11 PM Care for children	Receipts	332	3	0	1	8
	Outstanding	332	94	340	340	348
1.2 Saving Certificates	Receipts	33965	2564	4343	3756	3767
	Outstanding	366317	356308	396508	400056	403601
1.2.1 National Savings Certificate VIII issue	Receipts	10793	627	1176	1074	1060
	Outstanding	165836	162779	173807	174881	175941
1.2.2 Indira Vikas Patras	Receipts	0	0	0	0	0
	Outstanding	0	142	0	0	0
1.2.3 Kisan Vikas Patras	Receipts	-1892	-165	0	0	0
	Outstanding	0	-9466	0	0	0
1.2.4 Kisan Vikas Patras - 2014	Receipts	25064	2102	1853	1419	1536
	Outstanding	199624	191756	211987	213406	214941
1.2.5 National Saving Certificate VI issue	Receipts	0	0	0	0	0
	Outstanding	0	-22	0	0	0
1.2.6 National Saving Certificate VII issue	Receipts	0	0	0	0	0
	Outstanding	0	-44	0	0	0
1.2.7 M.S. Certificates	Receipts		0	1314	1263	1171
	Outstanding		0	11454	12717	13888
1.2.8 Other Certificates	Outstanding	857	11163	-740	-948	-1169
1.3 Public Provident Fund	Receipts	14819	289	189	182	226
	Outstanding	133167	120562	134413	134595	134820

Note : Data on receipts from April 2017 are net receipts, i.e., gross receipt minus gross payment.
Source: Accountant General, Post and Telegraphs.

No. 45 : Ownership Pattern of Central and State Governments Securities

(Per cent)

Central Government Dated Securities					
Category	2022	2023			
	Dec.	Mar.	Jun.	Sep.	Dec.
	1	2	3	4	5
(A) Total (in ₹. Crore)	9373372	9645776	9898751	10383607	10538792
1 Commercial Banks	36.13	36.61	36.58	37.96	37.55
2 Co-operative Banks	1.70	1.64	1.56	1.52	1.49
3 Non-Bank PDs	0.44	0.49	0.73	0.66	0.67
4 Insurance Companies	26.14	25.97	26.21	26.05	26.16
5 Mutual Funds	2.87	2.81	2.69	3.02	3.03
6 Provident Funds	4.67	4.71	4.59	4.42	4.57
7 Pension Funds	3.91	3.98	4.18	4.32	4.44
8 Financial Institutions	1.07	0.98	1.20	0.54	0.55
9 Corporates	1.57	1.62	1.22	1.21	1.33
10 Foreign Portfolio Investors	1.31	1.36	1.59	1.61	1.92
11 RBI	14.73	14.26	13.78	13.06	12.54
12 Others	5.45	5.57	5.67	5.64	5.74
12.1 State Governments	1.88	2.03	2.03	2.04	2.07

State Governments Securities					
Category	2022	2023			
	Dec.	Mar.	Jun.	Sep.	Dec.
	1	2	3	4	5
(B) Total (in ₹. Crore)	4712902	4929079	5050874	5161642	5338587
1 Commercial Banks	34.34	33.91	34.13	33.87	33.90
2 Co-operative Banks	3.80	3.64	3.68	3.60	3.53
3 Non-Bank PDs	0.44	0.62	0.50	0.61	0.63
4 Insurance Companies	27.42	26.80	26.73	26.97	26.64
5 Mutual Funds	2.02	1.94	2.08	1.86	2.00
6 Provident Funds	20.31	21.29	21.19	21.70	22.00
7 Pension Funds	4.74	4.81	4.84	4.82	4.56
8 Financial Institutions	1.77	1.84	1.82	1.65	1.63
9 Corporates	1.94	2.00	1.92	1.87	2.03
10 Foreign Portfolio Investors	0.02	0.02	0.02	0.02	0.03
11 RBI	0.75	0.72	0.70	0.69	0.66
12 Others	2.45	2.42	2.39	2.34	2.37
12.1 State Governments	0.24	0.27	0.27	0.27	0.27

Treasury Bills					
Category	2022	2023			
	Dec.	Mar.	Jun.	Sep.	Dec.
	1	2	3	4	5
(C) Total (in ₹. Crore)	839931	823313	1012301	925317	849151
1 Commercial Banks	49.15	53.92	47.64	56.35	57.18
2 Co-operative Banks	1.27	1.29	1.20	1.20	1.28
3 Non-Bank PDs	2.17	2.85	1.99	0.54	1.70
4 Insurance Companies	5.81	6.11	4.93	5.26	5.50
5 Mutual Funds	14.23	15.30	17.04	12.74	11.21
6 Provident Funds	1.37	0.10	1.46	1.52	0.08
7 Pension Funds	0.02	0.07	0.01	0.01	0.00
8 Financial Institutions	4.52	3.72	7.96	4.10	5.34
9 Corporates	3.59	4.99	4.42	4.00	4.58
10 Foreign Portfolio Investors	0.50	0.40	0.12	0.10	0.07
11 RBI	0.00	0.00	0.00	0.00	0.00
12 Others	17.37	11.25	13.23	14.17	13.06
12.1 State Governments	13.38	7.16	10.33	11.36	9.26

Note: (-) represents nil or negligible

The Table format is revised since Monthly Bulletin for the month of June 2023.

State Government Securities include special bonds issued under Ujwal DISCOM Assurance Yojana (UDAY).

Bank PDs are clubbed under Commercial Banks. However, they form a small fraction of total outstanding securities.

The category 'Others' comprises State Governments, DICGC, PSUs, Trusts, Foreign Central Banks, HUF/Individuals etc.

Data since September 2023 includes the impact of the merger of a non-bank with a bank.

No. 46: Combined Receipts and Disbursements of the Central and State Governments

(₹ Crore)

Item	2018-19	2019-20	2020-21	2021-22	2022-23 RE	2023-24 BE
	1	2	3	4	5	6
1 Total Disbursements	5040747	5410887	6353359	7098451	8376972	9045119
1.1 Developmental	2882758	3074492	3823423	4189146	5073367	5426440
1.1.1 Revenue	2224367	2446605	3150221	3255207	3838714	3836447
1.1.2 Capital	596774	588233	550358	861777	1146013	1471534
1.1.3 Loans	61617	39654	122844	72163	88639	118460
1.2 Non-Developmental	2078276	2253027	2442941	2810388	3188699	3490946
1.2.1 Revenue	1965907	2109629	2271637	2602750	2988556	3277722
1.2.1.1 Interest Payments	894520	955801	1060602	1226672	1403183	1589435
1.2.2 Capital	111029	141457	169155	175519	196688	208268
1.2.3 Loans	1340	1941	2148	32119	3455	4957
1.3 Others	79713	83368	86995	98916	114906	127733
2 Total Receipts	5023352	5734166	6397162	7156342	8258187	9149787
2.1 Revenue Receipts	3797731	3851563	3688030	4823821	5706246	6337126
2.1.1 Tax Receipts	3278947	3231582	3193390	4160414	4837048	5477428
2.1.1.1 Taxes on commodities and services	2030050	2012578	2076013	2626553	2967610	3372525
2.1.1.2 Taxes on Income and Property	1246083	1216203	1114805	1530636	1865298	2100430
2.1.1.3 Taxes of Union Territories (Without Legislature)	2814	2800	2572	3225	4140	4473
2.1.2 Non-Tax Receipts	518783	619981	494640	663407	869198	859698
2.1.2.1 Interest Receipts	36273	31137	33448	35250	37974	45199
2.2 Non-debt Capital Receipts	140287	110094	64994	44077	88273	119373
2.2.1 Recovery of Loans & Advances	44667	59515	16951	27665	25661	34501
2.2.2 Disinvestment proceeds	95621	50578	48044	16412	62611	84872
3 Gross Fiscal Deficit [1 - (2.1 + 2.2)]	1102729	1449230	2600335	2230553	2582453	2588620
3A Sources of Financing: Institution-wise						
3A.1 Domestic Financing	1097210	1440548	2530155	2194406	2558579	2566503
3A.1.1 Net Bank Credit to Government	387091	571872	890012	627255	687904	...
3A.1.1.1 Net RBI Credit to Government	325987	190241	107493	350911	529	...
3A.1.2 Non-Bank Credit to Government	710119	868676	1640143	1567151	1870675	...
3A.2 External Financing	5519	8682	70180	36147	23874	22118
3B Sources of Financing: Instrument-wise						
3B.1 Domestic Financing	1097210	1440548	2530155	2194406	2558579	2566503
3B.1.1 Market Borrowings (net)	795845	971378	1696012	1213169	1776747	1902862
3B.1.2 Small Savings (net)	88961	209232	458801	526693	403838	441189
3B.1.3 State Provident Funds (net)	51004	38280	41273	28100	36454	37114
3B.1.4 Reserve Funds	-18298	10411	4545	42153	3524	24429
3B.1.5 Deposits and Advances	66289	-14227	25682	42203	82485	58404
3B.1.6 Cash Balances	17395	-323279	-43802	-57891	118784	-104667
3B.1.7 Others	96014	548753	347643	399980	136748	207172
3B.2 External Financing	5519	8682	70180	36147	23874	22118
4 Total Disbursements as per cent of GDP	26.7	26.9	32.0	30.1	31.1	30.0
5 Total Receipts as per cent of GDP	26.6	28.5	32.2	30.3	30.6	30.3
6 Revenue Receipts as per cent of GDP	20.1	19.2	18.6	20.4	21.2	21.0
7 Tax Receipts as per cent of GDP	17.3	16.1	16.1	17.6	17.9	18.2
8 Gross Fiscal Deficit as per cent of GDP	5.8	7.2	13.1	9.5	9.6	8.6

... : Not available; RE: Revised Estimates; BE: Budget Estimates

Source : Budget Documents of Central and State Governments.

Note: GDP data is based on 2011-12 base. GDP for 2023-24 is from Union Budget 2023-24.

Data pertains to all States and Union Territories.

1 & 2: Data are net of repayments of the Central Government (including repayments to the NSSF) and State Governments.

1.3: Represents compensation and assignments by States to local bodies and Panchayati Raj institutions.

2: Data are net of variation in cash balances of the Central and State Governments and includes borrowing receipts of the Central and State Governments.

3A.1.1: Data as per RBI records.

3B.1.1: Borrowings through dated securities.

3B.1.2: Represent net investment in Central and State Governments' special securities by the National Small Savings Fund (NSSF).

This data may vary from previous publications due to adjustments across components with availability of new data.

3B.1.6: Include Ways and Means Advances by the Centre to the State Governments.

3B.1.7: Include Treasury Bills, loans from financial institutions, insurance and pension funds, remittances, cash balance investment account.

No. 47: Financial Accommodation Availed by State Governments under various Facilities

(₹ Crore)

Sr. No	State/Union Territory	During February-2024					
		Special Drawing Facility (SDF)		Ways and Means Advances (WMA)		Overdraft (OD)	
		Average amount availed	Number of days availed	Average amount availed	Number of days availed	Average amount availed	Number of days availed
1	2	3	4	5	6	7	
1	Andhra Pradesh	816.42	25	1302.88	17	1574.57	6
2	Arunachal Pradesh	-	-	-	-	-	-
3	Assam	256.00	5	-	-	-	-
4	Bihar	-	-	-	-	-	-
5	Chhattisgarh	-	-	-	-	-	-
6	Goa	-	-	-	-	-	-
7	Gujarat	-	-	-	-	-	-
8	Haryana	-	-	-	-	-	-
9	Himachal Pradesh	-	-	-	-	-	-
10	Jammu & Kashmir UT	-	-	508.04	20	158.15	1
11	Jharkhand	-	-	-	-	-	-
12	Karnataka	-	-	-	-	-	-
13	Kerala	261.60	28	1659.55	28	1196.88	26
14	Madhya Pradesh	-	-	-	-	-	-
15	Maharashtra	-	-	-	-	-	-
16	Manipur	14.01	24	175.74	24	62.73	14
17	Meghalaya	138.45	10	111.85	6	-	-
18	Mizoram	36.23	24	69.97	20	-	-
19	Nagaland	83.28	9	22.21	4	-	-
20	Odisha	-	-	-	-	-	-
21	Puducherry	-	-	-	-	-	-
22	Punjab	2123.03	29	874.79	28	558.85	8
23	Rajasthan	5685.60	28	45.47	3	-	-
24	Tamil Nadu	-	-	-	-	-	-
25	Telangana	906.96	28	1356.42	26	923.53	15
26	Tripura	-	-	-	-	-	-
27	Uttar Pradesh	-	-	-	-	-	-
28	Uttarakhand	393.48	27	367.64	18	303.83	6
29	West Bengal	-	-	-	-	-	-

Notes: 1. SDF is availed by State Governments against the collateral of Consolidated Sinking Fund (CSF), Guarantee Redemption Fund (GRF) & Auction Treasury Bills (ATBs) balances and other investments in government securities.

2. WMA is advance by Reserve Bank of India to State Governments for meeting temporary cash mismatches.

3. OD is advanced to State Governments beyond their WMA limits.

4. Average Availed is the total accommodation (SDF/WMA/OD) availed divided by number of days for which accommodation was extended during the month.

5.- : Nil.

Source: Reserve Bank of India.

No. 48: Investments by State Governments

(₹ Crore)

Sr. No	State/Union Territory	As on end of February 2024			
		Consolidated Sinking Fund (CSF)	Guarantee Redemption Fund (GRF)	Government Securities	Auction Treasury Bills (ATBs)
	1	2	3	4	5
1	Andhra Pradesh	10817	1067	0	0
2	Arunachal Pradesh	2471	6	0	800
3	Assam	5616	83	0	0
4	Bihar	10215	-	0	1000
5	Chhattisgarh	7056	15	1	3589
6	Goa	918	428	0	0
7	Gujarat	12505	625	0	7500
8	Haryana	1908	1595	0	0
9	Himachal Pradesh	-	-	0	0
10	Jammu & Kashmir UT	-	-	0	0
11	Jharkhand	1686	-	0	750
12	Karnataka	17114	486	0	26193
13	Kerala	2854	-	0	0
14	Madhya Pradesh	-	1193	0	0
15	Maharashtra	65376	1567	0	4000
16	Manipur	65	131	0	0
17	Meghalaya	1193	101	0	0
18	Mizoram	417	49	0	0
19	Nagaland	1669	43	0	0
20	Odisha	16997	1915	110	9837
21	Puducherry	532	-	0	1100
22	Punjab	8588	0	0	0
23	Rajasthan	-	-	129	8000
24	Tamil Nadu	3931	-	0	2918
25	Telangana	7396	1620	0	0
26	Tripura	1048	22	0	225
27	Uttarakhand	4686	197	0	0
28	Uttar Pradesh	7649	-	89	0
29	West Bengal	12149	917	239	0
	Total	204857	12061	567	65912

Notes: 1. CSF and GRF are reserve funds maintained by some State Governments with the Reserve Bank of India.

2. ATBs include Treasury bills of 91 days, 182 days and 364 days invested by State Governments in the primary market.

3. - : Not Applicable (not a member of the scheme).

No. 49: Market Borrowings of State Governments

(₹ Crore)

Sr. No.	State	2021-22		2022-23		2023-24						Total amount raised, so far in 2023-24	
		Gross Amount Raised	Net Amount Raised	Gross Amount Raised	Net Amount Raised	December		January		February		Gross	Net
						Gross Amount Raised	Net Amount Raised	Gross Amount Raised	Net Amount Raised	Gross Amount Raised	Net Amount Raised		
1	2	3	4	5	6	7	8	9	10	11	12	13	
1	Andhra Pradesh	46443	36103	57478	45814	4000	2932	6550	4038	6900	5388	68400	57079
2	Arunachal Pradesh	563	530	559	389	170	170	-	-	-	-80	670	490
3	Assam	12753	10753	17100	16105	1500	1500	1750	1250	1500	1500	16000	15000
4	Bihar	28489	24334	36800	27467	4000	3000	8000	7000	8000	6000	44000	27422
5	Chhattisgarh	4000	913	2000	-2287	-	-	4000	3300	10000	9000	22000	17300
6	Goa	2000	1450	1350	500	250	250	200	100	-	-100	2300	1400
7	Gujarat	31054	13554	43000	28300	6000	3000	9500	6440	4000	1576	30500	13447
8	Haryana	30500	20683	45158	28638	3000	1708	4000	2944	3000	1000	39000	25014
9	Himachal Pradesh	4000	1875	14000	11941	1200	900	1000	800	-	-589	6300	4084
10	Jammu & Kashmir UT	8562	5373	8473	5969	2400	2400	330	-70	2630	2630	15133	13093
11	Jharkhand	5000	3191	4000	-155	-	-	1000	50	-	-700	1000	-1450
12	Karnataka	59000	49000	36000	26000	15000	9800	23000	19000	10000	8805	60000	42003
13	Kerala	27000	18120	30839	15620	3100	2100	1930	930	-	-2500	28830	14630
14	Madhya Pradesh	22000	13900	40158	26849	-	-	2500	500	13000	13000	38500	31500
15	Maharashtra	68750	40790	72000	42815	-	-3610	9000	4213	11000	9166	80000	49738
16	Manipur	1476	1326	1422	1147	-	-100	-	-	-	-	1100	900
17	Meghalaya	1608	1298	1753	1356	172	172	-	-	-	-	1364	1004
18	Mizoram	747	447	1315	1129	90	30	80	80	80	30	820	560
19	Nagaland	1727	1222	1854	1199	501	501	-	-	400	300	2151	1661
20	Odisha	0	-6473	0	-7500	-	-	-	-938	-	-720	-	-4658
21	Puducherry	1374	841	1200	698	-	-270	200	-30	400	400	600	-25
22	Punjab	25814	12428	45500	33660	941	441	4500	3900	1899	1299	42386	31203
23	Rajasthan	51149	38243	46057	30110	1049	49	6500	5500	6000	5326	59049	41093
24	Sikkim	1511	1471	1414	1320	-	-90	481	481	-	-	1431	1251
25	Tamil Nadu	87000	72500	87000	65722	8000	4500	10001	8822	4000	2600	91001	57602
26	Telangana	45716	39256	40150	30922	1400	637	3000	1205	3000	1919	41900	33809
27	Tripura	300	0	0	-645	-	-	-	-200	-	-150	-	-350
28	Uttar Pradesh	62500	42355	55612	41797	8000	7422	-	-500	8450	8450	63150	53863
29	Uttarakhand	3200	1800	3200	1450	500	500	-	-500	1000	-	3800	2300
30	West Bengal	67390	45199	63000	42500	6410	4910	6500	3500	11000	9000	52910	32910
	Grand Total	701626	492483	758392	518829	67683	42852	104022	71815	106259	82550	814295	563873

- : Nil.

Note: The State of J&K has ceased to exist constitutionally from October 31, 2019 and the liabilities of the State continue to remain as liabilities of the new UT of Jammu and Kashmir.

Source: Reserve Bank of India.

No. 50 (a): Flow of Financial Assets and Liabilities of Households - Instrument-wise

(Amount in ₹ Crore)

Item	2020-21				
	Q1	Q2	Q3	Q4	Annual
Net Financial Assets (I-II)	583412.7	554437.6	463583.5	679174.4	2280608.2
<i>Per cent of GDP</i>	<i>15.0</i>	<i>11.7</i>	<i>8.5</i>	<i>11.8</i>	<i>11.5</i>
I. Financial Assets	788786.3	592945.3	633317.9	1047276.1	3062325.6
<i>Per cent of GDP</i>	<i>20.3</i>	<i>12.5</i>	<i>11.6</i>	<i>18.2</i>	<i>15.4</i>
<i>of which:</i>					
1.Total Deposits (a+b)	297412.4	278631.7	158172.2	506213.3	1240429.7
(a) Bank Deposits	281191.3	264565.3	147096.0	507719.3	1200571.8
i. Commercial Banks	279010.5	262033.7	143558.6	462689.8	1147292.5
ii. Co-operative Banks	2180.8	2531.6	3537.3	45029.5	53279.3
(b) Non-Bank Deposits	16221.1	14066.4	11076.3	-1506.0	39857.9
<i>of which:</i>					
Other Financial Institutions (i+ii)	11040.9	8886.2	5896.0	-6686.2	19137.0
i. Non-Banking Financial Companies	1441.0	3763.0	3514.8	3521.2	12240.0
ii. Housing Finance Companies	9599.9	5123.2	2381.3	-10207.3	6897.0
2. Life Insurance Funds	124387.9	143462.2	157535.1	142216.5	567601.8
3. Provident and Pension Funds (including PPF)	114496.3	107087.9	105344.6	175769.3	502698.2
4. Currency	202432.7	21286.9	91456.0	66800.5	381976.1
5. Investments	6249.8	-12956.4	67659.3	63624.0	124576.7
<i>of which:</i>					
(a) Mutual Funds	-16021.0	-28837.7	57675.4	51267.0	64083.8
(b) Equity	18599.4	8291.5	5307.1	6333.3	38531.2
6. Small Savings (excluding PPF)	42751.6	54377.4	52095.1	91597.0	240821.1
II. Financial Liabilities	205373.6	38507.7	169734.4	368101.7	781717.4
<i>Per cent of GDP</i>	<i>5.3</i>	<i>0.8</i>	<i>3.1</i>	<i>6.4</i>	<i>3.9</i>
Loans/Borrowings					
1. Financial Corporations (a+b)	205490.3	38624.3	169851.0	368219.1	782184.7
(a) Banking Sector	211058.8	13213.0	139622.0	276579.8	640473.6
<i>of which:</i>					
i. Commercial Banks	211259.3	13213.8	140514.3	240050.4	605037.9
(b) Other Financial Institutions	-5568.6	25411.3	30229.0	91639.4	141711.1
i. Non-Banking Financial Companies	-15450.4	21627.1	15921.2	64881.1	86979.0
ii. Housing Finance Companies	10516.6	2875.1	13048.5	25336.1	51776.2
iii. Insurance Corporations	-634.8	909.2	1259.3	1422.2	2955.9
2. Non-Financial Corporations (Private Corporate Business)	33.8	33.8	33.8	33.0	134.4
3. General Government	-150.4	-150.4	-150.4	-150.4	-601.7

No. 50 (a): Flow of Financial Assets and Liabilities of Households - Instrument-wise (Contd.)

(Amount in ₹ Crore)

Item	2021-22				
	Q1	Q2	Q3	Q4	Annual
Net Financial Assets (I-II)	370115.8	334234.9	489774.4	503089.0	1696155.6
<i>Per cent of GDP</i>	7.2	6.0	7.9	7.7	7.2
I. Financial Assets	364661.7	527896.1	818355.4	887657.3	2597511.9
<i>Per cent of GDP</i>	7.1	9.4	13.1	13.6	11.1
<i>of which:</i>					
1.Total Deposits (a+b)	-82726.1	204033.6	426977.3	277625.7	824852.1
(a) Bank Deposits	-106428.9	197105.1	422392.9	264882.9	777952.1
i. Commercial Banks	-107940.7	195441.8	418267.0	262326.1	768094.3
ii. Co-operative Banks	1511.8	1663.4	4125.9	2556.8	9857.8
(b) Non-Bank Deposits	23702.8	6928.5	4584.5	12742.8	46900.0
<i>of which:</i>					
Other Financial Institutions (i+ii)	16950.0	170.7	-2178.3	5960.0	20902.3
i. Non-Banking Financial Companies	4972.6	-765.5	73.3	4211.8	8492.2
ii. Housing Finance Companies	11977.3	936.2	-2251.6	1748.2	12410.1
2. Life Insurance Funds	114711.5	127449.8	103248.6	121541.6	466951.5
3. Provident and Pension Funds (including PPF)	127624.0	115463.1	98146.0	221372.4	562605.5
4. Currency	128660.2	-68631.2	62793.3	146845.0	269667.4
5. Investments	24929.6	82305.4	69760.9	50972.1	227967.9
<i>of which:</i>					
(a) Mutual Funds	14573.0	63151.3	37912.2	44963.7	160600.1
(b) Equity	4502.5	13218.5	27808.2	3084.1	48613.3
6. Small Savings (excluding PPF)	50405.2	66218.1	56372.0	68243.2	241238.4
II. Financial Liabilities	-5454.1	193661.2	328581.0	384568.3	901356.3
<i>Per cent of GDP</i>	-0.1	3.5	5.3	5.9	3.8
Loans/Borrowings					
1. Financial Corporations (a+b)	-5562.3	193553.0	328472.8	384460.1	900923.7
(a) Banking Sector	21436.5	138722.6	267950.7	348360.4	776470.2
<i>of which:</i>					
i. Commercial Banks	26978.6	140268.7	265271.5	337009.8	769528.5
(b) Other Financial Institutions	-26998.8	54830.4	60522.2	36099.7	124453.5
i. Non-Banking Financial Companies	-34757.9	28876.8	29476.5	-2163.2	21432.2
ii. Housing Finance Companies	7132.0	24403.8	29494.8	37436.2	98466.8
iii. Insurance Corporations	627.1	1549.8	1550.9	826.7	4554.5
2. Non-Financial Corporations (Private Corporate Business)	33.8	33.8	33.8	33.8	135.1
3. General Government	74.4	74.4	74.4	74.4	297.4

No. 50 (a): Flow of Financial Assets and Liabilities of Households - Instrument-wise (Concl.)

(Amount in ₹ Crore)

Item	2022-23				Annual
	Q1	Q2	Q3	Q4	
Net Financial Assets (I-II)	297770.4	293705.1	279460.1	505937.8	1376873.5
<i>Per cent of GDP</i>	<i>4.6</i>	<i>4.5</i>	<i>4.0</i>	<i>7.0</i>	<i>5.1</i>
I. Financial Assets	586920.5	646714.8	750856.7	974558.5	2959050.5
<i>Per cent of GDP</i>	<i>9.0</i>	<i>9.8</i>	<i>10.8</i>	<i>13.6</i>	<i>10.9</i>
<i>of which:</i>					
1. Total Deposits (a+b)	183072.0	315216.2	276593.9	324746.6	1099628.6
(a) Bank Deposits	163162.9	299545.0	256363.7	307491.6	1026563.1
i. Commercial Banks	158613.3	300565.0	248459.8	284968.0	992606.2
ii. Co-operative Banks	4549.6	-1020.1	7903.8	22523.6	33956.9
(b) Non-Bank Deposits	19909.1	15671.3	20230.2	17255.0	73065.5
<i>of which:</i>					
Other Financial Institutions (i+ii)	6314.4	2076.7	6635.6	3660.4	18687.1
i. Non-Banking Financial Companies	4040.2	3267.2	1800.9	5372.2	14480.5
ii. Housing Finance Companies	2274.2	-1190.5	4834.7	-1711.8	4206.6
2. Life Insurance Funds	73669.9	152049.5	167894.1	141206.6	534820.1
3. Provident and Pension Funds (including PPF)	155604.2	132126.0	140204.4	235093.2	663027.7
4. Currency	66438.9	-54579.3	76760.1	148990.2	237609.8
5. Investments	51603.2	48630.6	49879.2	64168.5	214281.5
<i>of which:</i>					
(a) Mutual Funds	35443.5	44484.0	40205.9	58954.5	179087.8
(b) Equity	13560.9	1378.2	6434.1	1664.9	23038.1
6. Small Savings (excluding PPF)	54375.1	51114.5	37367.7	58196.2	201053.5
II. Financial Liabilities	289150.0	353009.7	471396.5	468620.7	1582177.0
<i>Per cent of GDP</i>	<i>4.4</i>	<i>5.4</i>	<i>6.8</i>	<i>6.5</i>	<i>5.8</i>
Loans/Borrowings					
1. Financial Corporations (a+b)	289141.6	353001.2	471388.1	468612.3	1582143.3
(a) Banking Sector	234845.3	263782.5	368167.4	349555.0	1216350.1
<i>of which:</i>					
i. Commercial Banks	230283.8	261265.3	365304.6	331292.5	1188146.3
(b) Other Financial Institutions	54296.3	89218.8	103220.8	119057.3	365793.1
i. Non-Banking Financial Companies	29281.6	54439.6	75878.8	80295.9	239895.9
ii. Housing Finance Companies	22336.7	33031.2	24903.3	36745.8	117017.0
iii. Insurance Corporations	2678.0	1747.9	2438.7	2015.6	8880.3
2. Non-Financial Corporations (Private Corporate Business)	33.7	33.7	33.7	33.7	135.0
3. General Government	-25.3	-25.3	-25.3	-25.3	-101.3

Notes : 1. Net Financial Savings of households refer to the net financial assets, which are measured as difference of financial asset and liabilities flows.

2. Preliminary estimates for 2022-23 and revised estimates for 2020-21 and 2021-22.

3. The preliminary estimates for 2022-23 will undergo revision with the release of first revised estimates of national income, consumption expenditure, savings, and capital formation, 2022-23 by the NSO.

4. Non-bank deposits apart from other financial institutions, comprises state power utilities, co-operative non credit societies etc.

5. Figures in the columns may not add up to the total due to rounding off.

No. 50 (b): Stocks of Financial Assets and Liabilities of Households- Select Indicators

(Amount in ₹ Crore)

Item	Jun-2020	Sep-2020	Dec-2020	Mar-2021
Financial Assets (a+b+c+d+e+f+g+h)	20405824.2	21066027.8	21906338.5	22874301.5
<i>Per cent of GDP</i>	<i>107.2</i>	<i>111.5</i>	<i>114.0</i>	<i>115.4</i>
(a) Bank Deposits (i+ii)	9977865.6	10242430.9	10389526.9	10897246.1
i. Commercial Banks	9192702.5	9454736.2	9598294.8	10060984.6
ii. Co-operative Banks	785163.1	787694.7	791232.1	836261.6
(b) Non-Bank Deposits				
<i>of which:</i>				
Other Financial Institutions	180857.4	189743.6	195639.6	188953.5
i. Non-Banking Financial Companies	51463.0	55226.1	58740.8	62262.0
ii. Housing Finance Companies	129394.4	134517.6	136898.8	126691.5
(c) Life Insurance Funds	4102000.7	4274424.9	4551882.0	4752932.3
(d) Currency	2434693.7	2455980.6	2547436.6	2614237.0
(e) Mutual funds	1343752.0	1443784.4	1648999.0	1730461.0
(f) Public Provident Fund (PPF)	663478.0	671884.3	678997.2	742189.5
(g) Pension Funds	464705.0	494930.0	548913.0	578025.0
(h) Small Savings (excluding PPF)	1238471.7	1292849.1	1344944.2	1370257.1
Financial Liabilities (a+b)	7190710.8	7229335.1	7399186.1	7767405.3
<i>Per cent of GDP</i>	<i>37.8</i>	<i>38.3</i>	<i>38.5</i>	<i>39.2</i>
Loans/Borrowings				
(a) Banking Sector	5728735.3	5741948.3	5881570.2	6158150.0
<i>of which:</i>				
i. Commercial Banks	5226482.2	5239696.0	5380210.4	5620260.7
ii. Co-operative Banks	500870.2	500865.3	499968.8	536494.1
(b) Other Financial Institutions	1461975.5	1487386.9	1517615.9	1609255.3
<i>of which:</i>				
i. Non-Banking Financial Companies	687643.6	709270.7	725191.9	790073.0
ii. Housing Finance Companies	673118.3	675993.4	689041.8	714377.9
iii. Insurance Corporations	101213.7	102122.8	103382.2	104804.4

No. 50 (b): Stocks of Financial Assets and Liabilities of Households- Select Indicators (Contd.)

(Amount in ₹ Crore)

Item	Jun-2021	Sep-2021	Dec-2021	Mar-2022
Financial Assets (a+b+c+d+e+f+g+h)	23318920.4	23991428.3	24700622.2	25435684.2
<i>Per cent of GDP</i>	<i>110.7</i>	<i>109.3</i>	<i>108.7</i>	<i>108.4</i>
(a) Bank Deposits (i+ii)	10790817.3	10987922.4	11410315.3	11675198.2
i. Commercial Banks	9953043.9	10148485.7	10566752.7	10829078.8
ii. Co-operative Banks	837773.4	839436.7	843562.6	846119.4
(b) Non-Bank Deposits				
<i>of which:</i>				
Other Financial Institutions	205903.4	206074.1	203895.8	209855.7
i. Non-Banking Financial Companies	67234.6	66469.1	66542.3	70754.2
ii. Housing Finance Companies	138668.8	139605.0	137353.4	139101.6
(c) Life Insurance Funds	4929725.2	5142278.8	5213527.2	5357350.2
(d) Currency	2742897.3	2674266.1	2737059.4	2883904.4
(e) Mutual funds	1855000.1	2064363.5	2126112.0	2152140.5
(f) Public Provident Fund (PPF)	757397.8	762264.0	767287.3	834147.6
(g) Pension Funds	616517.0	667379.0	699173.0	736592.0
(h) Small Savings (excluding PPF)	1420662.3	1486880.4	1543252.3	1586495.5
Financial Liabilities (a+b)	7755119.8	7868215.0	8256715.7	8668329.0
<i>Per cent of GDP</i>	<i>36.8</i>	<i>35.9</i>	<i>36.3</i>	<i>36.9</i>
Loans/Borrowings				
(a) Banking Sector	6172863.3	6231128.1	6559106.7	6934620.2
<i>of which:</i>				
i. Commercial Banks	5640516.1	5700327.0	6025626.4	6389789.3
ii. Co-operative Banks	530937.1	529376.2	532040.6	543376.3
(b) Other Financial Institutions	1582256.5	1637086.9	1697609.1	1733708.8
<i>of which:</i>				
i. Non-Banking Financial Companies	755315.1	784191.9	813668.4	811505.2
ii. Housing Finance Companies	721510.0	745913.7	775408.5	812844.7
iii. Insurance Corporations	105431.4	106981.2	108532.1	109358.8

No. 50 (b): Stocks of Financial Assets and Liabilities of Households- Select Indicators (Concl.)

(Amount in ₹ Crore)

Item	Jun-2022	Sep-2022	Dec-2022	Mar-2023
Financial Assets (a+b+c+d+e+f+g+h)	25689017.4	26240728.5	27208717.9	28083947.0
<i>Per cent of GDP</i>	<i>103.2</i>	<i>101.5</i>	<i>102.4</i>	<i>103.1</i>
(a) Bank Deposits (i+ii)	11911196.2	11956360.9	12421907.5	12701761.3
i. Commercial Banks	11060527.2	11106712.0	11564354.7	11821685.0
ii. Co-operative Banks	850669.0	849648.9	857552.8	880076.4
(b) Non-Bank Deposits				
<i>of which:</i>				
Other Financial Institutions	216170.2	218246.9	224882.5	228542.9
i. Non-Banking Financial Companies	74794.4	78061.6	79862.5	85234.7
ii. Housing Finance Companies	141375.8	140185.3	145020.0	143308.2
(c) Life Insurance Funds	5325967.3	5559681.9	5786592.6	6038630.4
(d) Currency	2950343.2	2895763.9	2972524.0	3121514.2
(e) Mutual funds	2048097.3	2260209.7	2355315.8	2367792.5
(f) Public Provident Fund (PPF)	851913.4	858591.1	864730.6	939814.6
(g) Pension Funds	744459.2	799889.0	853412.0	898342.0
(h) Small Savings (excluding PPF)	1640870.6	1691985.1	1729352.9	1787549.1
Financial Liabilities (a+b)	8957470.6	9310471.8	9781859.9	10253472.2
<i>Per cent of GDP</i>	<i>36.0</i>	<i>36.0</i>	<i>36.8</i>	<i>37.6</i>
Loans/Borrowings				
(a) Banking Sector	7169465.5	7433248.0	7801415.3	8153970.3
<i>of which:</i>				
i. Commercial Banks	6620073.1	6881338.5	7246643.0	7580935.6
ii. Co-operative Banks	547894.8	550354.8	553201.4	571339.8
(b) Other Financial Institutions	1788005.1	1877223.8	1980444.6	2099501.9
<i>of which:</i>				
i. Non-Banking Financial Companies	840786.9	895226.5	971105.3	1051401.1
ii. Housing Finance Companies	835181.3	868212.5	893115.8	929861.7
iii. Insurance Corporations	112036.9	113784.8	116223.5	118239.1

Note : 1. Data as ratios to GDP have been calculated based on the Provisional Estimates of National Income 2022-23, released by NSO on May 31, 2023.

2. Pension funds comprises funds with the National Pension Scheme.

3. Outstanding deposits with Small Savings are sourced from the Controller General of Accounts, Government of India.

4. Non-bank deposits apart from other financial institutions, comprises state power utilities, co-operative non credit societies etc. Data for outstanding deposits are available only for other financial institutions.

5. Figures in the columns may not add up to the total due to rounding off.

Explanatory Notes to the Current Statistics

Table No. 1

- 1.2& 6: Annual data are average of months.
 3.5 & 3.7: Relate to ratios of increments over financial year so far.
 4.1 to 4.4, 4.8,4.9 &5: Relate to the last friday of the month/financial year.
 4.5, 4.6 & 4.7: Relate to five major banks on the last Friday of the month/financial year.
 4.10 to 4.12: Relate to the last auction day of the month/financial year.
 4.13: Relate to last day of the month/ financial year
 7.1&7.2: Relate to Foreign trade in US Dollar.

Table No. 2

- 2.1.2: Include paid-up capital, reserve fund and Long-Term Operations Funds.
 2.2.2: Include cash, fixed deposits and short-term securities/bonds, e.g., issued by IIFC (UK).

Table No. 4

Maturity-wise position of outstanding forward contracts is available at <http://nsdp.rbi.org.in> under "Reserves Template".

Table No. 5

Special refinance facility to Others, *i.e.* to the EXIM Bank, is closed since March 31, 2013.

Table No. 6

- For scheduled banks, March-end data pertain to the last reporting Friday.
 2.2: Exclude balances held in IMF Account No.1, RBI employees' provident fund, pension fund, gratuity and superannuation fund.

Table Nos. 7 & 11

3.1 in Table 7 and 2.4 in Table 11: Include foreign currency denominated bonds issued by IIFC (UK).

Table No. 8

- NM₂ and NM₃ do not include FCNR (B) deposits.
 2.4: Consist of paid-up capital and reserves.
 2.5: includes other demand and time liabilities of the banking system.

Table No. 9

Financial institutions comprise EXIM Bank, SIDBI, NABARD and NHB.
 L₁ and L₂ are compiled monthly and L₃ quarterly.
 Wherever data are not available, the last available data have been repeated.

Table No. 13

Data against column Nos. (1), (2) & (3) are Final and for column Nos. (4) & (5) data are Provisional.

Table No. 14

Data in column Nos. (4) & (8) are Provisional.

Table No. 17

2.1.1: Exclude reserve fund maintained by co-operative societies with State Co-operative Banks

2.1.2: Exclude borrowings from RBI, SBI, IDBI, NABARD, notified banks and State Governments.

4: Include borrowings from IDBI and NABARD.

Table No. 24

Primary Dealers (PDs) include banks undertaking PD business.

Table No. 30

Exclude private placement and offer for sale.

1: Exclude bonus shares.

2: Include cumulative convertible preference shares and equi-preference shares.

Table No. 32

Exclude investment in foreign currency denominated bonds issued by IIFC (UK), SDRs transferred by Government of India to RBI and foreign currency received under SAARC and ACU currency swap arrangements. Foreign currency assets in US dollar take into account appreciation/depreciation of non-US currencies (such as Euro, Sterling, Yen and Australian Dollar) held in reserves. Foreign exchange holdings are converted into rupees at rupee-US dollar RBI holding rates.

Table No. 34

1.1.1.1.2 & 1.1.1.1.4: Estimates.

1.1.1.2: Estimates for latest months.

'Other capital' pertains to debt transactions between parent and subsidiaries/branches of FDI enterprises.

Data may not tally with the BoP data due to lag in reporting.

Table No. 35

1.10: Include items such as subscription to journals, maintenance of investment abroad, student loan repayments and credit card payments.

Table No. 36

Increase in indices indicates appreciation of rupee and *vice versa*. For 6-Currency index, base year 2021-22 is a moving one, which gets updated every year. REER figures are based on Consumer Price Index (combined). The details on methodology used for compilation of NEER/REER indices are available in December 2005, April 2014 and January 2021 issues of the RBI Bulletin.

Table No. 37

Based on applications for ECB/Foreign Currency Convertible Bonds (FCCBs) which have been allotted loan registration number during the period.

Table Nos. 38, 39, 40 & 41

Explanatory notes on these tables are available in December issue of RBI Bulletin, 2012.

Table No. 43

Part I-A. Settlement systems

1.1.3: Tri- party Repo under the securities segment has been operationalised from November 05, 2018.

Part I-B. Payments systems

4.1.2: 'Others' includes e-commerce transactions and digital bill payments through ATMs, etc.

4.2.2: 'Others' includes e-commerce transactions, card to card transfers and digital bill payments through ATMs, etc.

5: Available from December 2010.

5.1: includes purchase of goods and services and fund transfer through wallets.

5.2.2: includes usage of PPI Cards for online transactions and other transactions.

6.1: Pertain to three grids – Mumbai, New Delhi and Chennai.

6.2: 'Others' comprises of Non-MICR transactions which pertains to clearing houses managed by 21 banks.

Part II-A. Other payment channels

1: Mobile Payments –

- Include transactions done through mobile apps of banks and UPI apps.
- The data from July 2017 includes only individual payments and corporate payments initiated, processed, and authorised using mobile device. Other corporate payments which are not initiated, processed, and authorised using mobile device are excluded.

2: Internet Payments – includes only e-commerce transactions through 'netbanking' and any financial transaction using internet banking website of the bank.

Part II-B. ATMs

3.3 and 4.2: only relates to transactions using bank issued PPIs.

Part III. Payment systems infrastructure

3: Includes ATMs deployed by Scheduled Commercial Banks (SCBs) and White Label ATM Operators (WLAOs). WLAs are included from April 2014 onwards.

Table No. 45

(-) represents nil or negligible

The table format is revised since June 2023 issue of the bulletin.

State Government Securities include special bonds issued under Ujjwal DISCOM Assurance Yojana (UDAY).

Bank PDs are clubbed under Commercial Banks. However, they form very small fraction of total outstanding securities.

The category 'Others' comprises State Governments, DICGC, PSUs, Trusts, Foreign Central Banks, HUF/ Individuals etc.

Data since September 2023 includes the impact of the merger of a non-bank with a bank.

Table No. 46

GDP data is based on 2011-12 base. GDP for 2023-24 is from Union Budget 2023-24.

Data pertains to all States and Union Territories.

1 & 2: Data are net of repayments of the Central Government (including repayments to the NSSF) and State Governments.

1.3: Represents compensation and assignments by States to local bodies and Panchayati Raj institutions.

2: Data are net of variation in cash balances of the Central and State Governments and includes borrowing receipts of the Central and State Governments.

3A.1.1: Data as per RBI records.

3B.1.1: Borrowings through dated securities.

3B.1.2: Represent net investment in Central and State Governments' special securities by the National Small Savings Fund (NSSF).

This data may vary from previous publications due to adjustments across components with availability of new data.

3B.1.6: Include Ways and Means Advances by the Centre to the State Governments.

3B.1.7: Include Treasury Bills, loans from financial institutions, insurance and pension funds, remittances, cash balance investment account.

Table No. 47

SDF is availed by State Governments against the collateral of Consolidated Sinking Fund (CSF), Guarantee Redemption Fund (GRF) & Auction Treasury Bills (ATBs) balances and other investments in government securities.

WMA is advance by Reserve Bank of India to State Governments for meeting temporary cash mismatches.

OD is advanced to State Governments beyond their WMA limits.

Average amount Availed is the total accommodation (SDF/WMA/OD) availed divided by number of days for which accommodation was extended during the month.

- : Nil.

Table No. 48

CSF and GRF are reserve funds maintained by some State Governments with the Reserve Bank of India.

ATBs include Treasury bills of 91 days, 182 days and 364 days invested by State Governments in the primary market.

--: Not Applicable (not a member of the scheme).

The concepts and methodologies for Current Statistics are available in Comprehensive Guide for Current Statistics of the RBI Monthly Bulletin (<https://rbi.org.in/Scripts/PublicationsView.aspx?id=17618>)

Time series data of 'Current Statistics' is available at <https://dbie.rbi.org.in>.

Detailed explanatory notes are available in the relevant press releases issued by RBI and other publications/releases of the Bank such as **Handbook of Statistics on the Indian Economy**.

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8. Report on Trend and Progress of Banking in India 2022-23	Issued as Supplement to RBI Bulletin January, 2024	
9. Financial Stability Report, December 2023	Issued as Supplement to RBI Bulletin January, 2024	
10. Monetary Policy Report - April 2024	Included in RBI Bulletin April 2024	

Notes

- Many of the above publications are available at the RBI website (www.rbi.org.in).
 - Time Series data are available at the Database on Indian Economy (<http://dbie.rbi.org.in>).
 - The Reserve Bank of India History 1935-2008 (5 Volumes) are available at leading book stores in India.
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